

# **The Rail Central Rail Freight Interchange and Highway Order 201[x]**

## **Preliminary Environmental Information Report: Non-Technical Summary**

Ashfield Land Management Limited and  
Gazeley GLP Northampton s.à.r.l.

March 2018

**Turley**

# Contents

1.	Introduction	1
2.	Site Location	7
3.	Project Overview	9
4.	Reasonable Alternatives	13
5.	Consultation	18
6.	Environmental Impact Assessment Methods	19
7.	Technical Assessments	22

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# 1. Introduction

- 1.1 This document is a Non-Technical Summary of the Preliminary Environmental Information Report (PEIR) that has been prepared to describe and assess the impacts and effects associated with, and arising from, the development of the 'Rail Central' Strategic Rail Freight Interchange (SRFI) project in Northamptonshire (the 'Proposed Development').
- 1.2 Schedule 4 of The Infrastructure Planning (Environmental Impact Assessment) Regulations 2017 sets out the information for inclusion in Environmental Statements (ES). Part 9 of Schedule 4 identifies the need for a Non-Technical Summary of the information provided. This Non-Technical Summary does not summarise a full Environmental Statement at this stage in the project, but provides a summary of the PEIR.
- 1.3 A PEIR does, of necessity, contain complex scientific data and analysis in a form that is not readily understandable by the lay-person. The main findings are therefore set out here in accessible plain English, to ensure that the findings can be more readily distributed to the general public, and that the conclusions can be easily understood by non-experts as well as decision makers.
- 1.4 This Non-Technical Summary provides an overview of the main features of the Proposed Development and the main alternatives that were considered, as well as the consultation undertaken. An overview of the site location and the existing environment is provided, along with the likely significant environmental effects to which the Proposed Development is likely to give rise (both adverse and beneficial), and how any significant effects have been mitigated and will be monitored.
- 1.5 This Non-Technical Summary is not seeking to present a summary of the whole PEIR, but to capture the essence of why the PEIR was required, and the main considerations and conclusions.

## **Project Overview**

- 1.6 This PEIR has been prepared on behalf of Ashfield Land Management Limited and Gazeley GLP Northampton s.à r.l. , which comprises a joint venture partnership arrangement between Ashfield Land Management Ltd and GLP Gazeley. Ashfield Land and Gazeley GLP are the Applicant for the comprehensive redevelopment and construction of the Rail Central SRFI in Northamptonshire.
- 1.7 A SRFI is a large rail-served distribution park linked into both the rail and the strategic highway network, capable of accommodating the large warehousing necessary for the storage, processing and movement of goods for manufacturers, retailers and end consumers. The aim of an SRFI is to optimise the use of rail in the freight journey by maximising rail trunk haul and minimising some elements of the secondary distribution leg (final delivery) by road, through co-location of other distribution and freight activities.

- 1.8 SRFIs are, therefore, a key element in reducing the cost to users of moving freight by rail and are important in facilitating the transfer of freight from road to rail, thereby reducing trip mileage of freight movements on both the national and local road networks.
- 1.9 The Government's 'National Policy Statement for National Networks' (NPS NN) defines the national need for certain types of infrastructure and the issues to be considered by the Examining Authority when assessing whether a location is acceptable for the type and scale of development proposed. The NPS NN therefore sets out the considerations to be taken into account when determining applications, the approach to the mitigation of impacts and the establishment of design criteria. The NPS NN forms the primary basis for decision-making by the Secretary of State. The Proposed Development will therefore be determined in accordance with the policy framework provided in the NPS NN, taking into account relevant representations made.
- 1.10 The NPS NN confirms that the overriding government objective is to shift freight from road to rail to help reduce transport's carbon emissions and provide economic benefits. Furthermore, the NPS NN establishes there is a compelling need for an expanded network of SRFIs throughout the country and that: *"SRFI capacity needs to be provided at a wide range of locations, to provide the flexibility needed to match the changing demands of the market."* As such, it confirms that there is a presumption in favour of granting development consent for national networks NSIPs that fall within the need for infrastructure established in the NPS.
- 1.11 The Proposed Development has the potential to offer a significant opportunity to increase the rail freight capacity within the Midlands, with nationally significant beneficial consequences.
- 1.12 The Proposed Development is described in the PEIR in relation to the following aspects:
- the 'Main SRFI Site' (including the A43 access and all rail infrastructure);
  - the 'J15a Works' (the works proposed at Junction 15 of the M1); and,
  - 'Minor Highways Works'
- 1.13 The boundary of the area in which the above works are proposed to be undertaken is generally referred to in the PEIR as the 'proposed Order Limits'.
- 1.14 The key elements of the Proposed Development can be summarised as follows.

**Main SRFI Site (including the A43 access and all rail infrastructure):**

- Demolition of existing buildings and structures and grading the land to create a series of plateaus and bunds to permit development;
- An intermodal freight terminal with direct connections to the Northampton Loop Line, capable of accommodating trains of up to 775m long, including up

to 3 gantry cranes, container storage, a train maintenance depot and facilities to transfer containers to Heavy Goods Vehicles (HGV);

- An express freight terminal with direct connections to the West Coast Main Line, capable of accommodating trains of up to 240m long, a freight platform with associated loading and unloading facilities;
- Up to 702,097 sq m (Gross External Area) of rail connected and rail served warehousing and ancillary service buildings including a lorry park, terminal control building and bus terminal;
- New road infrastructure including a new separated access point on the A43 (T), an internal site underpass (under Northampton Road) and necessary utilities infrastructure;
- Strategic and structural landscaping and development of open space including alterations to public rights of way, the creation of publicly accessible open areas, flood attenuation, and the partial diversion of the Milton Malsor brook;

#### **Improvements to Junction 15a (J15a) of the M1:**

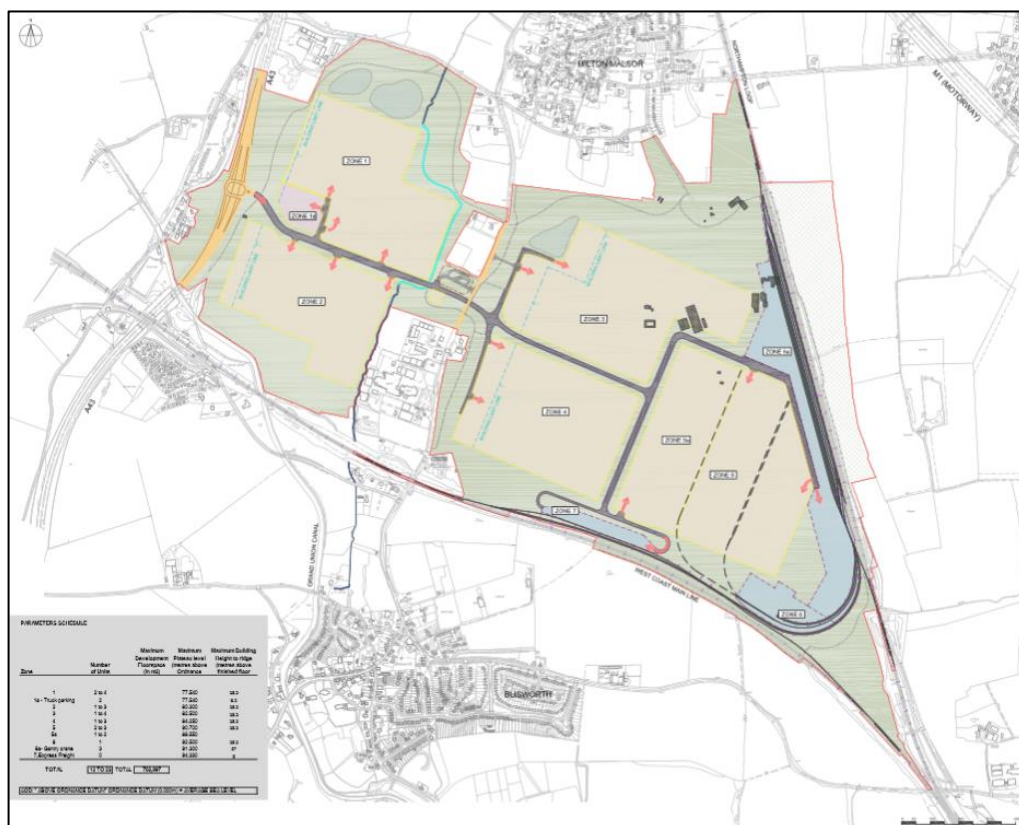
- Pre-development works to facilitate carriageway widening and configuration, including development of a construction compound to the east of the junction and partial demolition of existing carriageway;
- Widening and signalisation of existing northern roundabout;
- Widening of A5123 approach; widening of M1 southbound off-slip approach;
- Widening of A43 northbound approach to northern roundabout;
- Reconfiguration of existing southern roundabout to provide signalised T-Junction;
- Provision of two-lane free flow slip on A43 South Bound;
- Provision of new link road between southern junction to M1 northbound on and off-slips;
- Widening of A43 northbound approach to southern junction; and
- Provision of ecological mitigation to the south-west of J15a, to mitigate habitat loss at the Main SRFI Site, and landscaping around the junction.

#### **Minor Highways Works**

1.15 Minor Highways Works are proposed. These works will involve minor pre-development works, largely located within the existing highways land, as follows:

- Junction 16 of the M1 (M1/ A4500 (east to Northampton)/ A45 (west to Daventry));
- A4500, Weedon Road (east)/ Tollgate Way/ A4500, Weedon Road (west)/ A5076, Upton Way;
- A5076/ A5123/ Upton Way Roundabout (Pineham Park) (Dane Camp Way);
- A5076 (west)/ Hunsbury Hill Avenue/ Hunsbarrow Road/ A5076, Danes Camp Way/ Hunsbury Hill Road;
- Towcester Road/ A5076, Danes Camp Way/ A5123, Towcester Road/ Mere Way/ Tesco Access;
- A45 (south)/ Eagle Drive/ A45 (north)/ Caswell Road;
- A45, Nene Valley Way (south); A428, Bedford Road (west)/ A5095, Rushmere Road/ A45, Nene Valley Way (north)/ A428, Bedford Road (east);
- A45, Nene Valley Way (south); A43, Lumbertubs Way/ A45, Nene Valley Way (north)/ Ferris Row;
- Junction 15 of the M1 (M1/ A45 (north to Northampton and Wellingborough)/ Saxon Avenue/ A508, Northampton Road (south to Milton Keynes));
- Tove Roundabout (A43, Towcester Bypass (southwest)/ Towcester Road/ A5, (north)/ A43, (northeast)/ A5, Watling Street (southeast));
- Abthorpe Roundabout (Abthorpe Road/ A43, Towcester Bypass (north)/ Brackley Road/ A43, Towcester Bypass (south));
- A5076, Upton Way (south)/ Telford Way/ A5076, Upton Way (north)/ Walter Tull Way/ Dustan Mill Lane;
- A5076, Upton Way (south)/ High Street/ A5076, Upton Way (north)/ Dustan Mill (Stub);
- A508, Harborough Road (south)/ A5199, Welford Road/ A508, Harborough Road (north)/ Cranford Road/ Kingsland Avenue;
- A43/St John's Road (signage and road surfacing scheme on the A43);
- A43 Northampton Road (signage scheme);

- Pedestrian/Cycle Way along Northampton Road and between Barn Lane to the junction of Collingtree Road (widening of existing footpaths, provision of new footpath and dropped kerbs, and realignment of the carriageway).
- 1.16 Ashfield Land and Gazeley GLP are seeking the Proposed Development outlined above to come forward via the granting of a Development Consent Order (DCO). The application for a DCO will undergo independent examination and following this a recommendation will be issued to the Secretary of State. The Secretary of State will then make the final decision whether to grant or refuse Development Consent for the proposals.
- 1.17 The final DCO submission will provide a series of parameters to guide the future development of the site. As part of the DCO application, these parameters will be fixed.
- 1.18 The current proposed Main SRFI Site parameters are shown on the Parameters Plans provided as part of the consultation documents and on the image below.



**Parameters Plan (Main SRFI Site)**

- 1.19 An Illustrative Masterplan that demonstrates a possible means of bringing forward the Proposed Development, whilst being in accordance with the proposed parameters plans, is provided as part of this consultation. These parameters plans and illustrative masterplan reflect the latest position in the design process and are the subject of the assessment work in the PEIR. The current Illustrative masterplan for the Main SRFI Site is provided below.



**Illustrative Colour Masterplan**

- 1.20 As part of any Development Consent that may be granted, the Secretary of State is able to impose Requirements that ensure that certain actions or works take place, and/or are submitted at a later stage for approval. The assessments in the PEIR cannot fully anticipate what subsequent submissions to meet the DCO Requirements might show. As such, the assessments consider the ‘worst case’ reasonably likely to occur scenarios based on the information that is available at this stage, in order to determine the maximum potential environmental impacts that could result.
- 1.21 Site preparation works and construction could commence in 2019, with approximately a 10-year construction period. It is therefore anticipated that the Proposed Development could be completed by 2029. As the construction sequencing has not been fixed, the precise timing and nature of the construction works cannot be defined at this stage.
- 1.22 Chapter 5 of the PEIR sets out in further detail the elements of the Proposed Development.



## 2. Site Location

### Site Context

- 2.1 The proposed SRFI is located in Northamptonshire, in the East Midlands region of England and is approximately 20km north-west of Milton Keynes and approximately 6km south of Northampton.
- 2.2 The Main SRFI Site comprises a total of approximately 291ha of land. The A43 passes through the site to the west. Northampton Road/Towcester Road runs through the site from north to south. A number of farms, small holdings and associated development are located within the east of the site. All of these existing developments are accessed from Barn Lane, which runs south from Milton Malsor and comes to an end within the Main SRFI Site.
- 2.3 The Main SRFI Site largely consists of large-scale arable farmland, with some smaller scale pastoral fields, and semi-improved grassland more common in the south-western and north-eastern parts of the site. Field boundaries generally have some hedgerow or intermittent tree cover, however this is limited. The fields are mostly separated by relatively species-poor hedgerows probably dating from around the beginning of the 19th Century, although there are a few more species-rich and older hedges along Towcester Road and elsewhere.
- 2.4 Also within the Rail Central proposed Order Limits are proposed works at Junction 15a of the M1, and various minor highways works. The Junction 15a (J15a) works comprise the immediate roads for J15a of the M1, and adjoining land parcels which contain farmland and industrial buildings.
- 2.5 The junction itself (J15a) currently comprises two roundabouts with a passageway under the M1 and associated slip roads to the motorway to the west, passing industrial buildings comprising the motorway services (Northampton Services). In addition to the roads feeding directly to the junction, the local road network comprises Banbury Lane to the west of the junction, passing on a bridge over the M1, Towcester Road to the east, also crossing the M1 by bridge, and other local roads such as Northampton Road, Milton Road and Kislingbury Road joining together the surrounding villages of Milton Malsor, Blisworth and Rothersthorpe.
- 2.6 A full summary of all 'minor highways works' included within the proposed Order Limits for Rail Central can be found in Chapter 5 of the PEIR.

### Rail Context

- 2.7 The Main SRFI Site is bounded to the west and east by the West Coast Main Line (WCML). The lines located to the west are referred to as "fast lines" (or London to Rugby Line), whilst the lines to the east are known as the "slow lines" (or Roade and Rugby New Line or the Northampton Loop). All of the lines are electrified.
- 2.8 The WCML links London and the South East with the Midlands, North West and Scotland, and is the principal route for the movement of north-south freight trains. The

WCML forms a core part of the Trans-European Network (TEN-T), and south of Crewe to London is one of the few sections of the national network already cleared to carry trains up to a length of 775km (this is being extended south to Southampton by 2019).

- 2.9 A site context plan is provided with the consultation documents and reproduced below for ease of reference.



**Site Context Plan**

### 3. Project Overview

- 3.1 Overall, the project aim is to provide efficient and state-of-the-art intermodal facilities, and importantly, to enable logistic operators and local businesses to take advantage of the benefits of a rail-served logistics park. Whilst the scale of this development will have an effect and impact upon the local community, the proposal demonstrates how this has been thoroughly considered as part of the Environmental Impact Assessment process and then carefully mitigated.
- 3.2 As has been summarised at Chapter 1 of this Non-Technical Summary, the Proposed Development includes the following main elements:
- the 'Main SRFI Site' (including the A43 access and all rail infrastructure);
  - the 'J15a Works' (the works proposed at Junction 15 of the M1); and,
  - 'Minor Highways Works'
- 3.3 Chapter 1 of this Non-Technical Summary has summarised in more detail what those works comprise.
- 3.4 The following sections of this 'Project Overview' chapter provide a descriptive summary of each element of the Proposed Development.

#### **Main SRFI Site Works**

- 3.5 To support the primary Strategic Rail Freight development, new road infrastructure (including a new separated access point to the A43) and strategic landscaping is proposed (including the creation of publically accessible open areas and flood attenuation).
- 3.6 The majority of the anticipated rail freight services are expected to access the site via the Northampton Loop line (known historically as the Roade & Rugby New Line), which handles most of the freight and non-express passenger services at present. Trains will be able to access from either direction on the main line, with trains passing directly into or alongside the intermodal terminal to facilitate fast turnaround of trains once off the main line. Provision has been made in the track layout design to allow both diesel- and electrically-hauled trains to access the sidings.
- 3.7 In total, up to 702,097 sq m (Gross External Area) of rail connected and rail served warehousing and ancillary service buildings (including a lorry park, terminal control building and bus terminal) is proposed. The intermodal freight terminal will have direct connections to the Northampton Loop Line, capable of accommodating trains of up to 775m long, including up to 3 gantry cranes, container storage, a train maintenance depot and facilities to transfer containers to Heavy Goods Vehicles.
- 3.8 This proposal will allow more efficient (and electrically-driven) interchange of containers between road and rail. The terminal operator would be able to stable or process intermodal trains in the same set of sidings, reducing the shunting time

normally associated at SRFI with separate duplicated sidings for train stabling (reception) and handling. Space would be provided alongside the sidings for containers to be stored temporarily if required between road and rail interchange.

- 3.9 In addition (and uniquely for a SRFI), the Proposed Development provides an express freight terminal, directed connected to and from the West Coast Main Line, to allow for a smaller number of express freight services, similar to those used by the Royal Mail between London, Warrington, Glasgow and Newcastle (and more recently used by Eddie Stobart, Sainsburys and TNT). Access would again be provided from both directions of travel for diesel- and electrically-hauled express freight trains, the loop off the main line being of sufficient length to allow trains to enter and depart at higher speeds. A cross-dock platform would allow trains and goods vehicles to transfer goods quickly between modes. This facility would allow freight users to benefit from faster transits than is possible with road haulage or traditional rail freight services. This express freight terminal will be capable of accommodating trains of up to 240m long.
- 3.10 The four separate main line access points (two on the Northampton Loop and two on the West Coast Main Line itself) would also be interconnected within the site, providing maximum flexibility in moving trains on and off site as directed by Network Rail. For example, when either of the two main line routes is closed for engineering works, or due to disruption, the rail layout would enable Network Rail to route services via the other main line if necessary.
- 3.11 The intermodal terminal would be open to all users, and would be open to all rail freight operating companies (FOCs) as a fully open access facility. Dedicated container handling vehicles (known as “tugmasters” or “dockspotters”) would be available on site to move containers between the intermodal terminal and individual warehouse units. The intermodal terminal would also have facilities for secure parking of HGVs awaiting entry to the handling area (typically achieving a 20-minute turnaround once inside), along with ancillary facilities including driver amenities, maintenance, administration and workshop buildings.
- 3.12 Road access to the site will be taken from a new junction on the A43. This will provide access to a central spine road which will serve the entire site. A lorry park facility will be provided which will remove the potential for drivers who arrive early on site to park on the wider local road network.
- 3.13 The main development site will be split into two distinct areas, east and west of Northampton Road. The smaller area between the A43 and Northampton Road / Towcester Road will be split into two main development zones, to the north and south of the spine road, plus the lorry park.
- 3.14 The larger area of the site is located to the east of the site, between Towcester Road / Northampton Road and the railway lines. Access to this area will be taken via the main spine road (via an underpass under Northampton Road) and not via Northampton Road itself. The eastern area of the Main SRFI Site will comprise three main development Zones, each having logistics buildings and associated works as described above. There will also be the proposed intermodal facility and the express freight cross dock platform located adjacent to each of the railway lines.



- 3.15 Around the site, landscaping will be undertaken with the aim of integrating the development into the surrounding landscape and limiting its visibility from the surrounding area. This will incorporate earth mounding, belts of tree and shrub planting, surface water features, including landscaped balancing ponds, swales and marginal aquatic habitats. Landscaping will also be provided within the site, forming boundaries between building plots and breaking up areas of car parking. Where possible, the existing field pattern will be retained and enhanced.
- 3.16 The Green Infrastructure Plan sets out some of the embedded parameters for the Main SRFI Site and is shown below.

### Green Infrastructure Key Plan (Main SRFI Site)

## Junction 15a Works

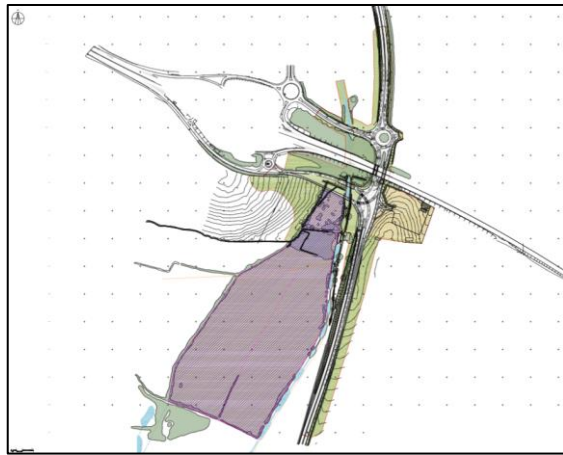
- 3.19 Landscape mitigation is proposed primarily in the north of the junction and to the east of the Grand Union Canal, and comprises retention of existing vegetation (such as around and within the northern roundabout, and south of the M1 and along the edges

of the roadway) and additional soft landscaping to the east of the A43 and south of the new slip road. An area for ecological mitigation has been identified to the south-west of the junction, covering approximately 26ha.

- 3.20 The Green Infrastructure Proposals provides the necessary parameters at Junction 15a, which is shown on the below image, along with an illustrative landscape masterplan. Both plans are included within the consultation documents.



**J15a Illustrative Landscape Masterplan**



**J15a Green Infrastructure Plan**

### **Minor Highways Works**

- 3.21 Construction works will be required to take place with continued operation of the junctions. All works will take place according to highways best practice. Aspects of the work requiring widening or reconfiguration of the junctions, and the order of works, will be established following a phasing assessment. No additional landscaping is proposed at these junctions.
- 3.22 Chapter 5 of the PEIR sets out in more detail the elements of the Proposed Development.

## 4. Reasonable Alternatives

- 4.1 The EIA Regulations require an outline of the reasonable alternatives studied by the applicant to be provided, taking into account any environmental effects.
- 4.2 The required assessment has been undertaken and is reported in an 'Alternative Site Assessment' report. The details and findings of that assessment are provided at Chapter 3 of the PEIR. A non-technical summary of the findings is provided below.

### Alternative Sites

- 4.3 Recent applications for SRFI's have included an assessment of alternative sites. These studies have been reviewed and their findings and approach adapted to suit the current situation on the proposed development area.
- 4.4 The assessment of alternative sites for this project has been undertaken in two main stages. These stages have linked directly to the consultation process undertaken for the application.
- 4.5 For the Stage 1 consultation, an Assessment of Alternatives was included in the first phase PEIR. The methodology adopted was simple and focussed on considering sites that local interest groups, stakeholders and the public had suggested could be possible alternatives.
- 4.6 To supplement the earlier alternatives assessment, a complete Assessment of Alternatives is now provided at Chapter 3 of the PEIR. This assessment adopts a more rigorous approach, using a defined methodology. This assessment has applied several distinct stages of work to identify possible alternative sites.
- 4.7 It has employed a sieve mapping technique using a Geographic Information System (GIS) over the East and West Midlands. This was used to identify sites with good rail access, close to motorway junctions and with limited environmental constraints. Sites not meeting the specified requirements were subsequently removed from the process and hence the scoring mechanism used in following stages, does not focus on the environmental constraints and instead constraints on proximity to sensitive uses and the potential to mitigate any effects.
- 4.8 The sites were then scored using a scoring matrix, which was designed to identify the best performing potential rail freight sites. The scoring matrix reviewed the sites based on various factors, including proximity to motorways, access to high gauge rail lines, local access routes, site levels, shape, size and proximity to sensitive land uses.
- 4.9 The scores achieved by each of the sites identified were then reviewed and the highest scoring sites selected for comparative analysis. This process was subjective and focussed around the topics identified as important in the scoring matrix.
- 4.10 A summary of the key stages in assessing the alternatives is provided in **Table 4.1** below:

**Table 4.1: Assessment of Alternatives, Stages**

Stage of Assessment	Process Related to Stage
Stage 1: Area of Search and Sieving	<p>Sieving exercise, which focussed on a GIS based approach to mapping key infrastructure and environmental constraints. The following variables were mapped:</p> <ul style="list-style-type: none"><li>• 5km distance from Motorway Junctions;</li><li>• 5km distance from railway lines;</li><li>• Rail Gauge of W8 and above and contiguous track able to accommodate a 775m train; and</li><li>• Environmental designations based on <a href="http://www.magic.gov.uk">www.magic.gov.uk</a> datasets.</li></ul> <p>This exercise helps to identify locations where there is a combination of good access to the strategic road and rail networks, with no or limited environmental constraints.</p> <p>From this information, potential site areas were identified, based upon physical boundaries. Site specific assessments were then undertaken in respect of topographical, flooding and environmental data.</p>
Stage 2: Site Assessment	<p>Sites identified through the sieving process were combined with the sites identified in the initial alternatives assessment undertaken in 2016. All of these sites were then subject to quantitative analysis based on the below criteria:</p> <ul style="list-style-type: none"><li>• proximity to a motorway junction;</li><li>• access to rail;</li><li>• vehicle access routes;</li><li>• site size;</li><li>• site shape;</li><li>• topography;</li><li>• sensitive user amenity; and</li><li>• Local Plan Designations and Planning Position.</li></ul> <p>Following this, further qualitative analysis was used to check rankings using professional judgement. The purpose of this was to ensure that the scorings had produced a reasonable reflection of whether the scheme was suitable for use as a SRFI.</p>
Stage 3: Assessment of Previously Short-Listed Sites	<p>The initial alternatives assessment work undertaken as part of the Stage 1 consultation and scoring of the sites identified as having rail access potential were reviewed. This was to ensure that every site considered had been scored against a consistent framework. Sites with no direct rail connection were discounted and not analysed further. Notwithstanding this, sites capable of gaining rail access</p>



	have been scored. A further five sites were therefore assessed.
Stage 4: Assessment of Rail Central Scheme	To allow a comparative of the considered sites, the Rail Central scheme was also compared against the common scoring matrix. Complete details of the scoring used to assess the Rail Central scheme are detailed in Chapter 3 of the draft PEIR.
Stage 5: Comparative Assessment	<p>Once each site had been allocated a total score, the site scores were tabulated and ranked.</p> <p>All the sites were then considered qualitatively to address any limitations inherent in the scoring approach, alongside the Rail Central site. A professional judgement was made on the performance of each site and an overall comparative assessment made with the Rail Central site against the site selection criteria.</p>

- 4.11 A full breakdown of the sites considered through the Assessment of Alternatives and the scores attributed to these sites is provided at Chapter 3 of the draft PEIR. A comprehensive analysis of these sites and justification for developing the Rail Central scheme is also provided in that chapter.
- 4.12 The assessment has demonstrated that, despite the large area of search, the development opportunities for SRFI proposals are limited. A total of 25 locations were identified as satisfying key SRFI characteristics as defined by the National Networks National Policy Statement (NPS NN). Of these, only five locations present realistic SRFI opportunities and were identified for further comparative analysis. Within this context, it is not surprising, therefore, that four of the five alternative sites assessed for further comparative analysis are the subject of on-going DCO applications for SRFI proposals and each has the potential to provide SRFI facilities.
- 4.13 The study concludes that there are two clear top performing sites – Rail Central and Northampton Gateway that would seek to serve broadly the same core catchment area. They score the same using the scoring matrix. There are differences in performance between these two sites which allow them to be distinguished.
- 4.14 Northampton Gateway is a strong SRFI site with very good access to the strategic road network. However, whilst it is closer to the motorway than Rail Central, this in itself is not a major distinguishing factor between these two sites. Environmental impacts, whilst varied, are broadly of the same magnitude. Rail Central does however, have the ability to directly connect to the WCML, as well as the NLL and this presents, along with its additional infrastructure, enhanced operational and technical advantages over Northampton Gateway which make it more resilient, flexible and more adaptable to the changing rail freight market.
- 4.15 On this basis, it is concluded that the Rail Central site is the better performing SRFI site. However, it is recognised that there is potential for Northampton Gateway to be

pursued in addition to Rail Central. This scenario has therefore been the subject of a preliminary cumulative impact assessment in the PEIR.

### **The ‘No Development’ Scenario**

- 4.16 This is not considered to be an option. The NPS NN confirms that the overriding government objective is to shift freight from road to rail to help reduce transport’s carbon emissions and provide economic benefits.
- 4.17 Furthermore, the NN NPS establishes there is a compelling need for an expanded network of SRFIs throughout the country and that “SRFI capacity needs to be provided at a wide range of locations, to provide the flexibility needed to match the changing demands of the market.” A no development scenario would also not meet the identified need for a network of SRFI’s across the UK, and would leave freight movements on the strategic road network, with the associated greater level of emissions and cost of delays caused by congestion.
- 4.18 In terms of Rail Central, this option would not result in any environmental change and would leave the Main SRFI Site in productive agricultural use. However, it would have major opportunity costs in the form of unrealised economic and job growth opportunities.

### **Alternative Uses/ Mix of Uses**

- 4.19 An alternative form of development has not been considered. The use of the site for non-rail related uses was deemed not to meet the identified national need to move freight away from road based modes of transport. This would fail to take advantage of the unique physical assets and locational advantages offered by the site. The proposed use for the site has therefore been restricted to rail served logistics and associated uses.

### **Alternative Layouts and Access**

- 4.20 The proposed scheme has been created following an extensive and detailed design process and has been informed by a number of environmental, land ownership, potential access points, rail location and the proximity to sensitive receptors. In April 2016, the scheme underwent a formal public consultation, following this; numerous amendments were made to the proposed development. Full details of the amendments made to the development are detailed within Chapter 3 of the PEIR.
- 4.21 There are key factors which have guided the general form of the Proposed Development. These fixed parameters are; the locations at which rail connections can be achieved, both on the WCML and the NLL; the location at which access to the strategic road network can be achieved, on the A43; and the need to cross the old Northampton Road. These elements of the development are fixed and are all essential elements of the scheme. These dictate the general extent of the development as well as factors such as the location of the intermodal and express freight facilities and the positioning of the directly rail connected units to the eastern side of the site. These parameters have therefore formed the general form and nature of the Proposed Development and each of the alternatives has had to work within these limits.

- 4.22 Overall, chapter 3 of the PEIR demonstrates that the proposed Order Limits for this project have been defined following a detailed assessment of the site against the reasonable alternative options. The selected site was justified against other possible sites in the area; some of which could be developed as acceptable SRFI sites in their own right.
- 4.23 The selected site brought forward as the Main SRFI Site in the Proposed Development is considered to have exceptionally good rail links, due to having access to two rail lines, excellent site access directly from the A43 and less than 2 km from the M1 and owing to the size, topography and location of the site, potential for sensitive landscaping and mitigation to ensure that environmental impacts are minimised. This makes the Rail Central site unique amongst other possible sites in the area, including the adjacent Northampton Gateway site (which has similar locational benefits, but only has access to one rail line and less direct road access).
- 4.24 The Proposed Development brought to this S42 consultation is considered to be an appropriate and acceptable option for development within the site and makes the best use of the resources available.

## 5. Consultation

- 5.1 The Applicant has been engaged in extensive dialogue with a number of stakeholders over a period of several years as it has investigated the potential for the Proposed Development. These discussions have taken place in order to raise awareness and provide initial information on the Proposed Development and the planning process, and to establish basic scheme feasibility and to ensure that the Applicant could bring forward an application for Development Consent.
- 5.2 The benefit and outcome of these early engagement meetings was to establish awareness of the scheme and start a dialogue that could then continue into the formal, statutory consultation stage.
- 5.3 The initial Environmental Information has, and is, being consulted on by the Applicant during the following periods:

### **Section 47 Consultation ('Phase One') (April – October 2016)**

- 5.4 During the first stage of consultation (Phase One of Section 47 Consultation), the Applicant consulted on the 'baseline' environmental information. The draft preliminary environmental information report and a non-technical summary document were made available to view at the consultation events, on the project website and at identified public viewing locations throughout the consultation period.

### **Section 42 & Section 47 Consultation ('Phase Two') (March-April 2018)**

- 5.5 As part of the Section 42 and Section 47 consultation (Phase Two (this consultation)), the Applicant is consulting on further details, which includes the preliminary conclusions of the draft EIA (the PEIR to which this Non-Technical Summary relates), including any likely significant effects of the project on the environment and any mitigation proposed.
- 5.6 This two-stage process has enabled further surveys, data and consultation comments to be collected and considered to inform the evolving scheme design.
- 5.7 Throughout the above process there have also been a series of consultation meetings, feedback and provision of updates via a variety of media.
- 5.8 Further information is provided in Chapter 4 of the PEIR and in a separate Statement of Community Consultation included with the Consultation documents.
- 5.9 Ongoing consultation has also been undertaken with statutory and non-statutory consultees in relation to the scope of the technical assessments and the methods to be used. This is reported in full in the technical topic chapters of the PEIR (Chapters 9-25).

## 6. Environmental Impact Assessment Methods

- 6.1 The likely effects on the environment that may arise from the construction (including demolition) and operation (use) of the Proposed Development have been assessed in accordance with relevant Environmental Impact Assessment (EIA) regulations and guidance.
- 6.2 The PEIR will inform the final Environmental Statement that (ES) will be provided as part of the final DCO submission.
- 6.3 An EIA Scoping Report was submitted to The Planning Inspectorate on 10 December 2015. The Planning Inspectorate issued an EIA Scoping Opinion in January 2016. The purpose of gaining a Scoping Opinion from the Planning Inspectorate was to focus the draft EIA (for which the current output is the PEIR) on the environmental issues and potential impacts that need the most thorough attention. This also helps to identify those issues that are unlikely to need a detailed study and to provide a means to discuss methods of assessment so as to reach agreement on the most appropriate.
- 6.4 A summary of the key points in the Scoping Opinion and a summary of the key comments received from statutory and non-statutory consultees are provided within Chapter 4 of the PEIR.
- 6.5 The PEIR has been informed by desk studies and baseline surveys and the outcome of both the Scoping exercise and formal and informal consultation processes.
- 6.6 The technical assessments contained in the PEIR include (amongst other things): a description of the development; information on the site selection process; a description of the site, design and size of the development; a description of the aspects of the environment with the potential to be affected by the development proposals; details of any likely significant effects; and details of mitigation measures that may be required to avoid or minimise any significant effects.
- 6.7 The existing and likely future environmental conditions in the absence of the project have been identified. These are known as 'baseline conditions'. The baseline conditions of the site and study areas form the basis of each environmental assessment, enabling the likely significant effects of the project to be identified.
- 6.8 The EIA process is an integral part of the project appraisal and design process. During the EIA process (for which the current output is the PEIR), the likely significant effects have been identified and these issues have been taken into account within the ongoing design process. The EIA process has therefore been used as a means of informing and improving the project design and in providing a range of measures to reduce or prevent significant adverse effects occurring.
- 6.9 The PEIR sets out an assessment of the likely effects during all phases of the project based on the likely scale (magnitude) of the predicted impacts and the sensitivity of the affected receptor(s). Receptors can include, for example, habitats, people, and so on.

- 6.10 The assessments consider ‘worst case’ (but reasonably likely to occur) scenarios in order to determine the maximum potential environmental impacts that could result.
- 6.11 Appropriate mitigation measures have been explored to eliminate, minimise or manage identified potential significant effects on the environment. Where possible, measures to avoid or mitigate environmental effects are designed and included in the proposals to form part of the project as ‘embedded mitigation measures’.
- 6.12 Details of embedded mitigation measures are presented in each topic chapter, which identifies where such mitigation will be secured within any development consent granted. For the purpose of the PEIR, the embedded mitigation includes:
- Main Parameters Plan (Main SRFI Site);
  - Main Parameters Plan (J15a works);
  - Main Parameters Plan (Other Highways Works);
  - Green Infrastructure Plan (Main SRFI Site);
  - Green Infrastructure Plan (J15a works);
  - All information shown on the Parameters Plan (Main SRFI Site);
  - All information shown on the Green Infrastructure Plan (a parameters plan) (Main SRFI Site);
  - Some measures outlined in the draft Construction Environmental Management Plan (CEMP); and,
  - Any commitments required as a matter of law.
- 6.13 The assessment of effects has, therefore, taken into account all measures that form part of the development and to which the Applicant has committed and these are detailed within each technical chapter of the PEIR, where relevant to the topic.
- 6.14 In addition to reducing any adverse effects, consideration has been given to providing opportunities for environmental enhancement.
- 6.15 Significance levels are defined separately for each topic, generally using the terms major, moderate, minor or negligible. Unless identified otherwise, effects noted as being moderate or major are considered to be ‘significant’ and require mitigation.
- 6.16 Further appropriate mitigation measures have been explored to eliminate, minimise or manage identified potential significant effects on the environment.
- 6.17 Best practice strategies for mitigation are also widely practiced and accepted within EIA and are followed when considering the methods of dealing with the environmental impacts of the Proposed Development.

- 6.18 The EIA Regulations also require consideration of cumulative effects. Cumulative effects are considered in terms of intra and inter project effects. Inter-project effects are those that may arise when the project is considered together with other proposed projects in the area. Intra-project cumulative effects are those effects produced by the Proposed Development, and not those from other projects (for example, changes in air quality and noise levels may combine to lead to changes that are more significant than when assessed individually).
- 6.19 Significant effects usually require mitigation. Residual effects are the effects that remain once mitigation and monitoring has been taken into account.
- 6.20 An explanation of the technical assessment methods is provided at Chapter 7 of the PEIR.

## 7. Technical Assessments

### **Air Quality (Chapter 9)**

- 7.1 A number of Air Quality Management Areas (AQMA) have been designated in the area due to elevated concentrations of nitrogen dioxide (NO<sub>2</sub>) attributable to road traffic emissions, the nearest being along the M1.
- 7.2 The Air Quality Assessment considers the air quality impacts from the construction phase and the impacts once the Proposed Development is operational.
- 7.3 For the construction phase, an important consideration is dust. Without appropriate mitigation, dust could cause temporary soiling of surfaces, particularly windows, cars and laundry. The embedded mitigation measures relating to dust management included in the Construction Environmental Management Plan (CEMP) will ensure that the risk of adverse dust effects is reduced to a level categorised as 'not significant'. These include measures such as using enclosed chutes, use of dust suppression facilities and dampening down of potentially dusty areas.
- 7.4 For the construction and operational phases, arrivals at and departures from the Proposed Development may change the number, type and speed of vehicles using the local road network. Changes in road vehicle emissions are the most important consideration during this phase of the development.
- 7.5 Detailed atmospheric dispersion modelling has been undertaken for 2021 (first operation) and 2031 (full operation) and pollutant concentrations are predicted to be within the relevant health-based air quality objectives at the façades of existing receptors. The operational impact of the Proposed Development on existing receptors modelled within South Northamptonshire is predicted to be 'negligible' taking into account the changes in pollutant concentrations and absolute levels. Using the criteria adopted for this assessment together with professional judgement, the operational air quality effects in South Northamptonshire are considered to be 'not significant' overall. Further improvements in air quality could be achieved through measures such as Travel Planning, tree planting, provision of electric charging points, incentives for low carbon transport, and ensuring vehicles on site do not idle. However, the assessment has not relied on these measures.
- 7.6 Detailed modelling will also be undertaken for Northampton and the results included in the ES Chapter to be submitted as part of the DCO application. An assessment of cumulative effects will also be undertaken for the ES Chapter. A preliminary cumulative assessment suggests that provided both the Proposed Development and the cumulative developments (including the adjacent Northampton Gateway) incorporate appropriate mitigation measures, the residual cumulative effect would be 'not significant'.

### **Agriculture (Chapter 10)**

- 7.7 Chapter 10 of the PEIR considers the impact of the Proposed Development on agricultural land, soil resources and farm holdings. The data used to inform the



assessment was obtained from existing published records, soil and Agricultural Land Classification (ALC) surveys and questionnaires completed by the landowners.

- 7.8 The proposed Order Limits includes the Main SRFI Site; J15a works and minor highways works. The Main SRFI Site extends to around 266ha of agricultural land, primarily in arable use. Agricultural land at J15a extends to around 32ha, also in arable use. Most of the land at J15a is proposed for ecological mitigation and will remain available to agriculture for arable cropping and low intensity grazing. Land associated with the minor highway works is in non-agricultural use and does not form part of the assessment.
- 7.9 The Main SRFI Site and most of the land around J15a has been subject to a detailed ALC survey, undertaken in accordance with current guidelines, meeting the requirements of Natural England as set out in the Scoping Opinion. The significance of effect has been assessed according to the sensitivity of the resource and the magnitude of effect. The sensitivity of agricultural land is related to its grading within the ALC; the sensitivity of the soil resource reflects its susceptibility to disturbance; and the sensitivity of farm holdings takes into account the structure and use of the land. The magnitude of effect takes into account the scale and nature of land use change.
- 7.10 Three main soil types are present across both the Main SRFI Site and J15a. The most extensive soil type occurs in the southern part of the Main SRFI Site and to the immediate south of J15a and comprises dark greyish brown, clayey (occasionally fine loamy) upper layers over greyish, predominantly clayey (locally silty clay), gleyed and poorly permeable lower layers. Poor drainage, seasonal wetness and heavy topsoils limit this soil type to Subgrade 3b in the ALC. A variant of this type is also present which includes medium loamy topsoils which are less severely limited to Subgrade 3a.
- 7.11 The second main soil type occurs across the Main SRFI Site, though not in one discrete area, and is also present to the south-east of J15a. These soil profiles have similar textures to the most extensive soils but are better drained and limited mostly to Grade 2 or Subgrade 3a.
- 7.12 The third type of soil comprises dark grey or greyish brown, slightly stony, sandy loam or sandy clay loam upper layers over brown and yellowish brown, slightly stony lower layers of sandy loam, loamy sand or sand. These soils are limited by slight soil droughtiness from reduced soil profile moisture holding capacity to Grade 2 or Subgrade 3a.
- 7.13 The farm holdings affected by the Proposed Scheme at the Main SRFI Site and at J15a comprise a mix of tenanted and owner-occupied land. The land use is predominantly arable with some land being used for the grazing of sheep and cattle.
- 7.14 Most of the effects on agricultural land, soils and agricultural holdings will occur during the construction of the Proposed Development but will be permanent. Mitigation measures to reduce the potentially significant adverse effects on the existing soil resources across the Main SRFI Site and J15a are available, although there are no universally applicable measures to mitigate the direct loss of agricultural land in the same location and to the same extent. Mitigation of the impacts on the farm holdings will be by private negotiation between the relevant parties.

- 7.15 Measures to mitigate the impact on soil resources relate to recording (within a Soil Resources Management Plan) the existing soil resources of the Main SRFI Site and the land at the J15a works, and setting out measures to ensure that they are handled, stored and replaced according to good practice as set out in the Defra Construction Code of Practice for the Sustainable Use of Soils. In this way, soils that are re-used on the Potential Development Area will be used for their most suitable purposes in the detailed design and will be able to continue to fulfil their various ecosystem functions.
- 7.16 Of the 274ha of agricultural land permanently affected by the Proposed Development, 203ha (74%) is classified as Subgrade 3b land, which is not best and most versatile (BMV) quality. Approximately 71ha is BMV quality, predominantly of Grades 2 and 3a. The magnitude of change to BMV land is assessed as high to a resource of moderate sensitivity. The effect on BMV agricultural land would be 'moderate adverse'.
- 7.17 The soil resource is dominated by the heavy clay loam and clay loams of the predominant soil type which is of high sensitivity. The embedded mitigation relating to soil resources would enable the re-used soil resources to continue the various ecosystem functions on site within the soft landscaping, principally as a medium for producing biomass; for storing and cycling water and carbon; and for supporting habitats and biodiversity. As such, the permanent magnitude of impact on soils is assessed as medium as displaced soils would mostly fulfil the primary soil functions off-site or would have a reduced capacity to fulfil the primary functions on site. The permanent effect on the soil resource is assessed as 'moderate adverse'.
- 7.18 The sensitivity of the affected farm holdings has been determined by the extent to which they have the capacity to absorb or adapt to impacts. This is largely determined by their nature and scale, with most of the holdings assessed as being of moderate sensitivity. The Proposed Development would result in a high magnitude of change for all the farm holdings, with the loss of over 20% of the farmable area of each. The Proposed Development would have a moderate adverse effect on each of the affected farm holdings, which is significant.
- 7.19 An assessment of cumulative effects considered a total of 25 potential schemes in the locality which would involve the loss of agricultural land. The resultant cumulative loss would exceed 800ha of agricultural land, predominantly of Subgrade 3b but with substantial areas of Subgrade 3a and a smaller area of Grade 2. The sensitivity is moderate to low, and the magnitude of change is high, resulting in a 'moderate adverse' effect on BMV agricultural land.

### **Archaeology (Chapter 11)**

- 7.20 The archaeology assessment considered the potential for direct impacts, such as removal of, or damage to, archaeological sites and features arising from the construction, operation and decommissioning of the Proposed Development. The study areas included the Main SRFI Site, the J15a Works and the locations of other minor highways works. At the locations of most of the other minor highways works, development would be limited to the existing highway corridor and would not affect any archaeological remains that may be present in the surrounding area. The exception

to this is the A43/A5 Tove Roundabout, where limited areas of new land-take are proposed.

- 7.21 The archaeology assessment was, therefore, restricted to the Main SRFI Site, M1 J15a and the A43/A5 Tove Roundabout. A desk-based assessment and walkover survey was carried out of these locations and geophysical survey and archaeological trial trench evaluation was carried out within the Main SRFI Site. The desk-based assessment used data from the Northamptonshire Historic Environment Record (HER) and a range of other sources including historic maps, aerial photography and Lidar data and bibliographic sources.
- 7.22 The archaeological evaluation demonstrated that the Main SRFI Site contains archaeological remains of later prehistoric, Romano-British and medieval and later date, which could be divided into 15 discrete archaeological sites. Desk-based assessment indicated that the J15a Works and the A43/A5 Tove Roundabout locations have some archaeological potential, with the possibility that archaeological remains of comparable date to those within the Main SRFI Site could be present. However, the land-take required for the proposed reconfiguration of M1 J15a includes a large area for ecological mitigation, which would remain undeveloped. The works required for the highways works lies almost entirely within the existing highways corridors and hence no effect on buried archaeological remains is predicted at this location, and the impacts of the Proposed Development are, therefore, predicted to arise only at the Main SRFI Site and at the A43/A5 Tove Roundabout location.
- 7.23 As opportunities for preservation in situ are limited, and In order to comply with National and Local Plan Policies, a programme of archaeological mitigation works would be carried out to offset the predicted direct impacts on archaeological assets at the Main SRFI Site and at A43/A5 Tove Roundabout.
- 7.24 The mitigation measures to be adopted would consist of identifying, investigating and recording the archaeological resource identified by geophysical survey and archaeological evaluation within the Main SRFI Site and by desk-based assessment at A43/A5 Tove Roundabout, providing an enhancement of the archaeological record. The mitigation proposals would be set out in one or more Written Schemes of Investigation (WSI) prepared in consultation with the Northamptonshire County Council (NCC) Archaeology Team and designed to satisfy any archaeological planning condition placed on the Proposed Development.
- 7.25 Whilst the predicted effects on archaeological remains would not be avoided or reduced by the proposed mitigation, they would be offset through preservation by record of the archaeological resource and the dissemination of archaeological knowledge, resulting in enhancement of the archaeological record. Taking the proposed mitigation into account, no significant residual effects would be anticipated in relation to the archaeological resource and the development proposals would conform to the aims and requirements of national, regional and local planning policy as regards heritage.
- 7.26 The potential for operation effects, arising from the possibility of future construction works being required during the lifetime of the Proposed Development, has also been considered but it is considered that construction phase mitigation, to be agreed with

the NCC Archaeology Team will have been sufficient to ensure that no significant operational effects arise during the operational phase.

- 7.27 The potential cumulative effect of the Proposed Development in combination with other proposed developments has been considered; in particular the potential for cumulative effects in combination with the proposed Northampton Gateway development site, adjacent to the Main SRFI Site. It has been assessed that there would be a direct cumulative effect on a group of potentially contemporary archaeological sites on the adjoining developments, but that the cumulative effect will not be significant in EIA terms when the embedded mitigation for the Rail Central development is taken into account.
- 7.28 Overall, taking the mitigation into account, no significant residual effects are anticipated in relation to the archaeological resource.

### **Built Heritage (Chapter 12)**

- 7.29 The Built Heritage chapter and supporting Heritage Assessment have been prepared in order to assess the likely significant environmental effects of the Proposed Development on the above ground historic built environment of the proposed Order Limits and the surrounding area during the construction and operational phases.
- 7.30 In defining the appropriate heritage Study Areas, best practice guidance, professional experience and judgement, and an assessment of the potential effects of the Proposed Development on Built Heritage has been applied. It has also been informed by the extent of consultation undertaken and received to date. Consideration has been given to the various aspects of the Proposed Development, including the Main SRFI Site and the J15a Works and 'other' highways works. As a result, there are two separate study areas.
- 7.31 An assessment of the significance of all designated and non-designated built heritage assets within a 2km radius Study Area for the Main SRFI Site has been undertaken, including an assessment of the contribution made by their setting. For the J15a Works and the other highway works, a 250m Study Area has been pursued. The heritage assets and the rationale for the Study Areas are out within the Heritage Assessment and have been undertaken in accordance with best practice guidance and advice contained within the National Planning Policy Framework (NPPF) 2012, Planning Practice Guidance (PPG) 2014, Design Manual for Roads and Bridges (DMRB) 2015 and Historic England guidance, 2017.
- 7.32 There are no designated heritage assets within the Main SRFI Site proposed Order Limits. Within the Main SRFI Site Study Area, there are 146 Listed Buildings, 8 Conservation Area, 1 Registered Park and Garden and 2 Scheduled Monuments. There are no World Heritage Sites or Registered Battlefields within this Study Area. There are 17 buildings on the Historic Environment Record (HER) within this Study Area.
- 7.33 There are 4 designated heritage assets full or partially within the J.15a of the M1 and Other Highway Works proposed Order Limits, consisting of the Grand Union Canal Conservation Area, two grade II listed locks (No's 11 and 13) and a grade II listed Drawbridge (to Lock No 13) on the Northampton Arm of the Grand Union Canal. Within

the Study Area, there are approximately 23 Listed Buildings, 1 Conservation Area and 1 Registered Battlefield. There are no World Heritage Sites, Registered Parks and Gardens or buildings on the HER within the J.15a of the M1 and Other Highway Works Study Area.

- 7.34 These designated and non-designated heritage assets were identified and confirmed through a search of the HER for Northamptonshire (as of 11 July 2017).
- 7.35 The effects arising from the Proposed Development on Built Heritage will be direct and indirect in nature having potential to affect the significance of the identified assets through direct works and change within their setting.
- 7.36 During the construction phase, it has been identified that there are adverse effects on a number of heritage assets relevant to the Proposed Development as a whole. A moderate adverse significance of effect has been identified on the grade II listed Milton House and Manor Cottage, Mortimers, Milton Malsor Conservation Area, the grade II listed Lock No 10-11 on the Grand Union Canal during the construction phase. In addition, a slight adverse effect has been identified to the grade II listed Railway Bridge over Northampton Road, Lock's 6-9 and Lock No 13 on the Grand Union Canal and the grade II listed Drawbridge to Lock No 13 during the construction phase. This assessment has been undertaken as a worst case scenario without any embedded or proposed mitigation. The identified effect is as a result of the site preparation works, construction of buildings and the construction of and enlargement of road infrastructure on the above heritage assets. The effects are assessed to be 'less than substantial' harm.
- 7.37 For the operational phase, it is concluded that for many of the heritage assets there will be a neutral effect having taken into consideration their significance, the relative distance between them and the Site, the extent of intervening development and the nature of the Proposed Development. Despite this and the various mitigation measures, it has been identified that there are adverse effects on a number of heritage assets relevant to the Proposed Development as a whole, resulting in a significant environmental effect. A moderate adverse significance of effect has been identified on the grade II listed Milton House and Manor Cottage, Mortimers, Milton Malsor Conservation Area, the grade II listed Lock No 10-11 on the Grand Union Canal during the operation phase. In addition, a slight adverse effect has been identified to the grade II listed Lock's 6-9 and the grade II listed Railway Bridge over Northampton Road during the operation phase. The effects are assessed to be 'less than substantial' harm.
- 7.38 With regards to cumulative effects of the Proposed Development in combination with other developments, it has been concluded that there will be a cumulative effect with the Northampton Gateway scheme. This would result in a cumulative significant environmental effect on Built Heritage during the construction phase. Construction works such as the movement of materials and construction machinery, including the use of tall construction equipment would be expected to give rise moderate adverse level of cumulative effect on Built Heritage, specifically Milton Malsor Conservation Area and Mortimers.
- 7.39 Considering the potential for cumulative effects on Built Heritage during the operational phase, the Proposed Development and its associated landscaping works

will largely screen the Northamptonshire Gateway scheme in views from the south and south east. The scheme will, however, remove a further section of agricultural fields (to the east) which surround the village and Milton Malsor Conservation Area.

- 7.40 Cumulatively, the overall effect of this and the Proposed Development are considered to cumulatively result in a moderate adverse effect on the significance of the Milton Malsor Conservation Area. In addition to this and due to the orientation of the grade II listed Mortimers with views of the building facing towards the scheme, it is likely that there will be additional built development and/or gantry cranes experienced within this view (subject to mitigation by the scheme). Cumulatively, the overall effect of this and the Proposed Development are considered to result in a moderate adverse effect on the significance of Mortimers

### **Ground Conditions (Chapter 13)**

- 7.41 The current conditions at the site have been established by means of undertaking detailed Geo-environmental Desk Studies and reviews, supplemented by preliminary Ground Investigations and assessments.
- 7.42 The Desk Study reports include details of the site walkover survey, review of geological and historical mapping, review of topographical survey data and gathering and assessment of available data sources from:
- Environment Agency;
  - Local Authority;
  - Highways Agency;
  - Landowners;
  - British Geological Survey; and
  - Defra.
- 7.43 Taking account of the assessment undertaken in the Desk Studies and reviews, ground investigation works were designed and undertaken to confirm the anticipated ground model, geology and geotechnical and chemical characteristics of strata.
- 7.44 The information from the Ground Investigations has been assessed in detail and the results of these assessments have been provided within Ground Investigation Interpretative Report provided for the Main SRFI Site.
- 7.45 Based on the desk studies and the ground investigation undertaken, assessments were undertaken to determine the risks from contamination to sensitive receptors during the construction, operation and decommissioning phases along with those likely to exist at present (baseline). These assessments have all been undertaken in general accordance with the requirements of BS5930 'Code of Practice for Ground Investigation', Environment Agency CLR 11 'Model Procedures for the Management of Land Contamination' (Risk Assessment) Association of Geo-environmental Specialists

‘Guidelines for the Preparation of the Ground Report’ 2003 (Interpretative Report), and included human health, groundwater and surface water, plants in areas of landscaping, buildings and services. The results of the risk assessments were used to identify likely significant effects that could be introduced as part of the project for which mitigation measures would be required.

- 7.46 No ground conditions have been found that would prevent the proposed scheme being technically viable with respect to geology, soils or groundwater.
- 7.47 The site investigation confirmed that there is no widespread presence of soil contamination at the Main SRFI Site and the desk studies and reviews have indicated that widespread contamination is not expected at the J15A site or other minor highway works.
- 7.48 The construction works will lead to contaminated material being exposed and mitigation measures will be required to ensure this does not represent a risk to construction workers, site visitors, trespassers or local residents and workers. Mitigation measures during construction will include appropriate design; prescribed methods of working (including works to be undertaken by appropriately trained (and where required, licenced) personnel, safe working practices and working in accordance with codes of practice); provision of appropriate Personal Protective Equipment (PPE) and Respiratory Protective Equipment (RPE) (where required) and pre-construction identification of potential contamination by further ground investigation.
- 7.49 Mitigation measures, for example in accordance with Pollution Prevention Guidelines (PPG5), will also be required to protect surface watercourses during construction.
- 7.50 Monitoring will be required during construction to confirm that the works have been undertaken in accordance with the:
- Construction Environmental Management Plan (CEMP);
  - Pollution Prevention Method Statement (PPMS);
  - Remediation Method Statement (RMS); and
  - Geotechnical Design Reports and the Earthworks Specifications.
- 7.51 During operation, mitigation measures will be required for receptors such as site users, future maintenance workers, buried concrete and buried water supply pipes. Mitigation measures proposed for the potential impacts to operational phase receptors include: design (such as no soakaways in Made Ground); use of appropriate materials (e.g. sulphate resistant concrete and barrier pipes, where required, for potable water supplies); appropriate materials management to ensure any potentially contaminated Made Ground is not exposed at the surface or in service corridors; and radon barriers in buildings as required.
- 7.52 No post-construction monitoring is required.



- 7.53 During decommissioning, the effects and mitigation measures are expected to be similar to that during construction.
- 7.54 There are no likely significant cumulative effects related to ground conditions.
- 7.55 There are no significant residual effects caused by the Proposed Development remaining after the implementation of the mitigation measures referenced above.

#### **Flood Risk, Hydrology, and Drainage (Chapter 14)**

- 7.56 The current conditions relating to flood risk, hydrology and drainage at the site have been established by undertaking a Flood Risk Assessment (FRA). This included detailed Hydrological and Hydraulic Modelling of the Milton Malsor Brook and an Unnamed Watercourse to assess the current risk to the site (in the absence of this data being available from the Environment Agency) along with also assessing the post development scenario. The FRA also included a detailed drainage strategy. These works have been compiled in to two reports - FRA:Part 1 for the Main SFRI Site and FRA:Part 2 for the Junction 15a improvement works. Both of these reports form a technical appendix to Chapter 14.
- 7.57 The FRA included a site walkover survey, review of available flood risk information, review of topographical survey data and collation and assessment of available data sources from:
- Environment Agency;
  - Northamptonshire County Council (as the Lead Local Flood Authority);
  - South Northampton Council;
  - Anglian Water;
- 7.58 The FRA, Modelling assessment, and Drainage Strategy confirmed the existing impacts to the site along with the measures required to mitigate any identified potential impacts of the proposals.
- 7.59 Assessment was undertaken to determine the risks to sensitive receptors during the construction, operation and decommissioning phases along with those that currently exist (i.e. the baseline). The assessment was undertaken in general accordance with the requirements of the National Networks National Policy Statement (NN NPS) and National Planning Policy Framework (NPPF). The results of the risk assessments were used to identify significant effects that could be introduced as part of the project for which mitigation measures would be required.
- 7.60 The FRA confirmed that there are areas at flood risk within the Main SFRI Site which are predominantly located within the lower elevated sections of the site and in those areas that immediately border the Milton Malsor Brook and the Unnamed Watercourse. The same is the case for the J15a works and other minor highways works with the majority of each area being at low risk of flooding but with localised lower elevated areas being at potentially increased risk.



- 7.61 Proposed mitigation measures included within the scheme (realignment and design of watercourse, installation of surface water drainage systems etc) minimise any of the identified impacts. These measures form part of the design of the site and as such are considered as being embedded mitigation undertaken as enabling works during the construction phases.
- 7.62 During operation, whilst all embedded mitigation will be in place, adaptive mitigation measures will be required for some receptors (watercourses, attenuation storage areas, swales, pipe runs etc).
- 7.63 Adaptive mitigation measures proposed to address potential impacts to operational phase receptors include regular and ongoing maintenance of all drainage features. These works are to include visual inspections and any clearance/maintenance works as required.
- 7.64 No post-construction monitoring is required.
- 7.65 During decommissioning, the impacts and mitigation measures are expected to be similar to that during construction.
- 7.66 There are no cumulative effects related to flood risk, hydrology, and drainage caused by the development.
- 7.67 There are no significant residual effects identified after implementation of the proposed mitigation measures.

### **Utilities (Chapter 15)**

- 7.68 The PEIR Utilities chapter sets out the utility impact assessment methodology and relevant information used to perform impact analysis. The impact assessment was based on overall disruption and visual effects of utility services across the development phases.
- 7.69 The approach to determine the environmental impact involved:
- establishing the baseline condition of the site ;
  - selection of appropriate locations to assess against (receptor sites);
  - identifying potential effects that could occur on the receptors;
  - assigning an environmental value and magnitude of effect to each receptor site;
  - calculating the significance of effect;
  - determining the significance of impact; and
  - assessing the Cumulative Effects.

- 7.70 Baseline Information was gathered via a desktop study and direct consultations with key stakeholders and utility providers within the area. The information obtained was used to inform the Main SRFI Site design. Statutory utility undertakers, or District Network Operators (DNOs), were consulted to:
- establish locations of existing plant equipment;
  - inform providers of the Proposed Development layout plans and the required utility provisions during the construction and operational phase;
  - confirm predicted capacity requirements;
  - request connection offers and associated network designs; and
  - discuss construction phase works, in terms of diversionary works and Protective Provisions (PP).
- 7.71 The DNOs for electricity, telecoms, gas and water operating in the local area are respectively: Western Power Distribution (WPD), BT Openreach (BT), National Grid Ltd (National Grid) and Anglian Water Ltd (Anglian Water). Additionally the British Pipeline Agency Ltd (BPA) confirmed on site pipeline locations and identified relevant regulations and guidelines pertaining to acceptable structure proximity to existing pipelines.
- 7.72 Receptors for the utilities assessment included utility service-users within and adjacent to the proposed Order Limits (such as potential future users of the SRFI, and adjacent users including JBJ Business Park), receptors who could be affected by installation and maintenance work (including users of transport routes) and receptors who could be affected by the visual extent of utility services (such as the nearby settlements of Blisworth and Milton Malsor). Residential receptors and the adjacent JBJ Business Park were considered of high sensitivity. Users on the Towcester/ Northampton Road were moderate sensitivity, and other receptors such as the highway network were low or negligible sensitivity.
- 7.73 Ensuring best design practices would minimise the adverse effects utilities infrastructure on the surrounding environment. These would be embedded in the Proposed Development design. The utility infrastructure would be routed underground with above ground equipment (substations etc.) located in naturally screened locations or including screening of equipment. Utility service installation will minimise waste during the construction, operational and decommissioning phases through the recycling and re-use of equipment.
- 7.74 The construction phase will involve the diversion of existing utilities infrastructure within the Order Limits, as well as the complete installation of the proposed utility works.
- 7.75 All construction effects would be short term, with the magnitude of effect on identified receptors generally assessed as negligible or minor. Significance was therefore generally neutral or slight. The Main SRFI Site, JBJ Business Park and users of the Towcester/ Northampton Road would experience a moderate significant effect,

associated with potential traffic delays and network outages during construction. However, removal of the existing overhead lines to underground the connections would be beneficial.

- 7.76 The operational phase will involve general maintenance of the utility network. It is anticipated routine maintenance would be carried out and some equipment may need replacing. In general though it is not expected any major works would be required during this phase. No significant effects on receptors were identified in the assessment.
- 7.77 Decommissioning of the utilities would not be expected to occur within the lifetime of the Proposed Development. Utility DNO's will generally aim to utilise existing infrastructure before suggesting that reinforcements and new requisitions are to be undertaken. However, a significance of effect similar to construction would be anticipated were they to be decommissioned.
- 7.78 Adaptive mitigation to be employed to minimise construction (and potential decommissioning) effects, and any effects apparent during operational maintenance would include following DNO good practice, including notification of nearby residents and service users and ensuring appropriate screening of development where these were not included in the site design. Residual effects would therefore be not-significant.
- 7.79 The cumulative effects assessment considers how the Proposed Development will combine and interact with the effects of other major developments in the context of utilities. These would be minimised through DNO design in order to safeguard the networks. In presenting an applicant with a formal connection offer the DNO confirms the requested connection can be physically achieved, the connection will not result in any long term adverse impacts to other network users and that adequate capacity will be available for the applicant's site. The key cumulative projects will be the grid connection to the Northampton West substation, and the adjacent Northampton Gateway SRFI. The latter project would be served from the Northampton East primary ring main so there is no foreseen significant cumulative capacity impact. The route of the proposed grid connection is currently unknown. However, it is assumed it will be routed underground along the routes of existing utilities within the highway boundary, so there will be minimal cumulative impact other than the potential for routine "roadwork" delays on the highway network, minimised through use of good practice measures.

## **Biodiversity (Chapter 16)**

- 7.80 An ecological impact assessment (EcIA) has been undertaken following the Guidelines for Ecological Impact Assessment published by the Chartered Institute of Ecology and Environmental Management (CIEEM 2016). Following the Guidelines, the spatial extent of the Study Area was decided (the 'Zone of Influence' in CIEEM terminology). This was done by considering nature conservation sites, habitats, assemblages of species, and individual species that are important inside the proposed Order Limits and in surrounding areas ('Important Ecological Features' in CIEEM terminology), and the extent and nature of project proposals that might affect them.

- 7.81 The study area includes the Main SRFI Site and the Junction 15a Site (J15a), sites with Important Ecological Features close to them, and sites further away but within distances over which certain animal species might range (e.g. ponds suitable for Great Crested Newts within 0.5 km). In the agricultural area surrounding the site, Important Ecological Features are concentrated around the canal system to the south-west. In addition, the Upper Nene Valley Gravel Pits Special Protection Area (SPA) was considered (approximately 5.6 km from the Main SRFI Site) as far-ranging birds from this SPA might roost on fields within the proposed Order Limits.
- 7.82 The 291ha Main SFRI Site contains agricultural land, mostly arable, though parts are under agriculturally improved (grazed) grass, especially towards the north-east. Semi-improved grassland on ridge-and-furrow occurs in the south-western corner. Other than field-corner copses, it contains no woodlands, few ponds, and only one semi-wooded stream (plus a few wet ditches). It does however contain an extensive network of hedgerows, of which less than 10% qualify as important hedges under The Hedgerows Regulations 1997.
- 7.83 South-west of the site, the canal system contains a complex of aquatic, water-margin and swamp, grassland and semi-wooded habitats, and engineering brick structures supporting plants scarce in Northamptonshire. The railway line-sides on the boundary support complexes of incipient secondary woodland, thorn scrub, bramble scrub, tall-herb vegetation and grassland.
- 7.84 The J15a Works site includes a range of habitats. There are roads and associated hedges, verges and amenity plantings, a canal and a wetland on abandoned land. Farmland around J15a includes sheep-grazed pasture (and horse-grazed pasture not yet surveyed), arable land under wheat and the biomass crop *Miscanthus x giganteus* (giant miscanthus). Field boundaries are mainly hedges and there are two small streams. Semi-natural vegetation is limited to the abandoned land and wetland west of the A43.
- 7.85 Preliminary ecological appraisal was based on desk-based searches for existing biological and ecological records and on Phase 1 Habitat Surveys, which mapped the habitat types and assessed their suitability for notable species, especially protected animal species (again following CIEEM guidelines for work of this kind). The results informed the design of further surveys.
- 7.86 Further surveys included botanical surveys of hedgerows and arable weeds, and vegetation surveys of swamp at J15a and the less strongly improved grasslands on the Main SRFI Site (using the methods of the National Vegetation Classification), and arable weeds. Veteran trees were also surveyed. Surveys for protected animal species included the following:
- presence-absence and Habitat Suitability Index surveys for Great Crested Newts;
  - stream surveys for aquatic species (including invertebrates, fish and white-clawed crayfish);

- comprehensive surveys of bats including surveys to assess bat activity and surveys to investigate whether bat-roosts could be present in buildings or trees;
- surveys for birds including Barn Owls, Golden Plover and Lapwing potentially feeding or roosting on agricultural land, and for breeding birds generally; and
- surveys for Badgers, reptiles (all likely species), water vole, otter and terrestrial invertebrates (i.e. insects etc.).

7.87 The ecology assessment has been carried out in close collaboration with other disciplines including landscape and visual, water resources, noise and vibration, air quality and archaeology. Additional to the statutory consultation process, meetings have been held with Natural England, Northamptonshire County Council and South Northamptonshire Council, and the Wildlife Trust for Bedfordshire, Cambridgeshire and Northamptonshire. The Environment Agency was also consulted about the survey methods and assessment.

7.88 The important ecological features identified from the desk-based studies and surveys included:

- the habitat complex and associated species of the canal corridor;
- other local wildlife sites including Potential Wildlife Sites;
- individual hedges, and an extensive and more-or-less intact hedgerow network;
- ancient and veteran trees;
- neutral semi-improved agricultural grassland;
- the Milton Malsor Brook and connecting ditches with associated plants;
- tall-herb swamp (at the J15a Site) and associated wetland plant species;
- field-corner copses and ponds ;
- farmland birds, barn owls, and breeding birds generally;
- bats (all species) and other protected terrestrial vertebrates, e.g. otters; and
- terrestrial invertebrates (all sites).

7.89 Effects arising from the Proposed Development will arise from construction activity and during operation. The design of the Proposed Development aims to minimise these effects as far as possible through mitigation embedded into the site design. This includes:

- Retention of habitat, including certain buildings used by bats, the northern section of the Milton Malsor Brook, some ancient and veteran trees and other

areas of woodland and habitat at the periphery of the Main SRFI Site and at J15a.

- Provision of green infrastructure, creating links through the site to the wider countryside and to locally designated sites. There is approximately 116.7 hectares of structural landscape shown on the Green Infrastructure Plan for the main site. Of this 13.8 hectares is retained farmland to the east of the Northampton Loop and 3.2 hectares will be developed as a new pocket park to the west of the A43. Except for ornamental planting around car parks and buildings, the majority of the planting will use native species in grassland, scrub and woodland planting. Stand-alone hedges will form an important part of the planting. In addition to this a further 26 hectares of land to the south of J15a will be developed as an ecological mitigation area.
- Ecological protection measures described in the Construction Environmental Management Plan (CEMP). These include good practice measures to protect habitats during construction, minimise noise and dust and lighting impacts.

7.90 Land-take will be the most important source of impact on the Main SRFI Site. It will cause loss of arable and agricultural grassland, some of which is important for farmland birds. There will be loss of a more-or-less intact hedgerow network totalling c.12.7 km of hedgerow over large parts of the site. There will be loss of mixed scrub, tall-herb vegetation and grassland on railway line-sides. Approximately 780m of the Milton Malsor Brook will be re-routed and some wet ditches connecting to it will be lost. There will be a permanent loss of 26 veteran trees, 1 notable and 17 locally notable trees. Six roosts used by small numbers of Common Pipistrelle bats will be lost, as will some barn owl roosts in trees and farm buildings. There will also be a loss of hedgerows and trees that provide commuting and foraging links for bats and other species in the south of site. During construction, temporary effects such as noise, dust and lighting will be reduced to minimal levels acceptable for wider purposes (including health and safety) by measures set out in the CEMP.

7.91 At the J15a Works site there will be impacts on the Grand Union Canal corridor which is important for commuting and foraging bats and otters and is also a Local Wildlife Site. Additionally, there will be a small loss of habitat from an unnamed Potential Wildlife Site, where some locally rare and important invertebrates and plants uncommon in Northamptonshire were recorded.

7.92 During operation of the Proposed Development there may be some disturbance to animals on the site and in adjacent habitats, especially the canal corridor. This includes effects on flying routes for bats such as the Grand Union Canal, hedgerows and watercourses. Impacts of noise and disturbance may also affect animals and birds on site.

7.93 In order to reduce the impact of these identified effects, 'adaptive' mitigation is proposed. This includes:

- 39.2ha of scrub and woodland planting.
- c. 2,300 large stature trees will be incorporated into the scheme design.

- Creation of new grasslands using a native and locally appropriate seed mix which mimics typical wildflower meadows for Northamptonshire. To support populations of the Yellow-faced Bee, mixes will include *Daucus carota* ssp. *carota* (Wild Carrot).
- Veteran trees will be reused in measures such as tree resurrection (i.e. using large trunks or limbs of felled trees to provide high-elevated deadwood habitat by using existing trees as supports) and deadwood habitat piles will help to compensate for loss of ancient and veteran trees.
- Development of a Lighting scheme to ensure light on site during construction and operation of the site will avoid spill into ecologically important places.
- Specifications for new hedgerow planting to enhance 'embedded' retained foraging and commuting routes and create more.
- Renovation of barns at the Main SRFI Site and J15a site to provide bat and barn owl habitat.
- Milton Malsor brook diversion will be profiled to provide a variety of flow rates, depth and widths (allowing for Environment Agency specifications), and planted with water-margin species currently found there and in adjacent ditches. The detailed design of the watercourse will be undertaken in collaboration with ecologists, and it is anticipated that the overall quality of the brook will be enhanced for otters, fish and aquatic invertebrates.
- The planting adjacent to the Grand Union Canal and The Arm Farm pocket park beside the Northampton Arm will improve the connectivity of the ecological corridor centred on the canal.
- Detailed design of the 26 ha ecological mitigation area at J15a. The area will be managed as farmland, ideally with livestock in some areas, but will also include a public access track. The site will be designed by ecologists in discussion with the Wildlife Trust, but will include a mixture of field sizes and shapes, new species rich native-species hedgerows with standard trees, wet scrapes and scrub, 'winter bird' fields, and field corner ponds.
- A post-construction Habitat Management Plan (HMP) will protect and promote biodiversity in areas retained for ecology and in newly created habitats. It will cover such matters as pond management, scrub control, hedgerow pruning, and retention of dead or felled trees among others. It will include provisions for monitoring retained and created habitats and key species.

7.94 Overall, although minor adverse effects will remain as a result of habitat loss, especially for farmyard birds and bats, loss of hedgerows and veteran trees, permanent beneficial effects will arise primarily from the provision of green infrastructure. Since a large percentage of both the Main SRFI Site and J15a site is arable, supporting very little biodiversity (on an amount per unit area basis), the green infrastructure and

incorporation of ecological mitigation measures as adaptive mitigation will provide a net increase in biodiversity.

- 7.95 The assessment also considered cumulative ecological impacts. Given the impact assessments reached in respect of other nearby projects there are no cases where the impacts of this project could add to something identified as an impact in another project. There is, however, potential to add to cumulative impacts of hedgerow loss, particularly the integrity of hedgerow networks. There is also some potential for cumulative effects on commuting and foraging bats as a result of this habitat. Similarly there is potential to add to the cumulative impacts of farmland habitat loss on specialist farmland bird species, though overall habitat provided in compensation for the Rail Central project, and others, is likely to lead to a net gain in habitat for a broad spectrum of birds, especially garden birds.
- 7.96 Landscape mitigation at the adjacent proposed Northampton Gateway project has been designed to enhance biodiversity, and should lead to a beneficial intra-project effect. There is 13.8 ha of land that lies within both proposed Order Limits, which could be used for further ecological benefit for Rail Central should Northampton Gateway not proceed.

### **Landscape and Visual Impact (Chapter 17)**

- 7.97 A landscape and visual impact assessment (LVIA) has been undertaken to identify the likely landscape and visual effects of the Proposed Development. The LVIA considers the effects of the Proposed Development on both the landscape and on people's views and visual amenity. Landscape and visual effects have been considered for the construction phase and operational phase at Year 1 during Winter, and Years 7 and 15 during Summer (to take account of the effects once mitigation planting has developed and reached a level of maturity), and the decommissioning phase. Consideration has also been given to cumulative effects including consideration of the proposed Northampton Gateway strategic rail freight terminal and its associated infrastructure.
- 7.98 A study area around the Main SRFI Site has been defined and agreed with South Northamptonshire Council (SNC) as a 5 km radius. The study area for the Main SRFI Site includes the locations of a total of twenty-four representative viewpoints agreed with SNC. A study area of approximately 1 km has been defined for the J15a Works. This study area includes a total of five representative viewpoints that have been identified which are to be agreed with SNC. For the Minor Highways Works study areas are limited to within approximately 500 m and no specific representative viewpoint locations are proposed due to the nature of the works and limited effects anticipated.
- 7.99 There are no national, regional or local landscape designations within the Main SRFI Site. The Main SRFI Site mainly consists of large-scale arable farmland, with some smaller scale pastoral fields located in the north-east just to the south of the village of Milton Malsor. There is a relatively low level of tree and hedgerow cover at the Main SRFI Site. Field boundaries generally have some hedgerow or intermittent tree cover, and hedgerow boundaries with occasional mature trees are a feature of views across the Main SRFI Site.



- 7.100 A number of high value individual trees are located within the Main SRFI Site and J15a Works site. Seventy five trees (sixty three on the Main SRFI site and twelve for the J15a Works) were recorded as locally notable/notable/veteran/ancient. Twenty six veteran trees, one notable and seventeen locally notable trees would require removal to facilitate the Main SRFI. One further locally notable tree would require removal to facilitate the J15A Works. There are 5 Tree Preservation Order (TPO) trees within the Main SRFI Site. However, these trees are to be retained and no significant effects are anticipated to these trees.
- 7.101 There are no national, regional or local landscape designations within the J15a Works site. The J15a site is relatively visually contained due to a combination of natural undulations in the landform, and man-made landforms such as road embankments and intermittent vegetation cover. The Grand Union Canal Conservation Area runs through the J15a Works site.
- 7.102 Mitigation measures identified and adopted as part of the evolution of the project design (embedded into the project design) to minimise landscape and visual effects include the use of landscape screening bunds and landscape planting. Additional measures over and above the proposed embedded mitigation that may assist with the screening and integration of the Proposed Development into the landscape will be considered at the detailed design stage and agreed with SNC. Additional mitigation could include, for example, planting strategic groups of larger sized trees for instant visual impact, planting of new native species hedgerows, and infill planting and restoration of retained existing hedgerows.
- 7.103 The landscape and visual effects that are associated with the construction phase of the Main SRFI Site relate to the introduction of construction operations, related structures, equipment, landform alterations and stockpiling of materials for a temporary period (10 years). The alteration in land cover due to the construction of the Main SRFI Site relates to a loss of arable land and a direct loss of other landscape elements such as hedgerows, hedgerow trees including some notable and veteran trees. Visual effects during construction relate to the introduction of new features for a temporary period and a direct loss of other landscape elements such as hedgerows.
- 7.104 It is considered that the construction of the Main SRFI Site will give rise to highly significant adverse effects to local landscape character. Visual effects on residential receptors will be highly significant or significant adverse for a small number of residents in individual properties, groups of properties in close proximity to the Main SRFI Site or in more distant locations where views may be gained from elevated locations overlooking the Main SRFI Site. These include Blisworth Arm, Blisworth Lodge, 64-82 Courteenhall Road, Blisworth, Gayton Way, Copper Beeches, and Woodbury, Towcester Road, Nos 1 – 25 Barn Lane, Beech Croft and Beech Cottage, Collingtree Road, 63 Collingtree Road and Maple House, Milton House, Rectory Lane and Hill Farm.
- 7.105 In terms of recreational routes and Public Rights of Way (PRoW), highly significant and significant adverse construction phase visual effects will be limited to users of recreational routes and PRoW in close proximity to the Main SRFI Site and from elevated ground overlooking the Main SRFI Site. Road users will also experience highly

significant and significant adverse construction phase visual effects from roads running through the Main SRFI Site or close to it, including Barn Lane, Northampton Road/Towcester Road and Gayton Road.

- 7.106 During operation, the primary change at the Main SRFI Site will be the introduction of large-scale buildings that would form a highly prominent element within the local landscape. After 7 years it is considered that the mitigation such as screening bunds, woodland and hedgerow planting will begin to mature and will soften the Main SRFI Site and help to screen and integrate it with the receiving landscape. After 15 years of operation the planting will have established and reached a reasonable level of growth and maturity, which would further soften, screen and filter views of the Main SRFI Site reducing its prominence in the local landscape and provide some beneficial effects for both the landscape and ecological character of the Main SRFI Site. It is considered that at Year 15 the Main SRFI site will give rise to a significant beneficial effect to local landscape character.
- 7.107 At year 15 highly significant or significant visual effects will be limited to residents in individual properties in close proximity to the Main SRFI site or in more distant locations where views may be gained from elevated locations overlooking the site. These include Railway Cottages, Hill Farm, 63 Collingtree Road and Maple House, 64-82 Courteenhall Road, and Blisworth Lodge Farm. However the Applicant is providing a fund available to the local residents affected by the Proposed Development, to enable the purchase and planting of trees, or management of existing hedgerows at affected properties. If this fund is taken up by local residents, the introduction of this additional mitigation would have a significant benefit and would reduce adverse effects at these affected properties to 'not significant' at Year 15.
- 7.108 There will be no significant adverse visual effects on road users at Year 15. In terms of recreational routes and PRoW, highly significant and significant adverse operational phase visual effects will be limited to users of recreational routes and PRoW from elevated ground and in close proximity to the Main SRFI Site.
- 7.109 It is considered that the construction of the J15a Works site will not give rise to significant adverse effects on local landscape character. Highly significant and significant adverse construction phase visual effects would be limited to visual receptors in close proximity to the J15a Works site, to users of the Grand Union Canal recreational route, the Grand Union Canal Walk and PRoW KX2. It is considered that the operation of the J15a Works site will not give rise to significant effects on local landscape character. At Year 15 of operation the proposed structural planting is expected to have reached a level of maturity such that it will provide mitigation of operational visual effects.
- 7.110 Potential cumulative visual effects during the construction and operational phases considering the Proposed Development and Northampton Gateway are very limited. Highly significant adverse visual cumulative effects have been identified for one viewpoint, Viewpoint 3, representative of views to users of PRoW's RD3, RD6, KZ14 and RD22 located to the east of Blisworth.
- 7.111 The cumulative assessment (for other cumulative developments) concludes that should all identified developments be constructed simultaneously, this would give rise to

some adverse effects on landscape character particularly in the areas between Collingtree and Milton Malsor. Construction works such as the movement of materials and construction machinery, including the use of tall construction equipment would be expected to give rise to a highly significant adverse cumulative effect on the landscape during construction. No significant adverse cumulative visual or landscape effects are anticipated during the operation phase.

- 7.112 A 15 Year Soft Landscape Maintenance, Ecological Enhancement and Overall Management Plan has been prepared, which outlines the proposed establishment monitoring, maintenance and management programme. Post-construction monitoring of new planting and habitat creation will be undertaken to ensure the planting successfully establishes and can achieve its intended function.

### **Noise (Chapter 18)**

- 7.113 A noise and vibration assessment has been carried out to determine the potential impacts and effects of the Proposed Development on nearby sensitive receptors. The assessment has been carried out in accordance with current guidance and Standards, from which assessment criteria are derived based on the existing baseline noise conditions.
- 7.114 A long term noise and vibration measurement survey has been carried out to establish the baseline conditions at locations surrounding the Proposed Development representative of the nearby sensitive receptors where potential effects may arise. The results of the baseline survey indicate that noise levels in the area are generally dominated by road traffic movements during both the daytime and night time periods, particularly on the A43, M1, and Northampton/Towcester Road.
- 7.115 Potential impacts have been identified for the various phases of the Proposed Development, including construction, operation, and decommissioning. The assessment recognises that construction and decommissioning would be temporary and relatively short term activities when compared to operation, which would be a long term and relatively permanent activity. Noise from construction can be highly variable but is typically short lived at any given receptor, particularly as the focus of activity is mobile. In contrast, operational activities would be continuous across the Proposed Development and would appear to be stationary, much like noise from road traffic movements on distant roads. Consequently, noise from construction is considered to have a lower potential to cause adverse effects than noise from operation. This is reflected in current guidance and Standards.
- 7.116 It is considered that in the worst case the effects of decommissioning noise would be similar to or less than that of construction. The equipment and machinery used for decommissioning would be similar to that of construction and it is likely that manufacturers of equipment and machinery in the future will have to meet more onerous noise limits than currently required as noise policy is updated in line with technological advancements in noise control. The assessment of construction noise and vibration is therefore considered to provide a reasonable worst case indication of the likely effects that may arise as a result of decommissioning.

### **Construction**

- 7.117 The significance of any construction phase effects have been established for the both the Main SRFI Site and the J15a Works site based on calculations of impact at the nearest sensitive receptors. The calculations are based on a typical equipment list for each activity using noise data taken from measurements presented in Standards and manufacturers' specifications and assuming a typical worst case scenario where several activities are carried out simultaneously.
- 7.118 Various mitigation methods have been proposed to reduce the effects of construction noise as far as is reasonably practicable. These are set out in the Construction Environmental Management Plan (CEMP). The most effective of the proposed mitigation methods would be to restrict the hours of noisy construction activities to daytime periods only.
- 7.119 The results of the construction noise assessment indicate that the effects would generally be of Negligible significance at the majority of receptors. At receptors that would be close the boundary of the works, the effects during some of the phases of construction would be of Minor significance.
- 7.120 The potential for vibration impacts during construction have also been assessed. Vibration decays rapidly with distance. Most receptors are more than 100m from proposed work areas at which point vibration would be negligible. There are some receptors that may be potentially nearer than this and the significance of effect could rise to Minor. In any case, construction activities within 100m of a residential receptor should generally be accompanied by a programme of vibration monitoring. This would include notification of occupied affected residential NSRs advising the activity, its duration and likely effect and advising that monitoring will be undertaken.

### **Operation**

- 7.121 The assessment of noise from operational activities considers noise generated by activities from within the Main SRFI Site as well as from off-site road and rail traffic movements.
- 7.122 A computer based 3D noise model has been created to predict the noise levels generated by operational activities from within the Main SRFI Site at nearby receptors. The number and type of noise sources input into the model represent a considered worst case scenario where the Proposed Development is operating at its full capacity. The noise output from each source has been based on manufacturers' data and measurements carried out of similar operational equipment at other similar sites.
- 7.123 The results of the model have indicated that mitigation would be required to reduce noise to acceptable levels at some receptors. The effectiveness of the proposed mitigation, which consists primarily of earth bunds and acoustic screens, has been tested in the model.
- 7.124 The results indicate that, with the proposed mitigation in place, there would be a Negligible to Minor Significance of Effect at the majority of residential receptors during the sensitive early night time period. At four residential receptors, noise levels during this period have been predicted, with a series of worst case assumptions, to be approaching, at, or up to 1dB above, the threshold of Moderate Significance of Effect.

During the daytime period, all residential receptors would be subject to a Negligible Significance of Effect.

- 7.125 At recreational receptors such as Gayton Mariner, the canal, and public footpaths near to the Proposed Development, the Significance of Effect is predicted to be Negligible to Minor at most locations. On the footpath that runs parallel and to the east of the proposed intermodal platform the Significance of Effect would rise to Moderate at locations in close proximity to an operating gantry crane.
- 7.126 It should be noted that the predicted noise impacts used in this assessment would be a worst case, based on robust assumptions relating to the extent of activity at the site, the number of noise sources and their respective sound outputs, and by testing a fully operational scenario that would not occur until at least 2031 against the 2016 baseline noise environment. In practice, the operational noise impact of the Proposed Development is likely to be lower, particularly during the night time period when activities are likely to be less intensive than they would be during the daytime. It is considered, therefore, that the Significance of Effect of the on-site operational activities as a whole would be Minor and thus not significant.
- 7.127 There is the potential for some vibration to be generated by operational activities within the Main SRFI Site, particularly on the Intermodal Platform. Such activities may include, for example, the stacking of containers and slow moving shunters on on-site lines. However, vibration decays rapidly with distance. Receptors are generally located far from the Intermodal Platform. Additionally, these activities are not considered to be significant sources of vibration. Consequently, the significance of effect is considered to be Negligible.
- 7.128 The effect of additional road traffic movements on local roads and the wider network as a result of the operation of the Proposed Development has been assessed. The significance of effect has been determined by establishing both the short term and long term noise level changes in road traffic noise as compared to the baseline condition in the opening year. The results of the assessment indicate that the significance of effect is typically expected to be Negligible to Minor.
- 7.129 The effect of additional rail traffic movements on the West Coast Main Line (WCML) as a result of the operation of the Proposed Development has been assessed. The significance of effect has been determined by establishing both the short term and long term noise level changes in rail traffic noise as compared to the baseline condition in the opening year. The results of the assessment indicate that the significance of effect is Negligible.
- 7.130 Freight trains travelling on the rail network have the potential for generating vibration. Baseline vibration monitoring of the existing high speed passenger and rail freight traffic indicates very low existing vibration levels. Slower moving freight trains arriving and departing the Proposed Development would generate less vibration than the existing faster moving freight trains on the WCML. Given the anticipated increases in rail traffic movements on the WCML resulting from the operation of the Proposed Development, the significance of effect of rail vibration is considered to be Negligible.

## Highways (Chapter 19)

- 7.131 The Highways and Transportation assessment within the PEIR has been informed through consultation with stakeholders on an on-going basis, including the Secretary of State, local interested parties, Highways England and Northamptonshire County Council. The feedback from stakeholders forms the evidence for the assessment methodology adopted in the PEIR. In addition, this discussion and ongoing modelling has informed the design of the Proposed Development, as potential impact on the local highway network informed the need for modification of constrained junctions as part of the works proposed. This work has been progressing alongside the evolution of the site since 2014.
- 7.132 The study area for transport assessment work was also subject of extensive discussions and subsequently agreed with Highways England and Northamptonshire County Council.
- 7.133 The PEIR sets out a review of the baseline conditions for the Main SRFI Site, the J15a Works and Minor Highway Works. Baseline data was obtained, including traffic flows, highway records, personal injury accident data, signal timing information, public transport information, walking and cycling information, base mapping and topographical surveys. The summary of baseline conditions includes a review of the surrounding highway network, pedestrian and cycle network, bus network, rail network, baseline traffic flows and accident and safety data.
- 7.134 Baseline traffic flows were assessed for 2015 (as the modelled base year), 2021 (as the forecast opening year of the SRFI), and 2031 (the end of the local plan period and assuming full operation of the SRFI). The 2021 and 2031 flows have been derived using the Northamptonshire Strategic Transport Model (NSTM) including traffic growth associated with committed and allocated developments and committed infrastructure improvements set out in the Joint Core Strategy that are reasonably expected to be delivered by either 2021 or 2031.
- 7.135 The assessment was undertaken with reference to the IEA document 'Guidelines for the Environmental Assessment of Road Traffic' and was carried out for the 2021 and 2031 forecast years. This had regard for the forecast changes in traffic flows (magnitude of the impact) and the sensitivity of the various junctions. Potential environmental effects could include:
- severance;
  - driver delay;
  - pedestrian delay;
  - pedestrian amenity;
  - accidents and safety;
  - hazardous loads.

- 7.136 Effects on noise; vibration; dust and dirt; visual impact; air pollution; ecological impact; and heritage and conservation areas as a result of traffic changes are considered in the relevant chapters in the PEIR.
- 7.137 The assessment of effects was undertaken with consideration of embedded mitigation. This accounts for any physical mitigation measures provided within the proposed Order Limits and therefore included the proposed works at J15a and the 14 additional minor highways works at identified junctions (Safety schemes and the proposed Cycleway are considered as adaptive mitigation in the PEIR, but will form embedded mitigation for the final DCO submission).
- 7.138 An assessment of the construction, operational and decommission phase effects was made, assuming embedded mitigation in place. This identified there could be some short term adverse effects on the highway network during construction of the Main SRFI Site, but they would not be significant in EIA terms due to their temporary nature. Construction effects during the J15a works and Minor Highways Works will be assessed for the final DCO application submission.
- 7.139 At the Operational phase, traffic flows were assessed as having an increase of >30% traffic flows (or >10% in sensitive areas, including residential areas) at:
- The Main SRFI Site (A43)
  - J15a
  - Junction 4 - A5076 / A5123 / Upton Way
  - Junction 6 - A5076 / Hunsbury Hill Avenue / Hunsbarrow Road / Hunsbury Hill Road
  - Junction 11 - A45 / A43(T) Ferris Row
  - Junction 12 – M1 Junction 15 – M1 / A45 / Saxon Avenue / A508
  - Junction 14 - A43 / Towcester Road / A5 (Tove roundabout)
  - Junction 19 – A5076 / Telford Way / Walter Trull Way / Duston Mill
  - Junction 20 – A5076 / High Street / Duston Mill
- 7.140 However, an assessment of the six measures listed above (severance, driver delay etc.) indicated that no impacts greater than minor adverse would occur on any measure other than traffic flow. However, given the forecast increases in traffic flow, further adaptive mitigation would be introduced, which would also apply to the other junctions. These would include a Construction Traffic Management Plan (CTMP), a Framework Travel Plan (FTP), an Operational Traffic Management Plan (OTMP), a public transport strategy, pedestrian and cycle improvements and proposed road safety schemes (these latter two will form part of the embedded mitigation/ Order Limits in the final DCO application). Residual effects were assessed as being negligible at the above junctions, with some beneficial effects arising from introduction of the additional adaptive mitigation.
- 7.141 The assessment demonstrates that the adaptive mitigation measures reduce the significance of the effect of the Proposed Development in the construction, operational and decommissioning phases, ranging from a minor adverse effect to a minor beneficial effect.



7.142 Traffic arising from other potential cumulative sites was included in the model used to calculate the future baseline. However, a cumulative assessment will be undertaken of the significance of effects including traffic from the 'Northampton Gateway' site providing a comparison with the 2031 baseline. This will include the Rail Central mitigation, Northampton Gateway mitigation and any mitigation schemes required to address the cumulative impact of Rail Central and Northampton Gateway, not provided by either development in isolation. At this stage, the relevant information for the Northampton Gateway development which is required for the assessment is not available. Therefore, it is not possible to carry out a cumulative assessment for the purpose of this PEIR. However, initial NSTM runs have been carried out including the Rail Central development and the proposed mitigation scheme at J15a and the Northampton Gateway development and the associated mitigation schemes at M1 Junction 15 and the Roade Bypass. This suggested that some additional mitigation may be required to fully mitigate cumulative effects on the highway network.

### **Socio-Economics (Chapter 20)**

- 7.143 The chapter assesses the likely significant socio-economic effects likely to occur as a result of the Proposed Development. The assessment considers the socio-economic effects generated by investment in the construction of the proposed Main SRFI Site, and the effects resulting from its operation once completed. This includes the identification and assessment of likely direct and indirect effects relating to employment, labour force, productivity, crime and business rate revenue.
- 7.144 Socio-economic effects may also be generated by works at Junction 15a and the minor highways works, which are considered within the chapter where possible. These effects are expected to be primarily generated during construction, with significant socio-economic effects unlikely to be generated by these works once constructed and operational.
- 7.145 There is no overarching Government guidance that sets out the preferred methodology for assessing the likely socio-economic effects of development proposals. However, several methodological guides have been published that cover key elements of the assessment. Effects are assessed using an impact model, which draws upon this guidance, nationally published datasets, the parameters plan and the illustrative masterplan for the Proposed Development. Consideration has also been given to comments received during scoping and consultation.
- 7.146 Socio-economic effects are assessed at various spatial scales, based on an understanding of relevant local and wider economic geographies and the extent to which socio-economic effects are likely to be contained within these geographies. For the purposes of the assessment, socio-economic effects are established within the following study areas:
- A local impact area (the district of South Northamptonshire);
  - A wider impact area (comprising Coventry, Daventry, Milton Keynes, Northampton, South Northamptonshire and Wellingborough); and
  - A National impact area (England).

7.147 Within these impact areas, it is envisaged that construction of the Proposed Development is likely to generate significant socio-economic effects that are beneficial in nature, resulting from the creation of jobs and increase in productivity in the local economy. There are therefore no significant adverse socio-economic effects arising during construction that require mitigation. Beneficial effects generated during the construction phase include:

- An estimated 410 full time equivalent (FTE) jobs every year over a construction period of ten years and
- An estimated £20.4 million in gross value added (GVA) to the national economy each year.

7.148 Once completed, operational and fully occupied, significant beneficial effects relating to jobs, productivity and business rate revenue are likely to be generated. No significant adverse effects are identified through the assessment that require mitigation.

7.149 Beneficial effects generated during the operational phase include:

- 8,100 gross FTE jobs;
- An estimated 12,400 FTE jobs in the national economy when including those which are indirectly generated or induced;
- £555.6 million in GVA nationally; and
- £14.8 million in business rate revenue each year.

7.150 The Applicant is committed to ensuring that a skilled workforce is available to serve the Proposed Development and the labour force requirements of occupiers. As part of its commitment the Applicant proposes to establish a training “spoke” based at the Proposed Development. This would provide an onsite facility for delivery of training and the development of a skilled workforce to service the Proposed Development.

7.151 A Local Employment Scheme will also be developed, which will ensure that employment, skills and training benefits are delivered at key milestones, inclusive of investment in a training “spoke” facility. The Local Employment Scheme will include measures occurring at the construction and operational stages of the Proposed Development.

With regards to cumulative effects of the Proposed Development, no significant adverse effects are identified in the assessment that would require mitigation.

### **Lighting (Chapter 21)**

7.152 Good lighting is critical for the safe and secure functioning of businesses where people work at night to service distribution networks. As these businesses work over 24hr periods good quality night time illumination is a vital requirement which will ensure worker safety and business efficiency. However, the lighting approach for such

ventures must be mindful of being a 'good neighbour' especially when these are in rural or semi-rural environments.

- 7.153 Critically, it is important to understand the possible lighting design impact at night between these two equally important night time factors: operational safety and security; and minimising light pollution. The following methodology has been followed in order to qualify the potential impact.
- 7.154 A baseline survey of the existing lit nightscape in and around the proposed Order Limits for the Main SRFI Site and J15 Works was carried out in order to establish the existing baseline lighting level (lux) conditions. Then, given the fact that the exact design details of the Proposed Development are not known at this stage, an 'Operational Lighting Parameters' external lighting scheme was generated using a 'worst case scenario' approach. From this generic scheme a 'Illumination Impact Profile' (IIP) could then be generated, which shows the potential impact on a range of ecological, heritage and human sensitive receptors, of a lighting scheme at night so that a possible 'magnitude of change' could be assessed. Finally, once the magnitudes are identified embedded mitigation measures could be agreed so that, when an external lighting design scheme is undertaken at the detailed design stage, any residual impact from the lit site can be minimised.
- 7.155 In order to qualify any post-development lighting impact, the Environmental Zone of the proposed Order Limits location was assessed. The existing designation, use, habitat and external lighting condition dictates this classification across the proposed Order Limits and surrounding areas, by consulting the ILP's 'Guidance Notes for the Reduction of Obtrusive Light (2011)' which provides limiting obtrusive light guidance values in respect to the Environmental Zone classification.
- 7.156 In respect of this guidance, the proposed Order Limits and surrounding areas are considered to be the equivalent of an 'E2 Zone' classification, which is defined as 'Rural, low district brightness – Village or relatively dark outer suburban locations'.
- 7.157 In consultation with the wider design team a number of sensitive receptors which could be affected by the external lighting design of the Order Limits were identified, which include residential, ecological, transport and heritage receptors. These were identified and baseline lighting level survey readings taken at, or near, their locations.
- 7.158 Once the baseline condition was qualified an Operational Lighting Parameters external lighting scheme was modelled, using industry recognised software, with luminaires positioned across the site to ensure that recommended lighting levels associated with the various working aspects of the site (as defined by a number of British Standards and Industry Guidance documents), such as road lighting, loading/unloading etc. were met. At the same time measuring planes were placed at the various sensitive receptor locations so that lighting levels (lux) readings could be calculated to qualify any post development magnitude of change.
- 7.159 Finally an Illumination Impact Profile was undertaken to compare the magnitude of change between the pre-development baseline condition and the post development Operational impact. Such an assessment also takes into account a range of other light

pollution factors such as potential Direct Sky Glow, point source glare limits and potential light encroachment and trespass beyond the site boundary.

- 7.160 Following the conclusion of the above 3 elements (Baseline Survey, Operational Lighting Parameter and IIP), the results showed that across a large number and range of sensitive receptors, stringent embedded mitigation methods written into any future lighting design guidance for the detailed design stage of the sites' construction and operation will ensure that light pollution would be 'negligible adverse' in 24 of the 31 residential and transport sensitive receptors, and only 'minor adverse' in the case of the remaining 7. In terms of Direct Sky Glow, again this was calculated as being only 'negligible adverse' once embedded mitigation measures are taken into consideration. This is 'not significant' in EIA terms

## **Waste (Chapter 22)**

- 7.161 In common In common with all major development projects of any sort, the proposed development has the potential to generate waste material during its construction, operation and ultimately its decommissioning, which will require special handling, storage, treatment, transportation and management or disposal. These activities have the potential to affect people living close to and working on the proposed development, as well as the waste management industry whose capacity to accept waste would be required.
- 7.162 The indirect effects of waste generation from the project, on things like human health, via air quality or excavation of land affected by contamination and effects on the transportation network are assessed within the air quality, ground condition and traffic and transport chapters respectively, the waste chapter focuses on the potential direct effects on waste management infrastructure that waste generation from the development might have.
- 7.163 An initial stage of the waste assessment was to identify the relevant waste legislation and policy framework to set the standards by which the waste produced by the proposed development should be managed. The key element of waste policy is for waste management to operate at the highest level of the waste hierarchy as possible.
- 7.164 As with any assessment, a baseline needs to be established against which any changes brought about by the development will be measured. In terms of the waste assessment, the baseline is the extent and capacity of the waste management infrastructure of the surrounding area. Information regarding waste management capacity was sourced from the Environment Agency and Local Planning Authority. The Local Planning Authority also provided data in the form of a needs assessment for future waste management infrastructure as a result of their own waste forecasting.
- 7.165 Following the establishment of the baseline, the assessment identifies the significant waste streams that result from the various phases of the development.
- 7.166 As part of the construction phase, waste will be generated as a result of a number of specific activities such as site clearance and excavation but also as a result of generic construction waste from onsite personnel and from building materials waste.

- 7.167 Generic construction waste has been estimated using benchmarking data based on type and extent of the proposed land use classes within the development. However with respect to excavation data, the proposed design is such that all excavated material will be used for fill material elsewhere within the confines of the development where possible, with the result that no surplus material is planned as requiring offsite management.
- 7.168 The developers intend to produce a Site Waste Management Plan (SWMP), within which a number of mitigation measures will be detailed which will seek to minimise and manage all construction wastes. Therefore all construction waste has been planned to be managed at the highest level of the waste hierarchy achievable.
- 7.169 Based on a review undertaken within the assessment, when construction waste is removed from site, there are considered to be sufficient facilities within the local area and region to recycle, recover or dispose of it, and therefore, the effects of the construction waste generated from the Project have been assessed as minor adverse to negligible.
- 7.170 The assessment of the effects of the proposed development with respect to operational waste seeks to determine what significant changes to current waste arisings are anticipated as a result of the development, propose mitigation measures and assess the regional capacity for handling the likely operational waste streams.
- 7.171 Operational waste associated with the proposed land use at the site has been estimated through a benchmarking exercise undertaken with British Standards documentation. Much of the anticipated waste generated is likely to be similar in composition to Municipal Solid Waste (MSW) which is a non-hazardous waste stream. Based on the volumes and anticipated regional waste capacity available to deal with this type of waste stream, the effects of this operational waste generated from the Project have been assessed as minor adverse to negligible.
- 7.172 In terms of mitigation, the developer will promote sustainable waste management practices within their proposed developments to reduce the amount of waste generated and the significance of any effects from its disposal.
- 7.173 Cumulative effects as a result of the proposed development interacting with other development projects in the vicinity have also been assessed.
- 7.174 Potentially cumulative effects from construction waste generated by surrounding projects have been assessed as negligible based on the local waste management authority forecasting no growth in construction waste based on anticipated improved management due to increasing costs for disposal. Also the future calculated waste arisings for the local authority area will have included an allowance for new developments, and waste infrastructure has been planned accordingly. Finally it has been assumed that these new schemes will be required to follow the requirements of the local and national legislation and waste planning, including the maximisation of reuse and recycling of construction wastes through a site waste management plans and meeting targets for recycling of waste. Therefore, collectively, these developments are unlikely to significantly deplete the existing and planned waste capacity of Northamptonshire.

- 7.175 Similarly the potential cumulative effects of operational waste from other proposed development site in the region will have been accounted for in the waste forecasts and waste infrastructure planning. Also it is anticipated that similar mitigation measures will be required for other developments ensuring that the waste hierarchy (prevention, preparation for reuse, recycling, other recovery and disposal) and disposal to one of the nearest appropriate facilities are observed wherever practical and commercially viable. It is reasonable to conclude that other schemes would effectively mitigate the impact of their waste arising during their operation.
- 7.176 Given the current and predicted waste production levels within Northamptonshire, it is reasonable to anticipate that there shall be suitable capacity to effectively manage the wastes associated with all current and proposed schemes.
- 7.177 No significant residual effects have been defined following the implementation of mitigation measures.

### **Climate Change and Mitigation (Chapter 23)**

- 7.178 A climate change assessment has been undertaken to identify the effect of the Proposed Development upon the contribution of climate change and how climate change may impact the Proposed Development. The Assessment is structured into two specific categories:
- (i) Climate Change Mitigation – How the Proposed Development contributes to the cause of climate change through the emission or reduction of greenhouse gases (GHG) as a result of the proposed development; and
  - (ii) Climate Change Adaptation – How the Proposed Development is affected by the projected changes to the future climate and whether measures are required to adapt to this changing climate.
- 7.179 The methodology for the assessment has been guided by the requirements of the National Policy Statement for National Networks (NPSNN) and the most recent climate change EIA guidance from the Institute of Environmental Management and Assessment (IEMA).
- 7.180 With regard to the Proposed Development and the construction of a Strategic Rail Freight Interchange (SRFI), the NPSNN requires applications to ensure they are resilient to a changing climate and also to include a calculation of the carbon footprint to ensure it does not significantly impacts the Government's ability to meet its carbon budgets.

### **Climate Change Mitigation (GHG emissions)**

- 7.181 The Proposed Development will result in GHG emissions from a range of sources such as the combustion and consumption of energy and materials and the movement of vehicles for commuting and the movement of freight. These will occur during the construction, operation and decommissioning phases.
- 7.182 It is also important to note that during the operational stages of the SRFI its strategic location and scale will provide the infrastructure to move freight from road to rail which has a number of environmental benefits including a reduction in carbon

emissions, improved air quality and reduced congestion. A transport assessment has estimated that the SRFI will reduce road freight by approximately 20% through the transfer to rail.

- 7.183 A GHG assessment has been undertaken on the Proposed Development in accordance with the relevant legislation and guidance which demonstrates that the emissions during the construction phase are likely to result in a minor adverse impact upon climate change mitigation.
- 7.184 During the later parts of the construction phase and during the short and long term operational phases of the Proposed Development, GHG savings will occur as a result of this 'modal shift' and this will begin to offset GHG emissions from the operation of the buildings and infrastructure. The scale of GHG savings in the future will also be significantly affected by the expected decarbonisation of the grid and transportation network. A separate assessment has been undertaken to estimate how this may impact GHG savings from the operation of the SRFI which concludes that decarbonisation is likely to result in proportionally lower emissions from rail freight in the future when compared to road transport.
- 7.185 During the construction stage, operational emissions are estimated to be negative with a reduction (GHG saving) of approximately 1,000 tonnes CO<sub>2</sub>e. This increases during the short term operational phase (2029 -2038) as all of the SRFI is operational and more freight is moved from Road to Rail resulting in a GHG saving of 122,075 tonnes CO<sub>2</sub>e.
- 7.186 Predicting GHG savings beyond 2038 is difficult given the uncertainties in decarbonisation of the network. However, a 'worst case' assessment has been undertaken whereby if no further decarbonisation of the network occurred, then for the period of 2039-2050 the SRFI would reduce GHG emissions by approximately 205,131 tonnes CO<sub>2</sub>e.
- 7.187 One of the requirements of national policy is for SRFI's is to compare their GHG footprints with the Governments national carbon budgets to evaluate whether the project will affect the Government's ability to meet its carbon reduction budgets.
- 7.188 **Table 7.1** below presents the GHG emissions from the Proposed Development relative to the carbon budgets.

**Table 17.1: Cumulative GHG Emissions as a result of the Proposed Development**

Cumulative Emissions	2019 - 2028	2019 -2038	2019 - 2050	2019 - 2088
Carbon budget [million tCO <sub>2</sub> e]	4,378	7,500	9,991	N/A
Net Proposed Development Emissions [tCO <sub>2</sub> e]	<b>247,693</b>	<b>123,508</b>	<b>-116,488</b>	<b>-660,613</b>
Net emissions as % of CB	0.00063%	0.00016%	-0.00012%	N/A



- 7.189 It can be seen in Table 1 above, that the GHG emissions from the Proposed Development consist of a relatively small percentage of the carbon budget for the different phases and that if total GHG emissions between 2019-2050 are calculated, the SRFI is making a positive contribution to the Government's carbon budget through a reduction in emissions.
- 7.190 The NPSNN also encourages the use of mitigation measures to reduce GHG emissions where possible and therefore additional mitigation measures have been recommended for the construction and operational phases which are likely to result in further reductions in GHG emissions.
- 7.191 An assessment of the GHG emissions from the Decommissioning of the Proposed Development was also undertaken which, through a range of assumptions, calculated that decommissioning could result in a reduction in GHG emissions of 1,895 tonnes CO<sub>2</sub>e.
- 7.192 With regard to intra-project cumulative effects all relevant GHG emissions associated with other EIA topics have been considered within this chapter and no additional intra-project effects are considered likely.
- 7.193 With regard to inter-project cumulative effects the GHG emissions presented are based on circumstances specific to the Proposed Development and whilst external factors could have an impact on the quantity of estimated emissions, reasonable endeavours have been taken to ensure that likely scenarios are accounted for, for example in projections of future emission factors. Beyond this, there are no specific projects identified that are likely to have an inter-project effect on the quantity of GHG emissions.

#### **Climate Change Adaptation**

- 7.194 With regard to climate change adaptation, the assessment identified the potential future climate at the periods of 2020, 2050 and 2080. Qualitatively the future climate at 2020 within increasing variability to 2080 will consist of:
- An increase in annual average temperature in winter and summer;
  - More very hot days particularly in long term operation with an increase in daily maximum temperature;
  - More intense downpours of rain;
  - Increase in winter rainfall with reduced snowfall and winter rainfall increasing by up to 25%; and
  - An increase in dry spells particularly in summer months with summer rainfall dropping by up to 25%.
- 7.195 The potential impacts of these climatic factors have been considered for all phases of the Proposed Development with a number of embedded mitigation measures including

the use of drainage systems and specific measures within the Construction Environmental Management Plan (CEMP) to manage potential impacts associated with flooding, drainage and dust.

7.196 The assessment identified a number of significant environmental effects that may occur during the construction and operational phases as a result of the future changes in seasonal temperature and rainfall. As a result the following adaptive mitigation measures have been proposed:

- Use of best practice design and construction practices for the construction of foundations in line with relevant guidance including consideration of climate change.
- The application of the cooling hierarchy during detailed design, prioritising passive design features over mechanical cooling to enable buildings to remain comfortable under projected temperature increases.
- The use of Sustainable Urban Drainage Systems (SuDS) to reduce the risk of surface water flooding.
- Provision of measures to reduce water use in the operation of the buildings, by targeting water efficiency targets and the development of a plan to utilise rainwater for irrigation if possible.

7.197 With the adaptive mitigation measures proposed above it is considered that there are no significant residual environmental effects and the Proposed Development has sufficient resilience to the projected future impacts of climate change.

7.198 The assessment also considered the potential for climate change to effect other topics of the PEIR and it was noted that interactions occurred between climate change and the following topics.

- Air Quality- through the emission of dust in hotter drier summers;
- Ground Conditions – through the movement of ground as a result of temperature and rainfall;
- Hydrology, Drainage and Flood Risk – through the increase in rainfall resulting in a greater probability of flooding events;
- Utilities – higher temperatures may cause impacts to on-site electrical equipment; and
- Biodiversity – it is envisaged that climate change will result in some positive and negative impacts to on-site biodiversity which will result in negligible overall impacts.

7.199 Through the embedded and adaptive mitigation measures proposed all cumulative impacts have been addressed.

- 7.200 With regard to inter-project cumulative effects, the effects of Climate Change predominantly impact on the development rather than the development impacting on Climate Change, with the exception of flooding whereby other major development such as Northampton Gateway could result in greater flooding episodes. However it has been assumed that this development would be designed to reduce flooding impacts in a similar manner to this Proposed Development and therefore there are no inter-project cumulative effects.
- 7.201 The climate change assessment has concluded that the Proposed Development has a high resilience to the projected future impacts of climate change. An estimation of the GHG emissions from the Proposed Development has concluded that over the long term operation phase, there will be a positive contribution to the UK Governments carbon budget as a result of the SRFI moving freight from road to rail thereby reducing GHG emissions.

### **Health (Chapter 24)**

- 7.202 Health has been assessed in order to address any significant public health impact, and to inform the development of a proportionate assessment, where appropriate.
- 7.203 The scoping exercise included a review of construction, operational and decommissioning activities with the potential to influence health (both adversely/beneficially). Key health pathways with the opportunity to influence local health include changes in air quality, noise, road movements, and income and employment opportunities. However, each of these health pathways are already assessed and addressed through the following technical disciplines set to be protective of the environment and health:
- Chapter 9: Air Quality;
  - Chapter 18: Noise and Vibration;
  - Chapter 19: Highways and Transportation; and
  - Chapter 20: Socio-economics.
- 7.204 The Human Health Scoping Statement (provided in Appendix 24.1 to the PEIR) identifies that it has been agreed with the Northamptonshire County Council Public Health Team that all of the potential material effects on human health associated with the Proposed Development are already addressed through the wider technical disciplines to objective thresholds set to be protective of health (i.e. focus on precursors to health effects), and that no further health assessment is required. The consultation process, however, revealed that local communities are experiencing stress and anxiety from the DCO process itself. On this basis, and to aid transparency, a Human Health PEIR chapter has been provided to assist the reader of the PEIR by explaining how and where potential effects on human health are addressed through design and assessed through the wider technical disciplines within the PEIR.
- 7.205 During construction, any potential risk to human health from changes in local air quality, noise and traffic movements are considered to be adequately managed

through a dedicated Construction Environmental Management Plan (which includes a Dust Management Plan), Construction Traffic Management Plan, Framework Travel Plan (FTP) and Public Transport Strategy (PTS).

- 7.206 During operation, air quality levels are predicted to remain within objective thresholds set to be protective of the environment and human health and noise at residential noise sensitive receptors are predicted at worst case to be minor. Therefore, no significant adverse effects on human health are likely to occur as a result of changes in air quality or noise exposure.
- 7.207 Effects on transport during operation are expected to lead to a net reduction in traffic on the national road network but will increase the amount of traffic on the local road network due to employee commuting. However, any impact on severance, pedestrian amenity and accidents and safety due to increased traffic on the local road network is managed through the FTP and PTS. Following mitigation, the potential impact to health is not considered significant.
- 7.208 The Proposed Development is expected to provide a significant amount of jobs during the construction and operational phase. As long-term employment and income security is a key determinant of health, the Proposed Development will have significant health and wellbeing benefits for employees.
- 7.209 Overall, no significant residual effects are anticipated in relation to population and health and no additional health-specific monitoring is required as air quality and noise monitoring (precursors to health effect) will be undertaken.

### **Major Accidents and Disasters (Chapter 25)**

- 7.210 A structured risk assessment was undertaken to identify the Proposed Development's vulnerability to, and from, risks of major accidents and disasters. This assessment considered how the baseline environment (such as existing roads, utilities and rail infrastructure and natural risks such as flooding) could interact with the Proposed Development to generate a scenario where a potential major accident or natural disaster could arise.
- 7.211 For situations where the risk assessment identified potential risks for major accidents the embedded mitigation and management structure proposed was considered to include appropriate controls. The level of regulatory control and/or industry guidance in relation to the potential major accident situations was also considered. Where necessary, additional mitigation has been identified to reduce the accident/hazard risks to an acceptable level.
- 7.212 The objective of the assessment is to confirm that appropriate precautionary actions are taken, to avoid major accidents or disaster risks, which could have significant adverse effects on the environment (including people or infrastructure). The assessment identified potential risk events (including any embedded mitigation) related to utilities, rail infrastructure and the possibility that hazardous substances could be stored on site once operational. However, there are relevant embedded mitigation and risk management processes related to these potential events which reduce the risks. These include:

- Statutory compliance and adherence to common industry good practice and guidance is an appropriate minimum operational standard for the development.
- Establishment of roles, responsibilities, authorities and accountabilities in advance of the construction phase will be embedded within the construction contract performance requirements. The framework for construction phase management will be established by the code of construction practice (COCP).
- All relocation works of third party infrastructure will either be undertaken and contracted directly by the Statutory undertaker or undertaken by approved contractors to a standard appropriate for the Statutory undertaker and within the terms established by any protective provisions contained within any granted order.
- The contractors appointed to implement the construction will maintain a safe environment. Active risk management is considered to be standard industry approach as is implementing construction projects within an operational site. The framework for construction phase management will be established by the code of construction practice (COCP).
- Management of the SRFI with private rail freight train operators using the facilities (to move material on/off the rail network and for interim storage facilities) will be undertaken to Network Rail's requirements, as regulated by The Office of Rail Regulation (ORR).
- Freight services will be provided by suitably approved and regulated Freight Operating Company (FOCs).

7.213 All operators will be required to maintain statutory compliance within the Proposed Development with controls specific to the materials they are responsible for. Therefore, should hazardous substances or those that require regulation under COMAH be stored on site, the appropriate permits, approvals and operating practices would have to be implemented by the relevant operator.

7.214 The assessment concludes that appropriate mitigation, management or regulatory controls are, or will be in place to minimise the risk of major accidents or natural disasters. As a result, it is considered that there will not be any expected significant environmental effects of the Proposed Development deriving from the vulnerability to risks of major accidents and/or disasters.

### **Cumulative Effects Summary (Chapter 26)**

7.215 The PEIR has considered both inter and intra project cumulative effects as far as is possible at this stage.

7.216 The assessment of intra-related effects considers only those effects produced by the Proposed Development, and not those from other projects.

- 7.217 Inter-project cumulative effects arise as a result of the Proposed Development interacting with other developments/projects in the vicinity. An example of an inter-project cumulative effect may result from the proposed construction traffic for the project using the same access routes as other construction traffic for another unrelated major project in the vicinity. The resulting effect may be an increase in vehicles on the local road network and an increase in dust from construction vehicles over and above that which would be created by the development in isolation.
- 7.218 Chapter 26 of the PEIR provides an overview and summary of the findings of the technical chapters in relation to both inter and intra project effects.
- 7.219 Major Beneficial inter-project cumulative effects are assessed to arise in relation to 'jobs' during operation of the Proposed Development, in both the local and wider 'impact areas' that have been identified in the socio-economics assessment.
- 7.220 Moderate Adverse inter-project cumulative effects are assessed to arise in relation to Built Heritage in relation to the Proposed Development and the Northampton Gateway project, with reference to two properties.
- 7.221 Moderate Adverse landscape effects are assessed to remain at Year 15 of operation of the Proposed Development in relation to the Proposed Development and the Northampton Gateway project. There are also expected to be significant cumulative visual effects in relation to some Public Rights of Way.
- 7.222 Some adverse effects are no greater than identified by the Proposed Development when assessed in isolation.
- 7.223 Some adverse effects are not fully known at this stage, for example in relation to traffic generation.
- 7.224 Cumulative effects assessment is an iterative and ongoing process. It is accepted at this stage in the Project that further work will be required in relation to cumulative effects as the environmental assessment work progresses and as project information becomes more certain.
- 7.225 A full assessment and summary of cumulative effects will be provided with the DCO submission. Any significant adverse cumulative effects will be clearly set out, with mitigation and monitoring identified to reduce significant effects. Nevertheless, the assessments undertaken within the technical chapters of the PEIR reflect reasonably available information at the time of writing. The limitations of the assessment are acknowledged.

## **Conclusions (Chapter 27)**

- 7.226 The conclusions contained at Chapter 27 of the PEIR present a summary of the key environmental issues associated with the Proposed Development, as identified via the impact assessment work undertaken.

**Employment Benefit:** Once fully constructed and operational, the Proposed Development would support over 8,000 jobs. Construction of the SRFI will create an

average of 410 net additional construction jobs per year for the duration of construction. The applicant will develop skills and training measures which will maximise the proportion of jobs which are taken by local people during the construction phase.

- 7.227 Construction of the SRFI will also generate productivity impacts, with the construction phase expected to generate £20.4 million in Gross Value Added (GVA) per annum. Around £14.8m in business rates revenue would be generated every year.
- 7.228 Once construction is completed, the SRFI will be occupied by companies who will in turn employ people and create a subsequent round of economic impacts. Once occupied the Proposed Development is expected to directly and indirectly create 12,410 net additional FTE (full time equivalent) jobs in the national economy.
- 7.229 There would be significant employment and productivity benefits arising from the Proposed Development.

**Transport Benefits:** The highway proposals comprise a range of junction improvements, pedestrian and cycle improvements, Travel Plan measures, safety schemes and environmental enhancements. The proposed improvements to J15a of the M1 would provide a significant benefit to the operation of the wider highway network with trips returning to major routes and way from, in some case, minor routes. The Proposed Development would retain connectivity through the main SRFI site and enhance its permeability and accessibility through enhanced pedestrian/cycle routes and new local bus services. The mitigation package will provide an overall net-benefit and full mitigate the impact of the SRFI.

- 7.230 The scale of the Proposed Development offers the opportunity to achieve a critical mass required to facilitate significant modal shift from road to rail.
- 7.231 The Proposed Development estimates a 307% reduction in operational GHG emissions from a current baseline and a 739,668 tonnes of CO<sub>2</sub> will be saved through the shift of freight from road to rail.

**Environmental Benefit:** The provision of over 115ha of accessible green corridors landscaped areas, ecological mitigation and pocket parks as part of the Proposed Development are a positive proposition to the scheme. These areas would be positively managed to deliver a mosaic of woodland, species rich grassland, scrubland and amenity landscape. Over 26ha of land, located to the south of J15a of the M1 will be enhanced with additional hedgerows, scrub areas, field edge ponds, habitat provision for ground nesting birds and grazed wildflower areas. Additionally, deadwood from felled trees on the main SRFI site will be piled to create additional habitat.

- 7.232 For the vast majority of environmental topics assessed in the PEIR, it is not anticipated that the Proposed Development will give rise to any residual adverse effects that are considered as being significant. However, it is inevitable that some local adverse significant impacts are anticipated to occur; these include the following:



- Moderate adverse impacts associated with the permanent loss agricultural land including the loss of a small proportion of land identified as Best and Most Versatile Agricultural Land (BMV) and economic loss of farm holding.
- Some highly significant visual effects at a small number of local visual receptors (including a small number of residential properties and recreation routes and PROW) during construction and operation phase of the Proposed Development. The majority of these visual effects will reduce as the new planting is managed and matures. At year 15, the significant adverse visual effects will generally be limited to local users of recreational routes and PROW from elevated ground and in close proximity to the Site.
- The construction of the Main SRFI Site will give rise to highly significant adverse effects to local landscape character.
- There are a number of moderate residual effects that remain during the construction and operational phases for a number of heritage assets including Milton House, Mortimers, Milton Malsor Conservation Area, Grand Union Canal Conservation Area and the grade II listed lock No 10-11. These effects, however, are all assessed to be 'less than substantial' harm.

7.233 A list of the topics that result in significant residual effects (in the case of adverse effects, these are effects that remain 'significant' after all mitigation has been taken into consideration) is provided below.

**Table 7.2: Summary of All Identified Significant Residual Effects**

Topic / Type of Effect	Receptor	Phase of Development
<b>SIGNIFICANT RESIDUAL BENEFICIAL EFFECTS</b>		
<b>Moderate <u>Beneficial</u></b>		
<b>Landscape and Visual</b>		
Landscape Effects (Main SRFI Site)	Landscape Effects (Year 15)	Operation
<b>Highways &amp; Transportation</b>		
Traffic flows	Junction 11 - A45 / A43 / Ferris Row	Operation
<b>Socio-Economics</b>		
Jobs	Jobs – Local Impact Area	Construction
Economic Productivity	Economic Productivity – Local Impact Area	Construction
	Economic Productivity – Wider Impact Area	Operation
<b>Major <u>Beneficial</u></b>		
<b>Socio-Economics</b>		
Jobs	Jobs – Local Impact Area	Operation, Cumulative

	Jobs – Wider Impact Area	Operation, Cumulative
Economic Productivity	Economic Productivity – Local Impact Area	Operation
Business Rate Revenue	Business Rate Revenue – Local Impact Area	Operation

#### SIGNIFICANT RESIDUAL ADVERSE EFFECTS

#### Moderate Adverse

#### Agriculture

	Loss of agricultural land	Construction (and Cumulative)
	Loss of or damage to soil resources	Construction
	Loss of farmable area and/or farm infrastructure	Construction

#### Built Heritage

Built Heritage	Receptors (properties, locks, conservation areas) MM9, MM10, MM36, GU18, HW12, HW13	Construction
	Receptors (properties, locks, conservation areas) MM9, MM10, MM36, GU18/HW17, HW12, HW13	Operation
	Receptors (properties) MM36, MM10	Cumulative (in combination with Northampton Gateway)

#### Landscape and Visual

Landscape Effects (J15a works)	Landscape effects	Construction
Landscape Effects	Landscape effects (Year 15)	Cumulative, operation phase (in combination with Northampton Gateway)
	R5, R8b, R9, R10, R11, R12b, R18, R19	Construction
Visual (Residential)	R18 (Year 15) (in the absence of a third party agreement to manage the intervening field boundary to allow it to grow out, encourage top growth and maintain hedgerows at a taller height).	Operation
	R5 (Year 15) (in the absence of a third party agreement to manage the existing garden boundary hedgerows to encourage top	Operation

	growth and maintain them at a taller height, and the provision of offsite planting within the gardens or its boundaries).	
	R11 (Year 15) (in the absence of third party agreement to manage the existing garden boundary hedgerows, or other intervening field boundaries adjacent to Collingtree Road, to encourage top growth and maintain them at a taller height, and the provision of offsite planting within the gardens or its boundaries).	Operation
	KX5 and KX9	Construction
Visual (Public Rights of Way)	KX10 (Year 15) (in the absence of a third party agreement to manage the existing intervening hedgerow field boundaries adjacent to Collingtree Road and field boundaries to the south of the road. Hedgerows could be managed to grow out and tall, or targeted offsite planting adjacent to these field boundaries including the introduction of groups of large size feathered and semi mature deciduous trees.	Operation
Visual (J15a works)	Grand Union Canal (E)	Construction
Visual (Minor Highways Works)	Junction 6 A5076 / Hunsbury Hill Road Roundabout (Minor Highways	Construction
<b>Highways &amp; Transportation</b>		
Traffic Flows	Junction Five - M1 Junction 15a - M1 / A43 / A5123  To note: the effect is in relation to additional traffic flows through the junction. The result of that increased traffic flow on all of the other factors is negligible and on driver delay (with adaptive mitigation measures) is beneficial.	Operation
<b>Major Adverse</b>		
<b>Landscape and Visual</b>		
Landscape	Landscape Effects	Construction, and Cumulative (in combination with Northampton Gateway)
	R1, R2, R8a, R21	Construction
Visual (Residential)	R19 (Blisworth Lodge) Year 15  (in the absence of a third party agreement to	Operation

	manage the existing garden boundary hedgerows to encourage top growth and maintain them at a taller height, and the provision of offsite planting within the gardens or its boundaries)	
	KX7, KX8, KX13, KX15, KX16, RD1, RD22, RD3, RD6, KZ14 and RD12	Construction
Visual (Public Rights of Way)	KX5 (Year 15) (in the absence of a third party agreement to manage the existing intervening hedgerow field boundaries adjacent to Gayton Road. Hedgerows could be managed to grow out and tall, or targeted offsite planting adjacent to these field boundaries including the introduction of groups of large size feathered and semi mature deciduous trees).	Operation
	KX13, RD1 & RD22, RD3, RD6 & KZ14 (Year 15)	Operation
	RD3, RD6, KZ14, RD22 (Year 15)	Cumulative (Construction and Operation, in combination with Northampton Gateway)
Visual (Road Users)	Barn Lane (BLn) and Northampton / Towcester Road (TRd)	Construction
Visual (J15a works) (Canal and Public Right of Way)	Grand Union Canal (C), KX2 (PRoW)	Construction

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