



Transport and Works Act 1992

**The Network Rail (East West Rail Western Section Phase 2) Order
Draft Environmental Statement: Draft Non-Technical Summary**

June 2017

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1. Introduction

Purpose of this Document

- 1.1. This document is a non-technical summary (NTS) of the Draft Environment Statement (Draft ES) which has been prepared to summarise the outcome of the Environmental Impact Assessment (EIA) process.
- 1.2. This Draft NTS is intended to offer an overview, in non-technical language, of the main findings of the more comprehensive Draft ES. It focusses on content that is likely to be of interest to people living in the area, to help them understand how the Project will affect them and the environment in which they live, in order for them to express their views on the effects of the Project.
- 1.3. It summarises the findings of the survey work undertaken to date, as well as any survey work that remains outstanding. It also summarises the current proposals to alleviate environmental issues.
- 1.4. This document is part of an on-going consultation programme and reflects the current stage of the Project. Not all the information is complete or final and it does not, and is not intended to, convey *all* of the information relating to the Project and its potential effects on the environment.
- 1.5. Comments received through this consultation process may affect the EIA and its findings. Any conclusions or mitigation proposals may therefore change in the final version.

Contents of this Document

1.6. This Draft NTS describes why the Project is necessary, the alternatives which have been considered, the likely significant effects on the environment and the measures incorporated to minimise these effects (mitigation).

1.7. It specifically:

- sets out the background to the Project;
- explains the need and benefits of the Project;
- describes the route and the works that form part of this application;
- sets out how the Project interfaces with HS2;
- explains how the Project will be constructed and the proposed working hours
- explains how rail services will be operated;
- presents the alternatives that have been considered in developing the Project;
- presents the assessment of environmental impacts and the significant effects that have been identified; and
- identifies the proposed measures that will minimise the environmental effects of the Project, this includes measures already incorporated into the Project design.

2. East West Rail

Overview

2.1 East West Rail (EWR) is split into three distinct sections (see Figure 1)

- Western (Oxford to Bedford and Milton Keynes to Princes Risborough);
- Central (Bedford to Cambridge); the original rail link between Bedford and Cambridge was closed in the 1960s, dismantled and the land disposed of; EWR Central Section would reintroduce a rail link between the two locations; and
- Eastern (Cambridge to Norwich and Ipswich).

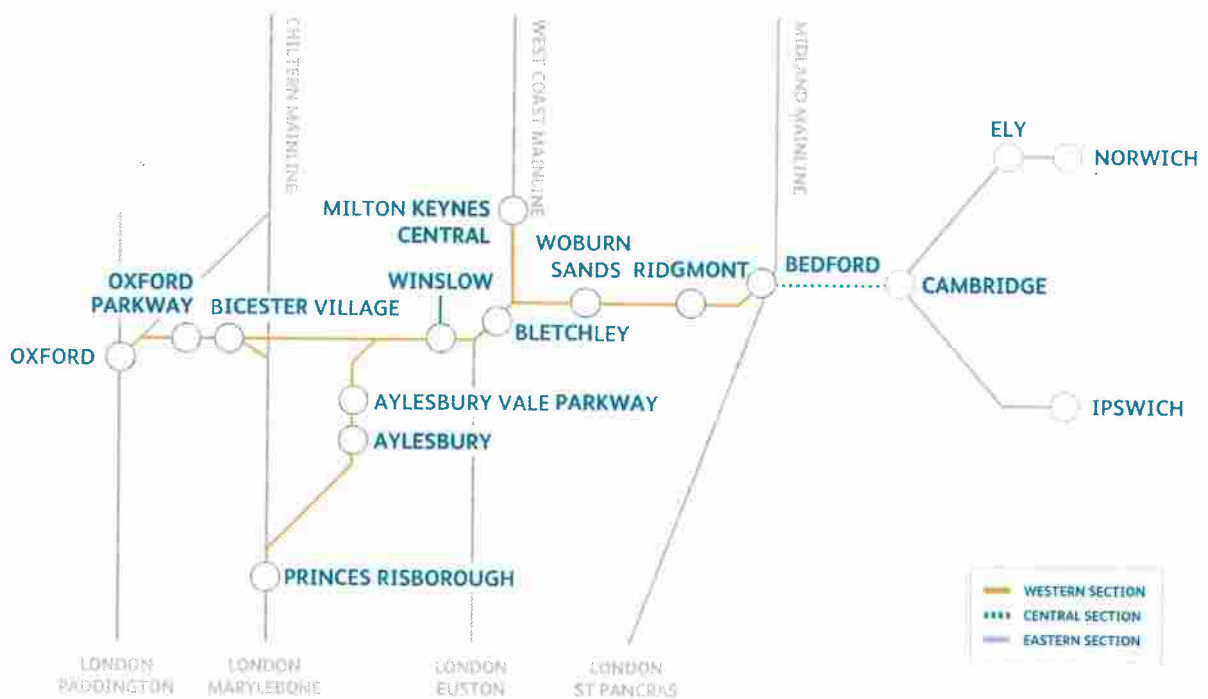


Figure 1 shows the three sections of East West Rail

2.2 Within the western section, there are two distinct phases of work; EWR Phase 1 (EWR1) and this project, EWR Phase 2 (EWR2) (see Figure 2).

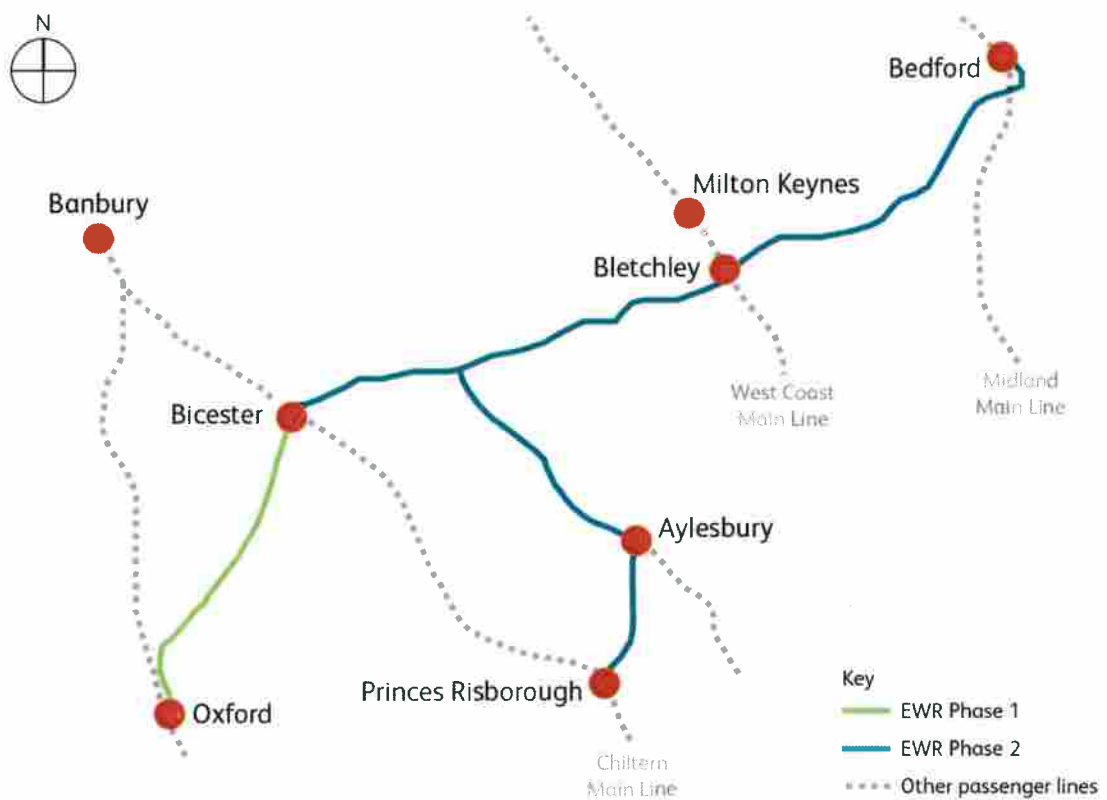


Figure 2 shows the two phases of EWR Western Section

- 2.3 EWR1 (shown in green in Figure 2) opened for train operations in December 2016. It involved widening the existing track bed; doubling over 18km of track; increasing the line speed to 100mph; constructing a new one kilometre section of track to connect the Oxford-Bicester line with the Chiltern mainline, new overbridges, underbridges and footbridges; closing 37 level crossings; building the new Oxford Parkway station at Water Eaton; upgrading Bicester Town (renamed Bicester Village) and Islip stations and installing a new signalling system.
- 2.4 The EWR2 project is shown in blue in Figure 2. The key proposals for EWR2 include alterations to, or replacement of, approximately 55 overbridges and underbridges along the route; improvement of facilities at approximately 40 level crossings, closure of approximately 15 highways, private roads and public rights of way (PRoW) level crossings; provision of replacement highway/PRoW bridges/underpasses or diversions at closed level crossings; a new railway station and ancillary facilities at Winslow, new platforms at Bletchley and Aylesbury Vale Parkway stations and platform extensions at Ridgmont, Woburn Sands and Princes Risborough stations to support the proposed new train services and increased passenger numbers.
- 2.5 The Project is approximately 60 miles (or nearly 100km) long. It crosses two County Council areas: Oxfordshire County Council (OCC) and Buckinghamshire County Council (BCC) and several local authority boundaries.

3. The Need for EWR

EWR Benefits

- 3.1 The strategic growth areas along the M11 corridor (Milton Keynes, Aylesbury, Bedford and Oxford) are key to the success of growing hi-tech, digital economic sectors.
- 3.2 The expected growth in demand for housing and employment within the EWR Corridor connecting the key hubs between Oxford and Cambridge will increase travel demands in an area where the existing transport networks are already congested, and this is expected to be worsened by the planned housing and employment growth.
- 3.3 Car is the most commonly used form of transport in the area and for the east-west route there is a lack of attractive public transport options.
- 3.4 Relying on private cars and congested roads leads to adverse consequences for the environment, including noise and air quality, for people's quality of life and for local businesses.

EWR benefits:

Provide infrastructure to support local authorities' ambition for substantial economic growth based on the creation of new private sector jobs and the development of major areas of new housing;

Provide connections between routes without passengers having to go via London. On completion, it will connect the Great Western, Chiltern, West Coast and Midland Main Lines north of London and become a vital strategic rail link in Britain's rail network;

Contribute positively to tackling climate change by providing a more sustainable means of meeting travel demands;

Enhance the capacity and flexibility of Network Rail's infrastructure by creating opportunities for alternative routing of passenger and freight services.

4. EWR2

Description of the Project

- 4.1 The majority of the Project is located in rural, predominantly arable, surroundings. Where the route passes through towns such as Bicester, Winslow, Bletchley, Milton Keynes, Bedford, Aylesbury and Princes Risborough, surroundings comprise residential, commercial, industrial and other urban land uses.
- 4.2 Between Bicester and Bletchley, the railway will be upgraded to two tracks and will see all level crossings replaced by bridges or alternative routes. New signalling and safety systems will be installed to allow trains to operate at speeds of up to 100 mph. Between the western edge of Grebe Lake to the level crossing with Queen Catherine Road, all necessary powers for the implementation of EWR2 have been authorised under the High Speed Rail (London - West Midlands) Act 2017 and will, therefore, not be included within the scope of the EWR2 TWAO.
- 4.3 Between Aylesbury and Claydon Junction, the upgraded railway will have two tracks and all level crossings will be replaced by bridges or alternative routes. New signalling and safety systems will be installed to allow trains to operate at line speeds of up to 90 mph. Between Station Road at the Buckinghamshire Railway Centre (near Quainton) to the connection with the Bicester/Bletchley railway (north of Calvert), the majority of powers for the Implementation of EWR2 have been authorised under the High Speed Rail (London - West Midlands) Act and therefore only discrete areas will be included within the scope of the EWR2 TWAO.
- 4.4 Between Bletchley and Bedford some level crossings will be replaced by bridges or alternative routes.

- 4.5 To meet the operational requirements of a modern railway, it will be necessary to widen the railway corridor in many locations. In such locations earth retaining features may be installed as an appropriate means of achieving an acceptable engineering solution.
- 4.6 A new station at Winslow will be constructed with two platforms able to accommodate trains of up to nine carriages, with step free access throughout. Passenger facilities will include a ticket hall, space for retail units, a transport interchange, a car park with 360 spaces (342 standard spaces and 18 restricted mobility parking) and cycle racks.
- 4.7 New station facilities at Bletchley and Aylesbury Vale Parkway stations will be constructed. At Bletchley, the new facilities will include two platforms able to accommodate trains with up to nine carriages, with step free access throughout and will be connected to the existing Bletchley station platforms. At Aylesbury Vale Parkway, the new facilities will include two platforms able to accommodate trains with up to nine carriages, connected by lifts and a footbridge with steps.
- 4.8 Platforms will be extended at the existing stations of Ridgmont, Woburn Sands and Princes Risborough.
- 4.9 The waste transfer facility at Calvert will be relocated, with necessary authorisation being provided by the High Speed Rail (London - West Midlands) Act 2017.

Interaction with HS2

- 4.10 Between the western edge of Grebe Lake (Calvert), Queen Catherine Road (Steeple Claydon) and Station Road (Quainton), the Project crosses an area covered by the HS2 project. Figure 3 shows the effect of HS2 on the existing EWR2 railway. As a result of this, approximately 12.5km of works to EWR2 are required within this area and have authorisation under the High Speed Rail (London - West Midlands) Act 2017.
- 4.11 The operation of the new EWR2 services through the HS2 Area is assessed in the Draft ES; however, the construction of the infrastructure within the HS2 Area has already been assessed by HS2 and so is not repeated here.

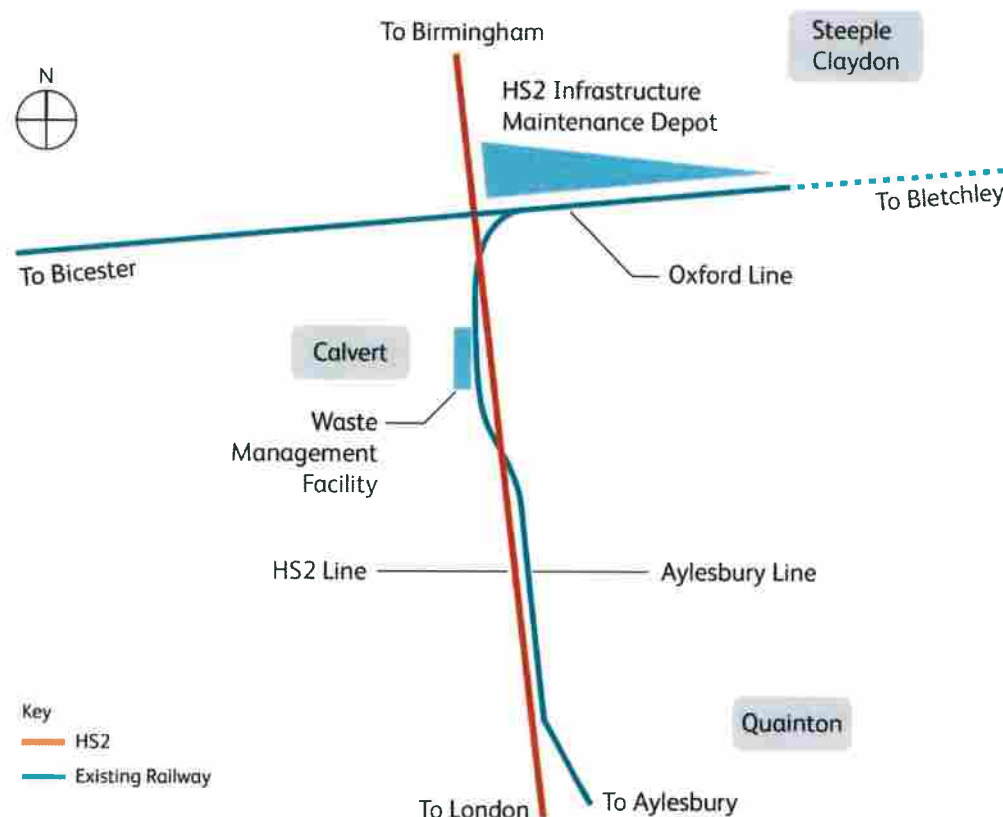


Figure 3 shows the effect of the HS2 project on EWR2

Construction of the Project

- 4.12 To assist construction planning, the Project area has been divided into five sub-sections; each approximately 5km in length.
- 4.13 As much of the Project area is operational railway, construction will require temporary restrictions on or closure of railway traffic.
- 4.14 The programme for construction works is in development and subject to the passage of the application through the public inquiry process. However, the current strategy of the EWR Alliance is for a five-year construction period for the main works between 2019 and 2024.
- 4.15 Each construction sub-section will include construction compounds and associated internal construction roads (where required). The size and location of the compounds depend upon the proposed works, access, consultation with landowners and environmental features
- 4.16 The main construction compounds are proposed at:
- Charbridge Lane, on the north side of the railway adjacent to Bicester Road, Bicester with access from the A4421 roundabout;
 - Launton Road on the south side of the railway line, adjacent to and with access from Bicester Road, Launton.
 - Little Horwood (Station Road)
 - Akeman Street, near Aylesbury
 - Adjacent to Junction 13 of the M1.
 - Brickworks Compound, Stewartby, accessed from Green Lane.
- 4.17 These compounds will be used to store materials and machinery and provide facilities for staff.
- 4.18 A number of smaller compounds are also proposed. These are located where new bridges will require construction.

4.19 The existing line between Bicester-Claydon Junction will be closed for most of the construction period along this section. All current freight trains to and from Calvert will be redirected via Princes Risborough and Aylesbury.

Working Hours

4.20 Working hours will differ depending upon the nature of the activity, the location and the constraints imposed by existing railway operations

4.21 Where work takes place under 'greenfield' conditions (i.e. no restrictions in place because of operational railway), core working hours are proposed as follows:

- Monday to Friday 07.00 - 18.00
- Saturday 08.00 - 16.00

4.22 Where work takes place under a blockade (where the railway is closed to traffic for a period of time), subject to work scope and programme, working hours will generally be 24 hours, 7 days a week.

4.23 Where work takes place under smaller closures of the railway, known as possessions, working hours are proposed for the duration of the possession as follows:

- Typical weekend possessions from 2200 on Saturdays to 0800 on Sundays;
- Disruptive possessions taking place over a full weekend duration, which can include Bank Holidays (Saturday, Sunday and Monday).

Operation of the Project

- 4.24 EWR2 has been developed by the East West Rail Alliance (EWR Alliance), an alliance of four equal parts made up of Network Rail, Atkins, Laing O'Rourke, and VolkerRail.
- 4.25 An independent East West Rail organisation will deliver integrated rail operations involving the timetabling, management and running of services between Oxford and Cambridge.
- 4.26 The Draft ES has been based on diesel operated passenger trains running at a top speed of 100mph, or at the design speed for the track where this is lower.

Construction Features

- 4.27 The construction of the Project involves the following features:

Feature	Description
Track	Installation of new and reinstatement of existing track.
Earthworks	Construction of new and refurbishment of existing earthworks (cuttings and embankments) to accommodate new structures and widening of the railway to meet modern safety requirements.
Stations	Construction of a new station at Winslow. Provision of new platforms at Bletchley and Aylesbury Vale Parkway stations. Platform extensions at Princes Risborough, Ridgmont and Woburn Sands stations.
Highway crossings	Construction of new highway overbridge crossings of the railway where existing highway level crossings are to be closed.

Feature	Description
Foot crossings	Construction of new footbridge crossings of the railway where existing footpath level crossings are to be closed.
Structures	Construction of new and reconstruction, refurbishment or alteration of selected structures, such as bridges, to bring them up to date with modern railway standards.
Signalling	Provision of new and refurbishment of existing signalling and associated cabling.
Telecommunications	Provision of new telecommunications facilities and associated cabling.
Electrical and Power	Provision of power cables to serve railside and station infrastructure.
Drainage and culverts	Refurbishment and reconstruction of existing culverts and track drainage.
Ancillary infrastructure	Additional elements to ensure the Project is built and operated in a safe, efficient manner, such as fencing, lighting, electrical connections, pedestrian and vehicle access.
Maintenance infrastructure	Provision of permanent maintenance compounds and rail access points for vehicles and/or pedestrians.
Environmental infrastructure	Provision of planting, habitats and infrastructure for environmental mitigation.

5. Consideration of Alternatives and Design Evolution

- 5.1 An important part of the EIA process is to consider the 'alternatives' to the Project.
- 5.2 For this project there were no other 'alternative locations' for the Project as it is based on the existing railway.
- 5.3 However, options for various parts of the Project have been considered, for example, the location of new highway bridges, replacing a crossing with a stepped or ramped footbridge or diverting to another crossing and the location of compounds. Social and environmental factors were considered, along with a range of other issues such as safety, cost and how difficult it is to build, while weighing up these options. The EWR Alliance has refined the design to avoid or reduce the environmental and social impact of the Project.
- 5.4 Examples include, but are not limited to:
- Moving a replacement bridge to avoid loss of ancient woodland;
 - Moving construction compounds to avoid floodplain or archaeology, or provide a buffer to people or animals;
 - Moving temporary construction site roads to avoid ponds or woodland; and
 - Review of locations of track junctions, keeping them away from people as far as possible, as these are where train noise can have a greater impact.
- 5.5 Chapter 3 (Consideration of Alternatives) of the Draft ES discusses the key alternatives considered in more detail.

The 'Do Nothing' Alternative

- 5.6 The EIA process requires the consideration of the 'do-nothing' scenario i.e. what would occur if the proposed development did not go ahead. Under the 'do-nothing' scenario, there would be no physical changes to the environment, whether positive or negative.
- 5.7 In general, the roads around the project area suffer from congestion and a lack of public transport. Without the Project, the existing highway network would need to support all transport requirements for the area. Given the expected population and economic growth in the area, traffic congestion levels in the 'do-nothing' scenario are likely to get worse, leading to a degraded quality of life for the local community because of environmental problems associated with air quality, noise, traffic, access to jobs and public services, and climate change. Further road building would be the only other option to manage these problems. Therefore, under the 'do nothing' scenario, the benefits from the project would not happen.

6. ENVIRONMENTAL IMPACT ASSESSMENT (EIA)

The EIA Process

- 6.1 The TWAO rules require an EIA to be carried out. The purpose of an EIA is to inform the decision-making process of the 'likely significant adverse effects' of a proposed project so that these can be assessed as part of the consenting process.
- 6.2 The EIA undertaken for the Project assesses the potential environmental effects from both the construction of the Project and the operation of the new rail services. The EIA predicts how significant the environmental effects will be and then puts forward measures (referred to as mitigation) to minimise the significant adverse effects. The EIA also predicts if and what effects remain even with these mitigation measures in place, these are called the 'residual effects'.
- 6.3 The EIA process and findings of the assessments are reported in the Environmental Statement (ES). A Draft ES is provided as part of the scope for Round Two Consultation. The Draft ES provides environmental information available to date and includes the environmental impacts assessed so far, as well as the proposed measures identified for managing and reducing them.
- 6.4 The Draft ES has assessed all elements of EWR2 to the extent that they have not already been environmentally assessed as part of a separate preceding authorisation process (e.g. the High Speed Rail (London - West Midlands) Act 2017, as authorised by Parliament). The Draft ES has assessed the cumulative effects (both construction and operational) of EWR2 with other authorised developments.

The Scope of the Assessment

- 6.5 To focus the assessment on the relevant issues, it was necessary to determine the correct 'scope' of the assessment. This meant agreeing the environmental topics that are to be assessed, the geographical area within which significant impacts are likely to occur and the duration of those impacts (whether they are temporary or permanent).
- 6.6 The assessment team identified the scope of the assessment in consultation with relevant local authorities and statutory bodies.

Topics Assessed

- 6.7 The following environmental topics have been assessed:

- Land Use and Agriculture;
- Cultural Heritage;
- Air Quality;
- Ecology;
- Noise and Vibration;
- Geology, Soil and Land Contamination;
- Landscape and Visual Impacts;
- Water Quality and Flood Risk; and
- Traffic and Transport.

- 6.8 In addition, the Project has been assessed with respect to its compliance with planning and other policies.



Assessing Significant Impacts

- 6.9 A significant impact has been defined as one that, in the opinion of the assessment team, based on a consideration of recognised assessment criteria, should be taken into account in the decision-making process.
- 6.10 The significance of an impact is derived from the magnitude of the effect and the sensitivity of the receptor (i.e. the person, species, habitat etc. that might be affected).

Mitigating Impacts

- 6.11 Mitigation is how the Project will, where reasonably practicable to do so, avoid, reduce or remedy significant adverse impacts. Mitigation of environmental impacts has been a key consideration throughout the planning and design of the Project.
- 6.12 Many of the predicted adverse impacts will occur during the construction phase.
- 6.13 The Project has defined a range of mitigation measures relating to the construction of the Project and how this will be managed, to ensure that impacts are controlled and mitigated. These measures represent a minimum level of mitigation that the Project will be committed to providing.
- 6.14 In many cases, mitigation will ensure that significant adverse impacts can be avoided. For example, there is the potential for dust nuisance during construction: we will use hard surfaces for haul routes and have localised areas of site hoarding boards between properties and construction site.
- 6.15 The following sections of this draft NTS set out what impacts the assessment for each topic has identified during construction and, where appropriate, operation, along with the proposed mitigation measures.
- 6.16 Because this is a summary, impacts are not described in detail and reference is not be made to every location.

7. ENVIRONMENTAL TOPICS ASSESSED

Land Use and Agriculture

Construction Phase

- 7.1 Temporary land take will be required for construction compounds, storage and construction roads. This includes mostly farmland, but also land across gardens of some properties. Access to several properties and other locations has also been identified as being affected.

Operational Phase

- 7.2 Land permanently required by the Project includes:
- A small strip of land within Pear Tree House, Steeple Claydon.
 - Approximately 20% of the allotment gardens off Charbridge Lane, Bicester. However, replacement land will be provided for the allotments to ensure there is no net loss of plots.
 - A narrow strip of land at the back of the gardens of properties on Highfield Road, Winslow.
 - The area proposed for environmental mitigation at Woburn Sands has planning permission for a residential development. Permanent use of this area for habitat mitigation may therefore reduce the number of dwellings that can be developed.
 - Land at Chuffer Cottage and an adjacent building by Marston Road, Lidlington. Permanent land take will be required for the overbridge earthworks and the buildings will be demolished.
 - A property at Kempston Hardwick would be demolished.
 - Land at the front gardens of four of the Eastwood Cottages, Kempston Hardwick.
 - Land at the boundary of Springfield Farm and Oak Tree Park in Little Horwood.

Measures to Minimise Effects

- 7.3 The EWR Alliance has looked at how to reduce land take as far as practicable. Alterations to the temporary and permanent works have also been made to reduce the impact on farmers and businesses.
- 7.4 Arrangements will be put in place so that people will still be able to access their homes, farms or businesses as well as any services such as water supplies and drainage. Construction areas would be fenced off to prevent access onto adjacent areas of land.
- 7.5 Any temporary land take will be restored to their previous condition following the construction works.
- 7.6 Land holdings affected by the Project will be subject to appropriate compensation.

Cultural Heritage

- 7.7 The Project may have impacts upon both buried Archaeology and the setting of historic buildings and places.

Buried Archaeology

- 7.8 Construction works may lead to the loss of buried archaeology (where present). One example of this is the site of the proposed overbridge at Kempston Hardwick.
- 7.9 Further site investigation will be taking place to understand what buried archaeology exists.

Historic Buildings and Places

- 7.10 No protected historic buildings or places (registered parks and gardens, listed buildings or conservation areas) will be lost as a result of the Project. The Project may affect their 'setting'. This might be from a temporary or permanent change in a view from or around that historic building or place. The following are the most important examples of this:
- Construction works for Moat Farm overbridge and construction access routes, will permanently affect the settings of two non-designated heritage assets;
 - Change in the setting of St. Mary's Church in Launton and of a listed barn south of Manor Farmhouse;
 - The partial demolition of a platform (listed) at Quainton Railway Station, Quainton;
 - The rolling rural views that were used as a design concept for the landscape of Claydon Estate will contain the upgraded EWR2 railway.
- 7.11 Some hedgerows classed as 'historic hedgerows' may be lost because of the Project. The full extent of this will be assessed in the final ES.

Measures to Minimise Effects

- 7.12 The design of the Project has considered both archaeology and historic buildings and places and has minimised impacts by considerate location and design wherever possible. These measures include: keeping current vegetation, reinstating planting and sensitive routing of construction traffic. Temporary visual screening may also be considered in some key locations.
- 7.13 Surveys, investigative fieldwork and archaeological recording will take place prior to construction, in consultation with the County Council Archaeologists, so that any findings can be identified, recorded and removed before construction work starts. On this basis, there will be no significant impacts.

Air Quality

Construction Effects

- 7.14 Activities can result in air quality issues from both vehicles emissions and dust from activities such as demolition of bridges, moving earth or delivering track stone. These will be temporary (during construction only). Properties at risk of dust nuisance include those located less than 200m from the proposed compounds and overbridge construction sites.

Operational Effects

- 7.15 Operation of the Project will give rise to increased emissions to air from the operation of diesel locomotives or from new sections of highway being built closer to or further from residents.

Measures to Minimise Effects

- 7.16 Mitigation is proposed to minimise construction dust effects, including: use of hard surfaces for haul routes; regularly damping down surfaces; covering lorries leaving the construction site, monitoring of construction areas; localised areas of site hoarding boards between properties and construction site and seeding areas of long term soil storage. With these measures in place, there are no predicted significant effects from dust.
- 7.17 Monitoring of air quality will be carried out during the construction period and the Network Rail 24-hour phone line on 03457 114141 will be available to receive any complaints should they arise.

Ecology

Construction Effects

- 7.18 Construction of the Project will require the removal of areas of vegetation and land take which will result in the loss of habitat such as grassland, woodland, riverbank, waterbodies and scrub. A large proportion of this habitat loss will be between Queen Catherine Road, Steeple Claydon and Winslow, within the 'mothballed' section of railway which predominantly provides semi-natural grassland and scrub habitat. However, it will also extend to include land within Biological Notification Sites, Local Wildlife Sites and from the banks of the River Ouzel. The demolition of a building may also remove bat roosts.
- 7.19 The areas of habitat to be removed are suitable for great crested newts, otters, invertebrates, water voles, reptiles and the black hairstreak species of butterfly, amongst others.
- 7.20 Habitat loss will adversely affect animals present in these areas, as the habitat may be used for foraging, nesting or as flight paths between roosts.
- 7.21 In addition to removing habitat, vegetation removal from the banks of watercourses can degrade the ecology of the watercourse through increased erosion and sediment input.
- 7.22 Construction works may disturb species near to the area of works due to impacts such as noise, vibration, lighting and the movement of vehicles. For example, noise and vibration may adversely affect breeding birds at Sheephouse Wood and Grebe Lake, and may further disturb populations of water vole, otter and wintering gulls.

Operational Effects

- 7.23 Due to the increase in train operating frequencies, there is an increased risk of collision to species that use habitat nearby the railway, such as bats and Barn Owl.
- 7.24 A bat mitigation structure is proposed as part of the HS2 development within the Sheephouse Wood SSSI, and is proposed to be extended over the EWR lines in order to avoid killing bats from collisions from the operation of the EWR services. The structure extension itself will result in additional shading of an area within the ancient woodland, reduction in tree canopies and potential damage to tree roots.

Measures to Minimise Effects

- 7.25 The project design and Draft CoCP includes measures that avoid or minimise impacts upon ecology. This includes (amongst other measures):
- Reduction in the area of land required, therefore reducing habitat loss and impacts upon animals;
 - Existing habitat will be enhanced and new habitat created, including woodland, hedgerow and grassland habitat as well as about 50 proposed ecological sites throughout the project area, which will provide new areas of habitat for impacted species;
 - Areas of land which are required for construction but not operation will be restored;
 - River restoration, will compensate for the loss of river habitat; and
 - Strict measures will be followed during construction to avoid disturbance to species, including measures to control light, noise and vibration and monitoring to ensure effectiveness.

Noise and Vibration

- 7.26 A survey of existing noise and vibration conditions has been undertaken throughout the Project area, particularly residential homes near to the Project. Modelling software has then been used to predict the level of noise from construction and operation of the Project.

Construction Effects

- 7.27 Noise and vibration levels can go up during construction due to vehicle traffic and construction equipment such as excavators, cranes and hoists, asphalt spreaders, piling rigs, and assorted smaller equipment such as compressors, welding equipment and hand tools. The loudest source of construction vibration impacts will be from piling. Construction noise calculations have been based upon a worst-case scenario of this equipment being used simultaneously; this will be refined for the final ES.
- 7.28 Construction noise and vibration impacts are predicted, at mostly residential dwellings close to the works or compounds such as those at Calvert, Winslow, and Verney Junction. Construction vibration is unlikely to have an impact beyond 10m.
- 7.29 As consultation with the Local Authorities is currently on-going regarding construction and operational traffic information, the construction noise traffic assessment has not been completed at this stage, but will be presented in full in the final ES.

Operational Effects

- 7.30 Once the new train services are running, there will be some noise and vibration impacts. The impacts during operation are likely to be upon homes that are close to or adjacent to the railway.
- 7.31 Noise from vehicles on local roads will be brought closer or moved further away from some residents following works to close level crossings, including new replacement bridges and highway works.

7.32 Acoustic mitigation (for example, fencing or bunding) will be used to reduce operational noise for properties close to the railway line in the following areas: Steeple Claydon, Calvert, Quainton, Verney Junction, Winslow, Aylesbury, Waddesdon, and Quarrendon. Additionally, some properties will be eligible under the Noise Insulation Regulations for noise insulation compensation.

Measures to Minimise Effects

7.33 Measures to minimise noise and vibration impacts are incorporated within the project design where appropriate. This includes:

7.34 Locating operational noise and vibration 'hotspots' (such as at junctions) away from sensitive receptors;

- Planned routine track maintenance;
- use of acoustic barriers or bunding;
- Use of quiet machinery during construction and ensuring vehicles and equipment are fitted with exhaust silencers;
- Carrying out construction works during the day wherever practicable;
- Considerate positioning of noisy equipment.

Geology, Soils and Land Contamination

Construction Effects

7.35 Activities and works during the construction of the Project have the potential to result in the following:

- Excavation, storage and removal of potentially contaminated materials;
- Encountering landfill gasses at known historic landfills;
- Introduction of potentially polluting substances through storage of chemicals, solvent and the use of fuels/oils;
- Increased amounts of sediment and solid material in surface water;
- Exposing construction and future maintenance workers to contaminants; and
- The potential for contaminants to enter groundwater.

Measures to Minimise Effects

7.36 The project design includes measures to reduce impacts upon geology, soils and land contamination. This includes:

- Areas of contamination being identified and remediated by specialists prior to construction;
- Construction workers being provided with environmental awareness training, appropriate personal protective equipment and provided with hand washing facilities;
- Any work undertaken near known landfills will incorporate control measures for the possibility of encountering landfill gas into the risk assessment;
- Construction working areas being well delineated and kept secure to prevent trespass;
- Specific dust and silt mitigation measures being implemented; and
- Preventing re-fuelling from taking place within 10m of a watercourse.

7.37 With the measures outlined above in place, no significant effects are identified.

7.38 Drainage improvements associated with the Project will result in a beneficial effect by reducing the risk of pollution of groundwater.

Landscape and Visual

7.39 The landscape and visual assessment has identified landscape features that may be sensitive to change. Vegetation will be retained wherever possible. However, the presence of construction works, compounds, and the removal of vegetation will change some views along the route.

7.40 The most important changes are listed below:

- a significant effect on the character of the parkland setting of Horwood House: a listed building;
- effects on the tranquillity of several nearby villages including Launton;
- localised change in Landscape/Townscape Character Areas, such as Denbigh West and Fenny Stratford and the surrounding landscape along the route;
- diversion or closure of several local public rights of way, primarily because of the closure of level crossings and construction of new overbridges; and
- disturbance to National Cycle Route 51 due to land take requirements.

Measures to Minimise Effects

7.41 Some views of construction compounds will be screened by hoarding boards or earth banks and vegetation will be retained wherever practicable.

7.42 During the Project's opening year, areas of temporary land take will be restored, all stored topsoil will be replaced and grass will establish. Where possible along the route and in pockets of land adjacent to new overbridges, trees and hedgerows will be planted to help the Project blend in. However, the full extent of vegetation removed will not be replaced due to operational constraints. The new trees and hedgerows will not be mature.

Effects Remaining with Measures

- 7.43 New planting takes time to grow sufficiently to replace that lost. Until then, adverse landscape and visual effects will remain on the setting of Horwood House, several Local Character Areas, sensitive viewpoints and properties along the route. As tree and hedgerow planting grows, visual effects will be reduced; however significant effects on the Townscape Character Area at Denbigh West and Fenny Stratford remain.
- 7.44 Even with planting, the new highway bridge at Manor Road, Kempston Hardwick will appear at odds with the relatively flat surrounding landscape.

Water Quality, Hydrology and Flood Risk

Construction Phase

- 7.45 Compound and works close to watercourses include, amongst others, those near to Bear Brook, River Thames, River Ouzel and Swanary Pulman Lake. Accidental pollution from construction works could occur, including silt, oils or other hazardous substances from construction works and compounds.
- 7.46 Some construction compounds and areas of works are proposed in areas at risk of flooding or floodplains, such as the new footbridge at Woburn Road, Kempston. The location of construction works and compounds within areas identified at risk of flooding could also increase risk to adjacent properties and pose risk to construction workers.
- 7.47 Strengthening works to the railway bridge over the River Ouzel would require a temporary structure to be placed within the river in order to facilitate the works. This structure would be placed within an area at risk of flooding, therefore presenting an increased risk to construction workers during a flood event. The temporary structure would also obstruct the existing river flows and potentially increase the risk of flooding to nearby properties.

Operational Effects

- 7.48 Due to the widening of embankments or new bridges in areas at risk of flood, there will be a permanent loss of floodplain area (and therefore storage capacity). Affected rivers include Langford Brook, extension and replacement of culverts associated with Bear Brook and Fleet Marston Brook.
- 7.49 The Project crosses many watercourses and includes many bridges and culverts. Several existing culverts will need to be extended to cater for the widened embankments. Some of the watercourses within the vicinity of the Project may require diversion or realignment. This could lead to an increase in flood risk if the capacity of the watercourse is reduced, or to increased flood risk associated with changes to the existing flow of water in the area.

Measures to Minimise Effects

- 7.50 Potential impacts upon water have been avoided through considerate design, with measures including:
- avoiding locating compounds, new bridges or embankments in floodplains wherever possible;
 - minimising the area of hard surfacing in areas of flood risk; and
 - avoiding diversion or culverting watercourses.
- 7.51 Measures to minimise effects on water have been included in the project design; these are as follows:
- scrapes/land lowering providing like-for-like for loss of floodplain; and
 - providing new modernised drainage systems.
- 7.52 Measures to protect the water environment during construction are included within the Draft CoCP, and will include the prevention of pollution, procedures in case of accidental spillages and monitoring. Where a construction compound is proposed within a flood risk area, a Flood Emergency Response Plan will be produced and implemented.

- 7.53 Good construction site practice will be undertaken to minimise flood risk impacts.
- 7.54 Any minor watercourse diversions, where culverts are extended, will be designed carefully and with the consent of the EA. The overall length of natural watercourse will be the same or increased.
- 7.55 Further work in developing mitigation measures is on-going as the design of the Project progresses.

Traffic and Transport

- 7.56 The assessment of construction and operational effects from traffic and transport changes brought about by the Project are the subject of on-going detailed consultation with Local Highway Authority stakeholders, with regards to traffic projections and methodology. The final ES will set out the results of this assessment.
- 7.57 Traffic and Transport has therefore not been considered further in this Draft NTS, but will be summarised in full within the NTS accompanying the final ES.

Cumulative effects

- 7.58 Cumulative effects are those caused by more than one environmental impact, or changes, which when added together create an effect over and above that created by each individual impact. Important cumulative effects are considered in the cumulative assessment.
- 7.59 Chapter 16 (Cumulative Effects) of the Draft ES considers inter-project and intra-project effects, which are explained and summarised below.
- 7.60 'Inter-project' effects consider other developments in the vicinity in addition to the Project, for example, one population of protected species affected by the Project as well as a new housing development.

- 7.61 All relevant planning applications or development plans submitted will be considered and reported in the final ES.
- 7.62 'Intra-project' effects consider more than one different environmental topic affecting the same place, for example, one residential property experiencing both excessive noise, vibration, traffic and changes to views.
- 7.63 To establish a common ground between the findings of each environmental topic, the assessment of intra-project effects considers the following groups:
- Human;
 - Property;
 - Ecological;
 - Cultural heritage;
 - Landscape;
 - Controlled waters;
 - Geological resources; and
 - Commercial.
- 7.64 The assessment identified that intra-project cumulative effects are only predicted upon human and ecological receptors. Further details can be found in Chapter 15 of the Draft ES.

8. Providing Feedback

- 8.1 This document is a summary of the environmental assessment work undertaken to date and the key findings of the Draft ES. This information forms part of the suite of consultation materials for Round Two Consultation on the Project.
- 8.2 Round Two Consultation starts on 30 June and ends on 11 August 2017.
- 8.3 Comments on this document and suite of supporting consultation materials can be submitted online, by post or by email in the following ways:
- Download the East West Rail Consultation app by scanning the code appropriate to your device shown below (you may need to download a QR-code app first) and use the feedback facility;
 - Write to FREEPOST EAST WEST RAIL CONSULTATION (no stamp required)
 - Email ewrconsultation@networkrail.co.uk

Download the
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8.3 As part of the Round Two Consultation, 10 consultation events will take place between 10 and 21 July. Local communities and stakeholders will have the opportunity to view consultation materials, talk to members of the Project team and give feedback on the Round Two Consultation materials. Event dates, times and locations are detailed below:

Location	Date	Time	Address
Bicester	10 July	12-8pm	John Paul II Centre, Henley House, The Causeway, OX26 6AW
Bletchley	11 July	12-8pm	Scots Sports and Social Club, Selbourne Avenue, MK3 5BX
Winslow	12 July	12-8pm	Public Hall, Elmfields Gate, MK18 3JG
Launton	13 July	12-8pm	Sports and Social Club, Bicester Road, OX26 5DP
Waddesdon	14 July	12-8pm	Waddesdon Village Hall, Baker Street, HP18 0LQ
Newton Longville	17 July	3-7pm	Newton Longville Village Hall, 2 Paradise, MK17 0AQ
Bedford	18 July	12-8pm	Harpur Suite, St. Paul's Square, MK40 1SJ
Marston Moretaine	19 July	12-8pm	The Forest Centre, Station Road, MK43 0PR
Chamdon	20 July	3-7pm	Chamdon Community Centre, Steeple Claydon Road, OX27 0BL
Princes Risborough	21 July	12-8pm	Elim Church, Risborough, 9 Bell Street, HP27 0DE