

Appendix A.7: EIA Scoping Report

East Reading Mass Rapid Transit Scheme

EIA Scoping Report

On behalf of **Reading Borough Council**



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1 Introduction

1.1 Project Background

- 1.1.1 This Environmental Impact Assessment (EIA) Scoping Report has been prepared in respect of a full planning application for a new mass rapid transit (MRT) scheme to the east of Reading, Berkshire (referred to as the 'proposed development'). The application is being promoted by Reading Borough Council (RBC) Highways and Transport Department as the local highways authority.
- 1.1.2 An indicative area of works of the proposed development is included in **Appendix A**.
- 1.1.3 The proposed development straddles the two Local Planning Authority areas of RBC and Wokingham Borough Council (WBC). The planning application will therefore be submitted to both RBC and WBC for determination.
- 1.1.4 The proposed development would provide a new dedicated public transport link from central Reading to existing residential and employment areas to the east and south-east of Reading, including Thames Valley Park (TVP), Woodley, Winnersh and Wokingham.
- 1.1.5 The development proposals are being delivered in accordance with the following planning policies:
- RBC Core Strategy (adopted 2008 & updated 2015) Policy CS21;
 - RBC Central Area Action Plan (2009) Policy RC1 & RC3;
 - WBC Core Strategy (2010) Policy CC10; and
 - WBC Managing Development Delivery Local Plan (2014) Policy CC08.
- 1.1.6 A description of the Site and its wider environmental setting is set out in **Section 2** of this report and an outline of the proposed development is set out in **Section 3**. The proposed scheme is on land within WBC that is safeguarded for the strategic transport network including mass rapid transit along the A4/A329 corridors (Appendix 3 of the MDD Local Plan). Policy CS21, together with Policies RC1 and RC3 of the Reading Central Area Action Plan and accompanying Figure 6.2, add that land <within RBC> needed for implementation of the MRT scheme (identified as running east from Napier Road) will be safeguarded from other forms of development.
- 1.1.7 Following the submission of a full planning application in 2017, and subsequent amended submission in 2018 (under Regulation 22 of the EIA Regulations 2011, as amended 2015), a new full planning application is being submitted to respond to consultee comments and reflect design amendments.

Planning Background

- 1.1.8 The planning background for the proposed scheme is summarised below:
- **Full Planning Application including an Environmental Statement (Refs:171108 and 172048):** this was submitted in July 2017 to Reading Borough Council (RBC) and Wokingham Borough Council (WBC);
 - **Submission Amended Application and ES Addendum (Refs:171108 and 172048):** this was submitted in June 2018 in response to comments received from consultees. The

scheme design was amended to address these responses and additional information was submitted. The planning application was not consented; and

- **Full Planning Application including an Environmental Statement:** this planning application and ES has been prepared to assess the likely significant effects in relation to the amended scheme design.

1.1.9 At the RBC Planning Committee held on 30th May 2018, RBC was minded granting planning permission to the proposed development.

1.1.10 WBC refused permission for the development at the Planning Committee on 25th June 2018 for the following reason:

'The proposed MRT link, including bridge structure, due to its height and scale and its prominent and sensitive location, particularly its proximity to the River Thames and River Kennet, would be harmful to the landscape character of the area including its riparian appearance. This would be contrary to policies CP1, CP3 and CP11 of the Core Strategy'

1.1.11 A design review is currently being undertaken to consider options to blend the structure into the landscape/ backdrop of grass, shrubs, railway embankments, bridges, overhead electricity lines and electricity pylons, and riparian foreground. The amended scheme design will be presented and assessed in the Environmental Statement.

1.2 Purpose of this Report

1.2.1 Due to the nature of the proposed development, RBC intends to undertake an Environmental Impact Assessment (EIA) of the proposed development which will be documented in an Environmental Statement (ES). The ES, which will be prepared in compliance with the requirements of the Town and Country Planning (Environmental Impact Assessment) Regulations 2017, will be submitted with the planning application.

1.2.2 This EIA Scoping Report has been prepared to document the proposed scope and approach to the EIA. The EIA will consider the likely significant effects resulting from the proposed development, as well as the cumulative effect from the combined development and other approved developments in the local area. This includes the likely significant cumulative effects of the East MRT with the Thames Valley Park (TVP) Park & Ride (referred to as 'TVP P&R') development. The EIA will draw on, and update the previous assessments undertaken and submitted within the July 2017 ES, and June 2018 ES Addendum. This approach is intended to provide comprehensive and robust environmental information on the effect of the proposed development.

1.2.3 Understanding the likely significant effects that the proposed development may have on the environment is an integral part of the design process that is currently underway. The purpose of this report is to document the scoping exercise that has been undertaken in order to identify the nature and extent of the likely significant environmental effects of the proposed development.

1.2.4 The environmental topics that are proposed to be included in the EIA and those that are not, are presented in **Sections 7- 14**. Accordingly, this report details how the environmental issues proposed to be included are will be examined and progressed as part of the EIA of the proposed development. The aim of the EIA is to ensure that the development has due regard for the environment, minimises adverse environmental effects and/or takes advantage of opportunities for environmental enhancement. The report also identifies those topics that are proposed to be scoped out of the EIA, as significant effects are not likely, along with the rationale for so-doing.

- 1.2.5 This report provides information to key consultees regarding the proposals pursuant to the EIA Regulations and sets out the intended scope of the EIA and content of the ES. On the basis of this report, and in accordance with Regulation 15 of the EIA Regulations, RBC therefore requests a coordinated EIA Scoping Opinion from RBC and WBC.

1.3 Report Structure

- 1.3.1 This report continues with the following:

- **Section 2** Site Description;
- **Section 3** Proposed Development;
- **Section 4** Planning Policy Context;
- **Section 5** EIA Process;
- **Section 6** Proposed Scope of the EIA;
- **Section 7** Socio-economics;
- **Section 8** Health
- **Section 9** Transport and Access
- **Section 10** Air Quality
- **Section 11** Hydrology
- **Section 12** Ground Conditions
- **Section 13** Landscape and Visual
- **Section 14** Ecology
- **Section 15** Topics Not Included in the EIA Scope;
- **Section 16** Summary and Next Steps;
- **References;** and
- **Appendices**

2 Site Description

2.1 Site Location

- 2.1.1 The linear Site is located to the south of the River Thames and to the north of the Great Western Main Line Railway that is raised on an embankment in the vicinity of the Site. The western end of the Site is located south of a retail superstore and its car park and the eastern end is immediately to the west of the Thames Valley Business Park. An indicative Site location plan is provided at Figure 2.1 and is located between the approximate Ordnance Survey (OS) National Grid References (NGR) of 472553(E) 173856(N) to the west and 473579(E) 173891(N) to the east.

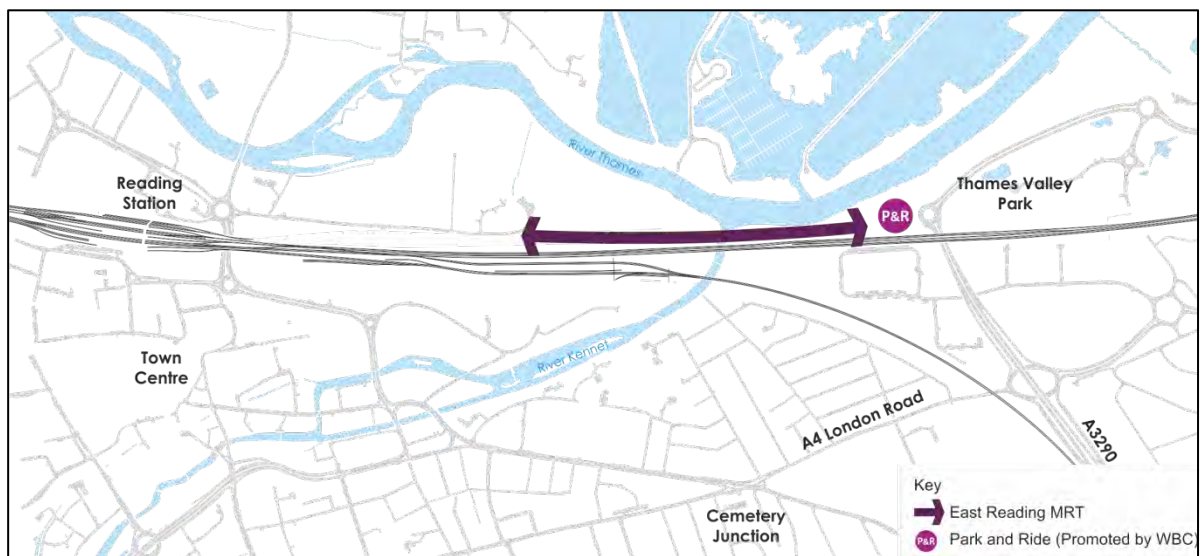


Figure 2.1: Site Location Plan (showing indicative route)

- 2.1.2 The Site straddles the administrative areas of Reading Borough Council (RBC) and Wokingham Borough Council (WBC), the boundary of which is defined by the River Kennet. An indicative area of works for the proposed development is included in **Appendix A**.

2.2 Site Description

- 2.2.1 As discussed in **Section 1.2**, the EIA will include assessment of the East MRT scheme and the adjacent TVP P&R as part of the cumulative assessment. This section therefore includes a description of the East MRT Site, in addition to the TVP P&R Site.

East MRT

- 2.2.2 The western area of the Site (within Reading Borough) where the proposed development would connect with Napier Road is characterised by a retail superstore with associated fuel filling station and parking. Further west is residential tower blocks at Luscinia View.
- 2.2.3 The central area of the Site where the proposed development crosses the River Kennet is characterised by the confluence of the River Thames and the River Kennet. There is an existing railway bridge over the River Kennet and a footbridge allowing access over the River Kennet for the Thames Path National Trail. To the south of the railway, there is a gas storage facility.

- 2.2.4 The eastern area of the Site (within Wokingham Borough) where the proposed development would connect with the proposed 'Thames Valley Park and Ride' to the west of Thames Valley Business Park would be on undeveloped flood plain adjacent to the River Thames. The Thames Valley Park Rowing Club and Wokingham Waterside Canoe & Kayak Centre are in close proximity to the north-east. There are also temporary moorings along the western bank of the River Thames. The Thames and Kennet Marina and Redgrave and Pinsent Rowing Lake are located approximately 100 m to the north on the opposite side of the River Thames. The Suttons Business Park is located beyond the Great Western main line railway to the south.
- 2.2.5 The Site is within WBC is safeguarded land for strategic transport network including mass rapid transit along the A4/A329 corridors (in accordance with Wokingham Borough Council (2014) Development Plan – Adopted Managing Development Delivery Local Plan Policy CC08) and is therefore for much of its the length the Site undeveloped and currently consists of grassland, scrub and trees. This safeguarding is consistent with the infrastructure corridor nature of the site, including the railway, footpath and overhead electricity lines. The Site is constrained by the River Thames to the north and the Great Western main line to the South, a Network Rail maintenance delivery unit to the west and Thames Valley Park to the east.
- 2.2.6 Policy CS21, together with Policies RC1 and RC3 of the Reading Central Area Action Plan and accompanying **Figure 6.2**, add that land needed for implementation of the MRT scheme (identified as running east from Napier Road) will be safeguarded from other forms of development.

TVP P&R

- 2.2.7 The TVP P&R is located to the south of the River Thames and to the west of Thames Valley Business Park, adjacent to the north and east of the proposed East MRT scheme at its junction with the TVP roundabout. The TVP P&R site comprises a triangular plot of land of approximately 1.35 ha, also known as Broken Bow.
- 2.2.8 The TVP P&R development, at the P&R, was granted full planning permission (application ref: 161596) by WBC on 10/11/2016 for:
- "Development of a Park & Ride facility providing approximately 277 vehicular spaces, motorcycle parking and associated vehicular access and landscaping."*
- 2.2.9 Vegetation removal and ground clearance works have been undertaken on site for the TVP P&R site in accordance with the TVP P&R full planning permission.

2.3 Environmental Setting

East MRT

- 2.3.1 The proposed route is located alongside the River Thames which flows west to east, north of the Site. The proposed route also passes over the River Kennet at its confluence with the River Thames at Kennetmouth. Both the rivers are sensitive controlled waters.
- 2.3.2 The Environment Agency (EA) 'Flood Map for Planning' shows that the western part of the proposed route lies within Flood Zone 2 'Medium Probability' (between 1 in 100 (1%) and 1 in 1000 (0.1%) annual probability of river flooding). The eastern part of the proposed route lies within Flood Zone 3 'High Probability' (greater than 1 in 100 (1%) annual probability river flooding).

- 2.3.3 The land to the west of the River Kennet is situated on an historical landfill that was used in the past for railway sidings. The land to the east of the River Kennet comprises undeveloped land with two historical gravel pits.
- 2.3.4 The closest designated heritage asset to the Site is the Grade II Listed Railway Bridge and attached Accommodation Bridge over the River Kennet. This lies immediately beyond the southern perimeter of the Site. These were built as part of the Isambard Kingdom Brunel for The Great Western Railway in the mid-19th century. The significance of the bridges lies in their architectural and historic interest. The setting of the bridges comprises woodland which runs along the River Kennet and screens all but glimpsed views into and from the Site.
- 2.3.5 The River Terrace Deposits and the White Chalk Subgroup geology at the Site are classified as Principal Aquifers. The Alluvium is classified as Secondary A Aquifer.
- 2.3.6 RBC has declared an Air Quality Management Area (AQMA) due to exceedances of the annual mean nitrogen dioxide objective. The AQMA comprises Reading city centre and extends out along the major arterial roads and part of the Site is located in one. However, the exceedance in this area is primarily as a result of the railway line emissions, electrification of the line is underway that should result in an improvement to local air quality.
- 2.3.7 The Thames Path National Trail and National Cycle Route 4 / Route 5 – Thames Valley pass through the Site alongside the River Thames.
- 2.3.8 Part of the Coal, Kennetmouth and Kings Meadow East Local Wildlife Site (LWS) is located within the Site, classed as 'open mosaic habitat on previously developed land'.

3 Proposed Development

3.1 Introduction

- 3.1.1 The purpose of the East MRT scheme is to improve access to and from Reading eastwards for buses, pedestrians and cyclists. This will help relieve the forecast increase in travel demand along the heavily congested A4 corridor, which provides access to existing residential employment and educational sites, as well as Reading town centre, Reading railway station and substantial planned development in Wokingham Borough and Reading town centre. An indicative area of works for the proposed development is included in **Appendix A**.

3.2 Development Description

- 3.2.1 RBC proposes to submit a new full planning application for the proposed East MRT scheme to assess any new or different likely significant effects of the proposed scheme associated with the amended design. The East MRT scheme is a segregated fast track public transport, pedestrian and cycle route that will support enhanced accessibility and continued sustainable growth in Reading, Wokingham Borough and the wider area.
- 3.2.2 As per the original planning application the proposed development will include:
- creation of a new route for public transport only, including cycle path and footway between Napier Road and the proposed Thames Valley Park and Ride;
 - the erection of a new bridge over the River Kennet;
 - formation of a new T-junction with Napier Road;
 - connection to the proposed Thames Valley Park & Ride; and
 - associated infrastructure and landscaping.
- 3.2.3 The route will be graded up to the height of the river crossing over the Kennet.
- 3.2.4 A slender bridge design and colour palette is proposed to respect the context of the adjacent listed bridges.
- 3.2.5 The new route is approximately 0.9 km in length.

Revisions to the proposed development

- 3.2.6 A number of options are being investigated to blend the structure into the landscape/backdrop of grass, shrubs, railway embankments, bridges, overhead electricity lines and electricity pylons, and riparian foreground.
- 3.2.7 Potential options include planters on the deck, gabions on columns, green pigment in the concrete of the structure, and landscape options including additional planting. These will be confirmed and assessed through the EIA, including through the Consideration of Alternatives section as appropriate.

3.3 TVP P&R

- 3.3.1 The TVP P&R development was granted full planning permission (application ref: 161596) by WBC on 10/11/2016 for:

“Development of a Park & Ride facility providing approximately 277 vehicular spaces, motorcycle parking and associated vehicular access and landscaping.”

- 3.3.2 The approved site layout for the development is provided in **Appendix 2**, which incorporates the following:

- Vegetation and arboriculture clearance;
- Provision of 277 car parking spaces, to include 6 disabled spaces;
- A bus stop;
- Provision for motorcycle, and cycle parking;
- A bus shelter;
- Access onto the roundabout that connects the A329(M), and Thames Valley Park Drive;
- 2m wide maintenance strip along the site boundary.

- 3.3.3 The TVP P&R development is proposed to be accessed via a new access road running west off the existing TVP roundabout junction, adjacent to the south of the TVP P&R parking area. The route of the East MRT scheme is proposed to connect with the permitted TVP P&R access road, running up to the TVP P&R roundabout junction.

- 3.3.4 It is understood that site clearance is complete and construction has now commenced.

- 3.3.5 The TVP P&R development and the proposed East MRT scheme are being progressed separately and have been designed to be capable of operating independently. However, it is anticipated that the proposed East MRT scheme and TVP P&R uses would complement each other once both developments become operational.

4 Planning Policy Context

4.1 Introduction

- 4.1.1 Section 70(2) of the Town and Country Planning Act 1990 and section 38(6) of the Planning and Compulsory Purchase Act 2004 are clear that decisions in regard of planning applications must be taken in accordance with the development plan unless there are material considerations that indicate otherwise. This therefore places the Development Plan at the heart of planning decision making and the government's National Planning Policy Framework (NPPF) reiterates the importance of having a plan led system and, where proposals accord with an up-to-date development plan, applications should be approved without delay.

Where the development plan is absent, silent or the relevant policies are out of date, paragraph 11 of the NPPF requires the application to be determined in accordance with the presumption in favour of sustainable development. This a theme running at the heart of planning.

4.1 NPPF 2018

- 4.1.1 The NPPF has three overarching objectives:

“a) an economic objective – to help build a strong, responsive and competitive economy, by ensuring that sufficient land of the right types is available in the right places and at the right time to support growth, innovation and improved productivity; and by identifying and coordinating the provision of infrastructure;

b) a social objective – to support strong, vibrant and healthy communities, by ensuring that a sufficient number and range of homes can be provided to meet the needs of present and future generations; and by fostering a well-designed and safe built environment, with accessible services and open spaces that reflect current and future needs and support communities' health, social and cultural well-being; and

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

- 4.1.2 The new NPPF was published in July 2018, and largely retains the aims of the prior version in relation to sustainable transport.
- 4.1.3 As part of its social objective the NPPF sets out the need to promote healthy communities. In response to this paragraph 91 of the NPPF sets out that policies and decisions should promote easy pedestrian and cycle connections between neighbourhoods.
- 4.1.4 The NPPF sets out a priority in its 9th chapter to pursue and deliver sustainable transport. Paragraph 102 sets out that local planning authorities should promote walking, cycling and public transport. This follows the NPPF's environmental aim of reducing carbon emissions.

4.2 The Development Plan

Development Plan

- 4.2.1 The Site is predominantly located within the jurisdiction of RBC where the adopted development plan comprises:

- Core Strategy (adopted January 2008, altered January 2015);
 - Proposals Map (adopted October 2012);
 - Reading Central Area Action Plan (adopted January 2009); and
- 4.2.2 Sites and Detailed Policies Document (adopted October 2012, altered January 2015). The Council has been developing their new Local Plan. The Local Plan was submitted to the Secretary of State on Thursday 29th March 2018. Once Examination in Public has been undertaken, and providing the appointed inspector considers that the plan is sound, the new Local Plan will be adopted and will replace the current adopted Core Strategy and guide how Reading will develop up to 2036.
- 4.2.3 The Site is also partially located within WBC where the adopted development plan comprises:
- Core Strategy (adopted January 2010); and
 - Managing Development Delivery (MDD) Local Plan (adopted February 2014).
- 4.2.4 WBC is also currently working on a new Local Plan, which will guide development in the Borough for the next 20 years. The Preferred Options Consultation took place this summer (2018). The detailed programme for the development of the new Local Plan will be set out in a new Local Development Scheme in the coming months. The emerging policy is still at the very early stages of preparation and therefore, in accordance with the NPPF, very little/no weight can be assigned to it

Supplementary Planning Guidance

- 4.2.5 RBC has adopted a number of additional supplementary planning documents to provide specific guidance to supplement the provisions of the adopted development plan. Additional planning guidance adopted by RBC and of relevance to the current development proposals is contained within the Infrastructure Delivery Plan (adopted July 2011) and the Local Transport Plan 3: Strategy 2011-2026 (adopted April 2011).
- 4.2.6 WBC has also adopted a number of additional supplementary planning documents to support the provisions of the development plan. Additional planning guidance adopted by WBC and of relevance to the current development proposals is contained within the Infrastructure Delivery Plan (June 2012, supporting the MDD Local Plan), Borough Design Guide SPD (adopted May 2012), Sustainable Design and Construction SPD (adopted May 2010), and Local Transport Plan 3: Strategy 2011-2026 (adopted 2011).

Key Planning Policies

Reading Borough Council

- 4.2.7 The principle of the proposed development within the jurisdiction of RBC has been established within adopted local planning policy. Policy CS20 of the Core Strategy requires development proposals to contribute appropriately to the provision of a balanced transport network as outlined in the Local Transport Plan, including the implementation of core transport infrastructure projects. The East MRT scheme is identified as a priority transport project in Core Strategy Policy CS21 and the Local Transport Plan. Policy CS21, together with Policies RC1 and RC3 of the Reading Central Area Action Plan and accompanying **Figure 6.2**, add that land needed for implementation of the MRT scheme (identified as running east from Napier Road) will be safeguarded from other forms of development.
- 4.2.8 The Proposals Map identifies a number of designations for land in or adjacent to the Site, where local planning policy provides relevant detailed guidance. The development proposals

and environmental assessment work will be undertaken having regard to the specific requirements of relevant planning policies outlined below.

- 4.2.9 Land between Napier Road and the River Kennet, including the Site (in part), is designated as an 'Area safeguarded for Crossrail extension'. Paragraph 15.3.6 of the Sites and Detailed Policies Document notes that the Council will consult with Crossrail Limited on planning applications within this designated land. Land between Napier Road and the River Kennet includes a designated Green Link, where Policy DM17 of the Sites and Detailed Policies Document requires development to maximise enhancement opportunities and incorporate landscaping features.
- 4.2.10 Land between the River Thames/Kennet and Tesco, within (in part) and to the north of the Site, is identified as a Major Landscape Feature and an area of public open space, where Policies CS37 of the Core Strategy, SA17 of the Sites and Detailed Policies Document and RC14d of the Reading Central Area Action Plan are relevant. Policies CS37 and SA14 seek to preserve the character and appearance of the Major Landscape Feature, whilst Policy RC14 requires development to protect and make a positive contribution towards the quality of areas of public open space. This area of land also includes a designated Cycle Route, where Policy SA14 of the Sites and Detailed Policies Document seeks to ensure that development does not detrimentally affect the identified route but provides improvements where possible.
- 4.2.11 Land adjacent to the railway line, within (in part) and to the south of the Site, is identified as an Area of Archaeological Potential. Core Strategy Policy CS33 states that areas of historic importance will be protected and where appropriate enhanced.
- 4.2.12 A number of additional planning policies contained within the development plan provide further detailed guidance which will be taken into account in the preparation of the current development proposals. In particular, the development proposals will seek to adhere to the provisions of: Core Strategy Policies CS1 (Sustainable Construction and Design), CS3 (Social Inclusion and Diversity), CS7 (Design and the Public Realm), CS8 (Waterspaces), CS28 (Loss of Open Space), CS34 (Pollution and Water Resources), CS35 (Flooding), CS36 (Biodiversity and Geology); and Sites and Detailed Policies Document Policies SA16 (Public And Strategic Open Space), DM1 (Adaptation To Climate Change), DM4 (Safeguarding Amenity), DM12 (Access, Traffic And Highway-Related Matters), DM16 (Provision Of Open Space), and DM19 (Air Quality).
- 4.2.13 In relation to emerging policies, limited weight can be afforded to them due to the fact that they have not been subject to examination by an Inspector, and then formally consulted with the public and other third parties. Whilst this is the case, some emerging policy is relevant. In particular, planning policy TR2: Major Transport Projects, seeks to allocate land within the plan for the development of the East MRT. This is shown under designation TR2a on the emerging Proposals Map.
- 4.2.14 The policy further allocates land for the following related projects, Green Park Station and Interchange (TR2b), Reading West Station (TR2c), Cow Lane Bridges (TR2d) and National Cycle Network Phases 1 and 2 (TR2e).

Wokingham Planning Policy

- 4.2.15 The principle of the proposed development within the jurisdiction of WBC is addressed within local planning policy and supporting documentation. Key policies include the following:
- **Policy CP1- Sustainable Development** – key requirements include that development proposals should 'maintain or enhance the high quality of the environment', 'provide attractive, functional, accessible, safe, secure and adaptable schemes', and 'demonstrate how they support opportunities for reducing the need to travel, particularly by private car';

- **Policy CP3 – General Principles for Development** – highlights key characteristics required for proposals, including requirements for appropriate *'scale of activity, mass, layout, built form, height, materials and character to the area together with a high quality of design'*, and proposals should *'contribute towards the provision of an appropriate sustainable network of community facilities'*; and
 - **Policy CP6 – Managing Travel Demand** – Planning permission will be granted for schemes that: 'provide sustainable forms of transport to allow choice; are located where there are or will be at the time of development choices in the mode of transport available and which minimise the distance people need to travel; improve the existing infrastructure network, including road, rail and public transport, enhance facilities for pedestrians and cyclists, including provision for those with reduced mobility, and other users; provide appropriate vehicular parking, having regard to car ownership; mitigate any adverse effects upon the local and strategic transport network that arise from the development proposed; enhance road safety; and do not cause highway problems or lead to traffic related environmental problems.
- 4.2.16 **Policy CP11 - Proposals outside Development Limits** – proposals outside of development limits will not normally be permitted except where *'it does not lead to excessive encroachment or expansion of development away from the original buildings'*. Other key policies include Policy CP6 of the Core Strategy, which supports schemes that provide for sustainable forms of transport, and Policy CP10 of the Core Strategy. In addition, Policy CC08 and **Appendix 3** of the MDD Local Plan, safeguard areas identified for improvements to the strategic transport network including mass rapid transit along the A4/A329 corridors, improvements to public transport services and improvements to footpath and cycle networks.
- 4.2.17 **Appendix 3** of the MDD Local Plan refers to strategic transport projects indicated on **Figure 24** of the Local Transport Plan, which includes a proposed highway scheme connecting west into Reading Borough from Thames Valley Park and the proposed Park & Ride facility.
- 4.2.18 The Proposals Map identifies a number of designations for land in or adjacent to the Site, where local planning policy provides relevant detailed guidance. The development proposals and environmental assessment work will be undertaken having regard to the specific requirements of relevant planning policies outlined below.
- 4.2.19 Land adjacent to the west of the roundabout at Thames Valley Park, including the Site (in part), is located within a 'Major Development Location', where development proposals are acceptable in principle in accordance with Core Strategy Policy CP9. Policy CP9 requires that proposals outside of defined Development Limits (including part of the Site) contribute to enterprise and promote recreation, whilst not leading to excessive encroachment.
- 4.2.20 Land adjacent to the west of the roundabout at Thames Valley Park is also allocated for development under Policies SAL07 and SAL09 of the MDD Local Plan for either 2,700sqm commercial floorspace or a Park & Ride facility and associated development. A planning application has been permitted for a Park & Ride facility in this location.
- 4.2.21 Thames Valley Park and Sutton's Industrial Estate, located to the east and south of the Site, are identified as Core Employment Areas within the Borough, where development for business, industry or warehousing is acceptable in accordance with Policy CP15 of the Core Strategy.
- 4.2.22 A number of additional planning policies contained within the development plan provide further detailed guidance which will be considered in the current development proposals. In particular, the development proposals will seek to adhere to the provisions of: Core Strategy Policies CP3 (General Principles for Development), CP7 (Biodiversity), and MDD Local Plan Policies CC03 (Green Infrastructure, Trees and Landscaping), CC04 (Sustainable Design and

Construction), CC06 (Noise), CC09 (Development and Flood Risk), CC10 (Sustainable Drainage), TB21 (Landscape Character) and TB23 (Biodiversity and Development).

- 4.2.23 Considering the early stage of the emerging Local Plan, little/no weight can be given to it, and it is therefore not set out in further detail here.

5 EIA Process

5.1 EIA Regulations

- 5.1.1 The process of EIA is governed by the Town and Country Planning (Environmental Impact Assessment) Regulations 2017 ("the EIA Regulations"). The EIA Regulations implement EC Directive 2014/52/EU and the implications were enacted in the UK on 16 May 2017 to form the 2017 EIA Regulations.
- 5.1.2 The EIA Regulations set out the requirements for undertaking an EIA, and Regulation 18 and Schedule 4 detail the required information for inclusion in an ES. For ease of reference Regulation 18 and Schedule 4 are presented in **Appendix B**.

5.2 Screening

- 5.2.1 The proposed development is considered to constitute Schedule 2 (**Section 10** Part (f) 'Construction of roads') development under the EIA Regulations as an Infrastructure Project for which the area of development exceeds 1 hectare and could result in significant environmental effects.
- 5.2.2 No formal screening exercise has been undertaken. As stated in **Section 1**, the applicant intends to voluntarily undertake an EIA of the proposed development, which will be documented in an ES, in compliance with the requirements of the EIA Regulations.

5.3 Scoping

- 5.3.1 The purpose of scoping is to identify the key policy, economic and social, and environmental issues relating to the proposed development early in the EIA process; it is also to ensure that those issues identified are subject to the appropriate level of assessment, thereby providing a focus for the EIA. Scoping gives relevant stakeholders an opportunity to express their views on the proposed development and to comment on the scope of the EIA.
- 5.3.2 The scoping process has been informed by the previous work and consultation with stakeholders. This includes the EIA Scoping Opinion provided by RBC on 25th November 2016, and the subsequent July 2017 ES, and June 2018 ES Addendum. Following adoption of the Scoping Opinion, there was further discussion with RBC to agree the approach to cumulative assessment with the TVP P&R and to agree the other approved developments to be considered in relation cumulative effects,
- 5.3.3 This ES has been prepared to reflect the requirements of the EIA Scoping Opinion and subsequent discussions. This EIA Scoping Report sets out the overall proposed approach and framework for the EIA in relation to the specific environmental topics and likely significant effects. However, it is recognised that the approach may evolve over the assessment period as the development and strategy is refined, and engagement with RBC and WBC may be needed to agree specific aspects. Any deviation from the approach set out within this scoping report will be clearly communicated and agreed with RBC and WBC. Further responses from RBC and WBC may therefore be required.
- 5.3.4 It is the RBC and WBC Scoping Opinion and any subsequent responses which will be collectively considered as the Scoping Opinion upon which the ES will be based. This will seek to ensure that the specific requirements of the EIA Regulations (Part 5.18 (4(a))) are met.

5.4 Consultation

- 5.4.1 The proposed development is being progressed through an iterative process of design, assessment and review. It is therefore the intention that the proposals submitted for planning permission will incorporate measures to mitigate potential adverse environmental effects, and to enhance environmental benefits, wherever possible through its design.
- 5.4.2 Consultation with relevant statutory and non-statutory bodies has informed some elements of this scoping stage and will continue to inform the iterative design and EIA process.
- 5.4.3 Specific consultation relating to those topics proposed to be scoped in to the EIA, which has been undertaken to date, is set out within discipline specific details in **Sections 7 - 15**.
- 5.4.4 Consultation with statutory and non-statutory consultees will continue to inform both the EIA and the design of the proposed development. In particular, consultation will be held with RBC and WBC planning officers to discuss the consultee feedback and the design evolution for the proposed scheme in relation to cladding options and the associated visual impact of the scheme. In addition, consultation will be undertaken with members of the public, and members of the council, to get their views and feedback on the potential design amendments.

5.5 Assessment

- 5.5.1 In general terms, the main stages in the EIA are as follows:
- Data Review – draw together and review available data;
 - Scoping – identify significant issues, determine scope of EIA;
 - Baseline Surveys –an extensive amount of baseline data has already been gathered and assessed to inform the 2017 ES and ES Addendum. The ES will build on this evidence base and undertake additional baseline surveys as required, and proposed in **Sections 7 – 14**;
 - Assessment and iteration – assess likely significant effects of development, evaluate alternatives, provide feedback to design team on adverse effects, incorporate any necessary mitigation, assess effects of mitigated development; and
 - Preparation of the ES.
- 5.5.2 The proposed scope of the EIA and approach to the assessment of likely significant effects is set out in **Sections 7- 14**.

5.6 Mitigation

- 5.6.1 One of the most important functions of the EIA process is to identify ways to mitigate adverse environmental effects and identify opportunities that the proposed development may have for environmental improvements. The EIA Regulations require an ES to contain: *“A description of the measures envisaged to avoid, prevent, reduce or, if possible, offset any identified significant adverse effects on the environment”*.
- 5.6.2 A hierarchy of methods for mitigating significant adverse effects will be followed; these are, in order of preference:
- **Enhancement** - opportunities that the proposed development may provide to enhance the local and wider environment (e.g. ecological enhancement or provision of jobs);

- **Avoidance** – designing a proposed development in such a way that avoids effects on the environment (e.g. avoiding siting development at levels that could be affected by flood risk);
- **Reduction** – design the development or employ construction methodologies such that significant effects identified are reduced (e.g. employment of flood compensation measures to mitigate effects of development in flood prone areas); and
- **Compensation** – providing off-site enhancement to compensate for where onsite mitigation has not been possible (e.g. financial contributions towards local infrastructure).

5.6.3 Environmental effects remaining after mitigation measures have been incorporated are termed residual effects and these will be fully described in the ES.

Embedded Mitigation

- 5.6.4 There is a distinction between mitigation that is incorporated or ‘embedded’ into the design of the development (embedded mitigation) and mitigation that is subsequently identified to prevent, reduce or offset any remaining significant adverse effects (further mitigation). Embedded mitigation may include, for example, design features to reduce the visual impact of the proposed development, or incorporation of drainage attenuation.
- 5.6.5 Embedded mitigation evolves through the iterative design process and early consideration of the likely significant impacts is essential to incorporating suitable embedded mitigation measures. Design principles of the development have been established and the ES will document the embedded mitigation measures that have been employed within the design in response to the identification of potentially significant effects. The ES, within each of the topic chapters as appropriate, will also document the further mitigation that is required to complement the embedded mitigation.

Further Mitigation

- 5.6.6 Further mitigation measures are defined as those which require additional activity to be achieved, are identified through carrying out assessments and do not form part of the scheme design in their own right. Where significant adverse effects have been identified through assessments, appropriate mitigation measures will be identified to reduce residual environmental impacts to an acceptable level.

5.7 Monitoring

- 5.7.1 The 2017 EIA Regulations introduce new requirements in relation to monitoring. The Regulations require “*the monitoring of any significant adverse effects on the environment of proposed development*”. It is important to note that the Regulations only require the monitoring of effects that are both significant and adverse. The ES will therefore make it clear to the reader which, if any, effects are both adverse and significant and may therefore require monitoring.
- 5.7.2 It is important to note that Regulation 26 (3) of the 2017 EIA Regulations state that planning authorities should:
- (b) take steps to ensure that the type of parameters to be monitored and the duration of the monitoring are proportionate to the nature, location and size of the proposed development and the significance of its effects on the environment; and
 - (c) consider, in order to avoid duplication of monitoring, whether any existing monitoring arrangements carried out in accordance with an obligation under the law of any part of the

United Kingdom, other than under the Directive, are more appropriate than imposing a monitoring measure.

- 5.7.3 Schedule 4 of the 2017 Regulations identifies that an ES should identify “*any proposed monitoring arrangements*”. The ES will therefore provide a schedule of proposed monitoring to clearly identify the monitoring that is proposed in relation to any significant adverse effects that have been identified. Any such monitoring will be proportionate, as noted above.

5.8 Environmental Statement

- 5.8.1 The EIA process will be documented in an ES which will describe the proposed development and set out the policy context; give full detail of the EIA methodology and any technical methodologies and data used in support of the assessment; present the assessment of likely significant environmental effects; detail any mitigation and enhancement measures that have been employed; and provide a schedule of proposed monitoring arrangements. The ES will present the residual effects, and an assessment of the cumulative effects and impact interactions as described in **Section 6** below.
- 5.8.2 Under requirement 9 of Schedule 4 of the 2017 EIA Regulations a Non-Technical Summary of the ES shall also be provided.

5.9 Consideration of Alternatives

- 5.9.1 The 2017 EIA Regulations require an ES to include “A description of the reasonable alternatives (for example in terms of development design, technology, location, size and scale) studied by the developer, which are relevant to the proposed project and its specific characteristics, and an indication of the main reasons for selecting the chosen option, including a comparison of the environmental effects.”
- 5.9.2 This legal requirement is expressed in very general and high-level terms, requiring only the inclusion of a “*description*” of “*reasonable*” alternatives and an “*indication*” of “*main*” reasons. Although a full description of alternatives and a full assessment of their likely environmental effects are not required, sufficient detail should be provided to allow for a meaningful comparison between the alternatives and the proposed development.
- 5.9.3 It is a matter for the developer to decide which alternatives it intends to consider. The 2017 EIA Regulations do not expressly require that an applicant considers alternatives, although it is widely encouraged at the policy level, both European and domestic, and is a feature of EIA best practice.
- 5.9.4 The ES will fulfil the requirements of the 2017 EIA Regulations through identifying the reasonable alternatives considered by the developer and explain the main reasons for the choices made. A comparison of environmental effects will also be provided. It is anticipated that such reasons for choosing between reasonable alternatives may include: planning policy, viability, design quality, market site constraints and opportunities and environmental effects.

5.10 EIA Team

- 5.10.1 Regulation 18 of the 2017 EIA Regulations requires that, to ensure the completeness and quality of environmental statements, “*the developer must ensure that the environmental statement is prepared by competent experts*”.
- 5.10.2 In accordance Regulation 18 the ES will be “*accompanied by a statement from the developer outlining the relevant expertise or qualifications of such experts.*” At this scoping stage, **Table 5.1** identifies the organisations that will contribute to the EIA and provides an outline of their relevant expertise.

Table 5.1: EIA Team and Relevant Experience

EIA Topic	Organisation	Relevant Expertise
EIA Coordination	Peter Brett Associates LLP	Peter Brett Associates LLP (PBA) is a founder member of the Institute of Environmental Management and Assessment's (IEMA) EIA Quality Mark scheme for quality in EIA. PBA has a dedicated EIA team that specialises in leading the EIA process for development projects, including land development, regeneration, energy and infrastructure projects. PBA typically leads 10-20 EIA projects each year. Each of PBA's EIA team have suitable academic and professional qualifications, with professional qualifications including Principal EIA Practitioner, Practitioner and Associate membership of IEMA, member of Royal Town Planning Institute and Chartered Environmentalist.
Socio-Economics	Peter Brett Associates LLP	PBA has a dedicated planning economics team that specialises in undertaking economic profiling assessments, economic impact assessments and economic appraisals for development schemes, including land development, regeneration and infrastructure projects. PBA's Planning team includes experienced staff, who have relevant academic and professional qualifications, including those who are chartered members of the Royal Institution of Chartered Surveyors (RICS) and Royal Town Planning Institute (RTPI), and members of the Institute of Economic Development (IED). In addition, PBA is a corporate member of RICS and the IED. The SEIA chapter will be prepared by members with these qualifications at PBA.
Health	Peter Brett Associates LLP	Peter Brett Associates LLP (PBA) is part of the Institute of Environmental Management and Assessment's (IEMA) working group on health, which forms part of their wider Impact Assessment Network. The group is set up to advance the newly established practice of assessing health in EIA. PBA has been undertaking Health Impact Assessments (HIA) for over 10 years, typically undertaking approximately 5 HIA a year. Practitioners are members of IEMA and are experienced at undertaking EIA and HIA and coordinating with the relevant technical input leads. Practitioners stay abreast of practice through attendance at appropriate seminars, conferences and use of appropriate online tools and discussion forums.

EIA Topic	Organisation	Relevant Expertise
Transport and Access	Peter Brett Associates LLP	PBA has a dedicated transport team that specialises in undertaking transport planning, modelling and appraisal for development schemes, including land development, regeneration and infrastructure projects. PBA's transport team includes experienced staff, who have relevant academic and professional qualifications, including those who hold Transport Planning Professional (TPP) and those who are Chartered Members of the Institute of Highways and Transportation (CMIHT). In addition, PBA holds corporate membership of the Transport Planning Society (TPS) and the Chartered Institute of Highways and Transport (CIHT).
Air Quality	Peter Brett Associates LLP	The chapter will be prepared by Peter Brett Associates LLP (PBA). PBA has a dedicated air quality team that specialises in undertaking air quality assessments for development projects, including land development, regeneration, energy and infrastructure projects. PBA typically undertakes in excess of a hundred air quality assessments each year. All of PBA's air quality team have suitable academic and professional qualification, including being registered with the Institution of Environmental Sciences (IES) and Institute of Air Quality Management (IAQM).
Hydrology	Peter Brett Associates LLP	PBA has a designated Water Management team with many years of experience in, amongst other areas, the assessment of flood risk, hydrology and hydraulic modelling, flood management, the Water Framework Directive, surface water drainage and river engineering. PBA's Water Management team includes experienced staff who have relevant academic and professional qualifications, who are competent experts in the context of the EIA Regulations and for our contributions to the Environmental Statement. The authors and reviewers of the document are all experienced engineers and members of chartered institutions such as the Chartered Institution of Water and Environmental Management (CIWEM) and/or the Institution of Civil Engineers (ICE).
Ground Conditions	Peter Brett Associates LLP	PBA has a dedicated geotechnical and geoenvironmental team that includes 35 experienced geologists, geotechnical engineers and environmental scientists with over 350 years combined experience. The

EIA Topic	Organisation	Relevant Expertise
		team specialises in the characterisation and assessment of ground conditions and has extensive experience of assessing risks related to land contamination, and geological and geomorphological hazards. The team carries out over 50 ground condition assessments each year including a number for large regeneration projects that require an Environmental Statement. All of PBA's geotechnical/geoenvironmental team have suitable academic and professional qualification, including being registered with the Geological Society (CGeol, FGS), Institute of Civil Engineers (FICE, MICE) and Institution of Environmental Sciences (IES).
Landscape and Visual	Peter Brett Associates LLP	PBA has a dedicated landscape team that specialises in undertaking landscape, townscape and visual impact assessments and appraisals for development schemes, including land development, regeneration, energy and infrastructure projects. PBA's landscape team includes experienced staff, who have relevant academic and professional qualifications, including those who are a Chartered Member of the Landscape Institute (CMLI). In addition, PBA is a Registered Practice of the Landscape Institute and a corporate member of IEMA. The LVIA chapter will be prepared by a chartered landscape architect (CMLI) at PBA.
Ecology	Peter Brett Associates LLP	PBA has a dedicated ecology team that specialises in undertaking ecological impact assessments both for EIA and non-EIA planning applications. All members of PBA's ecology team are members of the Chartered Institute of Ecology and Environmental Management, with two members of the team Chartered Ecologists. Amongst the team, members hold a variety of Natural England survey licences for bats, dormice and great crested newts. The ecology chapter will be prepared by a Senior Ecologist at PBA.
Archaeology and Heritage	Orion Heritage	Orion Heritage Limited is an archaeological and heritage consultancy with over 50 years collective experience. With three offices based in Brighton, Worcester and Manchester, the company provides nationwide independent advice to the private sector aimed at resolving the demands of heritage conservation with successful and sustainable developments.

EIA Topic	Organisation	Relevant Expertise
		Orion Heritage has extensive experience of advising developers, planning consultants and landowners on all stages of the promotion and construction of proposed developments from land acquisition/due diligence, through the design and planning application (both DCO outline and detailed) process to the discharge of archaeological and historic building conditions. This includes production of desk-based assessments and historic environment ES chapters, negotiations with local planning authorities, the costing and management of archaeological investigations and appearing as an expert witness at Public Inquiries.
Cumulative Effects and Impact Interactions	Peter Brett Associates LLP	Peter Brett Associates LLP (PBA) is a founder member of the Institute of Environmental Management and Assessment's (IEMA) EIA Quality Mark scheme for quality in EIA. PBA has a dedicated EIA team that specialises in leading the EIA process for development projects, including land development, regeneration, energy and infrastructure projects. PBA typically leads 10-20 EIA projects each year. Each of PBA's EIA team have suitable academic and professional qualifications, with professional qualifications including Principal EIA Practitioner, Practitioner and Associate membership of IEMA, member of Royal Town Planning Institute and Chartered Environmentalist.

6 Proposed Scope of the EIA

6.1 Technical Scope

- 6.1.1 The technical scope describes the environmental topics that should be addressed by an EIA, in line with the requirements of Regulation 18 and Schedule 4 of the EIA Regulations. Schedule 4 sets out that the ES must include a description of the aspects of the environment, which are likely to be significantly affected by the proposed development.
- 6.1.2 This requirement and the broad categories set out in Schedule 4, along with others which are considered to have the potential to lead to significant environmental effects, have been interpreted and applied in the context of the proposed East MRT scheme. **Table 6.1** therefore sets out those topics that it is proposed to both scope into and out of the EIA.
- 6.1.3 Section references are provided to demonstrate where these categories have been included within the EIA Scope. **Sections 7 – 14** of this report provides a detailed analysis of the resultant proposed technical scope of the EIA, while **Section 16** identifies those topics which it is proposed to scope out of the EIA as it has been shown that significant environmental effects are unlikely to occur.

Table 6.1: Technical Scope

EIA Regulations Topic	Scoped in ✓ / Scoped out X	Explanation within this Scoping Report
Population	✓	Section 7 Socio-economics
Human Health	✓	Section 11 Hydrology Section 10 Air Quality Section 8 Health
Biodiversity (for example Flora and Fauna)	✓	Section 14 Ecology and Biodiversity
Land (for example land take)	✓	Section 12 Ground Conditions
Soil (for example organic matter, erosion, compaction, sealing)	✓	Section 11 Hydrology Section 12 Ground Conditions
Water (for example hydromorphological changes, quantity and quality)	✓	Section 14 Ecology Section 11 Hydrology
Air	✓	Section 10 Air Quality
Climate (for example greenhouse gas emissions, impacts relevant to adaptation)	X	Section 15.5 Climate Change

EIA Regulations Topic	Scoped in ✓ / Scoped out X	Explanation within this Scoping Report
Material assets	X	Section 12 Ground Conditions Section 15.3 Cultural Heritage Section 16.2 Waste
Cultural heritage, including architectural and archaeological aspects	✓	Section 15.3 Cultural Heritage
Landscape	✓	Section 13 Landscape and Visual
The Risk of Major Accidents and/or Disasters	X	Section 15.6 The Risk of Accidents and/or Disasters
The inter-relationship between the above factors	✓	Section 16 Summary and Impact Interactions

- 6.1.4 The following therefore sets out the principles for the temporal and spatial scope, and the approach to the assessment of effects, that will be applied to the EIA of the topics identified in **Sections 7- 14**.

6.2 Temporal Scope

Environmental Baseline

- 6.2.1 As a general principle, environmental effects will be assessed by comparing the predicted state of the environment without the proposed development, with the state of the environment with the proposed development for a particular year.
- 6.2.2 The EIA Regulations require an outline of the likely evolution of the site environment without implementation of the development as far as changes from the baseline scenario can be predicted. This baseline evolution may include future trends such as air quality and traffic growth.
- 6.2.3 The EIA will take into account approved developments that are likely to come forward during the construction of the proposed development and, where appropriate, these will be factored into the definition of the baseline or identified as receptors at a relevant point in time. Further details on the approach to approved developments are provided in **Section 6.4**.

Duration of Effects

- 6.2.4 Environmental effects will be classified as either permanent or temporary, as appropriate. Permanent changes are those which are irreversible, will last for the foreseeable future or are effects considered to last greater than ten years.
- 6.2.5 The duration of temporary environmental effects will be defined as short, medium or long term based on the likely durations of the construction and operational phases of the development. These definitions will be considered within the assessment of the likely significant effects and will be set out in the ES.

- 6.2.6 Where environmental effects will be infrequent or intermittent (such as effects related to activities that will not be continuous during construction) this will be noted in the ES; and the frequency of these activities will be considered in the assessment.

Phase of the Scheme

- 6.2.7 There are two discrete phases of the proposed development which will be considered in relation to the likely significant effects: construction and operation. The proposed development is considered to be permanent and therefore the assessment of effects associated with decommissioning have been scoped out of the EIA.

Construction

- 6.2.8 Certain environmental effects will only occur during construction of the proposed development and will cease once construction activities have ceased. These will typically be the temporary effects of the scheme and will be described as “short-term” or “medium-term”, as appropriate, using the definitions determined to be appropriate and set out in the ES. Examples include but are not limited to:

- Creation of dust;
- Risk of pollution during construction; and
- Noise from construction activities.

Operation

- 6.2.9 Environmental effects that occur during the operation of the project will typically be permanent or “long-term”. Examples of permanent effects which might occur during the operation of the scheme include but are not limited to:

- Changes to key viewpoints;
- Changes to the setting of heritage assets; and
- Changes to air quality from road traffic.

6.3 Spatial Scope

- 6.3.1 The spatial extent of each of the technical assessments will vary from one to another in accordance with the relevant policy and guidance for the assessment of that topic. Typically, the study area will comprise the site and the surrounding area, but for some topics will extend further from the site boundary where there is the potential for effects to be significant over a wider area (e.g. as a result of traffic generated by the development).
- 6.3.2 The study area for each technical assessment will be identified and described as appropriate in each of the topic chapters of the ES.

6.4 Assessment of Effects

Type of Effects

- 6.4.1 In assessing the significance of effects identified during the EIA, account will be taken as appropriate as to whether effects are:

- **Direct Effects** – Effects that are caused by activities which are an integral part of the scheme;
 - **Indirect Effects** – Effects that are due to activities that are not part of the scheme, e.g. regeneration benefits attributable to the scheme;
 - **Secondary Effects** – Effects that are induced from a different effect, e.g. the possibility of increased sediments in watercourses and loss of aquatic life, caused by increased soil erosion due to the loss of vegetation from a proposed scheme;
 - **Cumulative Effects** – Many effects that singly are not significant, but when assessed together may be significant;
 - **Temporary Effects** – Environmental effects that occur during the construction of a project will typically be temporary. Temporary effects will be further classified into:
 - o Short-term – Less than two years;
 - o Medium-term – Two years to five years; and
 - o Long-term – Five years to ten years.
 - **Permanent Effects** – Permanent effects are those which are irreversible (e.g. permanent land take), will last for the foreseeable future (e.g. noise from road traffic) or are effects considered to last greater than ten years;
 - **Beneficial Effects** – Effects that have a positive influence on the environment; and
 - **Adverse Effects** – Effects that have an adverse influence on the environment;
- 6.4.2 For clarity within the assessment, 'impact' will be used in relation to the outcome of the project (e.g. the removal of habitat or the generation of emissions to air), while the 'effect' will be the consequent implication in environmental terms (continuing the above example, e.g. the loss of a potential bird breeding site or the reduction in local air quality).

Residual Effects

- 6.4.3 The incorporation of mitigation measures, primarily as part of the scheme design and construction phase, will be reported where appropriate and likely significant residual effects that remain will be described and assessed according to the significance criteria set out in **Table 6.2** below.
- 6.4.4 As noted above, the 2017 EIA Regulations require that the ES describes likely significant effects of the proposed development. However, there is no applicable definition of significance and interpretations differ. In accordance with the European Commission's Guidance on Scoping (2001), the EIA will study those effects that will influence decision-making or those where there is uncertainty about their magnitude. This approach is consistent with best practice for EIA in the UK.
- 6.4.5 The significance of an effect is typically the product of two factors, the value of the environmental resource affected and the magnitude of the impact, while consideration may also need to be given to the likelihood of an effect occurring. A significant effect may arise as a result of a slight impact on a resource of national value or a severe impact on a resource of local value. In addition, the accumulation of many non-significant effects on similar local resources geographically spread throughout the scheme may give rise to an overall significant effect. An example of this might be the loss of ecological habitat of low value at many locations.

6.4.6 This approach to assessing and assigning significance to an environmental effect will rely upon such factors as legislative requirements, guidelines, standards and codes of practice, consideration of the 2017 EIA Regulations, the advice and views of statutory consultees and other interested parties and expert judgement. The following questions are relevant in evaluating the significance of likely environmental effects:

- Which risk groups are affected and in what way?
- Is the effect reversible or irreversible?
- Does the effect occur over the short, medium or long term?
- Is the effect permanent or temporary?
- Does the effect increase or decrease with time?
- Is the effect of local, regional, national or international importance?
- Is it a positive, neutral or adverse effect?
- Are health standards or environmental objectives threatened?
- Are mitigating measures available and is it reasonable to require these?

6.4.7 Specific significance criteria will be prepared for each specialist topic as appropriate, based on the above and the generic criteria set out in **Table 6.2** below.

Table 6.2: Significance Criteria

	Level of Effect	Criteria
<i>Significant</i>	Substantial	These effects are assigned this level of significance as they represent key factors in the decision-making process. These effects are generally, but not exclusively, associated with sites and features of national or regional importance. A change at a district scale site or feature may also enter this category.
	Major	These effects are likely to be important considerations at a local or district scale and may become key factors in the decision-making process.
	Moderate	These effects, while important at a local scale, are not anticipated to be key decision-making issues.
<i>Not significant</i>	Minor	These effects may be raised as local issues but are unlikely to be of importance in the decision-making process.
	Negligible or No Effect	Either no effect or effect which is beneath the level of perception, within normal bounds of variation or within the margin of forecasting error. Such effects should not be considered by the decision-maker.

6.4.8 Effects that are described as 'substantial', 'major' or 'moderate' are determined to be significant; and effects that are described as 'minor' or 'negligible' are determined to be not significant in the context of the EIA Regulations.

Cumulative Effects and Impacts Interactions

- 6.4.9 The 2017 EIA Regulations require the consideration of the potential impact of inter-relationships and cumulative effects of “existing and/or approved development” with the development.
- 6.4.10 The EIA will consider as appropriate:
- The likely significant cumulative effects of the proposed development and other major local existing and/or approved developments; and
 - The potential for impact interactions leading to an aggregated environmental effect on a receptor being greater than each of the individual effects that have been identified (e.g. local people being affected by noise, dust and increased traffic levels during the construction of the development, where those impacts are greater combined than individually).
- 6.4.11 A review of approved developments within the locality of the proposed development has been undertaken, and a list provided within **Appendix C** (including major applications within 1 km of the site and applications subject to EIA within 5 km). Through the EIA process, consideration of which approved developments have the potential to lead to significant cumulative effects with the East MRT scheme will be made. Those which are likely to result in significant cumulative developments will be included within the EIA.
- 6.4.12 In response to the EIA Scoping Opinion (dated 25th November 2016), the 2017 ES considered the likely significant cumulative effects of the East MRT with the TVP P&R development. Following the approach adopted in the 2017 ES, this will be provided in a section within each of the topic chapters in the ES submitted with the planning application. This will be undertaken on the basis of the assessment of the likely significant effects of the East MRT in isolation and the reports submitted with the TVP P&R application.
- 6.4.13 Notwithstanding the above, agreement is sought from RBC and WBC on the approved developments which should be assessed in the cumulative assessments in the ES. It would be appreciated if RBC and WBC could confirm this position in advance of issuing their formal Scoping Opinions.
- 6.4.14 It should be noted that a separate list of approved developments may be agreed with RBC, WBC and Highways England (HE) for the purposes of Transport Assessment (TA). For consistency in the assessment of transport related effects, the assessment of air quality and noise effects associated with road traffic will be consistent with the assessment presented in the TA.
- 6.4.15 The assessment of likely significant cumulative effects of the proposed development and other local approved developments will be included within each of the topic chapters of the ES as appropriate.
- 6.4.16 Potential impact interactions will be assessed within a dedicated chapter of the ES, as it will need to draw together the outcomes of individual discipline assessments.

Uncertainty and Difficulties Undertaking the Assessment

- 6.4.17 The prediction of future effects inevitably involves a degree of uncertainty. Where necessary, the ES will describe the principal factors giving rise to uncertainty in the prediction of environmental effects and the degree of the uncertainty.

- 6.4.18 Confidence in predictions will be engendered by employing accepted assessment methodologies, e.g. Guidance for Ecological Impact Assessment by the Institute of Ecology and Environmental Management. Uncertainty inherent within the prediction will be described.
- 6.4.19 Uncertainty also applies to the success or otherwise of measures to mitigate negative environmental effects. Where the success of a mitigation measure is uncertain, the extent of the uncertainty will be identified in the ES. The ES will identify, in accordance with Schedule 4 of the 2017 EIA Regulations, any difficulties that have been encountered in undertaking the assessment.

7 Socio - Economics

7.1 Introduction

- 7.1.1 A socio-economics chapter will be prepared by PBA to assess the likely significant socio-economic impacts of the East MRT. The assessment will consider the local and national economy during construction and operation.

7.2 Previous Studies and Baseline Conditions

Previous Studies to Inform Assessment

- 7.2.1 The following study was undertaken and will be used to inform the socio-economic assessment in the EIA:
- A socio-economics assessment was undertaken in 2017 and included within the Environment Statement (ES) submitted with the 2017 Planning Application (Refs: 171108 and 172048). This assessed direct and indirect economic impacts from the proposed scheme including jobs and Gross Value Added (GVA), in addition to wider economic and social effects in relation to employment and income generated in the economy.

Baseline

- 7.2.2 In the previous ES, the assessment area included Reading, Wokingham and the 60-minute drive time study area. These areas were characterised by higher than average population growth projections. Each area has a rapidly increasing working age population which is contrary to the national trend.
- 7.2.3 Economic activity is high in the 60-minute drive time area and within Reading and Wokingham. The population is highly qualified, with about half of the population employed in highly skilled jobs. The areas share of professional, scientific and technical activities is particularly high compared to wider region and national averages. Across the council areas, greatest growth to 2035 is expected in finance and insurance, professional services, utilities, accommodation and food services and recreation.
- 7.2.4 Reading, Wokingham and the study area¹ is defined by a mobile but relatively contained workforce. A significant number of people that work in Reading or Wokingham travel east-west to places of work. Travel patterns are similar around the application site, with the majority of local employees travelling from within Reading and from Wokingham.

7.3 Not Significant Effects

- 7.3.1 The effects identified in the 2017 socio-economics ES chapter were all insignificant effects. At this stage, it is unclear if any of these effects will become significant as a result of this new 2018 ES chapter, until the baseline data and policy review is undertaken and analysed.
- 7.3.2 Therefore, all effects will be reassessed as part of this EIA. No additional effects have been identified that require inclusion in the EIA.

¹ 60 minute drive time

7.4 Sensitive Receptors and Likely Significant Effects

Sensitive Receptors

- 7.4.1 The study area for the socio-economic assessment will reflect the geography of anticipated impacts. The economic impacts will be measured on a 60-minute drive time catchment reflecting typical travel to work patterns.

Likely Significant Effects

- 7.4.2 **Table 7.1** provides a summary of potential effects associated with the proposed development, which would be assessed as part of the socio-economics assessment.

Table 7.1: Summary of Potential Socio-economics Effects

	Quantum of Impact	Description of Impact
Construction Phase		
Construction Jobs	Creation of jobs during construction phase: - East MRT: temporary construction jobs will be created - East MRT and TVP P&R temporary construction jobs will be created	The South East of England has construction workforce containment level of around 55%. It is likely the majority of construction jobs will be taken up by residents with a 60-minute drive time and that most of the positive economic benefit will be secured within this area.
Training and apprenticeships	Construction related apprenticeship placements will be created.	Potential for onsite training in construction Potential development of local skills which in turn will benefit the local economy.
Operational jobs	Creation of jobs during operational phase: East MRT will create additional local jobs. - East MRT and TVP P&R will create local jobs	The new jobs will be created in a targeted growth sector. The Project's development would present an opportunity for local residents with appropriate skills and experience that currently work outwith the local area. The new jobs would provide employment opportunities for graduates related training courses and would be suitable for reskilling some of the areas currently available workforce.
Gross Value Added	Net additional GVA impact on the local economy	Gross Value Added (GVA) is a measure of the value of goods and services produced in an area.

Scope of Assessment

- 7.4.3 The purpose of the socio-economic impact assessment will be to identify the potential likely significant effects, both beneficial and adverse, of the revised scheme. The assessment of

likely significant effects on the local and national economy during construction and operation will be undertaken, covering:

- Direct economic impacts: jobs and GVA² that are wholly or largely related to the proposed development;
- Indirect economic impacts (beneficial and negative): jobs and GVA generated in the study area in the chain of suppliers of goods and services to the direct activities;
- Induced economic impacts: jobs and GVA created by direct and indirect employees' spending in the study area or in the wider economy;
- Wider economic and social impacts (beneficial and negative): employment and income generated in the economy; and
- The cumulative impacts combined with the East MRT and TVP P&R.

7.5 Methodology

7.5.1 The main stages of the methodological approach that would be undertaken as part of the EIA are as follows:

- **Review Available Data/Information:** Data and information from national and local databases will be reviewed. Key data sources include: Experian 2017 (based on Census 2011 data); Office of National Statistics data; East Reading Mass Rapid Transit Business Case (2016) and PBA Demand Model Outputs 2021 and 2031 (2017).
- **Baseline Conditions:** The study area's current socio-economic position will be described using standard indicators:
 - Economic: the area will be described using a combination of publically available National Statistics and indicators including Experian 2017, Census 2011 and NOMIS 2017;
 - Social: the area's demographic structure has been examined within the 60-minute study area; and
 - Policy Context: planning, economic development and other relevant policy have been reviewed to identify related economic, social and regeneration objectives that the proposed development may affect (whether contributing to their realisation or otherwise).
- **Assessment of Effects:** A detailed assessment of likely significant effects on the local and national economy during construction and operation will be undertaken, as per the scope of assessment highlighted above in **Section 7.4**.

7.5.2 As noted above, best practice principles³ will be applied to assess the employment impact of the proposed development. An economic impact model, consistent with appraisal guidance, will be used to measure net additional employment and GVA.⁴ Appropriate economic

² GVA is a measure in economics of the value of goods and services produced in an area

³https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/220541/green_book_complete.pdf

⁴ The economic impact model allows the guidance to be applied to the quantitative elements of the employment impact assessment

appraisal guidance⁵ and professional judgment based on economic impact assessment elsewhere will be used to estimate values for:

- **Deadweight** - what would happen in the absence of the proposed development;
- **Leakage** - the proportion of employment opportunities accessed by people living outside the study area;
- **Displacement** – the proportion of proposed development benefit accounted for by a reduction in benefit elsewhere;
- **Substitution** - when a firm substitutes one activity for another to take advantage of public sector assistances; and
- **Multipliers** – to estimate further economic activity associated with additional income and supplier purchases.

7.5.3 Mitigation and enhancement measures will be identified where appropriate to address potentially significant effects and enhance potential beneficial effects.

Residual Effects

7.5.4 Likely significant residual effects (i.e. effects following any proposed mitigation) on the local and wider socio-economic context will be identified.

Significance of Effects

7.5.5 The significance of residual effects will be determined using professional judgement.

Cumulative Effects

7.5.6 An assessment of likely cumulative effects will be provided.

7.6 Risk and Limitations

7.6.1 The social and economic data is based on the most up-to-date information available from third party websites, and all reasonable measures have been taken in order to make sure that the data is accurate and up-to-date.

⁵ HM Treasury Green Book Economic Appraisal Guidance (see Reference section).

8 Health

8.1 Introduction

- 8.1.1 A health chapter will be prepared for the ES. The assessment will draw on the findings of other technical assessments prepared as part of the ES, including the socio-economics, air quality, transport and access, and landscape and visual impact assessment.
- 8.1.2 The chapter will assess the likely significant effects the proposed development will have on the health and wellbeing of the local community during construction and operation of the scheme.
- 8.1.3 This section sets out the proposed scope of the assessment and the methods to be used to assess the health impacts of the proposed development.

8.2 Previous Studies and Baseline Conditions

- 8.2.1 Health is a new topic for consideration in the ES, as it is being undertaken in accordance with the EIA Regulations 2017, which requires consideration of the health impacts of proposed development. The previous EIA, for the 2017 planning application (Refs: 171108 and 172048) was completed under the EIA Regulations 2011 (as amended 2015), which did not include the need for specific assessment of the health impacts. However, the ES 2017 did include consideration of health effects as part of specific technical assessments, including those on air quality and transport.

Baseline

- 8.2.2 The Site crosses the local authority boundary of WBC and RBC.
- 8.2.3 The characteristics of the local population are identified from the wards in which the Site falls: 'Abbey', and 'Park' ward in Reading Borough, and 'Bulmershe and Whitegates' ward in Wokingham Borough. Wards to the north of the scheme are not considered as these populations are separated from the Site by the physical barrier of the River Thames. Consideration is also given to the health character of the wider population of Reading and Wokingham Boroughs that may also be affected by the proposed development.

Health Characteristics

- 8.2.4 According to the Local Authority Public Health Profile 2018 (Public Health England (PHE)) the health of people in Reading is varied compared with the England average. About 16% (5,100) of children live in low income families. Life expectancy for both men and women is similar to the England average. However, there is local inequity in Reading and more deprived areas are characterised by worse health outcomes.
- 8.2.5 Abbey and Park wards, as shown in **Appendix D**, contain areas of high deprivation, with Abbey ward identified as the fifth most deprived ward out of 16 wards in the Borough. Abbey ward also performs significantly worse than for England on several health indicators, as shown in the Local Health Profile 2016 (PHE <http://www.localhealth.org.uk>). Indicators that are significantly worse for both wards include the proportion of older people in deprivation, obese children in year 6, emergency hospital admissions for stroke, death from all causes at all ages, deaths from circulatory disease (aged under 75). Abbey ward also has significantly worse life expectancy at birth for males.
- 8.2.6 The Local Authority Public Health Profile 2018 for Wokingham identifies that the health of people in Wokingham is generally better than the England average. Wokingham is one of the

20% least deprived districts/unitary authorities in England, however about 6% (1,800) of children live in low income families. Life expectancy for both men and women is higher than the England average. However, there are pockets of deprivation within the Borough, and as shown in **Appendix D**, part of Bulmershe and Whitegates ward, within which the eastern end of the Site falls, are identified as slightly more deprived than others within Wokingham (Indices of Deprivation 2015). However, overall the ward has health characteristics that are similar to England averages (Local Health Profile 2016, PHE <http://www.localhealth.org.uk>).

Population

- 8.2.7 Reading has a similar population distribution to England, although there is a lower proportion of people aged 65 or more (approx. 12.1% compared to 17.9%). However, in the local area Abbey ward there is an even greater difference, with only 6% aged 65 or over. The ward is characterised by a very high proportion of people of a working age (25-64 year) at 67.3% compared to the England average of 52.0%. However, despite this larger proportion of working aged people there are also more who are childless as the proportion of those under 16 years is 3% less than the England average (ONS 2016). Park ward is characterised by a high proportion of people aged 16-24 years (20.1% compared to 11.3% for England), likely to be as a result of its proximity to Reading University. As with Abbey ward there is a lower proportion of people aged 65 or over (8.3%) (Local Health Profiles Abbey and Park Wards, PHE, 2016).
- 8.2.8 By comparison both Wokingham Borough and the Bulmershe and Whitegates ward have a population distribution very similar to the England average. Although the proportion of people 65 or older is higher in the ward at 20.2% compared to 17.9% for England (and 17.3% for the Borough) (Local Health Profiles Abbey and Park Wards, PHE, 2016).

Existing users

- 8.2.9 The Thames Path National Trail ('Thames Towpath') and National Cycle Route 4 and 5 (Thames Valley) pass through the Site, with the National Cycle Route turning south along the River Kennet at the site. The shared cycle and footpath at the Site is unlit and narrow in places, meaning cyclists must slow down to accommodate pedestrians.
- 8.2.10 The path crosses the River Kennet via a stepped pedestrian footbridge known as the Horseshoe Bridge. Cyclists currently have to dismount to cross the bridge, pushing cycles up a narrow ramp that runs alongside the steps.
- 8.2.11 As reported in the ES 2017, to understand the number of pedestrian movements within the area and use of the space, a pedestrian survey was undertaken along Thames Towpath between the Waterside Centre and the Horseshoe Bridge. The survey found that the towpath was well used on the weekdays and weekends. Use continues throughout the day, but is limited use during the night.
- 8.2.12 In addition, to understand the use of the open space, a survey was carried out of the open space between the Horseshoe Bridge and Dreadnought building. The results of the survey showed extremely limited use of the space, with the exception of people passing through on the towpath. The only users identified were two people sitting on the ground at the edge of the towpath using mobile phones. By comparison during similar sunny periods the meadows further west and east opposite Tesco and Thames Valley Park Drive were both well used during the surveys periods.

8.3 Not Significant Effects

- 8.3.1 Potential effects of the proposed development have been identified using the guidance provided as part of the Healthy Urban Planning Checklist (3rd Edition) (HUDU Planning for Health, 2017). The checklist has four themes each of which relate to planning issues that

have the potential for health effects, **Table 8.1** identifies planning issues where effects are insignificant and should be scoped out, and **Table 8.2** identifies where there is the potential for likely significant effects and are scoped in.

- 8.3.2 Not significant effects have been identified in **Table 8.1** and will not be considered within the ES.

Table 8.1: Health Urban Planning Checklist (3rd Edition) (2017) –Likely Not Significant Effects Proposed to be scoped out of the assessment

Theme	Planning Issue	Effects scoped out and justification
Healthy Housing	- Housing design; - Accessible housing; - Healthy living; - Housing mix and affordability.	All issues: No housing is proposed as part of the development.
Healthy Environment	- Noise; - Local food growing - Overheating - Flood Risk	<i>Noise</i>: limited nearby residential noise receptors and likely negligible increase in the ambient noise from the operational scheme (see section 16.2). <i>Local Food Growing</i>: no relevant to the Scheme. <i>Overheating</i>: not relevant to the scheme. <i>Flood Risk</i>: previous assessments of the site identified that flood risk is not significant (see section 11.4)
Vibrant Neighbourhoods	- Healthcare services; - Education; - Access to local food shops; - Public buildings and spaces. - Healthy Workplaces.	<i>Healthcare services</i>: not relevant to the Scheme. - Healthy workspaces: No workplaces are proposed. <i>Access to local food shops</i>: not relevant to the scheme <i>Public buildings and spaces</i>: impact on the open space will be considered under the 'open space' heading as part of the 'healthy environment'.

8.4 Sensitive Receptors and Likely Significant Effects

Sensitive Receptors

- 8.4.1 Based on the initial review of the baseline and the characteristics of the scheme the following sensitive receptors have been identified and will be considered within the ES. Subject to completion of the baseline review and the receptors assessed in the relevant technical assessments it may be necessary to identify further receptors.
- 8.4.2 The following groups have been identified as sensitive receptors to human health and are considered in the remainder of this chapter:

- Existing users of the Site, who are likely to be drawn from wards immediately surrounding the Site (primarily those within the wards of Abbey, Bulmershe and Whitegates and Park wards);
- Future visitors to the Site, including walkers, cyclists and those using the MRT;
- Construction workers during the construction of the proposed development;
- Existing residents of the local and wider area, this will draw on the identification of receptors in other technical assessments in the ES; and
- Specific vulnerable groups who may be inequitably affected by health impacts.

Likely Significant Effects

8.4.3 The assessment will be undertaken against determinants of health (or health issues). The determinants considered are presented within the Health Urban Planning Checklist (3rd Edition) (2017) ('HUDU Checklist'). The HUDU Checklist aims to promote healthy urban planning by ensuring that the health and wellbeing implications planning applications are consistently taken into account. Although this was created for London it has many principles that are applicable to any development.

8.4.4 **Table 8.2** identifies where there is the potential for significant effects on health and scopes in or out planning issues that will be considered within the assessment of health effects, based on the themes of the HUDU Checklist.

Table 8.2: Health Urban Planning Checklist (3rd Edition) (2017) –Likely Significant Effects Proposed to be Scoped into the Assessment

Theme	Planning Issue Scoped in	Health and Wellbeing Issue	Potential for likely significant environmental effects
Active Travel	■ Promoting walking and cycling; ■ Safety; ■ Connectivity; ■ Minimising car use.	■ Physical inactivity, cardiovascular disease and obesity; ■ Road and traffic injuries; ■ Mental illness from social isolation; ■ Noise and air pollution from traffic.	■ All issues are scoped in as the purpose of the scheme is to deliver an improved non-car travel route. Therefore, there is the potential for likely significant effects.
Healthy Environment	■ Construction; ■ Air quality; ■ Contaminated land; ■ Open space/ Play; space/ biodiversity.	■ Disturbance and stress caused by construction activity; ■ Poor air quality - lung and heart disease; ■ Health risks from toxicity of contaminated land; ■ Physical inactivity, cardiovascular disease and obesity;	■ <i>Construction</i>: effects will be considered at construction stages; ■ <i>Air Quality</i>: there is the potential for changes in road traffic as a result of the proposed development, with impacts on air quality. no likely significant effects during construction are identified and will be scoped out (see section 10.3). ■ <i>Open space</i> including visual effects: the scheme will introduce a new built element to an area of existing open space

Theme	Planning Issue Scoped in	Health and Wellbeing Issue	Potential for likely significant environmental effects
			and change the character of the space. ▪ <i>Contaminated land</i>: parts of the Site contains area of know areas of potential sources of contamination.
Vibrant Neighbourhoods	▪ Social infrastructure; ▪ Local employment and healthy workplaces;	▪ Access to services and health inequalities; ▪ Mental illness and poor self-esteem associated with unemployment and poverty;	▪ <i>Social infrastructure</i>: to include community cohesion; ▪ <i>Local employment</i>: creation of jobs and support for the local economy.

Scope of Assessment

- 8.4.5 This will assess the impacts on existing and future visitors to the site, future users of the scheme and any wider impacts on the general population. Impacts will be considered for specific vulnerable groups, where identified. Impacts on receptors in the wider area will also be considered.
- 8.4.6 Baseline data collection for the health assessment considers the health characteristics of Reading and Wokingham Boroughs. The health assessment will draw on other technical assessments completed as part of the EIA, such as air quality, transport, and socio-economic effects. Each of these assessments identify their own geographical scope for assessment, which will be set out in relevant technical assessment chapters of the ES.

Geographical Scope

- 8.4.7 The focus for data collection will be 'Abbey' ward in Reading Borough and 'Bulmershe and Whitegates' ward in Wokingham Borough, as the Site falls within these wards. 'Park' ward in Reading is also directly to the south of the Site and will also be a consideration in creating the local health profile. In addition, due to the nature of the scheme, there are the potential for effects in the wider area, and therefore Borough-wide health data is also used for both Reading and Wokingham.
- 8.4.8 The health assessment will also draw on the baseline information from other technical assessments, each of which will define their own geographical scope in the relevant topic chapters. Therefore, these scopes will also be part of the health assessment, and may include (as an example) the drive time for assessing the likely economic effects of the scheme.
- 8.4.9 The chapter will consider the current health baseline and any potential evolution of this baseline relevant to understanding the health characteristics of specific receptor groups.

Scope of the Assessment

8.4.10 As set out in **Table 8.2** the health assessment will focus on the following issues, as those where there is the potential for likely significant effects related to:

- Healthy environment: including air quality, flooding and contamination, as well as the quality of the outdoor environment and open spaces;
- Active travel: including physical activity and open space quality and access;
- Vibrant communities: including issues of social cohesion, community involvement and employment.

8.5 Methodology

Baseline

8.5.1 The geographical scope of the baseline data collection is set out in **Section 8.4**. Sources of information that will be used in preparing the baseline are:

- RBC and WBC: Joint Strategic Needs Assessments;
- RBC and WBC: Health and Wellbeing Strategies;
- Office for National Statistics: *NOMIS Census Data*
- Public Health England, Local Authority Health Profiles;
- Public Health England, Local Health Information;
- ES Technical Chapters; and
- Transport Assessment for the scheme.

8.5.2 Where available we will also draw on consultation responses received for the scheme and the previous planning application.

8.5.3 The baseline will be used to confirm the following:

- Receptors for the assessment. These will include existing residents that might be affected by the proposals and future residents and service users;
- Specific Vulnerable Groups for assessment, such as people aged 65 or over, children or the income deprived;
- Health determinants of relevance / objectives for assessment.

Assessment Method

8.5.4 The approach to the assessment will involve a rapid desk-top investigation of health impacts.

8.5.5 The established definition of health from the World Health Organisation (WHO) is that “*health is a state of complete physical, social and mental wellbeing and not simply the absence of disease or infirmity*”. This assessment uses the WHO definition of health, recognising that although illness and disease (mortality and morbidity) are useful ways of understanding and

measuring health, they need to be fitted within a broader understanding of health and wellbeing to be properly useful.

- 8.5.6 The definition of health reflects the understanding that an individual's inherited traits interact with lifestyle, community, environmental, social and economic factors as well as a much wider range of issues to determine their health outcomes, as shown in **Figure 8.1**.
- 8.5.7 Many of these 'determinants' can be influenced by the quality of people's environments. Therefore, in planning for the proposed development it is understood that health is not only about avoiding environmental impacts and contributing to the factors that improve wellbeing, it will include access to jobs, access to green infrastructure and lifestyle includes more physical activity.

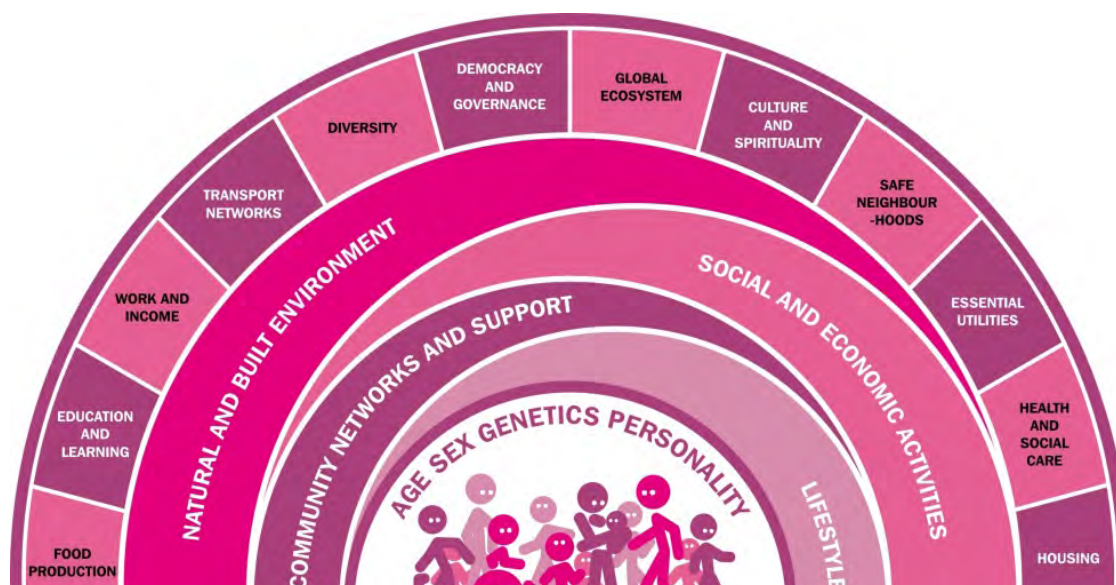


Figure 8.1: The Determinants of Health and Wellbeing (Peter Brett Associates, adopted from Dahlgren and Whitehead, 1991)

- 8.5.8 The assessment will be undertaken against determinants of health (or health issues). The determinants considered are presented within the structure from the HUDU checklist and are based on national and local policy and guidance strategies.
- 8.5.9 **Table 8.3** indicates the determinants of health that have been considered in this assessment and the associated pathways to specific health outcomes based upon themes in the HUDU planning checklist. By assessing the proposed development against these themes, it will be possible to identify adverse or beneficial effects of the scheme on the health and wellbeing of the sensitive receptors, provide a basis for setting actions for further mitigation and enhancement and assessing significance.

Table 8.3: Healthy Urban Planning Checklist (3rd Edition) – Health Determinant Themes and Related Health and Wellbeing Issues

Theme	Health and Wellbeing Issue
Active Travel	- Physical inactivity, cardiovascular disease and obesity; - Road and traffic injuries; - Mental illness from social isolation; - Noise and air pollution from traffic.
Healthy Environment	- Disturbance and stress caused by construction activity; - Poor air quality - lung and heart disease;

Theme	Health and Wellbeing Issue
	- Disturbance from noisy activities and uses; - Health risks from toxicity of contaminated land; - Physical inactivity, cardiovascular disease and obesity; - Mental health benefits from access to nature and green space and water; - Opportunities for food growing – active lifestyles, healthy diet and tackling food poverty; - Excess summer deaths due to overheating.
Vibrant Neighbourhoods	- Access to services and health inequalities; - Mental illness and poor self-esteem associated with unemployment and poverty; - Limited access to healthy food linked to obesity and related diseases; - Poor environment leading to physical inactivity; - Ill health exacerbated through isolation, lack of social contact and fear of crime.

8.5.10 The assessment will also draw on various technical assessments included within the ES, including; air quality, transport, landscape and visual and socio-economics which all consider potential risks to human health. As such, the assessment will be largely qualitative, except where data is readily available to enable quantification or where quantification of health impacts is undertaken in other assessments (e.g. other technical studies in the ES).

8.5.11 Likely significant effects within each health determinant will be considered for both construction and operational phases, where appropriate.

Assessment of Significance

8.5.12 Given the multitude of determinants that contribute to an individual's health outcome, it is difficult to draw a quantified conclusion regarding the contribution of a particular development to an increase or decrease in the number of additional cases of a particular physical or mental health outcome. A significant effect will be reported where the proposed development is likely to contribute to a material change in health outcomes associated with the health issue being assessed and, in determining this, the following questions have been considered:

- Have significant effects been identified in the ES which are linked to human health (i.e. are environmental or health standards threatened)?
- Are vulnerable groups affected?
- Is the effect reversible or irreversible?
- Does the effect occur over the short (less than one year), medium (one to five years) or long (over five years) term?
- Is the effect permanent or temporary?
- Does it increase or decrease with time?
- Is the effect at an individual or population level?

8.6 Risks and Limitations

- 8.6.1 There are inherent uncertainties in the assessment of health and wellbeing impacts. As illustrated in **Figure 8.1**, there are many determinants that can have an impact on an individual's health. It is possible for the scheme to create conditions that create the conditions that could deliver health and wellbeing, but it may be that there are other factors that cannot be managed by the scheme that have a greater influence. These factors include:
- Performance of the wider economy;
 - Embedded habits;
 - Climate and weather;
 - Societal pressure or expectations;
 - National Government Policy; and
 - Genetic factors.
- 8.6.2 Lastly, some of the health characteristics of the study area that has formed the baseline of the study have been based on census data. There can be a number of issues when using census data, which may not provide a true representation of the study area, including; ward boundary changes and census data only detailing the health characteristics of the study area at a single temporal point that may be out of date.

9 Transport and Access

9.1 Introduction

- 9.1.1 A transport and access chapter will be prepared for the ES, drawing upon the findings of a separate Transport Statement, which will also be submitted with the planning application. The chapter will assess the impact changes in traffic as a result of the proposed development on the local highway, public transport networks and pedestrians and cyclists.
- 9.1.2 The section sets out the principles of the methods to be used to assess the transport impacts of the proposed development.

9.2 Previous Studies and Baseline Conditions

- 9.2.1 This section sets out the baseline conditions, and highlights the previous studies undertaken in relation to transport.

Previous Studies to Inform Assessment

- 9.2.2 The following studies have been prepared and will be used to inform the transport and access assessment in the EIA:
- A Transport Statement was prepared and submitted with the 2017 Planning Application (Refs: 171108 and 172048 and Environmental Statement). The transport Chapter included a review of the transport conditions within the study area, outlined mitigation measures incorporated into the proposals, and assessed the significance of the residual effects of the East MRT Scheme; and
 - A Transport Statement Addendum was prepared to support the 2017 planning application and to inform the chapter.

Baseline

- 9.2.3 Based on the previous studies outlined above, there are three main pedestrian route options for pedestrians travelling from the A4 London Road east of the A3290 roundabout to Reading town centre and station, these are:
- Via London Road and Kings Road;
 - Via the River Kennet towpath; and
 - Via the River Thames and Napier Road towpaths.
- 9.2.4 There are three signed route options for cyclists travelling from the A4 London Road / A3290 roundabout to Reading town centre and station, these are:
- Via the River Thames towpath;
 - Via the River Thames and Kennet towpaths; and
 - Via the River Kennet towpath.
- 9.2.5 Public transport services on the A4 London Road between Reading and the A4 east of the A3290 roundabout, comprise of several different key bus services;

- TVP P&R from Winnersh Triangle;
- TVP Commuter bus;
- Heathrow Rail Air coach services;
- Service 13 and 14, between Woodley and Reading town centre;
- Reading – Twyford – Henley – High Wycombe (850);
- Reading – Twyford – Wokingham (Nos. 127/128/129); and
- Service 28/28a, provides a shuttle bus service between Reading Town Centre and Tesco's.

9.2.6 The A4 London Road is the main strategic route for vehicles travelling to and from Reading town centre to the east and provides a link to the M4 junction 10. It is heavily constrained comprising two narrow lanes for traffic travelling towards central Reading and a single narrow lane exiting towards the A3290.

9.3 Not Significant Effects

9.3.1 No significant adverse effects were identified in the 2017 ES. At this stage, it is unclear if any of these effects will become significant as a result of this new 2018 ES chapter, until the baseline data and policy review is undertaken and analysed.

9.3.2 Therefore, all effects will be reassessed as part of this EIA. No additional effects have been identified that require inclusion in the EIA.

9.4 Sensitive Receptors and Likely Significant Effects

Sensitive Receptors

9.4.1 In transport terms, the sensitive receptors are transport links which could potentially be impacted by the proposed scheme.

9.4.2 The assessment area comprises the links listed in **Table 9.1**, and is shown in **Figure 9.1** overleaf.

Table 9.1: Assessment Area Links and Junctions

Link	Link Name
L1	Site Access
L2	Thames Valley Park Drive
L3	A3290 between Site Access and A4
L4	A4 London Road South of Shepherds Hill
L5	A4 London Road east of Cemetery Junction
L6	A4 London Road west of Cemetery Junction

Link	Link Name
L7	Pitts Lane
L8	Church Road
L9	Woodlands Avenue
L10	Whitegates Lane
L11	Palmer Park Avenue
L12	Wokingham Road adjacent to Palmer Park
L13	Crescent Road
L14	Erleigh Road
L15	A329 Kings Road adjacent to Reading College
L16	A329 Queens Road
L17	A329 Kings Road adjacent to Gas Works Road
L18	A329 Forbury Road between Kings Road and Kenavon Drive
L19	A329 Forbury Road between Kenavon Drive and Vastern Road
L20	Vastern Road Rail Bridge
L21	Vastern Road
L22	Napier Road
L23	New East MRT Scheme Route

Likely Significant Effects

9.4.3 The anticipated impacts that should be included within the EIA scope are summarised below, where there is the potential for effects. These will need to be confirmed and examined in further detail through the transport assessment work that is to be completed.

- **Increased traffic flows during construction** – there will be an increase in traffic flows on local roads during construction, including a temporary increase in HGV movements, much of which is likely to access the Site via the A3290 and Napier Road.
- **Increased use of and reduced journey times for bus services** – the scheme is designed around achieving an increased use of and reduction in journey times for existing bus services and it is considered that this has the potential to have a likely significant beneficial effect.
- **Increased walk and cycling** – there is the potential for increased walking and cycling and it is considered that this has the potential to have a likely significant beneficial effect.

- 9.4.4 The transport chapter will be informed by the findings of the modelling work supporting the preparation of the Business Case⁶, and the significance of potential traffic and transport effects will be determined using criteria developed from best practice techniques.

Scope of Assessment

- 9.4.5 The assessment area has been agreed with the local authority and was identified using the business case modelling and based on percentage change in traffic on links due to the introduction of the scheme. It includes transport links shown in **Table 9.1** and **Figure 9.1**.

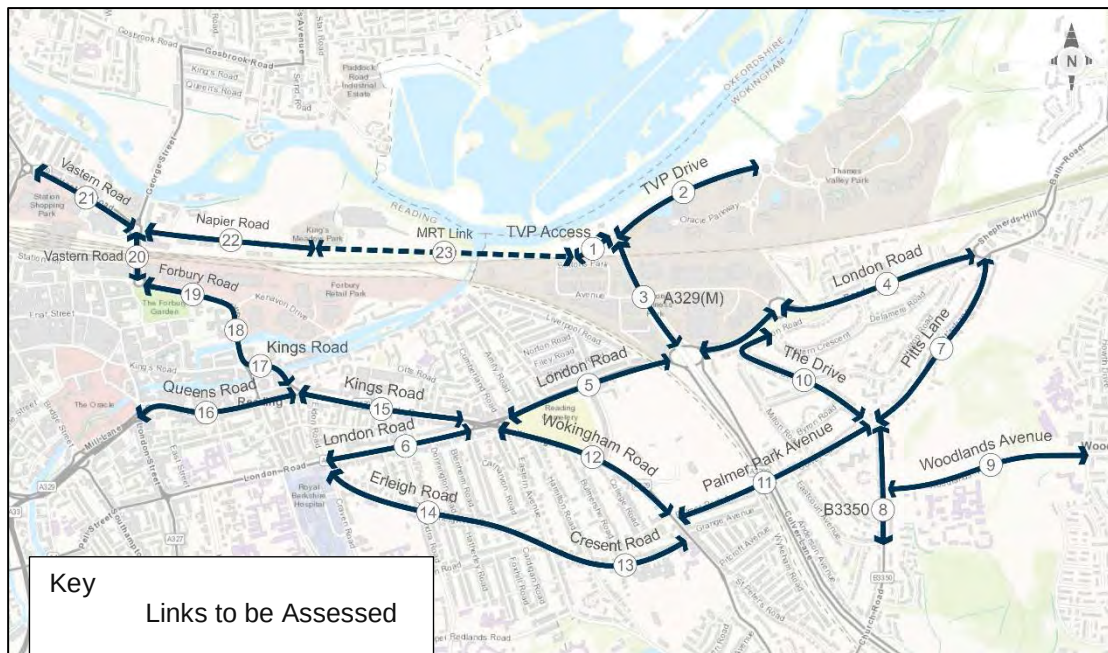


Figure 9.1: Assessment Area

9.5 Methodology

- 9.5.1 The assessment will identify the likely significant environmental impacts arising from the proposed development in respect of all modes of transport. The assessment of individual environmental elements will be carried out drawing upon the 'Guidelines for the Environmental Assessment of Road Traffic' (1993) published by what is now known as the Institute of Environmental Management and Assessment (IEMA) (the 'IEMA Guidelines'). Also, where appropriate, Volume 11 of the Design Manual for Roads and Bridges (DMRB) 'Environmental Assessment' (2008) published by the former Department of Environment, Transport and the Regions (DETR), now Department for Transport will be used in assessment.
- 9.5.2 The assessment will also reflect guidance contained within the Department for Transport's (DfT's and the Departments for Communities and Local Government (DCLG)) 'Guidance on Transport Assessment' (March 2007) (GTA). DfT's Circular 02/2013 The Strategic Road Network and the Delivery of Sustainable Development will be utilised to address the wider traffic impact issues.
- 9.5.3 Determining the significance of effects will be derived from measures of the magnitude (or scale) of the change and the sensitivity (or importance) of the receptors affected. Categories

⁶ The business case provides "justification for undertaking a project or programme. It evaluates the benefit, cost and risk of alternative options and provides a rationale for the preferred solution" APM:
<https://www.apm.org.uk/body-of-knowledge/delivery/integrative-management/business-case/>

of sensitivity and magnitude will be defined and assessed to determine the significance of the effect following the principles set out by the IEMA Guidelines and summarised below.

9.5.4 The assessment proposes to include assessment of effects related to:

- **Driver Delay** – normally at vehicle junctions, higher magnitude impacts are likely where there the proposed development changes delays by over 60 seconds, IEMA guidance suggests significant effects are most likely where the surrounding road network is already at, or close to, capacity;
- **Severance** – a division of a community by a major traffic artery, for instance creating difficulties in crossing roads due to traffic or a physical barrier. Higher magnitude impacts are most likely where there is an increase of 60% traffic flow over 18 hours, although significance of effects will depend on several factors including the characteristics of affected communities and the existing baseflows;
- **Pedestrian and Cyclist Amenity and Delay** – relating to the changes in volume, speed or composition of traffic on road that may have an effect on pedestrians or cyclist's choice on making a particular journey. The severity of the impact will depend on the general level of pedestrian activity and the condition of the pedestrian/cyclist routes and significance is determined by professional judgement;
- **Fear and intimidation** – this is broadly defined as the relative pleasantness of a journey, affected by traffic flow, composition and segregation of pedestrians/cycle routes from traffic. The IEMA guidance will be useful to help define thresholds for fear and intimidation but consideration of significance must also take into account local circumstances; and
- **Accidents and Safety** – Is normally dependent on issues such as traffic speed, flow and composition as well as vehicle conflict and pedestrian activity. IEMA guidelines suggest professional judgement is used regarding the significance of the effect.

9.5.5 Mitigation measures will be identified as and where appropriate. They may include highway safety/capacity enhancements, new/ improved pedestrian, cycling and public transport connections to influence travel behaviour.

9.5.6 The residual impacts, with the mitigation measures in place, will be documented in the transport chapter of the ES.

9.6 Risk and Limitations

9.6.1 The assessment methodology to be used for each environmental impact will be informed by the IEMA Guidance, which recognises:

"For many effects there are no simple rules or formulae which define thresholds of significance and there is, therefore, a need for interpretation and judgement on the part of the assessor, backed-up by data or quantified information wherever possible." (4.4)

10 Air Quality

10.1 Introduction

- 10.1.1 A chapter will be prepared to set out the findings of the air quality assessment. The air quality assessment will assess the impact of the proposed scheme on the surrounding area, during both the construction and operational phases.
- 10.1.2 Existing local air quality, the likely future air quality in the absence of the new development, and the likely future air quality if the development goes ahead, will all be defined. The assessment of construction impacts will focus on the anticipated duration of works. The assessment of operational impacts will focus on the earliest year that the development is likely to be operational to provide a conservative assessment.

10.2 Previous Studies and Baseline Conditions

- 10.2.1 This section sets out the baseline conditions in relation to air quality, and highlights the previous studies undertaken and findings of the air quality assessment.

Previous Studies to Inform Assessment

- 10.2.2 The following studies have been prepared and will be used to inform the air quality assessment in the EIA:
- Assessments undertaken/ submitted with the 2017 Planning Application (Refs: 171108 and 172048 and Environmental Statement (ES) – with the same scope as presented in this report. The overall air quality effects of the proposed development were judged to be not significant.

Baseline

- 10.2.3 Reading Borough Council has investigated air quality within its area as part of its responsibilities under the LAQM regime. An Air Quality Management Area (AQMA) has been declared due to exceedances of the annual mean NO₂ objectives. The AQMA comprises Reading town centre and extends out along major roads including the A33 and A327. The west part of the site lies partially within the AQMA.

10.3 Not Significant Effects

- 10.3.1 The main potential effects during construction are dust deposition and elevated PM₁₀ concentrations. Typically, the main cause of unmitigated dust generation on construction sites is from demolition and vehicles using unpaved haul roads, and off-site from the suspension of dust from mud deposited on local roads by construction traffic. The Institute of Air Quality Management (IAQM) 2014 guidance recommends that no assessment of the significance of effects is made without mitigation in place, as mitigation is assumed to be secured by planning conditions, legal requirements or required by regulations. With appropriate mitigation in place, and in accordance with the IAQM guidance, the residual effect of construction on air quality were previously assessed as not significant.
- 10.3.2 Highwood Local Nature Reserve (LNR) is located within 200 m northeast of A3290 and Church Road. Given the distance between the Local Nature Reserve and the Site, construction phase effects are very unlikely to be significant. The increase in traffic flow brought about by the development on A3290 and Church Road are below threshold for an assessment to be necessary (below 1,000 daily vehicles movements) and, therefore, the impacts on Highwood LNR are considered not significant.

10.4 Sensitive Receptors and Likely Significant Effects

Sensitive Receptors

- 10.4.1 Relevant sensitive locations are places where members of the public might be expected to be regularly present over the averaging period of the objectives. Worst case locations are those closest to busy roads or roads with a significant change in traffic. Of these, locations where more than one road influences air quality or vehicles slow are considered to be the most sensitive.
- 10.4.2 Existing receptors have been included in the assessment where they are adjacent to roads with an increase in traffic above the IAQM and Environment Protection UK (EPUK) criteria in their document: *Land-use Planning & Development Control: Planning for Air Quality* (January 2017):
- A change of Light Duty Vehicles (LDVs) flows of more than 100 AADT within or adjacent to an AQMA or more than 500 AADT elsewhere.
 - A change of Heavy Duty Vehicles (HDVs) flows of more than 25 AADT within or adjacent to an AQMA or more than 100 AADT elsewhere (Moorcroft and Barrowcliffe *et al*, 2017).

Likely Significant Effects

- 10.4.3 Since the original ES was written, there have been a number of changes to air quality technical data and guidance:
- Revised Emissions Inventory published by Defra;
 - Revised Background Concentration data published by Defra; and
 - New monitoring data.
- 10.4.4 As the vehicle emission factors, NO₂ monitoring and background concentrations have changed, this could lead to a different conclusion regarding the significance of the predicted impacts and effects.

Scope of Assessment

- 10.4.5 The principal air pollutants of concern with respect to the development will be:
- nitrogen dioxide (NO₂);
 - fine airborne particles (PM₁₀ and PM_{2.5}); and
 - dust.
- 10.4.6 The main local sources of these pollutants are likely to be road vehicles (nitrogen dioxide, PM₁₀ and PM_{2.5}); and construction activities (dust and PM₁₀). Professional experience indicates that any impacts associated with other air pollutants will be negligible.

10.5 Methodology

- 10.5.1 Existing local air quality will be defined within the study area drawing upon the most recent monitoring carried out by the Local Authority with the information provided within the Council's

Air Quality Review and Assessment reports, supported by the results of updated 2017 monitoring data.

- 10.5.2 Air quality will be assessed at a range of worst-case receptor locations. For construction activities, these will be existing properties closest to the proposed development. For traffic-related impacts these will be the existing residential properties that are closest to roads, in particular those close to junctions, where traffic emissions are likely to be greatest. Consideration will be given potential adverse impacts as well as beneficial where any reductions in traffic are identified.
- 10.5.3 Where necessary this will include consideration of the impact of buses travelling along the proposed route, which was previously vehicle free.
- 10.5.4 The potential impacts of dust during construction will be assessed with reference to the IAQM Guidance on the *Assessment of Dust from Demolition and Construction* (June 2016), which is accepted as industry standard guidance on this subject. There are no statutory objectives for dust; it is therefore common practice to provide a qualitative assessment based on the size of the site, regional meteorological conditions and experience of the distances over which impacts may occur. The guidance assumes that mitigation will be provided and the assessment therefore is on the basis of risk in order to identify appropriate mitigation. With mitigation in place, the air quality effects of construction dust are not significant.
- 10.5.5 The operational assessment will consider the impacts and effects of the full application and cumulative developments in the area.
- 10.5.6 The assessment of operational road traffic impacts will be undertaken using the ADMS Roads detailed dispersion model. The model will be used to predict concentrations at off-site receptors to assess the impacts of additional traffic associated with the development. Model outputs will be verified against local air quality monitoring data. This modelling will make use of mapped background concentration data provided by Defra and updated traffic flow projections. Air quality will be assessed in relation to the national air quality objectives, established by the Government to protect human health.
- 10.5.7 Air quality impacts arising from road traffic will be assessed with reference to guidance issued by the IAQM/EPUK (January 2017). Impacts will be judged at individual receptor locations, with the significance of the overall air quality effect based on professional judgement taking into account all of the impacts at the assessed receptor locations. The overall air quality effect will be assessed as either significant or not significant.
- 10.5.8 Practical and reasonable measures which can be implemented to mitigate any detrimental impacts or effects associated with construction and operation of the proposed scheme will be considered, and highlighted within the Air Quality chapter.

10.6 Risk and Limitations

- 10.6.1 There are limitations that contribute to the uncertainty in predicted concentrations. The model used is dependent upon the traffic data that will be input which will have inherent uncertainties associated with them. There is also uncertainty as the model is required to simplify real-world conditions into a series of algorithms.
- 10.6.2 There are also limitations associated with the emission factors used in the model. A disparity between the national road transport emission projections and measured annual mean concentrations of nitrogen oxides (NO_x) and NO₂ has been identified in recent years. Whilst projections suggest that both annual mean NO_x and NO₂ concentrations from road traffic emissions should have fallen significantly over the past 6 to 8 years, at many monitoring sites in the UK levels have remained relatively stable, or have even shown a slight increase. In order to take the variation into account in the modelling a sensitivity test will be undertaken.

- 10.6.3 There are no significant air quality risks anticipated. All practical and reasonable measures which can be implemented to mitigate any detrimental impacts associated with construction and operation of the proposed scheme will be considered, and highlighted within the Air Quality chapter.

11 Hydrology

11.1 Introduction

- 11.1.1 This section provides the scoping assessment in relation to hydrology and the water environment. This provides an overview of the baseline conditions, and overview of previous studies, the potential impacts of the development and proposed mitigation to address this.

11.2 Previous Studies and Baseline Conditions

- 11.2.1 This section sets out the baseline conditions in relation to hydrology and the water environment, and highlights the previous studies undertaken and findings of the Flood Risk Assessment (FRA) and Water Framework Directive (WFD) Compliance Statement and addendum reports of both.

Previous Studies to Inform Assessment

- 11.2.2 The following studies have been prepared and will be used to inform the hydrology and water environment assessment in the EIA:
- The Environment Statement (ES) was undertaken in 2017 and submitted with 2017 Planning Application (Refs: 171108 and 172048). It was supported by the FRA (2017) and WFD Compliance Statement (2017).
 - The FRA (2017) denoted the minimum bridge soffit level, stating the proposed level was significantly in excess of this and provides sufficient headroom for navigation purposes, a flood compensation scheme was completed, and drainage arrangements outlined.
 - The WFD Compliance Statement (2017) assessed the potential impacts of the scheme to the two River Thames WFD designated water bodies, and the Kennet and Holy Brook WFD water body.
 - The ES Addendum was undertaken in 2018 and submitted to support the same Planning Application. It was supported by the FRA Addendum (2018) and the WFD Compliance Statement Addendum (2018).
 - The FRA Addendum (2018) included a summary of the post-submission liaison with the Environment Agency (EA) outlined the updated mitigation measures, amended the flood compensation scheme to demonstrate no increased flood risk to third parties.
 - The WFD Addendum (2018) included a summary of post-submission liaison with the EA, responses to EA concerns, and inclusion of proposed improvements and mitigation measures.

Baseline

- 11.2.3 The proposed route is located alongside the River Thames which flows west to east, north of the Site. The proposed route also passes over the River Kennet at its confluence with the River Thames at Kennetmouth. In this location, the River Thames flows south of the Redgrave Pinsent Rowing Lake, and Caversham Lakes and Marina. The River Thames passes through Caversham Lock approximately 1.2 km upstream of the proposed route, and Sonning Lock approximately 3.5 km downstream.
- 11.2.4 The EA 'Flood Map for Planning' shows that the western part of the proposed route lies within Flood Zone 2 'Medium Probability' (between 1 in 100 (1%) and 1 in 1000 (0.1%) annual

probability of river flooding). The eastern part of the proposed route lies within Flood Zone 3 'High Probability' (greater than 1 in 100 (1%) annual probability river flooding).

- 11.2.5 The EA 'Risk of Flooding from Reservoirs' map shows that the Kennetmouth area is located within the floodplain in the event of a breach of Whiteknights Lake, located 1.7 km south-east of the Site. However, the risk of flooding from reservoir breach is very small in any case as all large raised reservoirs are inspected and supervised by reservoir panel engineers.
- 11.2.6 The EA Surface Water Flood Map indicates that the majority of the Site is at 'Very Low' (less than 1 in 1000 (0.1%) risk of flooding from surface water sources), with some isolated areas of 'Low' (between 1 in 1000 (0.1%) and 1 in 100 (1%)) risk of flooding from surface water sources.
- 11.2.7 More detail on the geology of the Site is contained in **Section 12 'Ground Conditions'**.
- 11.2.8 The EA Catchment Data Explorer (CDE) application provides details of the ecological and chemical water body classifications for the River Thames and Kennet in the vicinity of the Site, in line with the River Basin Management Plan (RBMP) for the Thames River Basin District (2015).
- 11.2.9 The RBMP sets out a Programme of Measures (POM) which needs to be undertaken in order for each water body to maintain or reach Good ecological status/potential by 2021 in accordance with the European WFD. The plan also sets out the various standards that each water body has to meet in order to be classified as having Good status/potential.
- 11.2.10 The River Thames through Reading lies within the 'Thames and Chilterns South' management catchment and is split between the 'Thames Wallingford to Caversham' and 'Thames Reading to Cookham' WFD water bodies, with the River Kennet confluence the boundary point between the two. The River Kennet, to its confluence with the Thames, lies within the 'Kennet and Holy Brook' water body, within the 'Kennet and Tributaries' management catchment. Both watercourses are designated as Heavily Modified Water Bodies (HMWB).
- 11.2.11 The CDE data identifies both reaches of the River Thames as having an overall water body classification of Moderate potential for Cycle 2 (2016), and therefore both water bodies are currently achieving their objectives under the WFD of overall Moderate potential by 2015.
- 11.2.12 The Kennet and Holy Brook WFD water body is currently classified as at Moderate potential for Cycle 2 (2016), however the water body WFD objective is to achieve overall Good potential by 2027. It is therefore currently failing to meet its objectives under the WFD.
- 11.2.13 The WFD classification is further broken down into ecological status/potential and chemical status. The two River Thames WFD water bodies and the Kennet and Holy Brook WFD water body are all identified as at Moderate ecological potential in Cycle 2 (2016). The River Thames water bodies are currently meeting their WFD objectives of Moderate by 2015, however the Kennet and Holy Brook WFD water body is currently failing to achieve Good potential, the deadline of which is 2027.
- 11.2.14 The two River Thames WFD water bodies and the Kennet and Holy Brook WFD water body are all identified as at Good chemical status in Cycle 2 (2016). All of the WFD water bodies have the objective to achieve Good chemical status by 2015, and they are therefore currently achieving their objectives with regards to this element under the WFD.

11.3 Not Significant Effects

- 11.3.1 The following not significant effects have been identified and will not be considered within the ES. A factual evidence base has been provided below to support this.

- 11.3.2 The ES (2017) and ES Addendum (2018) concluded that residual effects in relation to the FRA (2017) and FRA Addendum (2018) for the operation phase were not significant, and therefore could be scoped out. However, an up to date FRA will be required to detail the current flood risk, flood risk in the future, and any mitigation measures which will be required, including a flood compensation scheme. Therefore, potential effects associated with the findings of the FRA will be documented within the Hydrology ES chapter.
- 11.3.3 The ES (2017) and ES Addendum (2018) indicated that the construction phase of the proposed development was not significant with regards to hydrology and the water environment with embedded mitigation measures. In this instance, the additional mitigation is in the form of a robust CEMP, which will be produced to control and mitigate impacts upon the nearby watercourses. The CEMP will be informed by comments raised by the EA for the 2017 planning application so that construction is completed in a manner that is appropriate and will not cause detriment to the water environment.
- 11.3.4 The construction phase of the proposed development will continue to be controlled and mitigated by the CEMP and therefore the potential effects will continue to be Not Significant. The construction phase has therefore been scoped out of assessment with regards to hydrology and the water environment.
- 11.3.5 The WFD Compliance Statement (2017) included commentary on the Sonning Eye gravel pit WFD designated water body and the Berkshire Downs Chalk WFD groundwater body. The proposed development was found to have a negligible impact upon these water bodies due to the localised nature of the works and scheme, and the application of EA guidance for piling in potentially contaminated sites. The water bodies were therefore screened out of any further investigation.
- 11.3.6 The Sonning Eye gravel pits WFD water body and Berkshire Downs Chalk FWD groundwater body have therefore been scoped out of assessment due to the insignificant effects detailed within the WFD Compliance Statement (2017).

11.4 Sensitive Receptors and Likely Significant Effects

Sensitive Receptors

- 11.4.1 The sensitive receptors with regards to hydrology and the water environment to be considered are as follows:
- Users of the proposed bridge;
 - River Thames and associated floodplain;
 - River Kennet and associated floodplain;
 - Thames (Wallingford to Caversham) WFD designated water body;
 - Thames (Reading to Cookham) WFD designated water body; and
 - Kennet and Holy Brook WFD designated water body.

Likely Significant Effects

- 11.4.2 The previous studies, including the ES (2017) and ES Addendum (2018) and supporting technical assessments identified that the majority of impacts would be not significant. The inclusion of riverbank improvements, marginal shelves and localised ecological improvements as embedded mitigation resulted in the scheme being assessed to be Minor Beneficial.

11.4.3 All other effects for elements were noted to be Not Significant.

11.4.4 It is anticipated that the amended East MRT scheme will be similar in nature as the previous application with respect to hydrology and the water environment, and therefore the riverbank improvements will be a key likely significant effect.

Scope of Assessment

11.4.5 The Site lies within Flood Zone 2 'Medium Probability' on the west side of the River Kennet crossing, and Flood Zone 3 'High Probability' on the east side. Therefore, the potential impacts on fluvial flood risk – primarily in relation to floodplain storage capacity and flow routes – will be a key consideration. The currently available information indicates the potential flood risk from other sources is low or negligible.

11.4.6 The proposed development will increase the impermeable surfacing over parts of the Site and could potentially increase the peak runoff rates emanating from the Site. This will be fully addressed through the surface water drainage strategy developed alongside the FRA.

11.4.7 Appropriate mitigation measures will be incorporated into the development design, according to the potential impacts on fluvial flood risk, surface water drainage and any related flood risk on or off site.

11.4.8 Flood compensation measures and/or designated fluvial flow routes will be incorporated to mitigate for losses in floodplain storage capacity within the 1 in 100 annual probability plus climate change fluvial floodplain. Due consideration will be given to the required climate change impacts based on the allowances set out in the 'Flood risk assessments: climate change allowances' EA guidance (February 2016), which vary according to flood zoning of discreet elements of the Site, the western part of the Site is located within Flood Zone 2 and the eastern part of the Site is located within Flood Zone 3.

11.4.9 A drainage strategy will be prepared that will be designed to a 1 in 100 year plus climate change rainfall event and incorporate measures to preserve and enhance water quality.

11.4.10 Development within close proximity of the watercourses could potentially restrict access for maintenance. As the works will be within 8 metres of a main river (the River Thames), they are subject to Environmental Permitting Regulations and will require an 'Environmental Permit for Flood Risk Activities'.

11.5 Methodology

11.5.1 The 2018 NPPF seeks to ensure that flood risk is taken into account at all stages of the planning process, to avoid inappropriate development in areas at risk of flooding, and to direct development away from areas at highest risk.

11.5.2 A site-specific FRA is required for development within Flood Zones 3 'High Probability' or Zone 2 'Medium Probability' of river/sea flooding, and for all proposals that are of an area of 1 hectare or greater in Flood Zone 1 'Low Probability'. Accordingly, a FRA incorporating a surface water drainage strategy and the impacts of climate change, will be prepared to accompany the future planning application, in accordance with relevant national and local planning policy. The FRA's primary focus will be development of the proposed surface water drainage strategy principles in accordance with flood risk legislation and policy and guidance to ensure that the development is not a flood risk in itself and that it does not pose a risk to off-site flooding of others.

11.5.3 This will include the available information from the EA in relation to the hydraulic modelling of the local watercourses and review of the available information within the Reading Borough

Council (RBC) Strategic Flood Risk Assessment (SFRA), the RBC Preliminary Flood Risk Assessment (PFRA) the WBC SFRA, and the WBC PFRA, and other available information.

- 11.5.4 The scheme involves a crossing of a watercourse, which may impact upon the ability of the surrounding watercourse(s) to achieve its objectives under the WFD. Accordingly, a WFD Compliance Statement will be prepared to accompany the future planning application to demonstrate the WFD compliance of the scheme. It is considered that there will be a negligible impact due to the form of development (i.e. no alteration of the river channel or works within the channel - the Kennet crossing will be a clear span with abutments set back from the bank top), the 'heavily modified' hydro-morphology of the watercourses and the limited effects on drainage and water quality.

11.6 Risks and Limitations

- 11.6.1 The fluvial flood risk is based on the EA's River Thames hydraulic model. Such modelling has inherent limitations at a site-specific level due to the geographic scale of the modelling and is subject to the baseline calibration data available at the time the model was produced. The primary flood risk to the proposed route of the East MRT is from the River Thames, a well-maintained and slow responding watercourse with extensive calibration data available from previous flood events.

12 Ground Conditions

12.1 Introduction

- 12.1.1 The ground conditions impact assessment will consider the impact of ground contamination (if present) on the Site and surrounding area during the preconstruction, construction and operational phases of the proposed development.

12.2 Previous Studies and Baseline Conditions

Previous Studies to Inform Assessment

- 12.2.1 The following studies have been prepared and will be used to inform the assessment:

- East Reading Mass Rapid Transit Scheme, Phase 1 Ground Condition Assessment (Contamination and Geotechnical) (PBA, 2017a) including a Tier 1 contamination risk assessment for the whole Site. The study was supplemented by an intrusive geoenvironmental ground investigation including a Tier 2 contamination risk assessment for the Western part of the Site that was identified to have potential significant environmental effects with regards to contamination;
- East Reading Mass Rapid Transit Scheme, Phase 2 Ground Condition Assessment (PBA, 2017b); and
- Thames Valley Park and Ride, Reading, Berkshire, Phase 1 Land Contamination Assessment (WSP, 2016).

Baseline

Land Use

- 12.2.2 Previously, the western part of the Site was raised with materials from unidentified sources and is defined by the Environment Agency as a historical landfill. The Site was used as railway land with fuel tanks located on the Site. Subsequently, some of the western part of the Site was redeveloped as part of the Tesco Superstore development. The eastern part of the proposed development comprises principally undeveloped land with the exception of two historical gravel pits.

Geology

- 12.2.3 The natural ground conditions on the site comprise Alluvium and River Terrace Deposits overlying the White Chalk Subgroup at depth.
- 12.2.4 A summary of the ground conditions based on the historical borehole records in the vicinity of the Site is presented in the table below.

Table 12.1: Summary of Ground Conditions at the Site

Strata	Approximate Depth to base (m bgl)	Typical Description
Made Ground	0.3 to 3.0 typically 1.0 to 2.5	Variable composition, typically CLAY with fragments of brick, clinker, concrete, chalk and flint, locally with ash and organic matter
Alluvium	2.5 to 4.3 Typically about 3.5 to 4.0	CLAY and SILT locally peaty or organic with traces of decaying organic matter, flint gravel and shells. Locally with rare layers of peat (up to 2.1 m thick)
River Terrace Deposits	3.8 to >10.0 Typically 6.0	SAND and GRAVEL in variable proportion locally with a thin layer of clayey sandy silt
White Chalk Subgroup	> 25	White Chalk with flints. Recovered as remoulded chalk with fragments of weak chalk becoming rubbly and blocky with depth

12.2.5 Where recorded, groundwater strikes were recorded between 1.8 and 4.5 m below ground level and rose to between about 0.3 and 2.9 m below ground level.

Hydrogeology

12.2.6 The River Terrace Deposits and the White Chalk Subgroup are classified as Principal Aquifers. The Alluvium is classified as Secondary A Aquifer.

12.2.7 It is expected that the groundwater in the Alluvium, River Terrace Deposits and the White Chalk Subgroup are in hydraulic continuity with the water in the adjacent rivers.

12.2.8 The presence of Principal and a Secondary A Aquifers is considered in assessing the effects of the built development on the hydrogeological regime and the risk associated with persistent pollutants.

Hydrology

12.2.9 The adjacent River Thames and the River Kennet are considered to be highly sensitive surface water receptors.

12.2.10 Additional information with regards to the hydrology is presented in the **Chapter 11 Hydrology and Drainage**.

Contamination

12.2.11 A ground investigation was carried out in the western part of the site in 2016 and 2017 and included geoenvironmental testing on selected soil, groundwater and surface water samples.

12.2.12 Based on the findings of the ground investigation, the measured concentrations of potential contaminants are, in general, below the selected assessment values appropriate for commercial land use. Asbestos was not detected in any of the 25 soil samples tested.

12.2.13 In general, the measured concentrations of potential contaminants are below the selected assessment criteria for assessing potential groundwater impacts on surface waters and the UK drinking water quality standards.

12.3 Not Significant Effects

12.3.1 We propose to exclude the following elements from the Ground Conditions ES Chapter for the reasons stated below:

- **Geo Conservation:** The natural ground conditions on the Site comprise Alluvium and River Terrace Deposits overlying the Chalk at depth. The natural geomorphology in close vicinity to the Site comprises the Lower Valley Floor of the River Thames. There are no designated geological or geomorphological sites or features of conservation value in the area affected by the proposed scheme. Given that the proposed development will have no material change on the geology and geomorphology of the Site and its vicinity, there are no likely significant effects. Therefore, we propose to scope out the assessment of the impact of the proposed development on geo conservation from the ES.
- **Mineral Resources:** Although the River Terrace Deposits represent a potential mineral resource, the Site does not fall within any mineral consent or safeguard area. On this basis, there are no likely significant effects and we propose to scope out assessment of the impact of the proposed development on mineral resources from the ES.
- **Unstable Ground:** The Site is situated on slightly undulating ground with no noted features with the exception of two disused gravel pits recorded in the eastern part of the Site. The geology and geomorphological setting of the Site is such that the potential for unstable ground to be present is, in general, low. The presence of the historical gravel pits is not considered to have a significant effect on the ground conditions or the wider environment during either the construction phase or in the long term. On this basis, there are no likely significant effects and we propose to scope out assessment of ground stability from the ES unless the Phase 1 Ground Condition assessment identifies significant effects on the stability of the ground.

12.4 Sensitive Receptors and Likely Significant Effects

Sensitive Receptors

12.4.1 The following receptors will be considered in the Chapter:

- Human Health (On site and Neighbours);
- Groundwater (Shallow and Deep);
- Surface Waters;
- Property (Buildings);
- Property (Animal /Crop); and
- Ecology.

Likely Significant Effects

12.4.2 Any potential contaminants resulting from previous uses of the Site may have a negative impact on sensitive receptors including; site workers, site occupiers/neighbours, groundwater and surface water, ecology and wildlife, and the built environment.

12.4.3 The construction works could, without appropriate mitigation, cause pollution that could affect sensitive receptors at and in the vicinity of the Site.

12.5 Methodology

12.5.1 An assessment will be undertaken of the impacts of the proposed development in relation to ground conditions, with particular emphasis on the potential for contamination. The assessment will describe the potential and known sources of contamination within and around the Site, and the current conditions. The assessment will also assess those aspects of the proposed development that may impact, or be impacted by soil and water contamination or the physical ground conditions, associated potential impacts and effects, mitigation measures and residual impacts and effects following mitigation, or remediation.

12.5.2 The proposed methodology will include the following:

Site Wide

- A Site walkover survey;
- Review of historical maps, environmental data, published geological maps and other records available and identification of potential contaminant sources (or stability issues);
- Phase 1 Ground Condition Assessment including preparation of a preliminary site conceptual model (CSM) and Tier 1 Contamination Risk assessment.

Western Part of the Site

- Intrusive ground investigation including soil, groundwater and surface water testing; and
- Phase 2 Ground Condition Assessment including Tier 2 Contamination Risk Assessment based on a source-pathway- receptor model of potential pollutant linkages.

12.5.3 The Phase 1 and Phase 2 Ground Condition assessments were carried out in general accordance with the current UK practice as set out in the Model Procedures for the Management of Contaminated Land (CLR 11), BS 5930, and BS 10175.

12.5.4 An assessment of the potential impacts that are related to the ground conditions and potential contamination in the soil and groundwater. These will be assessed for the construction and operational phases of the development. Given the Site location and the high sensitivity of the controlled waters receptors below and immediately adjacent to the Site, emphasis will be given to careful consideration of the potential effects of the development on controlled waters.

12.5.5 Mitigation measures will be proposed to limit potential negative impacts and effects to an acceptable level, where required, and included in the assessment along with any residual effects. This will be carried out for the construction and operational phases of the proposed development.

12.6 Risks and Limitations

12.6.1 The Phase 1 Ground Condition Assessment may use information from 2016 within the Phase 1 Ground Condition Assessment (Contamination and Geotechnical) (PBA, 2017). There is a risk that this data is not up to date.

13 Landscape and Visual

13.1 Introduction

- 13.1.1 This section sets out the proposed approach and methodology for undertaking a Landscape and Visual Impact Assessment (LVIA) in support of a planning application for the proposed development.
- 13.1.2 An overview of the LVIA baseline data that will be used within the assessment is provided. Landscape designations and published landscape character assessments, which are relevant to the Site, are identified. Proposed view locations for the visual assessment remain the same as those utilised for the ES which accompanied the July 2017 Planning Application. The baseline photographs will be updated to 2018 to reflect the current situation of the Site and its context, for example where vegetation has been removed since 2016 / 2017. The Winter photographs taken at these locations for the previous LVIA will be included as information in the 2018 LVIA, to demonstrate the differences in winter setting and aid the assessment of effects during winter months.
- 13.1.3 The scope of the LVIA is outlined, and potential likely significant landscape and visual effects identified.

13.2 Previous Studies and Baseline Conditions

- 13.2.1 This section sets out the baseline conditions in relation to landscape and visual impacts, and highlights the relevant previous studies undertaken for the scheme.

Previous Studies to Inform Assessment

- 13.2.2 The following studies have been prepared and will be used to inform the LVIA in the EIA:

- An LVIA was undertaken and submitted within the ES with the July 2017 Planning Application (Refs: 171108 and 172048 and Environmental Statement). This
- An updated LVIA was undertaken and submitted with the ES Addendum in April 2018 – this assessed the potential impacts associated with the updated scheme

Baseline

Landscape Designations

- 13.2.3 Landscapes may be valued at community, local, national or international levels. Existing landscape designations will be taken as the starting point for the assessment, and the value of undesignated landscapes will also be assessed.
- 13.2.4 Relevant landscape designations for the Site and surrounding area are set out in **Table 13.1**.

Table 13.1: Landscape Designations

Typical Designation	Description	Importance (Value)	Actual Designation Applicable to the Site and Surrounding Area
World Heritage Site	Unique sites, features or areas of international importance with settings of very high quality.	International (High)	None
National Park, AONB, Conservation Area, curtilage of Grade I, II* and II Listed Buildings, Registered Parks and Gardens of Special Historic Interest (RHPG), Scheduled Monuments, Ancient Woodland	Sites, features or areas of national importance with settings of high quality.	National (High)	None on the Site. Conservation Areas: Sonning Conservation Area, 2 km to the north-east of the Site; Eldon Square Conservation Area, 0.4 km to the south of the Site. Various Listed Buildings in the surrounding area. Including 'Railway bridge and attached accommodation bridge over River Kennet at SU 7306 7381', 40m to the south of the Site. RHPG: Reading Cemetery (Grade II) 0.6 km to the south-east of the Site. Scheduled Monuments: 'Reading Abbey: a Cluniac and Benedictine monastery and Civil War earthwork', 0.5 km to the south-west of the Site. Ancient Woodland: a small area on island within lake, 1 km to the north-east of the Site
Special Landscape Areas, Areas of Great Landscape Value, Long distance paths, National Cycle Routes	Sites, features or areas of regional importance with intact character.	Regional (High/Medium)	Thames Path National Trail National Cycle Route 4 / Route 5 – Thames Valley
Areas of Local Landscape Importance, Designated	Sites, features or areas of district importance.	District (Medium or Low)	Important areas of open space (Reading Borough Local

Typical Designation	Description	Importance (Value)	Actual Designation Applicable to the Site and Surrounding Area
Public Open Space, Tree Preservation Orders (TPO)			Development Framework: Policy RC14) Major landscape feature (Reading Borough Local Development Framework: Policy CS37, SA17) Existing and potential green links (Reading Borough Local Development Framework: Policy DM17) TPOs: TBC
No designation, local public right of way	General countryside area valued at the local level.	Local (Medium/ or Low)	None on the Site. Public rights of way to the east

Landscape Character

13.2.5 Relevant published landscape character descriptions for the Site include:

- a. National Character Area: 115: Thames Valley;
- b. Reading Townscape and Visual Assessment (Reading Borough Council, 2008, Reading Tall Building Strategy: **Appendix 1**); and
- c. Wokingham District Landscape Character Assessment (Land Use Consultants, 2004).

13.3 Not Significant Effects

13.3.1 The following effects have been identified as being 'not significant' and therefore will not be considered further within the ES. A factual evidence base has been provided below to support this:

- **National Landscape Character Area 115: Thames Valley:** there would be no significant landscape effects on this national character area as the proposed development would not alter the defining and key characteristics of that National Landscape Character Area;
- **Berkshire County Landscape Area – B4 Hurley Thames:** no direct landscape effects, as the East MRT site is located outside of this landscape character area. The previous assessment identified that there would be indirect landscape effects as a result of limited and just discernible intervisibility, which would be 'not significant'. The proposed development is expected to result in the same assessment finding and therefore this landscape character area is not to be included in the LVIA and ES;
- **Reading Borough Council Townscape Character Areas – 11 Napier Road and 23 King's Meadow:** the previous LVIA identified limited direct landscape effects on these

character areas, which would be 'not significant'. The proposed development is expected to result in the same assessment findings and therefore these townscape character areas are not to be included in the LVIA and ES;

- **People's view and visual amenity:** people's views and visual amenity from selected view locations were assessed previously. People's views which have been identified as unlikely to result in visual effects, or likely to experience visual effects but which would not be significant, were scoped out for the visual impact assessment. These are listed below in **Table 13.2** with reasoning for being scoped out.

Table 13.2: Scoped Out View Locations

Viewpoint Location	Reasoning
Reading Cemetery RHPG	Intervening built form prevents views.
Sonning Conservation Area	Intervening vegetation and buildings prevent views.
Eldon Square Conservation Area	Intervening built form prevents views.
Reading Abbey: a Cluniac and Benedictine monastery and Civil War earthwork – Scheduled Monument	Intervening built form prevents views.
Viewpoint N – view north westwards across Kings Meadow Identified as a Key View within Central Reading (Reading Borough Council Townscape and Visual Assessment, 2008)	Intervening vegetation and buildings prevent views.
Towpath south of Kennet and Avon Canal, at end of Cholmeley Road, looking north-east (previous LVIA VP1)	Small elements of proposed development visible beyond existing railway bridges. Previous LVIA identified these effects to be not significant.
Thames and Kennet Marina, view looking south (previous LVIA VP6)	No view of East MRT site- intervening vegetation prevents views.
Entrance to Tesco Supermarket, from Napier Road (previous LVIA VP7)	Previous LVIA identified the visual effects at this location as not significant.
Roundabout on A3290 looking west (previous LVIA VP:E)	No view of East MRT site from this location, view only of the consented Park & Ride scheme.

13.4 Sensitive Receptors and Likely Significant Effects

Sensitive Receptors

13.4.1 Potential visual receptors include:

- Public Rights of Way and cycle route users, in particular the Thames Path National Trail and the Thames Valley National Cycle Route;
- people using open spaces and parks;
- people living in, working in, or visiting the east of Reading, in particular Lower Caversham, New Town and Thames Valley Business Park;
- pedestrians and people using local roads;
- passengers on trains travelling along the Great Western Main Line Railway.

13.4.2 The selection of viewpoints is made on the basis of the following types of publicly accessible viewpoints:

- representative viewpoints (for example, representing views of users of a particular footpath);
- specific viewpoints (for example, a key view from a specific visitor attraction);
- illustrative viewpoints (chosen to demonstrate a particular effect/specific issue); and
- any important sequential views (for example, along key routes, such as the long distance Thames Path).

Likely Significant Effects

13.4.3 Potential landscape and visual effects arising from the proposed development will be those upon:

- landscape features;
- landscape character; and
- people's views and visual amenity.

Landscape Features

13.4.4 Landscape features of the Site, which will potentially be affected by the proposals, include:

- a. **trees and other vegetation** within the Site and on the Site boundaries;
- b. **landform** adjustments to landform for the construction of bridge foundations and embankments, new roads and paths; and
- c. **land use** change to a part of the existing public open space with footpath and cycle route to part new public transport route, and retention of the footpath and cycle route with public open space and new / improved ecological habitats.

Landscape Character

- 13.4.5 It is likely that adverse changes will occur to the local landscape character of the site, arising from the river crossing, roads and associated infrastructure. Retention of existing trees, where practicable, together with new planting, which will integrate landscape and ecological requirements, will contribute towards minimising adverse effects on landscape character.
- 13.4.6 As discussed in **Section 1.1** a design review is currently being undertaken to consider options to blend the structure into the landscape. Potential options include planters on the deck, gabions on columns, green pigment in the concrete of the structure, and landscape options including additional planting. These will be confirmed and assessed through the EIA.

People's Views and Visual Amenity

- 13.4.7 There are likely to be adverse changes to people's views in proximity to the proposed development, as a result of the bridge and viaduct structure of the proposed development, together with moving buses using the East MRT route, and the associated loss of vegetation and amenity space from the larger public open space area. There are likely to be beneficial visual changes arising to people's views as a result of a new marginal shelf and associated marginal planting at the river edge.

Scope of Assessment

- 13.4.8 Representative viewpoints have been selected following a review of the potential visual receptors, and the likely visibility of the Site from the surrounding area. **Table 13.3** below lists those viewpoints that are considered to be likely to experience significant visual effects, based on the previous LVIA, and are therefore proposed to be re-used for the visual impact assessment.
- 13.4.9 The Townscape and Visual Assessment which forms part of the Reading Tall Building Strategy (Reading Borough Council, 2008, **Appendix 1**) was reviewed as part of the viewpoint selection process for the previous LVIA. The Reading Townscape and Visual Assessment identifies a number of locations from which there are key views within the town. Therefore, locations from where these views may potentially be affected by the proposed development were also selected to form part of the visual impact assessment, as noted in **Table 13.3**.

Table 13.3 Selection of Representative Viewpoints for Visual Impact Assessment

Viewpoint Reference	Location	Reason for Inclusion
Representative View Locations		
1	Footpath at north-east of Tesco car park	▪ Area identified by Reading Borough Council as a 'Major Landscape Feature'

(previously VP: A in 2017 LVIA)		(Policy CS37, SA17) and an 'Important Area of Open Space' (Policy RC14)
Sequential View Locations – Thames Path National Trail (assessed travelling east and west)		
A (previously VP4 in 2017 LVIA)	Thames Path National Trail	- Thames Path National Trail - National Cycle Route 4 – Thames Valley - Area identified by Reading Borough Council as a 'Major Landscape Feature' (Policy CS37, SA17)
B (previously VP2 in 2017 LVIA)	Thames Path National Trail, to the north of The Coal woodland	- Thames Path National Trail - National Cycle Route 5 - Area identified by Reading Borough Council as a 'Major Landscape Feature' (Policy CS37, SA17) and an 'Important Area of Open Space' (Policy RC14)
C (previously VP3 in 2017 LVIA)	Thames Path National Trail, east of the Kennet Mouth	- Thames Path National Trail - National Cycle Route 4 – Thames Valley - Area identified by Reading Borough Council as a 'Major Landscape Feature' (Policy CS37, SA17)
D (previously VP:B in 2017 LVIA)	Thames Path National Trail	- Thames Path National Trail - National Cycle Route 4 – Thames Valley
E (previously VP:C in 2017 LVIA)	Thames Path National Trail, north of the Dreadnought building	- Thames Path National Trail - National Cycle Route 4 – Thames Valley
F (previously VP:D in 2017 LVIA)	Thames Path National Trail, near Wokingham Waterside Centre	- Thames Path National Trail - National Cycle Route 4 – Thames Valley
G (previously VP5 in 2017 LVIA)	Open Space between Thames Path National Trail and Thames Valley Park Drive	- Thames Path National Trail - National Cycle Route 4 – Thames Valley

13.5 Methodology

- 13.5.1 The LVIA will be carried out by chartered landscape architects at PBA, a registered practice with the Landscape Institute and a corporate member of the Institute of Environmental Management and Assessment (IEMA).
- 13.5.2 PBA's methodology for LVIA is based on professional experience and the Landscape Institute / Institute of Environmental Management and Assessment 'Guidelines for Landscape and Visual Impact Assessment' (3rd Edition, 2013) ('GLVIA 3').
- 13.5.3 The LVIA will consider the effects on landscape (including landscape character) and on people's views (visual amenity) as separate assessment components. This will consider likely significant landscape and visual effects using a proportionate approach relative to the project and nature of likely effects.
- 13.5.4 The assessment of landscape and visual effects will make comparison with the baseline year of 2018, and will include assessment during the construction period, on completion of the development (i.e. operation) and 15 years after completion of the development, when new planting is assumed to have successfully established and grown to provide effective mitigation.
- 13.5.5 A three-stage assessment process will be adopted for LVIA, in accordance with the GLVIA 3. Based on the nature of receptors (sensitivity), the nature of effects (magnitude) and then the significance of effects as required by the EIA Regulations.

Baseline Data for the Landscape and Visual Assessment

- 13.5.6 Baseline landscape and landscape character information will be collated and reviewed, including landscape planning designations and published sources of landscape character.
- 13.5.7 The Site and surrounding area will be re-visited during 2018, and an updated photographic record to represent views of the selected assessment viewpoints undertaken, in order to:
- determine the extent of visibility of existing built structures;
 - determine the visibility of the proposed development; and
 - gain further understanding of the components which create the landscape character.

Assessment of Landscape Effects

- 13.5.8 This will assess how the proposed development will affect the components of the landscape and the key characteristics which contribute to its distinctive character (the 'landscape character').
- 13.5.9 A methodical consideration of each effect upon each identified landscape receptor will be undertaken, in order to determine the significance of effects, as a combination of the:
- sensitivity of the landscape receptor; and
 - magnitude of the landscape effect.

Sensitivity of the Landscape Receptor

- 13.5.10 The assessment of landscape receptor sensitivity will combine judgements on the 'value' attributed to the landscape receptor e.g. designations etc. This is combined with the 'susceptibility to change' of the receptor based on the type of development proposed i.e. the

ability for the proposed development to be accommodated without consequence or in keeping with policy/strategies.

Magnitude of Landscape Effects

13.5.11 The magnitude of a landscape effect will be assessed in terms of its size or scale, the geographical extent of the area influenced and its duration and degree of reversibility.

Assessment of Effects on People's Views and Visual Amenity

13.5.12 This will assess how the proposed development will affect the views available to people, and their visual amenity. A methodical consideration of each visual effect upon each identified visual receptor will be undertaken, in order to determine the significance of effects, as a combination of:

- sensitivity of the visual receptor, or viewer e.g. public rights of way, public open spaces, public realm or other outdoor recreational facilities; and
- magnitude of the visual effect.

13.5.13 No private viewpoints will be assessed. However, where appropriate, representative and sequential viewpoints have been selected from publicly accessible locations which are likely to be significantly affected by the proposed development.

Sensitivity of Visual Receptors

13.5.14 The assessment of visual receptor sensitivity will combine judgements on the value attributed to the visual receptor and the 'susceptibility to change' of the receptor to the specific type of development proposed.

13.5.15 The value assigned to views will have regard to a number of factors, such as:

- recognition through planning or heritage assets; and
- the popularity of the viewpoint, its appearance in guidebooks, literature or art, on tourist maps, and the facilities provided to enable enjoyment of the view.

13.5.16 The susceptibility of people to changes in views is a function of:

- the occupation or activity of the viewer at a given location; and
- the extent to which a person's attention or interest may therefore be focussed on a particular view and the visual amenity experienced.

Magnitude of Visual Effects

13.5.17 The magnitude of a visual effect will be assessed in terms of its size or scale, the geographical extent of the area influenced and its duration and degree of reversibility.

Landscape and Visual Mitigation Measures

13.5.18 Measures proposed for preventing/avoiding, reducing or, where possible, offsetting or compensating for significant adverse landscape or visual effects will be described. Mitigation measures comprise:

- primary measures – developed through the iterative design process and therefore integrated in scheme design e.g. site layout, retention of existing trees, incorporation of key views and vistas etc.; or
- standard construction and operational management practices e.g. fencing/hoardings; and
- secondary measures – proposals to address potential adverse effects which remain the above e.g. new planting.

13.5.19 Primary mitigation measures and standard construction and operational management practices will be described in the project description. An integrated landscape and ecology strategy is proposed to deliver mitigation and enhancement, as a result of the proposed development. Full details will be provided in the LVIA and the project's Design and Access Statement (DAS).

13.5.20 Secondary mitigation measures, if required, will be described in the LVIA.

Assessment of the Level of Significance of Landscape and Visual Effects

13.5.21 The level of significance of landscape and visual effects varies with the location, landscape context and type of proposed development.

13.5.22 The significance of landscape and visual effects will be determined from a combination of the receptor sensitivity and the magnitude of effects, as set out in **Table 13.4** below. Minor and negligible levels of significance are identified as 'not significant'.

Table 13.3: Significance of Landscape and Visual Effects

Sensitivity of Receptor	Major Effect	Moderate Effect	Slight Effect	Negligible Effect	Neutral Effect
High	Severe or Major to Severe	Major	Moderate	Minor	Negligible
Medium	Major	Moderate	Minor	Negligible	Negligible
Low	Moderate	Minor	Minor	Negligible	Negligible

13.5.23 A severe level of significance would be assigned where a landscape or visual effect represents a key factor in the decision-making process. Effects of a severe level of significance are generally, but not exclusively, associated with altering the integrity of sites and features of national or regional importance. A change at a district scale site or feature might also enter this category, though this will be subject to professional judgement and will be proportional to the type and extent of development that is being assessed. Where there is a combination of receptor high sensitivity and a major effect, professional judgement may be applied to determine a 'major to severe' level of significance, where it is considered that the effect does not represent a key factor in the decision-making process or where the development would have limited effects such that it would not alter the integrity of sites and/or features of national or regional importance.

13.5.24 The above table has regard to guidance in the GLVIA 3, at paragraph 5.56, page 92 (significance of landscape effects) and paragraph 6.44, page 116 (significance of visual effects).

13.6 Risk and Limitations

- 13.6.1 The assessment of landscape or visual effects aims to be as objective as possible, however professional judgements are required to be made, as the GLVIA 3 explains in paragraph 2.23, page 21:

'Professional judgement is a very important part of LVIA. Whilst there is some scope for quantitative measurement of some relatively objective matters, for example the number of trees lost to construction... much of the assessment must rely on qualitative judgements, for example about what effect the introduction of a new development or land use change may have on visual amenity, or about the significance of change in the character in the landscape and whether it is positive or negative.' (GLVIA3).

14 Ecology and Biodiversity

14.1 Introduction

- 14.1.1 A Biodiversity Chapter will be prepared for the ES, drawing upon the findings of baseline survey work completed for the Site from 2015 onwards.
- 14.1.2 The Chapter will assess the impact the proposed development will have those ecological features identified as 'important', in accordance with best practice guidance (CIEEM, 2016).
- 14.1.3 This section sets out the proposed scope of the assessment and the methods that will be used to assess the ecological impacts of the proposed development.

14.2 Previous Studies and Baseline Conditions

- 14.2.1 This section sets out the baseline conditions in relation to biodiversity, and highlights the previous studies undertaken and findings of these.

Previous Studies to Inform Assessment

- 14.2.2 An Ecological Impact Assessment was undertaken for the proposed development in 2017 (PBA, 2017). This considered both the East MRT in isolation, but also the East MRT in combination with the Thames Valley Park and Ride. A combination of baseline ecological desk study and survey data was used to inform the scope of the assessment.
- 14.2.3 An addendum assessment was undertaken for the proposed development in 2018 (PBA, 2018). This re-assessed the impact of the scheme on identified 'important ecological features' following a number of scheme revisions. This was informed by the baseline ecological desk study and survey data as per the 2017 assessment, in addition to an update site walkover survey completed for the Site in March 2018. The purpose of this survey was to re-assess the condition of the habitats present within the Site and their potential to support protected species, to determine if there had been any material changes since the 2015 and 2016 survey work (set out below). No significant changes were observed, therefore the baseline information as detailed above was used to inform the 2018 EIA (PBA, 2018).
- 14.2.4 **Table 14.1** below sets out the baseline surveys completed to inform the assessment and addendum assessment (PBA, 2017 and 2018).

Table 14.1: Baseline Data Collection Methodologies - Summaries

Data Collection	East Reading MRT Site	P&R Site (completed by CA Ecology to inform the TVP P&R application)
Desk study	A desk study was completed for the Site in 2016. Data was obtained from within 2 km of the Site, extended to 10 km for European designated areas, with a search for waterbodies within 250 m.	A desk study was completed for the P&R Site in 2015. Data was obtained from within 2 km of the TCP P&R Site, with a search for waterbodies within 500 m.
Extended Phase 1 habitat survey	An extended Phase 1 habitat survey of the Site was carried out in 2016. Habitats were identified and	An extended Phase 1 habitat survey of the P&R Site was carried out in 2015. Habitats were identified

Data Collection	East Reading MRT Site	P&R Site (completed by CA Ecology to inform the TVP P&R application)
	mapped following standard Joint Nature Conservation Committee (JNCC) Phase 1 habitat survey methodology as detailed in the Phase 1 Habitat Survey Handbook (JNCC, 2010). The survey was extended to give particular consideration to the potential of the habitats present to support protected species or species of conservation importance.	and mapped following JNCC Phase 1 habitat survey methodology as detailed in the Phase 1 Habitat Survey Handbook (JNCC, 2010). The survey was extended to give particular consideration to the potential of the habitats present to support protected species or species of conservation importance.
Detailed botanical	A detailed Phase 2 botanical survey was undertaken across the Site in June 2016. This included habitat within The Coal, Kennetmouth and Kings Meadow East Local Wildlife Site (LWS) (i.e. to enable the current character and condition of the LWS to be compared with that described in the citation), as well as vegetation sampling across representative habitat areas within the remainder (i.e. non-LWS) of Site.	No detailed botanical work was undertaken as it was not considered necessary to determine the ecological baseline.
Bats	A series of bat surveys were completed for the Site in 2016. These were completed in accordance with the Bat Conservation Trusts Good Practice Guidance (Collins, 2016) and included: A ground-level assessment of trees followed by further detailed inspection and dusk emergence/dawn return to roost surveys of trees classified as having a high/medium level of roosting potential; A dusk emergence survey of the railway bridge spanning the River Kennet; and Monthly activity transect surveys between May and September inclusive, supplemented through the use of automated static bat detectors between May and October inclusive.	An initial single bat activity survey (static detector monitoring only) was completed for the P&R Site in 2015. Supplementary bat activity surveys (transects and static detector monitoring) were completed for the TVP P&R Site in 2015, with reference to good practice guidance applicable at the time of the survey (Hundt, 2012 and Mitchell-Jones, 2004).

Data Collection	East Reading MRT Site	P&R Site (completed by CA Ecology to inform the TVP P&R application)
Badgers	Potential for badgers <i>Meles meles</i> to be present assessed as part of the extended Phase 1 habitat survey. No further surveys required.	A badger survey was carried out for the TVP P&R Site in 2015.
Breeding birds	Potential for breeding birds to be present assessed as part of the extended Phase 1 habitat survey. No further surveys required.	A single breeding bird survey was carried out for the TVP P&R Site in 2015. The survey work followed a standard method based on the British Trust for Ornithology's (BTO's) Common Bird Census (CBC), as summarised by Bibby et al. (2000).
Great crested newts	Potential for great crested newts <i>Triturus cristatus</i> to be present assessed as part of the extended Phase 1 habitat survey. No further surveys required.	A Habitat Suitability Index (HSI) Assessment was completed for one waterbody located within 500 m of the P&R Site in 2015. The methodology was based on that prescribed by Oldham et al. (2000) and simplified by National Amphibian and Reptile Recording Scheme (NARRS).
Reptiles	A series of reptile presence / likely absence surveys were completed for the Site in 2016. These surveys were based on best practice guidance and professional judgement.	A series of reptile presence / likely absence surveys were completed for the TVP P&R Site in 2015. These surveys were based on best practice guidance and professional judgement.

14.2.5 The work completed for the Site was supplemented by a formal scoping process, with additional consultation (i.e. not through the formal scoping process) undertaken in relation to the scope of surveys completed for the Site and the works relating to the TVP P&R Site.

14.2.6 The results of these surveys will be used in combination with update surveys (currently on-going for the Site), to underpin the new application.

Baseline

14.2.7 The baseline established from the above work is summarised below.

Statutory Designated Sites

14.2.8 No European designated sites are present within 10 km of the Site.

14.2.9 A single statutory designated site is present within 2 km of the Site: Highwood Local Nature Reserve (LNR) is located approximately 1,800 m south east of the East MRT Site. It contains a number of exotic trees species, with areas of mixed lowland woodland and heathland also present. The LNR also supports a variety of bird species.

14.2.10 In addition, the Site is located within the Site of Special Scientific Interest (SSSI) Risk Zone for Lodge Wood and Sandford Mill SSSI (located just under 5km east of the East MRT Site). However, the proposed development (i.e. infrastructure) is not one of the development types that Lodge Wood and Sandford Mill SSSI is considered to be of risk from (limited to airports, helipads and other aviation proposals, pig and poultry units and slurry lagoons).

Non-Statutory Designated Sites

14.2.11 Seven non-statutory designated sites are present within 2 km of the Site. One of these – The Coal, Kennetmouth and Kings Meadow East Local Wildlife Site (LWS) – is located within the East Reading MRT Site boundary. The Coal comprises an area of woodland, with the Kennetmouth comprising a short length of tow path at the confluence of the River Thames and River Kennet. Kings Meadow East comprises an area largely used for recreational purposes and containing a mosaic of habitats including mixed broadleaved woodland, scrub and tall herb and rough grassland.

14.2.12 The Henley Road Pit LWS is located approximately 100 m north of the Site; immediately north of the River Thames. Henley Road Pit LWS is cited as comprising a large pit located next to the Thames which supports a range of overwintering wildfowl as well as nationally scarce insects.

Ancient Woodland

14.2.13 A single area of Ancient Woodland is present within 2 km of the Site. This is located over 900 m north of the Site, on an island within the Henley Gravel Pits.

Habitats On-Site, including Protected and Notable Flora (including Mature Trees)

14.2.14 The Site and its immediate surroundings contain a variety of habitat types, including those identified as Habitats of Principal Importance. Update surveys are on-going at the Site, which will confirm the condition and status of habitat types present (see below).

Species

14.2.15 A summary of the species baseline is provided in **Table 14.2** below.

Table 14.2: Summary of the Species Baseline

Species	Summary
Bats	The bat surveys completed for the East Reading MRT Site identified a range of species utilising the Site itself and the surrounding area for foraging and commuting purposes. Although no roosting bats were identified, trees with potential to support roosts are present. When considered within the wider landscape context, however, the value of the Site for bats was reduced on account of the existing presence of the mainline railway immediately to the south (already limiting the north south connectivity) and the presence of more suitable habitat (both foraging and commuting habitat) to the north. Update surveys are currently in progress to obtain up to date information on usage.
Great crested newts	No standing waterbodies, which might otherwise provide suitable breeding habitat for amphibians, were identified within the study area itself or within 250 m of its boundaries (following a review of OS mapping (1:25,000)). Furthermore, although the terrestrial habitats on site were identified to provide some suitable habitat for use by amphibians, due to

Species	Summary
	the lack of nearby standing waterbodies and the high levels of anthropogenic disturbance associated with pedestrians, dog-walkers and nearby construction and management works; such habitats were considered largely sub-optimal and unlikely to be utilised by this species group. Great crested newt was considered likely absent from the Site and therefore scoped out of further assessment.
Hazel dormice	The study area provided a small amount of suitable, although largely suboptimal, habitat for hazel dormice. Given the high levels of anthropogenic disturbance associated with the study area, it's isolation from more substantive habitat suitable for dormice within the wider landscape, and the absence of known hazel dormice records however, this species was considered likely absent from the East Reading MRT Site and therefore scoped out of further assessment.
Otter	Although the Site provides some habitat which may have been suitable for terrestrial use by otter <i>Lutra lutra</i> (for example, woodland edges and mature trees); due to the limited extent of habitats identified, and high levels of anthropogenic disturbance, the value of the East Reading MRT Site for this species was greatly reduced.
Badger	It was considered unlikely that badgers <i>Meles meles</i> used the Site as a primary resource for either sett building or foraging; particularly given the presence of the more suitable Network Rail corridor located immediately to the south, and the more extensive King's Meadow to the west.
Breeding Birds	Although many of the habitat types within the Site were considered suitable for use by common and widespread breeding birds, typical of the semi-urban environment, use by a particularly notable or diverse assemblage was considered unlikely.
Reptiles	Reptile surveys revealed two species of reptile to use the Site; grass snake <i>Natrix natrix</i> and slow worm <i>Anguis fragilis</i> . Only very low numbers of grass snakes were recorded (single individuals), with numbers of slow worms (including juveniles) indicating that a medium breeding population of this species was likely to be present on the MRT East Site and in the surrounding area. Reptiles were concentrated along the margins of grassland and scrub habitats, particularly close to an adjacent railway corridor in the central part of the East Reading MRT Site, as well as in open areas to the east and west.
Water vole	Given the nature of the banks of the River Thames and River Kennet throughout the extent of the East Reading MRT Site (either reinforced or shallow and isolated from nearby suitable burrowing habitat), the limited presence and diversity of a suitable food source, and the high levels of anthropogenic disturbance, the Site was considered unsuitable for water vole <i>Arvicola amphibius</i> throughout; as such, water vole were considered likely absent from the Site.
Invertebrates	The MRT East Site provided a variety of terrestrial habitats suitable for a broad diversity of invertebrates including protected and notable terrestrial species such as stag beetle <i>Lucanus cervus</i> , a species identified from the desk study. That said, due to the nature of habitats present, and the fact

Species	Summary
	they were limited in extent, it was considered unlikely that the Site would support a notable site-wide invertebrate assemblage.
Hedgehog	No evidence of use by European hedgehog <i>Erinaceas europeaus</i> was identified throughout the surveys completed at the Site. Further to this, although the Site provided a range of habitats which may be utilised by (including woodland, scrub and open grassland), should they be present within the vicinity, their suitability was reduced on account of the high level of management and other anthropogenic disturbance.

14.2.16 The addendum assessment, completed for the Site in 2018 confirmed the conclusions of the biodiversity baseline of the original 2017 ES chapter.

14.2.17 Update baseline surveys are currently on-going for the Site. These comprise:

- A Phase 1 habitat survey: habitats on site will be mapped in accordance with current best practice guidance (JNCC, 2010). The survey will be extended to give particular consideration to the potential of the habitats present to support protected species or species of conservation importance;
- Reptile presence / likely absence surveys: surveys will be undertaken to determine the presence / likely absence of reptile species and estimate population size/densities. Surveys will be carried out with regard to best practice guidance (Herpetofauna Workers' Manual (HGBI, 1998) and Reptile Survey Advice Sheet 10 (Froglife, 1999)); and
- Bat activity surveys: three bat activity transects will be undertaken between July/ August and September/ October. Methods will be with regard to best practice guidelines (Collins J (ed.), 2016).

14.3 Not Significant Effects

14.3.1 Taking in to account the embedded mitigation measures contained within the ecologically informed scheme design, the commitment to a CEMP, dedicated ecological mitigation strategies and precautionary measures of working, the previous assessment identified the following residual effects on 'important ecological features' (in accordance with CIEEM, 2016)⁷.

Table 14.3: Summary of Residual Effects

Important Ecological Feature	Proposed East MRT Development	
	Construction	Operation
The Coal, Kennetmouth & Kings Meadow East LWS	Permanent adverse (Local)	Permanent beneficial (Local)
Henley Road Gravel Pits LWS	None	None

⁷ 'Important Ecological Features' are those that area considered to be 'Important' within a 'Local' context or above; and are therefore considered further within the impact assessment.

Important Ecological Feature	Proposed East MRT Development	
	Construction	Operation
Ancient Woodland	N/A	N/A
Habitat of Principal Importance	None	None
Running Water (HPI)	None	None
Bats (foraging, commuting and potentially roosting)	Temporary adverse (Local)	None
Reptiles	Temporary adverse (Local)	None

14.3.2 Where the Site was known to support populations of other protected species of less than 'Local' importance (whereby there was no requirement for formal assessment), appropriate recommendations were made to ensure compliance with the legislation by which these species are protected and adherence to planning policy.

14.3.3 No changes to the 2017 assessment were identified as a result of the addendum assessment completed for the Site in 2018.

14.4 Important Ecological Features and Likely Significant Effects

Important Ecological Features

14.4.1 It is considered highly unlikely that the important ecological features as identified previously will change as a result of the update surveys, and as such, those identified within Table 14.2 above are anticipated to be present within the Study Area and relevant to this assessment.

Likely Significant Effects

14.4.2 In the absence of mitigation, a number of direct and indirect impacts with the potential to result in significant effects on important ecological features may occur as a result of construction and operation related activities.

14.4.3 Potential direct and indirect impacts that may occur as a result of construction phase activities, and in the absence of mitigation, include:

- Reduction in habitat extent, quality and connectivity;
- Construction of a physical barrier;
- Mortality/injury of individual animals;
- Changes in lighting levels during construction;
- Changes in air quality; and
- Changes in water quality.

- 14.4.4 Potential direct and indirect impacts that may occur as a result of operation phase activities and in the absence of mitigation, include:
- Severance / loss of foraging / commuting routes;
 - Mortality/injury of individual animals;
 - Hydrological changes including changes in water movement as a result of altered run-off patterns and/ or changes in water quality;
 - Changes in lighting levels; and
 - Increase in overshadowing.
- 14.4.5 In addition, once the scheme is operational, improvements in habitat quality and connectivity could result in permanent beneficial effects.

Scope of Assessment

- 14.4.6 The assessment will therefore consider those 'important ecological features' on which significant effects, in the absence of mitigation, could arise.
- 14.4.7 This includes all important ecological features as identified in Table 14.2 although the inclusion of reptiles and bats as 'important ecological features' will be determined following the results of the update surveys.
- 14.4.8 Where the Site is identified to support populations of other protected species of less than 'Local' importance (whereby there will be no requirement for formal assessment), appropriate recommendations will be made to ensure compliance with the legislation by which these species are protected and adherence to planning policy.

14.5 Methodology

- 14.5.1 The assessment will be carried out with regard to guidance set out in the Chartered Institute of Ecology and Environmental Management's (CIEEM) Guidelines for Ecological Impact Assessment (2016) ('the CIEEM Guidelines'). The assessment will be made with embedded ecological mitigation taken in to account.
- 14.5.2 The expression of significance of ecological effects will be made with reference to a geographic frame of reference. As the ES will use generic criteria, based on an expression of severity, to describe the significance of environmental impacts, the following table will be used as a means of relating the two approaches so as to allow the Ecological Impact Assessment to be integrated into the wider EIA without compromising the CIEEM best practice approach.

Table 14:4: Ecological Significance Criteria

Significance level	Criteria	CIEEM geographical criteria
Severe	Only adverse effects are assigned this level of significance as they represent key factors in the decision-making process. These effects are generally, but not exclusively associated with sites and features of international, national or regional importance. A	Ecological impacts assessed as being significant at national or higher geographical scales and that have triggered a response in development control terms are considered to represent impacts

Significance level	Criteria	CIEEM geographical criteria
	change at a regional or district scale site or feature may also enter this category.	that overall within this assessment are of severe significance.
Major	These effects are likely to be important considerations at a local or district scale but, if adverse, are potential concerns to the project and may become key factors in the decision-making process.	Ecological impacts assessed as being significant at the regional scales and that has triggered a response in development control terms are considered to represent impacts that overall within this assessment are of major significance.
Moderate	These effects, if adverse, while important at a local scale, are not likely to be key decision-making issues. Nevertheless, the cumulative effect of such issues may lead to an increase in the overall effects on a particular area or on a particular resource.	Ecological impacts assessed as being significant at the county scale and that has triggered a response in development control terms will be considered to represent impacts that overall within this assessment are of moderate significance.
Minor	These effects may be raised as local issues but are unlikely to be of importance in the decision-making process. Nevertheless they are of relevance in enhancing the subsequent design of the project and consideration of mitigation or compensation measures.	Ecological impacts assessed as being significant at the local scale and that has triggered a response in development control terms will be considered to represent impacts that overall within this assessment are of minor significance.
Negligible	No effect or effect which is beneath the level of perception, within normal bounds of variation or within the margin of forecasting error.	Ecological impacts that have been assessed as not being significant at any geographic level

14.6 Risks and Limitations

- 14.6.1 The update ecological surveys will be completed between August and October 2018. Whilst this timeframe does not constitute a 'full bat activity survey season', the intention of the survey is to provide an update to the pre-existing survey information from which any fundamental changes can be identified. This survey effort is considered appropriate to do so.

15 Topics not included in the EIA

15.1 Introduction

15.1.1 The ES should be focused, documenting only the assessment of likely significant environmental effects, both adverse and beneficial. Therefore, those effects which are not likely to be significant should not be included in the ES, i.e. they should be scoped out of the EIA, as clearly set out in the PPG (Paragraph: 035 Reference ID: 4-035-20140306). The following section sets out those topics that have been determined not to be significant and therefore are not included in the EIA, as well as those that will be addressed independently in separate assessments. The rationale for scoping these topics out of the EIA is also provided.

15.1.2 The topic areas for which no likely significant effects have been identified are:

- Noise and Vibration;
- Archaeology and cultural heritage;
- Waste;
- Climate Change; and
- Risk of Major Accidents and/ or disasters.

15.1.3 The topic areas in **Sections 7-14** also identify effects which are likely to be insignificant.

15.2 Noise and Vibration

15.2.1 The construction and operation of the proposed scheme, particularly access to public transport along the proposed East MRT scheme is likely have some effect in noise levels for the surrounding area.

15.2.2 However, examining the route indicates that the majority of adjoining land uses are industrial which would not be considered noise sensitive. The only potential noise sensitive receptors are residential dwellings located on the west of the Site along Luscinia View off Napier Road.

Methodology

15.2.3 A desktop assessment has been undertaken to determine the potential increase in noise levels at the dwellings due to the development.

15.2.4 The impact of the operational traffic noise from the MRT route has been predicted using the guidance in Calculations of Road Traffic Noise (Department of Transport Welsh Office 1988) (CRTN). The assessment is made by comparing the change in noise levels for the completed East MRT scheme against the 'without development' baseline scenario. A best estimate of number of buses on Napier Road and the new East MRT scheme have been utilised to inform the assessment.

15.2.5 We understand that in region of 300 buses per day will operate along the route. This assumption for the new link road has been used for the purposes of this assessment.

15.2.6 The increase in noise due to the operation of the East MRT scheme has been assessed at properties along Luscinia View fronting Napier Road.

Guidance

- 15.2.7 The impact of the proposed development on the noise climate in the surrounding areas is based on the change in noise levels at noise sensitive receptors due to the increase in the volumes of road traffic generated by the proposed development.
- 15.2.8 The Design Manual for Roads and Bridges (The Highway Agency 2011) (DMRB) provides two magnitude scales of impact for the change in noise levels in the 'short-term' (opening year) and in the 'long-term' (future year). Assessment for the EIA uses long-term future year assessment criteria to assess the full and permanent effects of the proposed development. These are presented in **Table 16.1** in terms of significant levels.

Table 15.1: Significant Levels for Existing Dwellings from Development Traffic

Change in $L_{A10,18h}$ Noise Levels in Long-term due to Road Traffic	Significance Level
10+	Major
5-9.9	Moderate
3 – 4.9	Minor
0.1-2.9	Negligible
0	No Change

Results and Analysis

- 15.2.9 **Table 16.2** below presents the predicted change in noise levels that are likely to occur due to the development at properties along Luscinia View.

Table 15.2: Road Traffic Impacts

Residential Premises	Changes in noise levels ($L_{A10,18HR}$) between with development and without development, in dB
Properties along Luscinia View	+1

- 15.2.10 The change in ambient noise levels at the existing receptors would be below 3 dB and would therefore be deemed a negligible impact in line with significance defined in **Table 16.1**.

Therefore, due to the limited number of receptors and negligible impact, we proposed to scope noise out of the EIA.

15.3 Archaeology and Cultural Heritage

Previous Studies and Baseline Conditions

Previous Studies to Inform Assessment

15.3.1 A heritage desk-based assessment was completed to inform the 2017 ES for the Site and a 1 km radius from its centre (i.e. the study area). No evidence suggesting that remains of national importance are likely to be present on the Site was identified.

15.3.2 Consultation with the following organisations and of the following documentation has been undertaken as part of the heritage desk-based assessment:

- Berkshire Historic Environment Record;
- Berkshire Archaeology;
- Wokingham Borough Council Conservation Officer;
- Oxfordshire Historic Environment Record;
- British Library;
- Reading Local Studies Library;
- National Archives;
- Berkshire Record Office;
- Berkshire Development Control Archaeologist;
- National Planning Policy Framework and Guidance;
- Local Planning Policy;
- Historic OS Mapping (including Enclosure, Tithe and Ordnance Survey where appropriate);
- Various online resources (including Archaeological Data Service, Online Catalogue, MAGIC and the National Heritage List for England); and
- Previous desk-based assessments, EIAs or fieldwork reports prepared for other sites within the vicinity.

Baseline

Non-Designated Heritage Assets

15.3.3 Based on the available evidence, the heritage desk-based assessment identified that the Site has moderate/low potential for remains of prehistoric, Roman and Medieval date. This is primarily associated with the Site being located within the River Kennet floodplain, where archaeological evidence could be sealed within alluvial deposits at depth.

15.3.4 A low archaeological potential is identified for the Post-Medieval/Modern periods.

- 15.3.5 It is considered that due to the moderate/low archaeological potential of the Site, additional work may be requested by the archaeological advisor to the Local Planning Authority.
- 15.3.6 Any such work can be accommodated by an appropriately worded planning condition. This was confirmed by Berkshire Archaeology in their response to the previous planning application for the original scheme.

Designated Heritage Assets

- 15.3.7 The heritage desk-based assessment identified that there are no Scheduled Monuments, Conservation Areas, Registered Parks and Gardens, and Historic Battlefields which will be impacted upon by the proposed development.
- 15.3.8 Reading Cemetery (a Grade II Listed Park and Garden) and forty-seven Listed Buildings are located within the study area.
- 15.3.9 The heritage desk-based assessment identified that the only Listed Building which has the potential to be impacted up by the development proposals is the Grade II Listed Railway Bridge and attached Accommodation Bridge that lie immediately to the south of the Site. However, views to and from the bridges will be screened by woodland which runs along the River Kennet, although glimpsed views of the bridges from the Site may be possible, these are considered to be limited. The surrounding area of the listed bridge is also of an industrialised nature and the proposed new bridge will have an arch height at the height of the existing bridge to limit visual impacts. Therefore, it is considered that there will be no additional impact on the setting and significance of the bridge and Accommodation Bridge from the development proposals.
- 15.3.10 Reading Cemetery (a Grade II Listed Park and Garden) lies c. 500 m to the south of the Site. It is located in an area of modern development, with no intervisibility between it and the Site. Therefore, it is considered that the proposed development will not impact on its setting or significance.

Residual Effects

- 15.3.11 The programme of archaeological works would provide benefits which would serve to mitigate much of the loss of the remains. The loss of any Prehistoric remains would be offset by the increased knowledge of this period which would be gained for the wider area should such remains be encountered. As such in this instance the residual effect would be negligible, with potential to be slightly beneficial.
- 15.3.12 Should remnants of the Saxon remains be present in the easternmost part of the Application Site the programme of archaeology works would serve to mitigate their loss and add to knowledge of Saxon and early Medieval history of the area. This would result in a residual negligible to minor adverse significance of effect.
- 15.3.13 Based on the previous studies, the following potential effects may occur without mitigation:
- **Designated Heritage Assets:** Construction and operation of the East MRT would change views from the Grade II Listed Railway and Accommodation Bridge over the River Kennet.
 - **Non-designated Heritage Assets:** The construction of the East MRT development would remove any buried archaeological remains which may be present within the Site where below ground works are proposed.
- 15.3.14 As the 2017 heritage desk-based assessment is considered to remain valid, and with consideration of the amended East MRT scheme, the conclusion from the archaeology and

cultural heritage chapter in the 2017 ES is not expected to change. Therefore, we propose to scope out archaeology and cultural heritage from the ES.

15.4 Waste

- 15.4.1 It is likely that waste materials will be generated by both the clearance of the Site and the construction of the proposed scheme. A framework Site Waste Management Plan will be submitted with the planning application.
- 15.4.2 Consequently, waste will need to be managed in accordance with this plan. This will include managing waste, wherever possible, according to the 'waste hierarchy' which is shown below in order of priority:
- Reduction;
 - Re-use;
 - Recovery (i.e. recycling); and
 - Disposal (i.e. landfill/incineration).
- 15.4.3 In line with good design, and effective cost management, materials generated on the Site by the demolition and construction works will be retained on-site and re-used wherever possible.
- 15.4.4 As such, significant effects in relation to waste are considered to be unlikely.

15.5 Climate Change

- 15.5.1 Regulation 4(2)(a) of the 2017 EIA Regulations requires significant effects on climate to be considered, as appropriate, within the EIA process. In addition, Schedule 4 of the 2017 EIA Regulations requires likely significant effects resulting from "*the impact of the project on climate...and the vulnerability of the project to climate change*" to be addressed within an ES.
- 15.5.2 With regards to the impact of the proposed development on climate change, it is acknowledged that the construction of the proposed development would utilise energy intensive materials (e.g. concrete and metals) as well as fossil fuels for construction plant/vehicles. However, the scale of the development is limited and such activities, during construction and operation, will not have a significant effect on the climate.
- 15.5.3 Once operational, the proposed development has the potential to increase use of public transport, walking and cycling and attract car users to the TVP P&R, and therefore not contribute significantly to climate change. Further to this, the Institute of Environmental Management and Assessment (IEMA) guidance on the assessment of the impact on climate change (IEMA 2015 and IEMA 2017) reference proportionality against the context of the proposed development in national, sector and local greenhouse gas emissions. Due to the nature and scale of the proposed development, it is likely to have a limited impact on the national, sector and local context, and therefore is not likely to have a significant effect on climate change.
- 15.5.4 With regards to the vulnerability of the proposed development to climate change, potential climate related flood risks will be considered within the FRA. In accordance with planning policy, suitable mitigation will be incorporated into the proposed development to ensure that the proposed development is not at a significant risk of flooding, including anticipated climate change such as increased rainfall intensity.

- 15.5.5 As a result, the proposed development is not considered to have significant effects on the climate or to be significantly affected by climate change. It is therefore proposed to scope climate change out of the EIA.

15.6 The Risk of Accidents and/or Disasters

- 15.6.1 Schedule 4 to the EIA Regulations requires an ES to include “a description of the expected significant adverse effects of the development on the environment deriving from the vulnerability of the development to risks of major accidents and/or disasters which are relevant to the project concerned”. Although only the resulting expected significant adverse environmental effects (together with any required prevention, preparedness, mitigation and response measures) need to be addressed within an ES, it is first necessary to identify a project’s vulnerability (i.e. identification of relevant risks). The second stage is then to determine whether this would result in likely significant environmental effects.
- 15.6.2 The terms risk, vulnerabilities, major accidents and disasters are all undefined within the 2017 EIA Regulations. To remain proportionate, consideration of this topic should focus on the risks of major accidents and/or disasters which have the potential to result in serious damage, which for this EIA is defined as:
- “The loss of life or permanent injury and/or permanent or long-lasting damage to an environmental receptor which cannot be restored through minor clean up and restoration efforts.”
- 15.6.3 Taking account of the location and characteristics of the proposed development, and the likelihood of significant environmental effects outlined in this scoping report, the only major risks identified relate to:
- potential accidents during the construction phase resulting in disturbance, injuries and/or fatalities to construction workers or members of the public;
 - road traffic accidents;
 - fluvial flood risk associated with the River Thames and River Kennet; and
 - pollution incidents to ground and watercourses during the construction phase, resulting in potential pollution migration and adverse effects on specific receptors including soils, habitats, and species.
- 15.6.4 As detailed within this Scoping Report, mitigation will be included within the proposed development to address these risks and manage potential environmental effects. Health and safety is a key consideration in the construction sector and will be managed in accordance with legal requirements and best practice. It should also be noted that Road Safety Audits will be required for any new highways or junctions.
- 15.6.5 As a result, the proposed development is not considered to be vulnerable in EIA terms to major accidents and/or disasters with the potential to lead to significant adverse environmental effects. As a result, it is proposed scope the risks from major accidents and/or disasters out of the EIA.

16 Summary and Next Steps

16.1 Summary

- 16.1.1 This document has been prepared to provide an overview of the likely significant environmental effects that have been considered in scoping the EIA for the East MRT scheme to the east of Reading, Berkshire. This Scoping Report has provided information regarding the proposed developments, set out the intended EIA scope and methodologies for the assessment of likely significant environmental effects, and outlined the content of the ES.
- 16.1.2 The aim is to seek to ensure that proposed developments have due regard for the environment, mitigates adverse environmental effects where possible, and take advantage of opportunities for environmental enhancement.

16.2 The Environmental Statement

- 16.2.1 The outcome of the EIA process is the production of an ES to accompany the planning application. An ES will be prepared in compliance with the 2017 EIA Regulations, and that achieves the following:
- Describes the proposed development;
 - Outlines the reasonable alternatives considered;
 - Describes the baseline environment;
 - Describes the likely significant effects and the methods used to identify significant effects;
 - Describes the measures to mitigate adverse effects;
 - Describes any monitoring arrangements; and
 - Includes a non-technical summary.

16.3 Next Steps

- 16.3.1 The next steps in the EIA process are as follows:
- Request a Scoping Opinion from RBC and WBC (24th August 2018);
 - Receipt of formal Scoping Opinion (28th September 2018); and
 - Submission of ES with the planning application (by 10th October 2018).

- 16.3.2 Comments on this report should be provided to:

Richard Eatough
Planning
Reading Borough Council
Civic Offices
Bridge Street
Reading
RG1 2LU

Email: richard.eatough@reading.gov.uk

References

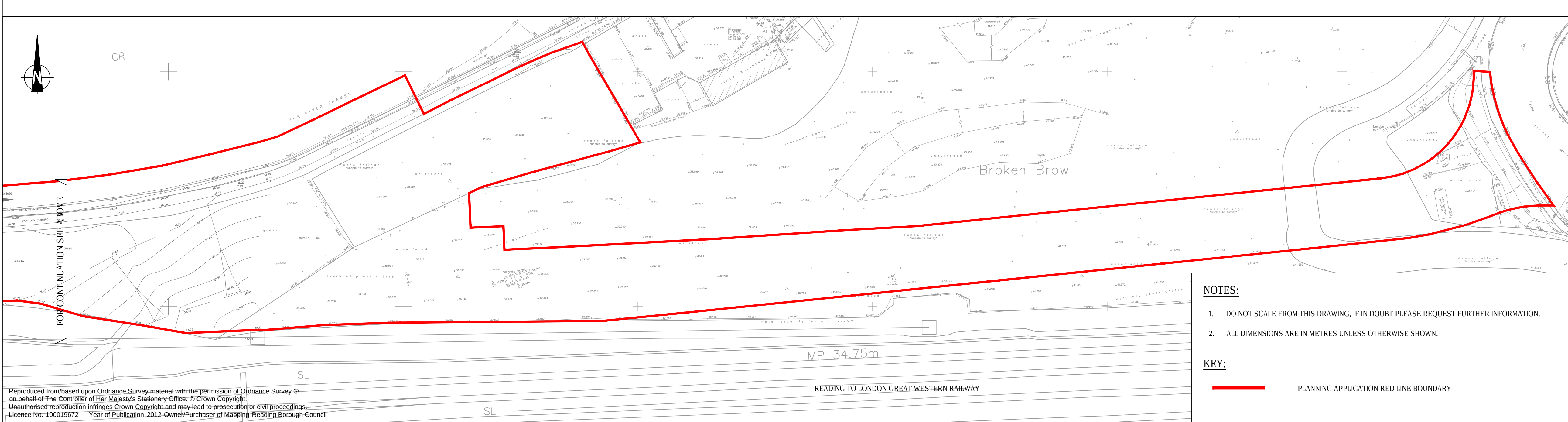
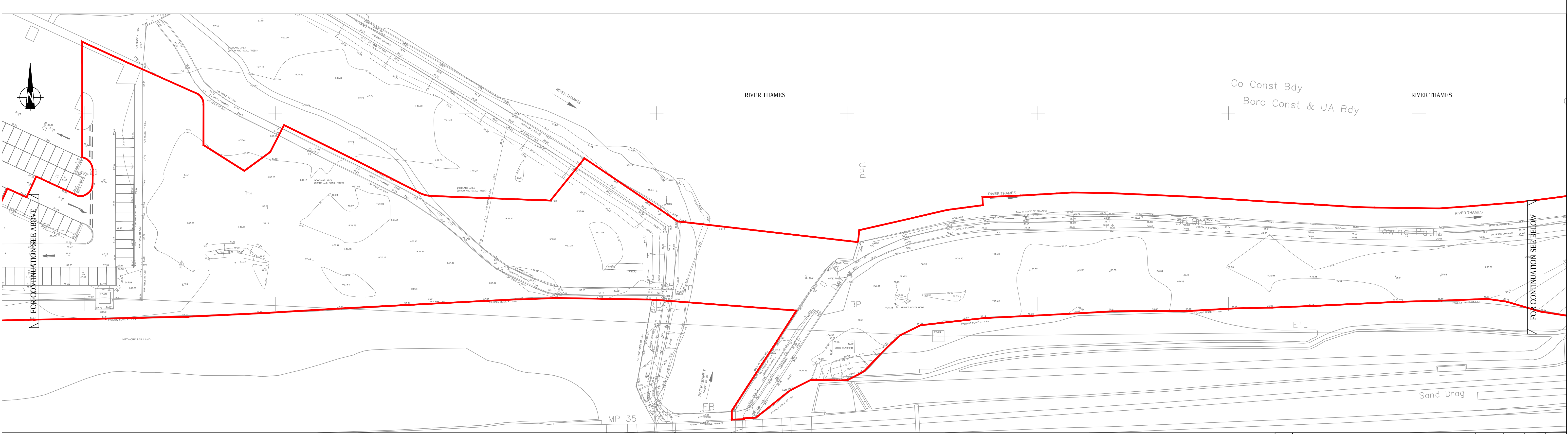
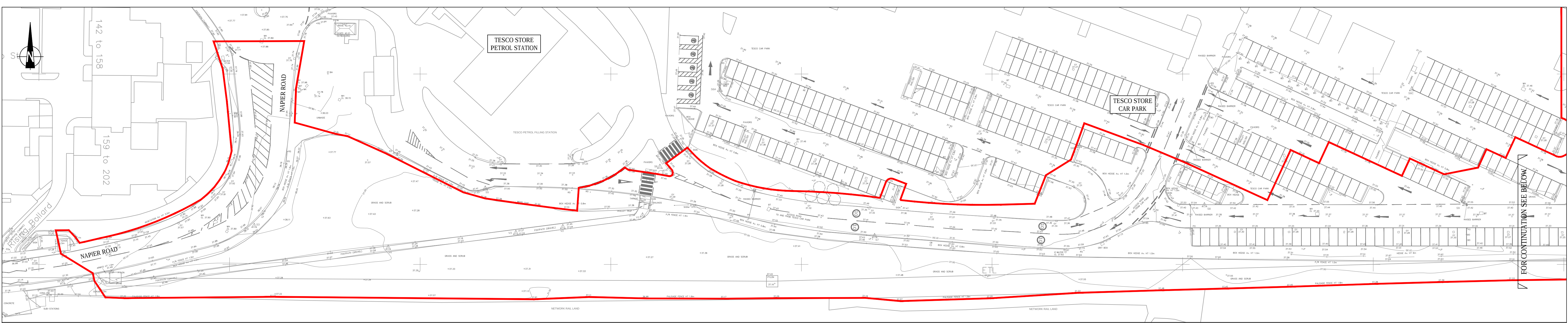
- Bibby C.J., Burgess N.D., Hill D.A, Mustoe S.H. (2000). Bird Census Techniques. Second Edition. Elsevier Ltd.
- CIEEM (2016); Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater and Coastal, 2nd edition. Chartered Institute of Ecology and Environmental Management, Winchester.
- Collins, J. (ed.) (2016) Bat Surveys for Professional Ecologists: Good Practice Guidelines (3rd edn). The Bat Conservation Trust, London.
- Department of Environment, Transport and the Regions (now DfT) (2008) Design Manual for Roads and Bridges Volume 11 'Environmental Assessment'
- Department of the Environment, Food and Rural Affairs (Defra) in partnership with the Scottish Executive, The National Assembly for Wales and the Department of the Environment for Northern Ireland, 2016, 'Local Air Quality Management Technical Guidance, LAQM.TG(16)'. HMSO, London.
- Department of the Environment, Food and Rural Affairs (Defra), 2017, '2015 Based Background Maps for NOx, NO₂, PM₁₀ and PM_{2.5}'. Available: <https://uk-air.defra.gov.uk/data/laqm-background-maps?year=2015>
- Department of the Environment, Transport and the Regions (DETR, 2007) in Partnership with the Welsh Office, Scottish Office and Department of the Environment for Northern Ireland, 2007, 'The Air Quality Strategy for England, Scotland, Wales, Northern Ireland' HMSO, London
- Department of Transport Welsh Office (1988) Calculation of Road Traffic Noise. London: HMSO.
- DfT (2013) Circular 02/2013 Strategic Road Network and the Delivery of Sustainable Development
- DfT's and the Departments for Communities and Local Government (March 2007) Guidance on Transport Assessment
- EA & DEFRA (2015). Part 1: Thames River Basin District River Basin Management Plan
- EA (2016). Flood Risk Assessments: Climate Change Allowances [www] <<https://www.gov.uk/guidance/flood-risk-assessments-climate-change-allowances>>
- EA (2018). Catchment Data Explorer [www] <<http://environment.data.gov.uk/catchment-planning/>>
- EA (2018). Flood Map for Planning [www] <<https://flood-map-for-planning.service.gov.uk/>>
- EA (2018). Long Term Flood Risk Information: Learn More About Flood Risk [www] <<https://flood-warning-information.service.gov.uk/long-term-flood-risk/map>>
- HM Treasury, 2013, "The Green book – Appraisal and Evaluation in Central Government", London: TSO.
https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/220541/green_book_complete.pdf

- Holman et al., (2014) 'Assessment of dust from demolition and construction', IAQM, London
- HUDU Planning for Health (2017 Healthy Urban Planning Checklist (3rd Edition)
- Hundt, L. (2012). Bat Surveys: Good Practice Guidelines, 2nd edition. Bat Conservation Trust.
- IAQM (2016) Assessment of Dust from Demolition and Construction
- IEMA (1993) Guidelines for the Environmental Assessment of Road Traffic
- IEMA (2015) EIA Guide to Climate Change Resilience and Adaptation
- IEMA (2017) EIA Guidance on assessing greenhouse gas emission and significance
- JNCC (2010) Handbook for Phase 1 habitat survey - a technique for environmental audit. ISBN 0 86139 636 7
- Landscape Institute and Institute of Environmental Management and Assessment (2013) 'Guidelines for Landscape and Visual Impact Assessment' (3rd Edition,)
- Mitchell- Jones, A.J (2004) Bat Mitigation Guidelines. English Nature.
- Moorcroft and Barrowcliffe *et al*, (2017) 'Land-use Planning & Development Control: Planning for Air Quality'. V1.2. The Institute for Air Quality Management, London
- Oldham, R. S., Keeble, J., Swan, M. S., & Jeffcote, M. (2000). Evaluating the suitability of habitat for the Great Crested Newt (*Triturus cristatus*). Herpetological Journal, 10 (4), 143-155.
- PBA (2017). East Reading Mass Rapid Transit Scheme. Environmental Statement: Volume 1.
- PBA (2017a) Phase 1 Ground Condition Assessment (Contamination and Geotechnical), East Reading Mass Rapid Transit Scheme. Report Ref: 28791/3500/R001/Rev2
- PBA (2017b) Phase 2 Ground Condition Assessment, East Reading Mass Rapid Transit Scheme. Report Ref: 28791/3500/R002/Rev1.
- PBA (2017c). East Reading Mass Rapid Transit Scheme: Flood Risk Assessment.
- PBA (2017d). East Reading Mass Rapid Transit Scheme: Water Framework Directive Compliance Statement.
- PBA (2018). East Reading Mass Rapid Transit Scheme. Environmental Statement Addendum.
- PBA (2018b). East Reading Mass Rapid Transit Scheme: Flood Risk Assessment Addendum.
- PBA (2018c). East Reading Mass Rapid Transit Scheme: Water Framework Directive Compliance Statement Addendum.
- RBC (2008) Townscape and Visual Assessment, **Appendix 1** of Reading Tall Building Strategy

- RBC (2011). Reading Borough Council: Reading Preliminary Flood Risk Assessment.
- RBC (2012). Reading Borough Council: Strategic Flood Risk Assessment.
- The Highway Agency (2011) Design Manual for Roads and Bridges Volume 11 Environmental Assessment Section 3 Environmental Assessment Techniques Part 7 Noise and vibration. London: HMSO.
- Town and Country Planning (Environmental Impact Assessment) Regulations 2017
- WBC (2011). Wokingham Borough Council: Preliminary Flood Risk Assessment.
- WBC (2012). Wokingham Borough Council: Wokingham Borough Strategic Flood Risk Assessment.
- World Health Organization (1946); Preamble to the Constitution of the World Health Organization as adopted by the International Health Conference, New York, 19-22 June 1946, and entered into force on 7 April 1948.
- WSP (2016) Phase 1 Land Contamination Assessment, Thames Valley Park and Ride, Reading, Berkshire. Report ref: 70012699-013. WSP Parsons Brinckerhoff Ltd, Basingstoke.

Appendix A Indicative Area of Works

Appendix 1-1 Planning Red Line Boundary



Mark	Revision	Date	Drawn	Chkd	Appd

SCALING NOTE: Do not scale from this drawing. If in doubt, ask.
UTILITIES NOTE: The position of any existing public or private sewers, utility services, plant or apparatus shown on this drawing is believed to be correct, but no warranty to this is expressed or implied. Other such plant or apparatus may also be present but not shown. The Contractor is therefore advised to undertake his own investigation where the presence of any existing sewers, services, plant or apparatus may affect his operations.

Drawing Issue Status

FOR PLANNING

**EAST READING MASS RAPID TRANSIT
GENERAL OVERVIEW AND
PLANNING RED LINE BOUNDARY**

Client

Reading Borough Council
Working better with you

Date of 1st Issue: 30.05.2017
Designed: LC
Drawn: SF
A1 Scale: 1:500
Checked: SE
Approved: SM

Drawing Number: 28791/2009/CIV/001
Revision: -

NOTES:

- DO NOT SCALE FROM THIS DRAWING, IF IN DOUBT PLEASE REQUEST FURTHER INFORMATION.
- ALL DIMENSIONS ARE IN METRES UNLESS OTHERWISE SHOWN.

KEY:

— PLANNING APPLICATION RED LINE BOUNDARY

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READING
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Appendix B Extracts from the EIA Regulations

Regulation 18 extracted from the EIA Regulations, procedures on submission of environmental statements.

1. Subject to regulation 9, an EIA application must be accompanied by an environmental statement for the purposes of these Regulations.
2. A subsequent application is to be taken to be accompanied by an environmental statement for the purpose of paragraph (1) where the application for planning permission to which it relates was accompanied by a statement referred to by the applicant as an environmental statement for the purposes of these Regulations, but this is subject to regulation 9.
3. An environmental statement is a statement which includes at least—
 - (a) a description of the proposed development comprising information on the site, design, size and other relevant features of the development;
 - (b) a description of the likely significant effects of the proposed development on the environment;
 - (c) a description of any features of the proposed development, or measures envisaged in order to avoid, prevent or reduce and, if possible, offset likely significant adverse effects on the environment;
 - (d) a description of the reasonable alternatives studied by the developer, which are relevant to the proposed development and its specific characteristics, and an indication of the main reasons for the option chosen, taking into account the effects of the development on the environment;
 - (e) a non-technical summary of the information referred to in sub-paragraphs (a) to (d); and
 - (f) any additional information specified in Schedule 4 relevant to the specific characteristics of the particular development or type of development and to the environmental features likely to be significantly affected.
4. An environmental statement must—
 - (a) where a scoping opinion or direction has been issued in accordance with regulation 15 or 16, be based on the most recent scoping opinion or direction issued (so far as the proposed development remains materially the same as the proposed development which was subject to that opinion or direction);
 - (b) include the information reasonably required for reaching a reasoned conclusion on the significant effects of the development on the environment, taking into account current knowledge and methods of assessment; and
 - (c) be prepared, taking into account the results of any relevant UK environmental assessment, which are reasonably available to the person preparing the environmental statement, with a view to avoiding duplication of assessment.
5. In order to ensure the completeness and quality of the environmental statement—
 - (a) the developer must ensure that the environmental statement is prepared by competent experts; and
 - (b) the environmental statement must be accompanied by a statement from the developer outlining the relevant expertise or qualifications of such experts.

Schedule 4 extracted from the EIA Regulations, setting out the required information for inclusion in the ES.

1. A description of the development, including in particular:
 - (a) a description of the location of the development;
 - (b) a description of the physical characteristics of the whole development, including, where

- relevant, requisite demolition works, and the land-use requirements during the construction and operational phases;
- (c) a description of the main characteristics of the operational phase of the development (in particular any production process), for instance, energy demand and energy used, nature and quantity of the materials and natural resources (including water, land, soil and biodiversity) used;
 - (d) an estimate, by type and quantity, of expected residues and emissions (such as water, air, soil and subsoil pollution, noise, vibration, light, heat, radiation and quantities and types of waste produced during the construction and operation phases.
2. A description of the reasonable alternatives (for example in terms of development design, technology, location, size and scale) studied by the developer, which are relevant to the proposed project and its specific characteristics, and an indication of the main reasons for selecting the chosen option, including a comparison of the environmental effects.
 3. A description of the relevant aspects of the current state of the environment (baseline scenario) and an outline of the likely evolution thereof without implementation of the development as far as natural changes from the baseline scenario can be assessed with reasonable effort on the basis of the availability of environmental information and scientific knowledge.
 4. A description of the factors specified in regulation 4(2) likely to be significantly affected by the development: population, human health, biodiversity (for example fauna and flora), land (for example land take), soil (for example organic matter, erosion, compaction, sealing), water (for example hydromorphological changes, quantity and quality), air, climate (for example greenhouse gas emissions, impacts relevant to adaptation), material assets, cultural heritage, including architectural and archaeological aspects, and landscape.
 5. A description of the likely significant effects of the development on the environment resulting from, inter alia:
 - (a) the construction and existence of the development, including, where relevant, demolition works;
 - (b) the use of natural resources, in particular land, soil, water and biodiversity, considering as far as possible the sustainable availability of these resources;
 - (c) the emission of pollutants, noise, vibration, light, heat and radiation, the creation of nuisances, and the disposal and recovery of waste;
 - (d) the risks to human health, cultural heritage or the environment (for example due to accidents or disasters);
 - (e) the cumulation of effects with other existing and/or approved projects, taking into account any existing environmental problems relating to areas of particular environmental importance likely to be affected or the use of natural resources;
 - (f) the impact of the project on climate (for example the nature and magnitude of greenhouse gas emissions) and the vulnerability of the project to climate change;
 - (g) the technologies and the substances used.

The description of the likely significant effects on the factors specified in regulation 4(2) should cover the direct effects and any indirect, secondary, cumulative, transboundary, short-term, medium-term and long-term, permanent and temporary, positive and negative effects of the development. This description should take into account the environmental protection objectives established at Union or Member State level which are relevant to the project, including in particular those established under Council Directive 92/43/EEC(88) and Directive 2009/147/EC(89).

6. A description of the forecasting methods or evidence, used to identify and assess the significant effects on the environment, including details of difficulties (for example technical deficiencies or lack of knowledge) encountered compiling the required information and the main uncertainties involved.
7. A description of the measures envisaged to avoid, prevent, reduce or, if possible, offset any

identified significant adverse effects on the environment and, where appropriate, of any proposed monitoring arrangements (for example the preparation of a post-project analysis). That description should explain the extent, to which significant adverse effects on the environment are avoided, prevented, reduced or offset, and should cover both the construction and operational phases.

8. A description of the expected significant adverse effects of the development on the environment deriving from the vulnerability of the development to risks of major accidents and/or disasters which are relevant to the project concerned. Relevant information available and obtained through risk assessments pursuant to EU legislation such as Directive 2012/18/EU(90) of the European Parliament and of the Council or Council Directive 2009/71/Euratom(91) or UK environmental assessments may be used for this purpose provided that the requirements of this Directive are met. Where appropriate, this description should include measures envisaged to prevent or mitigate the significant adverse effects of such events on the environment and details of the preparedness for and proposed response to such emergencies.
9. A non-technical summary of the information provided under paragraphs 1 to 8.
10. A reference list detailing the sources used for the descriptions and assessments included in the environmental statement.

Appendix C List of Approved Developments

NOTES

Job Name: East Reading MRT
Job No: 28791
Date: 08/08/18
Prepared By: Katherine Dowdall / Jonathan Sebbage
Subject: East Reading MRT

An updated search has been performed for recent planning applications within the last 3 years using a 1km radius of the proposed development. Major development has been investigated including residential and substantial commercial applications. The results of the search have been mapped below for reference.

Criteria used for search of planning applications submitted/determined:

- Major developments
- 10 units or more
- 1,000 sqm. +
- Within 3 years of current date

NOTES

Application Reference	Location	Proposal	Decision Date	Progress	Distance from site	Local Planning Authority
Reading Borough Council						
1. 161601	Building 1 New Century Place East Street Reading RG1 4QJ	Change of use from Class B1 (a) to C3 (dwelling houses) to comprise of 75 individual, self-contained studio and twodio apartments.	24/08/16 19/10/16	Approved	0.9km	Reading BC
2. 161602	Building 2 New Century Place East Street Reading RG1 4ET	Change of use from Class B1 (a) to C3 (dwelling houses) to comprise of 58 individual, self-contained studio and twodio apartments.	24/08/16 19/10/16	Approved	0.9km	Reading BC
3. 160849	Jacksons Corner 1-9 Kings Road Reading RG1 3AS	Conversion of upper floors to 18 residential units. Demolition of commercial ancillary accommodation to rear and construction of new six-storey residential block of 16 units.	17/05/16 20/03/17	Approved	0.9km	Reading BC
4. 160775	173-175 Kings Road Reading	Change of use from office (Class B1a) to 16 (6x1 & 10x2-bed) residential units (Class C3) and associated works	13/06/16 22/12/16	Approved	0.6km	Reading BC

NOTES

5. 160158	194 Kings Road Reading RG1 4NH	Change of use from Class B1 (a) (offices) to C3 (dwelling houses) to comprise 14 residential units.	15/03/16	Approved	0.6km	Reading BC
6. 152222	Kings Reach 38-50 Kings Road Reading	Change of use from Class B1 (a) (Offices) to C3 (dwelling houses) to comprise 65-75 apartments.	05/02/16	Approved	0.8km	Reading BC
7. 150731	University of Reading London Road Reading RG1 5AQ	Proposed conversion and alteration of existing buildings to residential use (53 dwellings) together with car and cycle parking, landscaping and bin stores.	14/10/15	Approved	0.9km	Reading BC
8. 150685	Princes House 73A London Road Reading RG1 5UZ	Change of use of existing building from Class B1(a) (offices) to C3 (dwelling houses) to comprise 18 x 1 bed flats and 8 x 2 bedroom flats.	16/06/15	Approved	0.8km	Reading BC
9. 150229	Hanover House 202 Kings Road Reading	Change of use of fourth floor to residential use (Class C3) to provide 14 residential units and associated works.	23/06/15	Approved	0.6km	Reading BC
10. 141986	252 Kings Road Reading RG1 4JL	Change of use and extension of the existing office building Berkshire House (252 – 256 Kings Road, Reading) to create a	24/03/15	Approved	0.6km	Reading BC

NOTES

		six-storey student residential building.				
11. 141834	60 Queens Road Reading RG1 4BS	Change of use of ground, first and second floors from Class B1 (a) (offices) to C3 (dwelling houses) to comprise 8 x 2-bed flats and 22 x 1-bed flats.	08/01/15	Approved	0.8km	Reading BC
12. 141784	1 Southern Court South Street Reading RG1 4QS	Change of use of building from Class B1 (a) (offices) to C3 (dwelling houses) to comprise 12 x self-contained studio units and 1 x 3 bed flat.	29/12/14	Approved	0.9km	Reading BC
13. 141280	42 Market Place Reading	Change of use of building from Class B1(a) (offices) to C3 (dwelling houses) to comprise 5 x two bed flats, 13 x one bed flats and 18 studio flats.	01/10/14	Approved	0.9km	Reading BC
14. 162353	191 Kings Road, Reading RG1 4EX	Erection of a single storey roof extension to provide 14 additional student units (sui generis)	10/02/17	Approved	0.5km	Reading BC
15. 170512	Aspen House, 300 Kings Road, Reading, RG1 4HP	Change of use of office building from Class B1(a) (offices) to C3 (dwelling houses) to comprise 78 flats.	25/05/17	Approved	0.7km	Reading BC
16. 162166	Former Cooper Reading Bmw Kings Meadow Road, Reading RG1 8BN	Erection of a part 12 storey, part 23 storey building comprising 315 apartments. Demolition of existing multi-storey car park.	23/11/17	Approved	0.7km	Reading BC
17. 170509	Kenavon Drive, Reading	Demolition of the two-existing retail (Homebase and Toys R Us) structures and the erection of new	10/01/18	Recommendation to grant	0.3km	Reading BC

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		buildings ranging between 2 and 11 storeys in height, providing 765 (18 x studio, 302x1, 409x2 and 36x3- bed) residential units (Class C3), 5 commercial units (3x flexible Class A1-5, B1 or D1-2 uses, 1x flexible Class A1-A5 use, 1x flexible Class A3 or A4 use), various works to the public realm, including a new riverside square, landscaping, accesses, parking and associated works.		subject to S106		
18. 160378	Former Gas Works Building Gas Works Road Reading	Change of use, conversion, extensions and various associated works to former Gas Works Buildings to create a part 4,5 and 6 storey building adjacent to the River Kennet and a 3-storey building fronting Gas Works Road, providing 20 (10x1, 9x2 and 1x3-bed) residential units (Class C3).	28/10/16	Approved	0.5km	Reading BC
19. 162087	Kings Point 120 Kings Road Reading RG1 3DA	Demolition of existing building and the erection of a part seven, part nine, part eleven, part twelve and part seventeen storey building comprising 103 residential units and 351.5 sqm GIA of commercial (A1/A3) floor space at ground and mezzanine floor level together with parking and associated landscaping (without complying with conditions (2, 7, 8, 9, 18, 19, 28 of planning permission 150019) to allow the removal of sub-basement, enlargement of basement level and internal and	09/02/17	Approved	0.7km	Reading BC

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		external alterations at the basement, ground and mezzanine levels (amended description).				
20. 150685	Princes House 73A London Road Reading RG1 5UZ	Change of use of existing building from Class B1(a) (offices) to C3 (dwelling houses) to comprise 18 x 1 bed flats and 8 x 2 bedroom flats.	22/04/15	Approved	0.9km	Reading BC
21. 151356	Trinity Hall, South Street, RG1 4QU	Erection of part 3, part 4 storey building to provide 25 student units (42 bed spaces) (Sui Generis) and associated works, following demolition of existing 3 storey building (Sui Generis).	03/12/15	Approved	1km	Reading BC
Wokingham Borough Council						
22. 152354	Units 62-67 Suttons Business Park Reading RG6 1AZ	Full application for the proposed redevelopment of site and the erection of new building for B2 use including office space and storage areas, plus associated car parking and landscape works.	11/11/15	Approved	0.1km	Wokingham BC
23. 161666	Unit 21 Suttons Park Avenue Earley RG6 1LA	Full application for demolition of existing industrial unit (Unit 21) and the erection of a retail supermarket (use class A1) and a drive- through coffee shop/cafe (mixed use class A3/A5) with	15/09/16	Approved	0.2km	Wokingham BC

NOTES

		associated car parking and landscaping				
24. 161066	Units 27, 28, 68 And 69, Suttons Business Park Suttons Park Avenue Earley RG6 1AZ	Full application for the demolition of existing Class B1 office buildings (Units 68 and 69) and the erection of three industrial units with ancillary office space and car parking/ landscaping, refurbishment of existing storage and distribution building (Unit 27-28) and reconfiguration of car parking area; the erection of a new industrial unit with ancillary office space together with new car parking and landscaping; erection of a new security hut.	29/06/16	Approved	0.2km	Wokingham BC
25. 162736	Units 68 and 69, Suttons Business Park Suttons Park Avenue Earley RG6 1AZ	Full application for the proposed erection of 1no class B2/B8 industrial unit with ancillary office space and associated car parking, landscaping and recycling building, following demolition of existing buildings.	15/12/16	Approved	0.2km	Wokingham BC

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ADDITIONAL (JUNE 2017 to AUGUST 2018)

26. 180156	Clarendon House 59-75 Queens Road Reading RG1 4BN	Change of use of building from Class B1(a) (offices) to C3 (dwelling houses) to comprise 49 dwellings. Prior Notification under Class O, Part 3 of Schedule 2 of the Town and Country Planning (General Permitted Development) Order 2015.	15/03/18	Approved	0.6km	Reading BC
27. 171238	Jacksons Corner 1-9 Kings Road Reading RG1 3AS	Preservation of the building frontage to 1-9 King's Road (incl insertion of 3 new windows); retention and enlargement of commercial space (ground floor and basement levels) and conversion of upper floors to 18 residential units. Demolition of commercial ancillary accommodation to rear and construction of new 5 storey residential block of 15 units plus creation of central courtyard, as permitted by application 160849 but without complying with conditions 2, 15, 18, 23, 25, and 27, incorporating minor internal layout and external changes to the approved scheme.	15/03/18	Approved	0.9km	Reading BC
28. 171445	Kings Meadow Woodland Napier Road Reading	Temporary Change of use for up to 45 days in a Calendar year, to change from Class D2 Assembly & Leisure to Christmas Party Events at Kings Meadow, with the site being restored to it's former conditions at, or before 16.00 on the 31st December.	10/11/17	Approved	0.2km	Reading BC

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29. 171903	Units 62-67 Suttons Business Park Reading RG6 1AZ	Full planning application for the redevelopment of site to provide a new class B2/B8 industrial unit with ancillary office space and associated storage areas, car parking and landscaping.	09/11/17	Approved	0.1km	Wokingham BC
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Appendix D Health – Indices of Deprivation 2015

