

2 EIA PROCESS AND METHODOLOGY

Introduction

- 2.1 This chapter of the ES sets out the general approach to the process and to the methodology that is adopted when undertaking an EIA. It describes the legislative framework in which the EIA for the proposed development was undertaken and identifies the key guidance that was considered. The scoping and consultation process that was adopted to identify the key environmental topics for inclusion in the EIA is outlined, as well as the overall EIA methodology adopted.
- 2.2 Whilst the overall approach and methodology is described in this chapter, further detail on how the methodology was tailored to each environmental topic of the EIA is presented in the relevant technical assessment chapters of the ES.
- 2.3 This chapter is accompanied by the following technical appendices within ES Volume 3:
- Technical Appendix 2.1: EIA Scoping Report;
 - Technical Appendix 2.2: Preliminary Risk Assessment;
 - Technical Appendix 2.3: Ecological Impact Assessment;
 - Technical Appendix 2.4: Flood Risk Assessment;
 - Technical Appendix 2.5: Historic Environment Assessment; and
 - Technical Appendix 2.6: Summary Planning Policies.

Environmental Impact Assessment

- 2.4 Legislation on EIA was first implemented in the UK in 1988 following the adoption of the 1985 European Commission (EC) Directive (No. 85/337/EEC)¹ on the assessment of the effects of certain public and private projects on the environment. Legislation was subsequently introduced in 1999, following the adoption of the amended 1997 EC Directive (No. 97/11/EEC)². In England, the 1997 Directive was transposed into law through the Town and Country Planning (Environmental Impact Assessment) (England and Wales) Regulations 1999 (SI 1999/293)³. These regulations were amended by the Town and Country Planning (Environmental Impact Assessment) (Amendment) Regulations 2006 (Statutory Instrument 2006/3295)⁴ and the Town and Country Planning (Environmental Impact Assessment) (Amendment) (England) Regulations 2008 (Statutory Instrument 2008/2093)⁵. These were then superseded by the Town and Country Planning (Environmental Impact Assessment) Regulations 2011 (Statutory Instrument 2011/1824)⁶, with The Town and Country Planning (EIA) (Amendment) Regulations, 2015⁷ coming into force on 6 April 2015.

- 2.5 More recently, the European Parliament adopted a fully updated version of the EIA Directive (2014/52/EU) in 2014. This Directive was transposed into law through the Town and Country Planning (Environmental Impact Assessment) Regulations, 2017⁸ on 16 May 2017, superseding all previous EIA Regulations. This ES has been prepared pursuant to the Town and Country Planning (Environmental Impact Assessment) Regulations 2017, which are referred to throughout this ES as the 'EIA Regulations'.
- 2.6 The EIA Regulations set out the statutory process and minimum requirements for EIA and the contents of the ES. Specifically, they prohibit the granting of planning permission for developments likely to have significant effects on the environment, defined in the EIA Regulations as 'EIA development', unless information on those effects is considered by the competent authority in reaching its decision on a planning application. That information includes both the ES, which is the Applicant's own assessment, and any other information provided by consultees, the public, and any other persons about the proposal's environmental effects.
- 2.7 In addition to the EIA Regulations, there is also additional guidance available on EIA and the application of the EIA Regulations, which has been considered in undertaking this EIA, including:
- Institute of Environmental Management and Assessment (IEMA) Guidelines for Environmental Impact Assessment⁹;
 - IEMA Special Report into the State Environmental Impact Assessment Practice in the UK¹⁰;
 - Department for Communities and Local Government (DCLG) (now Ministry of Housing, Communities and Local Government (MHCLG)) Amended Circular on Environmental Impact Assessment (consultation paper)¹¹;
 - DCLG (now MHCLG) Environmental Impact Assessment: A guide to good practice and procedures (consultation paper)¹²;
 - MHCLG National Planning Policy Framework¹³;
 - MHCLG Online Resource – Guidance for Environmental Impact Assessment¹⁴;
 - Department for Transport (DfT) Design Manual for Roads and Bridges Volume 11: Environmental Assessment¹⁵;
 - Institute of Environmental Assessment (IEA) (now IEMA) Guidelines for Environmental Assessment of Road Traffic¹⁶;
 - IEMA Shaping Quality Development¹⁷; and
 - EC EIA of Projects: Guidance on Scoping¹⁸.

¹ The Council of the European Union (CEU), 1985. Council Directive 85/337/EEC on the assessment of the effects of certain public and private projects on the environment. CEU.

² The Council of the European Union (CEU), 1997. Council Directive 97/11/EC of 3 March 1997 amending Directive 85/337/EEC on the assessment of the effects of certain public and private projects on the environment. CEU.

³ Secretary of State, 1999. Town and Country Planning (Environmental Impact Assessment) (England and Wales) Regulations 1999. London. HMSO.

⁴ Secretary of State, 2006. Town and Country Planning (Environmental Impact Assessment) (Amendment) (Wales) Regulations 2006. London. HMSO.

⁵ Secretary of State, 2008. Town and Country Planning (Environmental Impact Assessment) (Amendment) (England) Regulations 2008. London. HMSO.

⁶ Secretary of State, 2011. Town and Country Planning (Environmental Impact Assessment) Regulations 2011. London. HMSO.

⁷ Secretary of State, 2015. Town and Country Planning (Environmental Impact Assessment) (Amendment) Regulations 2015, London, HMSO.

⁸ Secretary of State, 2017. Town and Country Planning (Environmental Impact Assessment) Regulations 2017, London, HMSO.

⁹ Institute of Environmental Management and Assessment (IEMA), 2004. Guidelines for Environmental Impact Assessment. IEMA.

¹⁰ Institute of Environmental Management and Assessment (IEMA), 2011. Special Report into the State Environmental Impact Assessment Practice in the UK. IEMA.

¹¹ Department for Communities and Local Government (now Ministry of Housing, Communities and Local Government (MHCLG)), 2006. Amended Circular on Environmental Impact Assessment: A consultation paper. DCLG.

¹² Department for Communities and Local Government (now Ministry of Housing, Communities and Local Government), 2006. Environmental Impact Assessment: A guide to good practice and procedures – a consultation paper. DCLG.

¹³ Ministry of Housing, Communities and Local Government, 2019. National Planning Policy Framework. London. HMSO.

¹⁴ Ministry of Housing, Communities and Local Government, 2019. Guidance for Environmental Impact Assessment. MHCLG.

¹⁵ Department for Transport, 2008. Design Manual for Roads and Bridges Volume 11: Environmental Assessment. Department for Transport.

¹⁶ Institute for Environmental Assessment (IEA) (now the Institute of Environmental Management and Assessment (IEMA)), 1994. Guidelines for Environmental Assessment of Road Traffic. IEA.

¹⁷ Institute of Environmental Management and Assessment (IEMA), November 2015. Shaping Quality Development. IEMA.

¹⁸ European Commission, 2017. Environmental Impact Assessment of Projects Guidance on Scoping. Luxembourg.

- 2.8 In accordance with the EIA Regulations, this EIA has been undertaken based on the proposed development, as described in ES Chapter 4: Proposed Development Description and ES Chapter 5: Demolition and Construction Environmental Management, of this Volume.

EIA Process

- 2.9 EIA is a process that identifies the likely significant environmental effects (both beneficial and adverse¹⁹) of a proposed development. The process aims to prevent, reduce and mitigate any significant adverse environmental effects, where these are identified, and to enhance any beneficial effects. Proposed developments to which EIA is applied are those that are likely to have significant effects on the environment by virtue of factors such as their nature, size or location.
- 2.10 The process and outcomes of the EIA are presented in a single document known as an environmental statement (ES). The contents of an ES are prescribed by the EIA Regulations and should be a clear and concise summary of the proposed development and its likely environmental effects - including direct, indirect and cumulative effects - on the natural, built and human environments. The ES is submitted to a relevant competent authority (in the case of planning applications, to local planning authorities) to accompany an application for planning permission. In this way, the aim of EIA is to protect the environment by ensuring that a local planning authority, when deciding whether to grant planning permission for a project which is likely to have significant effects on the environment, does so in the full knowledge of the project's likely significant effects and takes this into account in the decision-making process. Alongside this, an EIA's objective is also to ensure that the public and statutory consultees are given early and effective opportunities to participate in decision making procedures.

Screening

- 2.11 Screening is the term in the EIA Regulations used to describe the process by which the need for EIA is considered in respect of a proposed development. Some developments are automatically subject to EIA due to their size, nature and effects. These projects, known as Schedule 1 developments, include mainline railways, airports, waste facilities and large power stations. The proposed development is not such a project.
- 2.12 The need for an EIA for all other projects is determined on the basis of the following set criteria:
- The development is within one of the classes of development stated in Schedule 2 of the EIA Regulations; AND
 - EITHER it meets or exceeds the size threshold for that class of development in Schedule 2; OR a part of the project is in a sensitive area; AND
 - It is likely to have significant effects on the environment by virtue of factors such as its nature, size, or location.
- 2.13 These are known as Schedule 2 developments. Given the scale of the proposed development and the location of the application site, it is accepted by the Applicant that the proposed development has the potential to have significant effects on the environment and that it falls within Schedule 2 paragraph 10(b) within the category of 'Urban Development Project'. The proposed development will exceed the applicable size threshold for Urban Development Projects because more than 150 dwellings are proposed and/or the non-dwelling house floor space area will exceed 10,000 m² gross external area (GEA). Given the size and nature of the proposed development, an EIA has been undertaken and the results are reported in this ES. Accordingly, a request for formal screening to RBC was not considered necessary.

¹⁹ The use of 'neutral' can also be applied to certain assessments when determining significance of effects (e.g. due to their guidance, a townscape and visual impact assessment can result in a 'moderate neutral' effect, which would be classed as 'significant'). In this instance neutral does not only cover

Scoping

- 2.14 Scoping is the term used in the EIA Regulations whereby an applicant can request a formal opinion from the local planning authority on the content of an ES and the extent of the information to be considered in the assessments. The purpose of scoping is to focus the EIA on the environmental issues and potential impacts which need the most thorough attention; to identify those which are unlikely to need detailed study; and to provide a means to discuss methods of impact assessment so as to reach agreement on the most appropriate.
- 2.15 The EIA Scoping Report was formally submitted to the RBC on 05 December 2019 and accompanied a request for a formal EIA Scoping Opinion pursuant to Regulation 15(1) of the EIA Regulations. The EIA Scoping Report is provided in Technical Appendix 2.1 of ES Volume 3, and sets out a description of the emerging proposed development; the potential key environmental impacts and likely effects to be considered as part of the EIA; as well as the proposed approach that would be adopted for the EIA including the proposed scopes and assessment methodologies to predict the scale of effects and to assess the significance in each case.
- 2.16 A formal EIA Scoping Opinion has not been received at the time of submitting this application. Therefore, the EIA has been undertaken in accordance with the proposed scope and methodologies as set out in the EIA Scoping Report.
- 2.17 As part of the EIA scoping process, technical consultations were undertaken with:
- officers at the RBC in respect of socio-economics, air quality, noise, ground contamination and townscape and visual; and
 - EA and Thames Water in respect of the FRA.

Scope of EIA

Non-Significant Issues

- 2.18 The aim of the EIA scoping process is to ensure that the EIA is proportionate and focussed only on the likely significant environmental effects of the proposed development.
- 2.19 Accordingly, the EIA scoping process identified that the proposed development is unlikely to give rise to significant environmental effects in respect of the following environmental topics and therefore would not need to be assessed as part of the EIA process:
- Archaeology;
 - Transport and Accessibility;
 - Ground Conditions and Contamination;
 - Water Resources and Flood Risk
 - Ecology;
 - Telecommunication Interference;
 - Climate Change;
 - Major Accidents and Disasters;
 - Population and Human Health; and
 - Waste.

no meaningful change but also situations in which the 'net equation' of positive and negative impacts considered together results in an overall effect which is neither positive or negative on balance.

- 2.20 Justification for scoping these topics areas out of the EIA is provided in Technical Appendix 2.1 and is therefore not repeated here.
- 2.21 Whilst significant environmental effects are not likely to arise in respect of archaeology, transport and accessibility, ground conditions,, water resources and flood risk; ecology; telecommunication interference; climate change; major accidents and disasters; population and human health; and waste and are therefore not required for inclusion within the EIA, the following environmental technical reports were prepared to inform the design process and are included within ES Volume 3: Technical Appendices for information:
 - Ground Conditions Preliminary Risk Assessment (PRA) (Technical Appendix 2.2);
 - Ecological Impact Assessment (EcIA) (Technical Appendix 2.3);
 - Flood Risk Assessment (FRA) (Technical Appendix 2.4); and
 - Historic Environment Assessment (HEA) (Technical Appendix 2.5).
- 2.22 These reports confirm that significant effects are not likely to arise in respect of ground contamination, ecology, flood risk and archaeology. Standard good practice, mitigation and enhancement measures identified during the course of preparing these reports were integrated into the development proposals as described in ES Chapter 4: Proposed Development Description and ES Chapter 5: Demolition and Construction Environmental Management.

Potentially Significant Issues

- 2.23 The potentially significant environmental issues that were identified during the EIA scoping process and that have been addressed within the EIA are as follows:
 - Socio-Economics (ES Volume 1, Chapter 6);
 - Air Quality (ES Volume 1, Chapter 7);
 - Noise and Vibration (ES Volume 1, Chapter 8);
 - Wind Microclimate (ES Volume 1, Chapter 9);
 - Daylight, Sunlight, Overshadowing and Solar Glare (ES Volume 1, Chapter 10);
 - Cumulative Effects (ES Volume 1, Chapter 11);
 - Townscape and Visual (ES Volume 2, Chapter 1); and
 - Built Heritage (ES Volume 2, Chapter 2).

EIA Approach

Consideration of Alternatives

- 2.24 The EIA Regulations require that the Applicant provides an outline of any alternatives studied and to provide an indication of the reasons for selecting the preferred alternative taking into account environmental effects. The EIA Regulations do not define the term 'alternative' and good practice has tended to consider alternative design proposals and to explain the process through which the proposed development has evolved.
- 2.25 ES Volume 1 Chapter 3: Alternatives and Design Evolution explores the objectives of the proposed development and describes how the development proposals have evolved in response to environmental and planning opportunities and constraints, as well as consultation comments.
- 2.26 The following alternatives have been considered:
 - The 'Do-Nothing' alternative where the existing site conditions remain unchanged with no redevelopment; and
 - Alternatives considered in site selection and the course of the design process (such as land uses,

layouts and designs) taking into account environmental and other relevant planning and design constraints as part of the design evolution.

Baseline

- 2.27 The purpose of the EIA is to predict how environmental conditions may change as a result of a proposed development and to specify any investigative measures. This requires that the current environmental conditions and those in the future, are established. This is referred to as the 'baseline' and is usually established through a combination of desk-based research, site survey and empirical studies and projections. Together, these describe the existing and future character of a site and the value and vulnerability of key environmental resources and receptors, against which any changes or effects resulting from a proposed development can be identified, understood and assessed. For the EIA of the proposed development, the baseline represents the existing environmental conditions of the application site and the surrounding study area at the time of the assessments as described in ES Chapter 1: Introduction. The technical assessments in ES Volume 1 (6 - 10) and ES Volume 2 (1 -2) provide a description of topic specific baseline conditions against which the proposed development has been assessed.
- 2.28 For the air quality and noise and vibration assessments, consideration has been given to a projected environmental condition in the future at 2025, which is the projected year of completion of the proposed development.
- 2.29 The baseline conditions have been characterised by means of desk studies, application site visits, surveys and modelling.

Receptors

- 2.30 Receptors that may be sensitive to potential environmental impacts as a result of the proposed development, can be summarised as follows, with further detail provided in respective technical assessments:
 - Existing community facilities in proximity to the application site, in particular; dentists and GPs and hospitals; schools including the nearby E P Collier Primary School; Thameside Primary, The Heights Primary and Civitas Academy;
 - Existing open space, outdoor sport facilities and parks;
 - Existing residential occupants in proximity to the application site, in particular those along Vastern Road and Caversham Road;
 - Existing commercial occupants on-site and in proximity to the application site;
 - Future residential and commercial occupants of the proposed development;
 - Potential buried heritage assets on-site;
 - Existing above ground heritage assets such as listed buildings and conservation areas, most notably those located within 250 m of the application site (Main Building of Reading General Station (Grade II*). In addition, the locally listed building, No. 55 Vastern Road;
 - Existing Surrounding Townscape Character;
 - Local views;
 - Local Air Quality;
 - Existing transport infrastructure, in particular the local highway network and public transport facilities;
 - Pedestrians and users of existing and proposed amenity areas;
 - Existing water resources, in particular ground water and public potable water supplies; and
 - Existing ecological receptors.

Impact Assessment

Basis of EIA

- 2.31 The application is made in outline. In accordance with the EIA Regulations and case law, the EIA has been undertaken based on the:
 - Application site as shown and described in Chapter 1: Introduction, as well as the individual technical assessments of this Volume and ES Volume 2; and
 - Proposed development as shown and described in ES Chapter 4: Proposed Development Description and Chapter 5: Demolition and Construction Environmental Management of this Volume.
- 2.32 In accordance with the EIA Regulations and case law²⁰, an outline planning application can be subjected to EIA so long as there is sufficient information provided in the ES to enable the local planning authority, in this case the RBC, to form a view on all the likely environmental effects of the project as a whole and there is sufficient prescription in how the future details are to be submitted for approval. In this case the Applicant is volunteering parameters on the basis that the reserved matters must fit within the scope of these parameters.
- 2.33 The assessments have been undertaken on this assumption i.e. that the reserved matters brought forward for the proposed development will fall within the parameters that have been tested. Adopting this approach allows the EIA to be carried out in a manner which is legally robust. In order to ensure that the proposed development remains strictly within the scope of the assessment, RBC will be invited to impose planning conditions on any resultant planning permission requiring that the details to be submitted for approval at a later date must be in accordance with the assumptions and commitments assessed at this outline stage of the application.
- 2.34 The outline planning application seeks to reserve all matters associated with land use; scale and massing; internal layout; appearance; and landscaping. Therefore, these matters have been defined by means of the following:
 - Development Parameters (Schedule and Plans);
 - Design Code; and
 - Associated maximum area schedules (and minimum in the case of Use Classes A1-A5, D1-D2, Retail units/ Community Facilities/ Gym) and an indicative residential unit and tenure.
- 2.35 The Development Parameters identified and assessed through the EIA comprise the following:
 - Maximum development footprint;
 - Site access and egress points;
 - Maximum building plots;
 - Maximum plot heights (residential, non-residential, and mixed use);
 - Maximum quantum and type of land use;
 - Minimum areas of open space; and
 - Extent of basement footprint and depth.
- 2.36 The parameter plans are presented in Chapter 4: Proposed Development Description, and in summary comprise:
 - Development Footprint;

- Site Access and Egress.
 - Building Plots;
 - Maximum Building Heights (residential, non-residential, and mixed use); and
 - Basement Footprint.
- 2.37 The following supporting documents have been considered during the EIA for the proposed development:
 - Ground Conditions Preliminary Risk Assessment (PRA) (Technical Appendix 2.2);
 - Ecological Impact Assessment (EcIA) (Technical Appendix 2.3);
 - Flood Risk Assessment (FRA) (Technical Appendix 2.4); and
 - Historic Environment Assessment (HEA) (Technical Appendix 2.5).
- 2.38 Where information is not available due to the outline nature of the proposed development, the EIA has made reasonable assumptions which are clearly set out and which are based on professional experience of developments of a similar type and scale.

Sources of Proposed Development Information

- 2.39 In addition to the above, information on the proposed development has been drawn from the following planning submission documents, as appropriate:
 - Planning Statement (and appendices);
 - Design and Access Statement (including Landscape Strategy);
 - Statement of Community Involvement;
 - Operational Waste Management Plan and Site Waste Management Plan;
 - Energy Statement; and
 - Utilities Statement.

Assessment Methodology

General

- 2.40 The aim of the EIA is not to assess the proposed development's compliance/performance against planning policy as this is considered within the Planning Statement that accompanies the application. Instead reference has been made to national, regional and local policy to inform the scope of technical assessments, the assessment methodologies applied and the existence of any sensitive receptors to be considered. The key policies are summarised in Appendix 2.6 as relevant to individual technical topics assessed within the EIA.
- 2.41 Detailed methodologies for the assessment of each of the environmental topic areas scoped into the EIA are provided within each technical chapter of this ES Volume, as well as ES Volume 2 (1 -2); however, in general terms, the assessments have been based upon:
 - Review of the existing conditions at and surrounding the application site for the environmental topic area under consideration via various sources of existing information, data and reports;
 - Desk-top studies;
 - Site surveys;
 - Consideration of relevant legislation;
 - Consideration of relevant planning policies (national, regional and local);

²⁰ Rochdale Envelope arising from two cases: R. v Rochdale MBC ex parte Milne (No.1) and R.v Rochdale MBC ex parte Tew [1999] and R. v Rochdale MBC ex parte Milne (NO.2) [2000]. These cases dealt with outline planning applications for a proposed business park in Rochdale.

- Consultations with stakeholders and consultees as appropriate;
 - Consideration of potentially sensitive receptors that could be affected by the proposed development;
 - Use of technical guidance and best practice;
 - Use of quantitative and qualitative assessment methods, professional judgement and expert opinion;
 - Identification of potential environmental impacts and likely effects, with an evaluation of their likely duration, magnitude and significance, taking into consideration embedded mitigation; and
 - Recommendation for additional mitigation and/or enhancement measures, followed by an assessment of the significance of the residual effects.
- 2.42 How the proposed development might affect the environment relies on predictions about what impact a certain action would have. Some predictions can be made using mathematical or simulation models, particularly where there are well known relationships between cause and effect. For example, the degree to which noise levels may increase as a result of additional traffic flows can be predicted using a mathematical equation. The level of air pollution from a known traffic flow can also be predicted from a computer-based simulation model. The visibility of a building can be predicted by accurately superimposing its outline and position over a photograph. Other impacts are less easy to predict in quantitative terms; for example, whilst the extent of a loss of a habitat can be measured, the effect on the abundance of individual species is more difficult to predict. In such cases, the EIA attempts to quantify the anticipated magnitude of impact and scale of effect using empirical experience, literature and professional judgement.
- 2.43 In all cases, the overall approach and specific methods of predicting the likely nature and magnitude of impact, as well as the scale of effect is set out in each of the technical assessments. Where used, recognised specific predictive methods are referenced. Any assumptions or limitations to knowledge are stated. In either case the thought process leading to the conclusions is based on reasonably reliable data and so is considered to be prudent and robust.
- 2.44 Where detailed information on the proposed development has not been available, reasonable assumptions have been made, and have been clearly set out, based on experience of developments of similar type and scale to enable assessment of likely significant effects.
- 2.45 The proposed development has not yet been approved so the conditional tense ('would') has been used to describe the development proposals, situations, potential impacts and likely effects that could/would arise from the introduction of the proposed development, as well as the mitigation measures that would be delivered or would be required upon approval of the proposed development. This approach does not lessen the Applicant's commitment to deliver the proposed development as presented within this ES. Furthermore, each technical assessment (and in particular summary tables at the conclusion of each chapter) clearly sets out the means by which any required mitigation measures relied upon, would be secured.

Proposed Development Stages

- 2.46 The EIA considers the following stages of the proposed development:
- Demolition and Construction Stage;
 - Completed Development Stage; and
 - Cumulative Stage.
- 2.47 Although it is acknowledged that the construction programme of the proposed development would be sequenced over a period of four years, the EIA has assessed and reported on the completed development. This is because no significant delay (i.e. of more than 12 months) is anticipated between the development phases.

Assessment Scenarios

- 2.48 The assessment of the proposed development has been carried out against the current baseline conditions as described in Chapter 1: Introduction and supplemented by relevant existing and updated surveys.
- 2.49 However, in accordance with standard practice, Chapter 7: Air Quality and Chapter 8: Noise and Vibration also considers a 'future baseline' which comprises the year in which the proposed development would be fully completed, occupied and operational. Accordingly, these assessments consider the following scenarios:
- Existing Baseline (2019);
 - Future Baseline (2025), which is the anticipated opening year of the proposed development (existing baseline + future growth derived from tempo factors);
 - Future Baseline + cumulative schemes; and
 - Future Baseline + cumulative schemes + proposed development.
- 2.50 The future baseline is used to account for predicted background growth associated with transport movements on the surrounding network.
- 2.51 In respect of the proposed development's area schedule, it is noted that the Applicant is seeking flexibility in respect of the type and range of floorspace to be delivered. Accordingly, the minimum and maximum floorspace areas for each use class that could be brought forward by the proposed development are presented in Table 4.3 in ES Chapter 4: Proposed Development Description. In respect of socio-economics, noise and vibration, and air quality, the assessment presented in the respective technical chapters has been based upon a worst case interpretation of the minimum and maximum floorspace schedule. In the case of the socio-economics assessment, assumptions have also been made in relation to a likely unit and tenure mix.
- 2.52 In respect of the proposed development's built form, height and massing, the development parameters allow three separate maximum heights for each of the development plots according to the potential future land use. These are referred to as 'Non-Residential', 'Residential', and 'Mixed Use' and their maximum plot heights are presented in Parameter Plans PP-103, PP-104, and PP-105 respectively. In respect of the wind, daylight, sunlight, overshadowing and solar glare, townscape and visual, and built heritage, the assessments have been based upon a worst-case interpretation of the maximum building heights parameter plans.
- 2.53 Further detail in respect of the worst-case assumptions that have informed each of the technical assessment is provided within the relevant ES Chapter.

Mitigation

- 2.54 Mitigation is the term used to refer to the process of avoiding where possible and, if not, minimising, controlling and/or off-setting potentially significant adverse impacts and effects of a development. Mitigation measures relate to the design stage; the demolition and construction stage; or the activities associated with the completed and operational development.
- 2.55 As part of the EIA, an iterative approach has been adopted where significant environmental effects have been avoided where possible in the first instance through the design refinements and iterations, as reported upon within Chapter 3: Alternatives and Design Evolution of this ES. Where adverse environmental effects were identified through early assessment work, opportunities to reduce or control impacts and effects, or in some cases, to compensate for impacts and effects, were identified and incorporated into the proposed development. In addition, opportunities to enhance the beneficial environmental effects of the proposed development have also been sought and incorporated into the proposed development. These are referred to as 'embedded' mitigation.

- 2.56 Within each technical chapter of this ES, the assessment of the effects that are likely to arise as a consequence of a potential impact/change to environmental receptors from the proposed development is initially presented. If any additional mitigation measures are required, further to that already embedded into the proposed development throughout its evolution, these are proposed and the proposed development is reassessed to ascertain the likely residual effects and the likely significant environmental effects. This is reported on within each technical assessment of the ES.
- 2.57 In all cases, mitigation measures are presented as embedded, specific commitments or statements of fact. It is anticipated that the implementation of mitigation identified throughout the ES, would be secured by means of approval of the planning drawings, appropriately worded planning conditions, planning obligations secured pursuant to section 106 of the Town and Country Planning Act 1990, the collection of any applicable community infrastructure levy (CIL) or through other statutory and building control regimes.

Impacts and Effects

- 2.58 Unless otherwise required by published assessment guidance (such as air quality), the EIA has made distinction between:
- impacts: the change or action; and
 - effects: the result/consequence/outcome of the change.
- 2.59 As a general rule, the EIA assesses the effects that are likely to arise as a consequence of a potential impact/change to environmental receptors following the application/consideration of embedded mitigation measures.
- 2.60 A range of likely effects have been considered, including direct or indirect (or secondary) and cumulative:
- Direct effects are those which arise as a direct consequence of a project action (e.g. the loss of habitat or the run-off of surface water to a watercourse);
 - Indirect effects include, for example, the decline in the abundance of a species as a result of the loss of habitat or the damage to aquatic vegetation as a result of water pollution. Other common examples include the effect on air quality and ambient noise as a result of increased traffic movements; and
 - Inter- and Intra-project cumulative effects are those that could arise concurrently (refer to Cumulative Effects section later in this chapter).
- 2.61 Furthermore, consideration has been given to the temporal and spatial nature of effects including permanent or temporary; reversible and irreversible; short-, medium- or long-term; local, borough, and national levels. In the context of the proposed development, temporary (short- and medium-term) effects would be typically those associated with the demolition and construction works, and permanent (long-term) effects would typically be those associated with the completed and operational development.
- 2.62 Typically, local effects would be those affecting receptors neighbouring the application site, whilst effects upon receptors within the wider study area are assessed at a borough level. Effects upon different parts of the country, or England as a whole, are considered to be at a national level and effects across national boundaries would be considered at an international level (albeit there are no such effects at national or international level).

Significance

- 2.63 The assessment of residual environmental effects is important in that it informs the determination by the local planning authority of the overall acceptability of a proposed development. Determining significance relies on accepted thresholds and criteria where available or, for situations in which such are not available, expert interpretations and value judgments.
- 2.64 Significance is usually a function of the vulnerability or importance (sensitivity) of the resource affected

(receptor) and the magnitude of the potential impact. Importance might be a function of international designation or local relevance. Thus, significance is a concept that can be applied objectively to individual effects. Throughout this ES the same terminology is used to describe these individual effects, unless specific alternative terminology exists in recognised issue specific guidance (e.g. in ES Chapter 7: Air Quality).

- 2.65 Within this ES, significance has been evaluated with reference to definitive standards, accepted/published criteria and legislation, where available. Where it has not been possible to quantify potential impacts and residual effects, qualitative assessments have been carried out, based on expert knowledge and professional judgement. Where uncertainty exists, it has been noted in the relevant assessment and a prudent or conservative approach adopted so that the significance will not be underestimated.
- 2.66 Specific conventions have been developed to define significance, wherever possible, defined and structured as transparently as possible using the following criteria:
- The sensitivity of the receptor to the potential impact, based on a scale of high, medium and low;
 - The magnitude of the potential impact, based on a scale of high, medium, small and unknown;
 - The likelihood of the effect occurring, based on a scale of certain, likely or unlikely;
 - The duration of the effect, based on a scale of short- (temporary), medium- and long-term;
 - The geographical extent of the effects at local, borough, national and international levels; and
 - The reversibility of the effect, being either reversible or irreversible.
- 2.67 Unless indicated otherwise within a technical assessment the duration of the effect is defined as follows:
- Short-term: up to 5 years;
 - Medium-term: 5-10 years; and
 - Long-term: 10 years +.
- 2.68 In order to provide a consistent approach to the presentation of the significance of residual effects, the following terminology has been used throughout the ES to describe the type/nature of residual effect:
- **Adverse** – detrimental or negative effect to an environmental resource or receptor;
 - **Neutral**: an effect that on balance, is neither beneficial nor adverse to an environmental resource or receptor; and
 - **Beneficial** – advantageous or positive effect to an environmental resource or receptor.
- 2.69 The scale of the predicted residual effect has then been classified according to the following semantic scale:
- **Negligible** – imperceptible effect;
 - **Minor** – slight, very short or highly localised effect;
 - **Moderate** – limited effect (by magnitude, duration, reversibility, value and sensitivity of receptor) which may be considered significant; and
 - **Major** – considerable effect (by magnitude, duration, reversibility, value and sensitivity of receptor) which may be more than of a local significance or lead to a breach of a recognised environmental threshold, policy, legislation or standard.
- 2.70 There are some exceptions to this scale due to established terminology for certain topic specific assessments. For example, the Air Quality assessment uses 'slight' instead of 'minor'. This is set out in the relevant chapter.
- 2.71 The specific benchmarks have been established by the project team using available national and local policy together with other relevant guidance, recognised good practice and expert judgement. The development of these benchmarks is explained in more detail in each assessment or technical appendix.

2.72 Throughout the ES, residual effects have been predicted as either 'significant' or 'not significant'. Significant effects are considered material to the planning decision process. Residual effects of 'moderate' and 'major' significance are typically considered significant, but would be dependent on the relevant technical assessment, as well as the existence of published assessment guidance. Where published assessment guidance is not definitive in respect of categorising/determining significant environmental effects, professional judgement would be applied, taking into account the duration, extent and context of the effect, to determine significant effects.

Cumulative Assessment

- 2.73 The EIA Regulations require that, in assessing the effects of a particular development proposal, consideration is also given to the cumulative impacts and effects which might arise from the proposal in conjunction with other development proposals in the vicinity.
- 2.74 Two types of Cumulative Effect have been considered within Chapter 11 of the ES, namely:
- Intra Effects: Combined effects of different types of impact or 'impact interactions', for example the multiplying effects arising from noise, dust and visual impacts during the construction of the Proposed Development on a particular sensitive receptor; and
 - Inter Effects: Combined effects generated from the proposal together with other planned developments and also referred to as 'in-combination effects'. These other developments may generate their own individually insignificant effects but when considered together could amount to significant cumulative effects, for example, combined townscape and visual impacts from two or more (proposed) developments.
- 2.75 There is however an exception to this approach. The Townscape, Visual and Built Heritage Assessment in ES Volume 2 follows the good practice guidance produced by the Landscape Institute and Institute of Environmental Management and Assessment, 'Guidelines for Landscape and Visual Impact Assessment' ('GLVIA')²¹ which sets out that an acceptable approach to assessing 'inter-effects' between any given proposed development and cumulative schemes can be as follows:
- to focus "*primarily on the **additional effects** of the main project under consideration...on top of the cumulative baseline*".

Intra-Project Cumulative Effects

- 2.76 As mentioned above, there is no established EIA methodology for assessing and quantifying the intra-project cumulative effects of individual effects on sensitive receptors, therefore Ramboll has developed an approach which uses the defined residual effects of the proposed development to determine the potential for effect interactions and so the potential for intra effects of individual effects.
- 2.77 Intra-project cumulative effects from the proposed development itself on surrounding sensitive receptors during the demolition and construction works and also once the proposed development is completed, have been considered.
- 2.78 Dependent on the relevant sensitive receptors, the assessment focusses either on key individual receptors or on groups considered to be most sensitive to potential interacting effects. The criteria for identifying those receptors which are considered to be potentially sensitive include existing land uses, proximity to the demolition and construction works and the application site, and likely duration of exposure to impacts.
- 2.79 It should be noted that only residual effects that are 'minor', 'moderate' or 'major' in scale have been considered within this assessment, as 'negligible' effects are, by definition, imperceptible in their nature. Dependent on the relevant sensitive receptors, the assessment will focus either on key individual

receptors or on groups considered to be most sensitive to potential interacting effects. The criteria for identifying those receptors which are considered to be potentially sensitive will include existing land uses, proximity to the demolition and construction works and the application site, and likely duration of exposure to impacts. The results are presented within a discrete assessment chapter (ES Chapter 11: Cumulative Effects).

- 2.80 With regard to the potential for cumulative effects to occur, it is anticipated that standard mitigation measures (such as dust suppression measures, use of quiet plant, restrictions on working hours) as referred to in Chapter 5: Demolition and Construction Environmental Management, can be applied to prevent temporary unacceptable effects from the interaction of effects occurring on-site. It is also anticipated that the requirement for a detailed site-specific Construction Environmental Management Plan (CEMP) would form part of the planning conditions, to be imposed by RBC.

Inter-Project Effects

- 2.81 The EIA Regulations require an assessment of potentially significant cumulative effects of a proposed development along with other 'existing and/or approved projects'. There are no legislative or policy requirements which set out how an inter-project cumulative impact assessment should be undertaken.
- 2.82 Accordingly, inter-project effects arising from the proposed development in combination with 'cumulative schemes' during the demolition and construction works and also once the proposed development is complete and operational, have been considered in the EIA.
- 2.83 Each technical ES chapter presents the assessment of combined effects of the proposed development with certain other cumulative schemes. In accordance with Schedule 4 of the EIA Regulations, schemes which are existing and/or approved have been considered, i.e. schemes built or under construction or with approved planning permission. However, to ensure a robust assessment, other reasonably foreseeable schemes that have been submitted but not yet approved have also been taken into consideration in the assessment of effects.
- 2.84 Spatial considerations and scale of development criteria has been developed based on professional judgement to determine whether cumulative schemes have the potential for cumulative effects when combined with the proposed development's effects. The criteria applied have been developed to account for those schemes which are likely to generate significant effects, which are:
- Have a total floor space area of 10,000 m² gross external area (GEA) and/or comprise >150 residential units; **and**
 - Either:
 - Within 1 km of the redline boundary/application site; or
 - Spatially linked to the application site by means of the local road network; or
 - Visible in protected/important views to and from the application site.
- 2.85 The 1 km study area is considered appropriate as this is generally beyond the distance to which effects are experienced at the proposed development. The viewpoints have been considered based on the extent of visibility and agreed with RBC in advance of the scoping opinion as explained in Volume 2.
- 2.86 The cumulative assessment has adopted a quantitative assessment where it is relevant, appropriate and reasonable to do so. Where this was not possible a qualitative assessment has been undertaken.
- 2.87 The list of cumulative schemes that have been considered in the EIA was included in the EIA Scoping Report, and repeated below in Table 2.2. Each technical assessor has reviewed the list and has included within their individual technical assessment those cumulative schemes which have the potential for

²¹ Landscape Institute and Institute of Environmental Management and Assessment, 2013. Guidelines for Landscape and Visual Impact Assessment: Third Edition. New York: Routledge.

cumulative effects. Where a cumulative scheme has been excluded this has been clearly stated within each technical chapter with reasons why.

2.88 The location of each cumulative scheme is shown in Figure 2.1 and the nature of each cumulative scheme is described in Table 2.2 based on publicly available information.

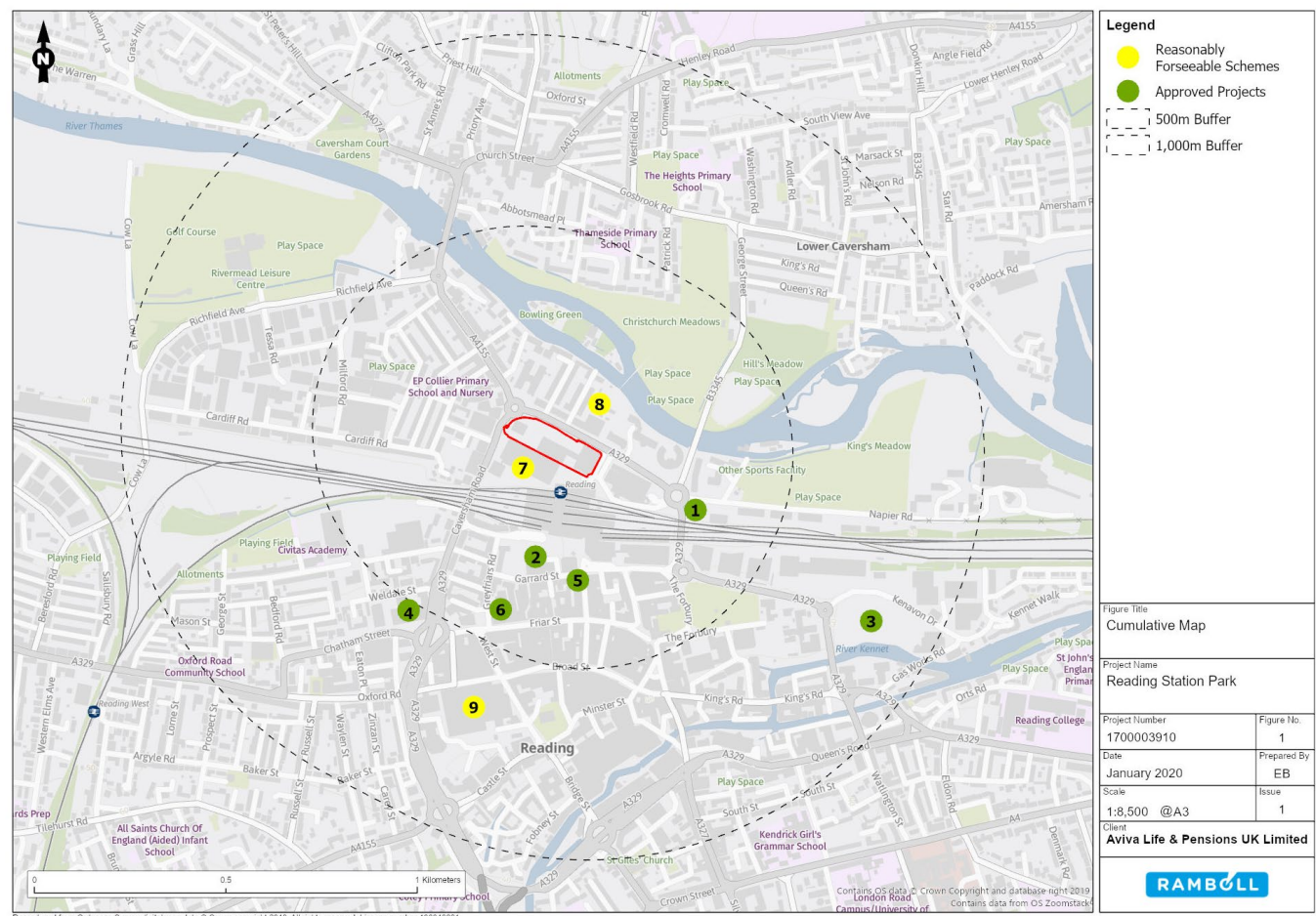


Figure 2.1: Location of Cumulative Schemes

Table 2.2: Description of Cumulative Schemes				
No	Address	App. Ref.	Description of Cumulative Scheme	Assessment Approach
Approved Projects (including Resolution to Approve)				
1	Former BMW Site – Thames Quarter	190809	Erection of a part 13-storey, part 23 storey building comprising 335 apartments in a mix of studio, one-bedroom, two-bedroom and three- bedroom units, residents' lounges, tech-hub, dining room, and cinema room, various rooftop outdoor amenity spaces, concierge/reception with coffee meeting area, gym, residents' storage facilities, post room, ancillary back-of-house facilities, 335 secure cycle parking spaces, car parking spaces, landscaping, and associated works.	Quantitative
2	Station Hill	151426 and 151427	Outline application with all matters reserved for mixed use redevelopment of Plot E of the Station Hill site and neighbouring Telecom House site (48 to 51 Friar Street	Quantitative

Table 2.2: Description of Cumulative Schemes				
No	Address	App. Ref.	Description of Cumulative Scheme	Assessment Approach
		(as varied by 190441 and 190442 which relate to non-compliance with conditions)	and 4 to 20 Garrard Street) to comprise the demolition of existing buildings and erection of new buildings/ structures to provide residential units, a range of town centre uses including retail and related uses (Use Class A1 - A5), associated infrastructure, public realm works and ancillary development.	
		190465	Application for the approval of reserved matters (access, scale, appearance, layout and landscaping) for Plot E within the development site known as Station Hill submitted pursuant to Outline Planning Permission ref. 190442 and submission of details for approval pursuant to conditions attached to that permission. The proposals comprise the construction of a 12 storey building (plus basement storey) containing 370 'Build to Rent' residential units (Use Class C3), 1,151 m ² (GEA) of flexible retail floorspace (Use Classes A1, A2, A3, A4, A5), cycle storage, car parking, servicing, plant areas, landscaping, new public realm and other associated works (amended description).	
		190466	Application for approval of reserved matters (access, scale, appearance, layout and landscaping) for Plot F within the development site known as Station Hill submitted pursuant to Outline Planning Permission ref. 190441, and submission of details for approval pursuant to Conditions attached to that permission. The proposals comprise construction of a 12 storey (plus basement storey) building containing 168 Build to Rent residential units (Use Class C3), 390 m ² (GEA) of flexible retail floorspace (Use Classes A1, A2, A3, A4, A5, D2), 656 m ² (GEA) of leisure floorspace (Use Class D1 or D2), cycle storage, car parking, servicing, plant areas, landscaping, new public realm and other associated works (amended description).	
3	Kenavon Drive	170509	Demolition of the two existing retail (Homebase and former Toys R Us) structures and the erection of new 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 (1x flexible Class A1-A4, B1 or D1-D2, 1x flexible D1 or D2, 1x flexible Class A1- A5, 1x flexible Class A3 or A4, 1x flexible A1-A5 or D1-D2 uses), various works to the public realm, including a new riverside square, landscaping, accesses, parking and associated works.	Quantitative
4	Land between Weldale Street	170326	Demolition of all existing buildings (including three retail units) and structures, and erection of new buildings ranging between lower ground and 4 storeys to lower ground and 11 storeys in height, providing 427 (233x1,	Quantitative

Table 2.2: Description of Cumulative Schemes				
No	Address	App. Ref.	Description of Cumulative Scheme	Assessment Approach
	and Chatham Street, Reading		182x2 and 12x3-bed) residential units (Class C3) and one flexible ground floor retail shop (Class A1) or restaurant and cafe (Class A3) unit, together with new public realm, landscaping, accesses, parking and associated works (amended description).	
5	29 Station Road Reading, RG1 1LG	181930	Demolition of the existing vacant 6-storey retail and office building and erection of a replacement basement and part 4, part 22 (with rooftop plant above) storey building to provide flexible retail (Class A1, A2, A3, A4 or A5) use at part ground floor level, a 135- bedroom hotel (Class C1) at 1 st to 16 th floors and offices (Class B1a) at 17 th to 21 st floors, associated servicing from Garrard Street and other associated works(amended description).	Qualitative
6	52 to 55 Friar Street and 12 Greyfriars Road, Reading RG1 1DX	162210	Demolition of existing building and structures (Class A1) and erectionof three new buildings ranging between 6 - 12 (and basement) storeys in height to provide 135 (1xstudio, 54x1, 73x2 and 7x3-bed) residential units (Class C3), a flexible Class A1-A5 use at ground floor level fronting onto Friar St, a flexible Class A1-5, B1(a) or D2 (gym only) use at ground floor level fronting onto Greyfriars Road, with associatedaccess, parking, servicing, landscaping and engineering works.	Quantitative
Reasonably Foreseeable Schemes				
7	Network Rail Thames Valley Area site office/ Former Royal Mail site	182252 Validated (allocation CR11e)	Outline application considering access, landscaping, layout and scale involving the demolition of all existing buildings and structures (Classes B1a and B2) and erection of new buildings ranging between basement and 2 - 25 storeys in height, providing 658 (79 x studio, 227x1, 335x2 & 17x3-bed) residential units, office accommodation (Class B1a), flexible ground floor Class A1-3 uses, a community centre(Class D1), health centre uses (Class D1) and various works including car parking, servicing, public and private open space, landscaping, highways, pedestrian and vehicular access and associated works.	Quantitative
8	Former Scottish and Southern Energy site	Awaiting application (allocation CR11e)	Demolition of a number of structures on the site and the erection of a new residential scheme (up to 210 units), with a max height of 11 storeys (up to 36 m above ground level) including a new north south pedestrian link, connecting Christchurch Bridge to Vastern Road towards the station as well as drainage infrastructure and landscaping.	Qualitative

Table 2.2: Description of Cumulative Schemes				
No	Address	App. Ref.	Description of Cumulative Scheme	Assessment Approach
9	Broad Street Mall Broad Street Reading, RG1 7QG	182137 (allocation CR12c)	Construction of three residential buildings (Use Class C3) ranging in height from 5 to 22 storeys (Site E to provide 52 units, Site B to provide 139 Units and Site A to provide 172 units) above Broad Street Mall and provision of a podium level amenity area; construction of an 18 storey building on South Court comprising ground and first floor retail (Use Class A1/A2/A3) and residential over upper floors (Use Class C3, Site C to provide 99 units); change of use and extension of Quadrant House to form a 3 storey residential building (Use Class C3, Site D to provide 31 units); and creation of three ground floor retail units (Use Class A1/A2/A3) fronting Dusseldorf Way and Queens Walk.	Qualitative

Assumptions and Limitations

- 2.89 The principal assumptions that have been made, and any limitations that have been identified, in undertaking the EIA are set out below: (assumptions specifically relevant to each topic have been set out in their respected technical assessment of the ES)
- Baseline conditions have been established from a variety of sources, including historical data, but due to the dynamic nature of certain aspects of the environment, conditions at the application site and surrounding land uses may change;
 - The assessments contained within each of the technical assessments of ES Volume 1 and within ES Volume 2 are based on the current or emerging legislative and policy framework;
 - It is assumed that information received from third parties is accurate, complete and up to date;
 - The assessments contained within each of the technical assessments of ES Volume 1 and within ES Volume 2 are based upon the planning application drawings submitted as part of the application;
 - The assessments contained within each of the ES Volume 1 technical assessments and in ES Volume 2 are based on the assumption that embedded mitigation measures set out in application drawings, through regulatory regimes or via the management controls as set out in ES Chapter 4: Proposed Development Description and ES Chapter 5: Demolition and Construction Environmental Management are implemented;
 - The assessments contained within the ES Chapter 7: Air Quality and ES Chapter 8: Noise and Vibration are based on industry-average specifications for construction, mechanical and services plant as project-specific details will be finalised during the demolition and construction planning and procurement stages;
 - Demolition and construction works across the application site would take place substantially in accordance with the phasing and programme of works described in Chapter 5: Demolition and Construction Environmental Management;
 - Where detailed information has not been available, reasonable assumptions have been made, and have been clearly set out, based on experience of developments of similar type and scale to enable assessment of likely significant effects; and
 - Cumulative schemes will be implemented substantially in accordance with information that is publicly available or that has been provided to the Applicant, and subject to the same regulatory regimes and good practice management controls.

Technical Assessment Chapters

- 2.90 A consistent approach to the presentation of EIA findings in the ES has been adopted for each of the technical areas, including:
- an explanation of the information gathering and assessment methodology;
 - a description of the baseline conditions;
 - the identification of the potential impacts arising during the demolition and construction stage and the completed development stage of the proposed development;
 - a description of additional opportunities for mitigation to reduce the significance of any adverse environmental effects, including the requirements for post-development monitoring; and
 - an assessment of the environmental effects these impacts are expected to cause and an evaluation of their significance against defined criteria.
- 2.91 Each environmental topic considered in the EIA has been assigned a separate chapter in ES Volume 1 (Chapter 6-10 inclusive) with the exception of the Townscape and Visual Impact Assessment and Built Heritage Assessment chapters which are assigned separate chapters in ES Volume 2. Within each technical chapter the assessment is presented and reported in the following format:
- Introduction – a brief introduction to the assessment;
 - Consultation Feedback – a summary of the EIA Scoping Opinion and concurrent technical consultations undertaken and where these have been addressed in the assessment;
 - Assessment Scope – an explanation of the spatial, temporal and technical scope that the assessment has been based on.
 - Baseline Characterisation Method – an explanation of how the information relating to the baseline conditions has been procured.
 - Assessment Method and Assessment Criteria- an explanation of the information gathering and assessment methodology, as well as an explanation of the approach to defining the significance of likely environmental effects;
 - Baseline Conditions – a description of the baseline conditions;
 - Assessment of Effects – an assessment of the likely effects of the proposed development and an evaluation of their significance against defined criteria taking into account embedded mitigation;
 - Assessment of Residual Effects and Additional Mitigation – a description of the additional mitigation and enhancement measures, if required, and then an assessment of the likely residual effects of the proposed development;
 - Summary of Residual Effects – a tabulated summary of the conclusions of the assessment;
 - Cumulative Effects – an assessment of inter-project cumulative effects; and
 - Summary – a summary of the assessment.