

Appendix: EIA Methodology

Annex 1: EIA Scoping Document

Annex 2: Cumulative Schemes List and Map

Annex 3: Traffic Data

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Annex 3: Traffic Data



Broad Street Mall

EIA Scoping Document

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INTRODUCTION

- 1. McLaren (Broad Street Mall) Ltd and UREF III LP (hereinafter referred to as the ‘Applicant’) are seeking full (detailed) planning permission for the development of Broad Street Mall in Reading, as well as a temporary planning permission to facilitate the construction works with separate site boundaries. Together, both of these are considered as the ‘Proposed Development’ for the Environmental Impact Assessment (EIA).
- 2. The Proposed Development is located on the western side of Reading centre, adjacent to the A329. Both of the sites are situated roughly halfway between the main Reading railway station to the north and the Oracle Shopping Centre to south. Both of these separate application boundaries are considered as ‘the site’ for the EIA. The site location is shown in Figure 1, and the indicative redline boundaries for the planning application are shown in Figure 2, Figure 3 and Figure 4.
- 3. The site falls within the administrative boundary of Reading Borough Council (RBC). The site is currently partly located within ‘Broad Street Mall’, which includes a shopping centre (retail units), office space, car parking and some streetscape / internal thoroughfares.
- 4. The Proposed Development (as part of the full (detailed) planning application) is for the part-demolition of existing retail units, car park and service areas, demolition and rebuild of car park ramp, and construction of a residential-led, mixed-use development across four new blocks fronting Queens Walk and Dusseldorf Way, including all necessary enabling and alteration works required. The Proposed Development will provide for a mixed-use development including residential and retail space. The temporary planning application covers changes to allow for construction routes, compounds and access to building facades for demolition and construction, to facilitate the construction of the Proposed Development.
- 5. Given the nature of the scheme described, the Proposed Development falls within the classification of Schedule 2, 10(b) (Infrastructure Projects – Urban Development Projects) of the EIA Regulations (as amended)¹. The Proposed Development could also be considered to fall under Schedule 2 13(b) (*Any change to or extension of development...where that development is already authorised, executed or in the process of being executed*) of the EIA Regulations.
- 6. Considering the scale of the development and the nature of the site and surrounding area, it is considered that there is the potential for significant environmental effects to arise. The Proposed Development is therefore considered to constitute ‘EIA development’ under the EIA Regulations, and so an Environmental Statement (ES) will be prepared and submitted to accompany the planning application.
- 7. Trium Environmental Consulting LLP (Trium) has been commissioned by the Applicant to define the scope of the EIA and prepare the ES that will be submitted to accompany the application for full planning permission as well as the temporary planning permission to facilitate the construction works.
- 8. EIA Scoping is not a mandatory process under the EIA Regulations. The Applicant has not requested an EIA Scoping Opinion from the RBC. Instead, the EIA team (on behalf of the Applicant) has undertaken a scoping exercise to define an appropriate scope for the EIA. The scope has been defined through consideration of all the technical topics cited within the EIA Regulations and with reference to the EIA that was undertaken for the consented scheme (Ref: 182137).
- 9. The EIA Regulations require that in order to ensure the completeness and quality of the ES, ‘(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’. Trium consider that these requirements are equally important and relevant to the EIA scoping process in addition to the preparation of the ES. As such, in accordance with this requirement, the following statement is provided:

“Trium is an environmental consultancy specialising in urban regeneration and property development projects in the UK. Trium’s Partners and Employees have extensive experience in managing the environmental issues and impacts surrounding large scale, high profile urban regeneration development projects. The Partners and Employees of Trium have, over the course of their careers to

date (including with former employers), project directed, managed or contributed to over 200 EIAs within the retail, residential, leisure, commercial, cultural, infrastructure and industrial sectors. Trium’s lead EIA practitioner for Broad Street Mall is a Full Member of IEMA, a Chartered Environmentalist (IEMA, 2016) and has over 20 years EIA experience”.

Figure 1 Location of the Proposed Development ^{2,3}



Figure 2 Red line Boundary – Basement



¹ The Town and Country Planning (Environmental Impact Assessment) (England) Regulations 2017 (as amended in 2018 and 2020).

² © OpenStreetMap contributors <https://www.openstreetmap.org/copyright>
³ Note: site red line boundary shown in this figure is indicative for the purposes of illustrating site location.

Figure 3 Red line Boundary- Ground Floor



Figure 4 Temporary Construction Red Line Boundary



Structure of the this EIA Scoping Document

10. This EIA Scoping document is structured as follows and provides:
- A summary of the purpose and process of the EIA and EIA Scoping;
 - A description of the location of the site and the site and surrounding area's environmental context;
 - An overview of the Proposed Development;
 - A description of potential environmental sensitivities and receptors;
 - A 'snapshot' of what is proposed to be 'scoped in' and 'scoped out';
 - An outline of the planning policy context;
 - A description of the EIA process and methodology;
 - A description of the environmental topic areas that are considered to potentially result in significant effects on the environment and an explanation of the proposed scope and assessment methodology that will be adopted to predict the magnitude of potential impacts and the resultant scale, nature, geographic extent and duration of potential effects, and the effect significance within the EIA;
 - A description of the environmental topic areas that are considered unlikely to result in significant environmental effects, and are therefore scoped out of the EIA; and
 - Confirmation of the proposed structure of the ES.

EIA AND THE SCOPING PROCESS

EIA Purpose and Process

11. EIA is a process carried out which examines available environmental information to ensure that the likely significant environmental effects of certain projects are identified and assessed before a decision is taken on whether a project is granted planning permission. This means environmental issues can be identified at an early stage and projects can then be designed to avoid or to minimise significant environmental effects, and appropriate mitigation and monitoring can be put in place.
12. Regulation 4 of the EIA Regulations sets out the EIA process. Specifically, Regulation 4(2) states that "the EIA must identify, describe and assess in an appropriate manner, in light of each individual case, the direct and indirect significant effects of the proposed development on the following factors:
- (a) population and human health;
 - (b) biodiversity;
 - (c) land, soil, water, air and climate;
 - (d) Material assets, cultural heritage and the landscape;
 - (e) The interaction between the factors referred to in sub-paragraphs (a) to (d)."
13. The potential for likely significant effects on the aforementioned factors, during both the construction works associated with the Proposed Development and once the Proposed Development is complete and operational, is considered within the following relevant environmental topics addressed within this EIA Scoping document:
- Socio-Economics;
 - Health;
 - Air Quality;
 - Noise and Vibration;

- Highways and Transport;
 - Wind Microclimate;
 - Daylight, Sunlight, Overshadowing, Light Pollution and Solar Glare;
 - Townscape and Visual;
 - Built Heritage;
 - Archaeology (Buried Heritage);
 - Geoenvironmental (Land Contamination, Ground Conditions and Groundwater);
 - Ecology;
 - Water Resources, Drainage and Flood Risk; and
 - Climate Change.
14. The method behind the EIA process generally takes into account the existing conditions of the area into which the development is being introduced (**the baseline**) and makes reasonable predictions of the likely change (**the impact** – in terms of magnitude) that may occur, during both its construction and when the development is completed and operating as proposed. The predicted impact is considered in terms of key environmental and social aspects (**receptor / resource**) found within the surrounding area, and based on their sensitivity to change, the scale of the resulting change experienced by the receptor / resource (**the effect**) is then determined along with a statement on whether the effect is significant or not. Any mitigation measures required to reduce or eliminate significant adverse effects are then considered and assessed, with the resulting residual effect scale being determined. All the likely effects of the development are reported (within an **environmental statement**) and the likely significant effects are specifically highlighted. The environmental statement is then considered by the relevant planning authority when making a decision whether to grant planning permission for a development.

Land Take and Soils

15. In response to the requirements of the 2017 EIA Regulations, consideration has been given to the potential for any effects arising because of the Proposed Development on 'Land Take' and 'Soils'.
16. With regards to 'Land Take', the site represents an opportunity to intensify an existing development in Reading. The site is not a 'greenfield site'; it is not natural or semi-natural land that is being 'taken up' by urban development. In addition, the site does not represent open or publicly accessible space used as a recreational resource within an already built-up environment. As a result, no likely significant effects associated with 'Land Take' are anticipated because of the Proposed Development.
17. With regards to 'Soil', the Phase 1 Environmental Desktop Study identifies that there is a very low risk from contamination associated with the site. As such, no likely significant effects associated with 'Soil' are anticipated to arise because of the Proposed Development.
18. Based on the above, land take and soil shall not be considered any further within the ES.

Project Vulnerability

19. With reference to Regulation 4(4) and Schedule 4 of the EIA Regulations, this EIA Scoping document also considers whether there are likely to be any significant effects on the environment or the project arising from the vulnerability of the Proposed Development to major accidents or disasters.
20. Available guidance (IEMA Quality Mark Article 'Assessing the Risks of Major Accident and Disasters in EIA (WSP, 2016)) defines major accidents and disasters as follows:
- "man-made and natural events which are considered to be likely, and are anticipated to result in substantial harm that the normal functioning of the project is unable to cope with/rectify".*
21. Based on the above definition, the major accidents or disasters that could be considered likely and that are considered relevant to the Proposed Development which will be considered within the EIA are as follows:

- Flood risk; and
- Fire risk.

Flood Risk

22. The Proposed Development is located within Flood Zone 1, classified as having a low probability of fluvial and tidal flooding. The site is also at low risk from surface water flooding, this is defined as chance of 0.1% to 1% annually.
23. However, as the site area exceeds 1 ha, the planning application will be accompanied by a Flood Risk Assessment (FRA). The FRA will review the potential sources of flooding that could affect the site, and how the identified sources of flooding can be minimised, mitigated or eliminated to reduce project vulnerability.

Fire Risk

24. Fires are normally rare events. However, when they happen the consequences can be significant. Even a small fire can threaten the lives of occupants and could stop the operation of the Proposed Development for many hours or days.
25. Consideration has been given to fire risk and whether this could constitute a major accident or disaster that could be considered likely and relevant to the Proposed Development. It has been concluded however, that fire risk is managed outside of the EIA process through a combination of legislative and industry guidance which mitigate the risk of fire causing a major accident or disaster to new developments within the urban environment. Legislative requirements include the '*The Construction (Design Management) Regulations 2015*', which provide guidance on fire safety requirements for new buildings, while requirements under the Building Regulations and associated guidance relate to the health and safety of people in and around buildings. Alternatively, compliance can also be achieved by adopting a fire engineered solution where the size and scale of the development necessitates bespoke measures to address the fire risks.
26. The effective implementation of the legislative tools and guidance is considered to reduce the risk of fire to an acceptable level whereby the occurrence is unlikely, or in the event of a fire, appropriate design and management measures are incorporated into a development to avoid the occurrence of a major accident or disaster.
27. Given the above, the consideration of fire risk in terms of causing a major accident or disaster will not be addressed further within the EIA as the risk of occurrence will be managed during the post-consent technical design and construction phases, through a mix of legislative requirements and industry guidance which fall outside of the EIA process.

Alternatives and Design Evolution

28. In addition, the EIA Regulations require (Schedule 4) that the ES provides "*a description of the reasonable alternatives... relevant to the proposed project and its specific characteristics*" which have been considered by the Applicant and "*an indication of the main reasons for selecting the chosen option, including comparison of environmental effects*".
29. The ES will present any 'Alternative Sites' for the Proposed Development that have been considered by the Applicant, if appropriate. This will address why the selected site is the most appropriate from an environmental perspective.
30. The ES will summarise the evolution of the Proposed Development, the alternatives considered, and key modifications made during the design process. Environmental considerations which have influenced this process will be discussed, and a qualitative comparison will be undertaken of the different design options and their relevant environmental effects. Matters that will be considered in terms of design evolution include land uses, layout, building heights and massing. The preferred design alternative, culminating with the Proposed Development being sought for approval, will be discussed.

The EIA Scoping Process

31. EIA Scoping forms one of the first stages of the EIA process and it is through EIA scoping that the environmental topics that should be included in the EIA are defined. EIA Scoping is not a mandatory process under the EIA Regulations. The Applicant has not requested an EIA Scoping Opinion from the RBC. Instead, the EIA team (on behalf of the Applicant) has undertaken a scoping exercise to define an appropriate scope for the EIA. The scope has been defined through consideration of all the technical topics cited within the EIA Regulations and with reference to the EIA that was undertaken for the consented scheme (Ref: 182137).
32. The purpose of the EIA scoping process has been to:
- Define the approach to the EIA;
 - Identify any available existing baseline data and appropriate baseline surveys to be undertaken;
 - Identify sensitive receptors;
 - Identify the appropriate time and space boundaries of the EIA (i.e. time: project timeframes including details of the construction programme and proposed opening year; and space: the site boundary and surrounding environmental context);
 - Identify potential environmental considerations and potential environmental effects;
 - Identify the topics to be included within the scope of the EIA and the methodology for assessment;
 - Identify the topics that can be scoped out of the EIA (i.e. excluded), with justification provided as to why likely significant environmental effects are not anticipated;
 - Identify the information necessary for decision-making in respect of environmental and socio-economic effects;
 - Define the methodology for the assessment of the likely significant environmental effects; and
 - Identify other development schemes to be considered within a cumulative effects assessment.

SITE CONTEXT

The Site

33. The site is broadly rectangular in shape. As set out above, the site lies on the western side of the town centre and is situated roughly halfway between the main Reading rail station to the north, and the Oracle Shopping Centre to south. The site is bordered to the north by the remainder of the Broad Street Mall Shopping Centre, to the east by St Mary's Butts, to the south Dusseldorf Way and Hosier Street, and to the west by Queen's Walk.
34. The site is known as 'Broad Street Mall' and partially includes a shopping centre (retail units), car parking and some streetscape / internal thoroughfares.
35. The site covers part of the retail shopping mall, extending along the southern extent, and is arranged over basement level and ground level, within the site boundary. The basement level extends underneath the site and includes plant rooms, the main waste storage area and storage rooms associated with the retail units.
36. A multi-storey car park is also located partially within the site – known as 'NCP Broad Street Mall'. Overall, and extending partially within the site boundary, the carpark overall comprises 771 car-parking spaces spread across three floors. **Figure 5** shows a photograph of the car park. The car park is a 24-hour car park, open seven days a week. Access to the site is gained from the west, via A329, through the basement.
37. The remainder of the retail shopping mall and multi-storey car park fall outside of the site's boundary.

Figure 5 Second Storey Roof Car Park, above the Broad Street Mall Shopping Centre



38. The site sits within the West Side Major Opportunity Area (WSMOA) of the of the RBC Local Plan⁴. The Local Plan defines the planning principles for the centre of Reading up until 2036.

On-Site Environmental Context

39. The site is not located in, or within a 5km radius of, a 'sensitive area' (as defined in Part 1 of the EIA Regulations). Consideration is however given to other environmental receptors. Consideration is however given to other environmental sensitivities.
40. According to the Environmental Agency's (EA) flood map⁵ the site is located within Flood Zone 1. This is land defined as having less than 1 in 1,000 annual probability (<0.1%) from river or sea flooding. Flooding from these sources is therefore considered unlikely. The site is also at low risk from surface water flooding, this is defined as chance of 0.1% to 1% annually.
41. The site is located within the Reading Air Quality Management Area (AQMA), which was declared in 2009 due to exceedance of the nitrogen dioxide (NO₂) annual mean. One automated monitoring station within proximity of the site, on Friars Street, has recorded NO₂ concentrations consistently above the Air Quality Objective for the RBC between 2015 and 2019, with concentrations ranging between 41 and 52 ug/m³. This monitoring station is located close to a main road, which is a key source of pollution.
42. Geological maps indicate the site to be underlain by superficial deposits of Taplow Gravel Member (Sand and Gravel) overlying Seaford Chalk Formation and Newhaven Chalk Formation (Undifferentiated Chalk) and Made Ground present adjacent to the site.
43. The site does not lie within a groundwater source protection zone (SPZ) or a nitrate vulnerability zone (NVZ). The site is located within Secondary A and Principal Aquifer Designation for superficial deposits and bedrock formations respectively. The site is also located within a Major High Aquifer Groundwater

⁴ Reading Borough Council (2019). Reading Local Plan
⁵ EA (2018): <https://flood-map-for-planning.service.gov.uk/>

Vulnerability Zone. The nearest surface water resource to the site is Holy Brook which is approximately 190m south of the site at its closest point.

44. The site is located approximately 34km west of Heathrow Airport and approximately 400m south-west and 800m east of train lines. The site will therefore not be affected by aircraft noise and noise from train movements.
45. Although the site is bordered by roads to the east, north and west, road traffic noise at the site is likely only to be significant from the A329, located to the west.

RBC Core Area

46. To the south of the site is a parcel of land known as a 'Core Area' owned by the RBC, outlined in the Minster Quarter Area Outline Development Framework⁶. There are aspirations to develop this area to provide a distinctive, dense and high-quality multi-functional urban quarter within Reading's Central Core. The site will aim to provide a unique character and sense of place that will be unified by a high quality public realm. The development is likely to be largely residential led although offices remains an appropriate use for this Town Centre location. Development will support retail uses at podium level, alongside new open space/park, multi-functional civic/market space and associated community facilities. The upper levels of development will create opportunities for private and affordable housing.
47. Given the proximity to the Proposed Development, this framework is an important consideration. However how this is assessed within the EIA, will be dependent on the framework timelines, and when the planning application for the Proposed Development is submitted. The framework will be considered within the EIA at a level that is appropriate to the information available at that time.

OVERVIEW OF THE PROPOSED DEVELOPMENT (November 2023)

48. The Proposed Development includes the part-demolition of existing retail units, car park and service areas, and construction of a residential-led, mixed-use development across four new blocks fronting Queens Walk and Dusseldorf Way, including all necessary enabling and alteration works required. Additionally, temporary construction access will be required to facilitate the construction of the Proposed Development.
49. The Proposed Development will comprise a total of approximately 55,500 m² gross internal floorspace (GIA). The scheme will predominantly comprise of residential floor space (use class C3) with approximately 1,800 m² commercial area (GIA) (use class E).
50. The Proposed Development will include approximately 645 residential units.
51. The Proposed Development will comprise four blocks of staggering heights, up to a height of approximately 143m AOD.
52. The Proposed Development will provide approximately 100 car parking spaces and cycle parking spaces in accordance with relevant policy.
53. The existing basement will extend marginally beyond the existing horizontal footprint, however the intention is to retain the majority of the basement. Some further excavations will be required to construct lift pits and piles, beyond the current vertical depth.
54. It is important to note that the design of the Proposed Development is currently being developed. As such the description included above might change slightly between preparation of this scoping document, and the planning application. The description should therefore be taken as an approximation at this stage. It is however considered that any alterations to the design would however not be of a scale that this would change the scope of the EIA. The EIA will fully assess the design of the Proposed Development for which planning permission is being sought.

Demolition and Construction

⁶ Reading Borough Council (2018). Minster Quarter Area Outline Development Framework

55. The demolition works will consist of:
 - Partial demolition of the Broad Street Mall shopping centre and car park;
 - Breaking out all existing pad foundations under demolitions columns;
 - Localised strengthening and reinforcement where required;
 - Partial demolition of Dusseldorf Way and highway realignment works to create and construction traffic route; and
 - Drainage alterations and service diversions.
56. During the demolition and construction works, the current occupiers of the wider Broad Street Mall (outside of the site boundary) will be retained. The effects of these works on these receptors will therefore be assessed where appropriate.
57. In addition, the Proposed Development may be subject to phased occupation during the demolition and construction works i.e. receptors introduced whilst construction remains ongoing, and therefore should this be the case, these receptors will therefore be assessed where appropriate.

ENVIRONMENTAL CONTEXT OF THE SITE AND SURROUNDS

Environmental Context and Description of the Surrounding Area

58. The site is located in close proximity to an Area of Archaeological Potential (AAP) as defined by the RBC. The area has demonstrated potential for Saxon structures and environmental evidence due to its proximity to Reading Minster. The AAP extends around the northern and eastern boundaries of the site and lies along the southern boundary of the RBC development site to the south.
59. The surrounding area is urban and high density and is predominantly comprised of retail uses. Council tax registries indicated nearby residences, with the closest being located adjacent to the north boundary across Oxford Street, approximately 20m north of site.
60. The site is located within 500m of Reading Station and 1km of Reading West Station, which provide access to South Western Rail, Cross Country and Great Western Rail services, respectively.
61. There are four bus stops on both Oxford Road and St Mary's Butts, providing easy access to public transport for potential new residents / workers and those wishing to visit Broad Street Mall.
62. The closest station is Reading Station to the northeast of the site (approximately 500m north of site) although Reading West Station to the west of the site is also within easy walking distance. Reading Station offers Great Western Rail, South Western Rail Cross Country services, whilst Reading West offers Great Western Rail. From these stations trains run directly to London Paddington, Bristol Temple Meads, Cardiff Central, Newcastle and numerous other stations to the north, south and west.
63. Reading Station is also serviced by the Elizabeth line, with two trains an hour (four an hour at peak times) allowing passengers to travel right through central London without having to change trains.
64. There are four bus stops on both Oxford Road and St Mary's Butts, providing easy access to public transport for potential new residents / workers and visitors. 59 local bus services are available within 100m of site, including routes 15 Sky Blue, 144, BB3, Purple 17 and 50 Greenwave. The site is well served by local and national cycle routes.
65. There are eight primary schools located within 1km of the site, including but not limited to: Civitas Academy approximately 470m north-west of the site; Coley Primary School and Nursery approximately 500m to the south of the site; Katesgrove Primary School approximately 590m to south of the site; Oxford Road Community School approximately 600m west of the site; Kendrick School which is located approximately 700m southeast the site; EP Collier Primary School approximately 760m north of the site; The Deenway Montessori School approximately 800m east of the site; and All Saints Junior School approximately 860m west of the site; There are eleven secondary schools within 2.7km of site, Kendrick School is the closest secondary school to the site (approximately 720m to the southeast of the site). Greyfriars Day Nursery is a nursery school located approximately 260m north of the site.

66. The healthcare facilities within the surrounding area of the site include the Reading Walk-in Health Centre (located within Broad Street Mall), Chiltern Medical Centre (approximately 100m to the north-west of the site) and Royal Berkshire Hospital (approximately 1.1km at its closest point north-west of the site). Dental practices are similarly located to the site, the closest being the Friar Street Dental Surgery approximately 320m at its closest point north-east of the site).
67. Children’s play area/communal gardens located within close proximity to the site, include the communal gardens along Dusseldorf Way and Hosier Street (approximately 10m south of the site); and the play areas and communal gardens serving properties along Tilehurst Road and Pell Street (both located approximately 650m west and southeast of the site respectively).
68. The site is located near a Conservation Area as per the RBC’s designated Conservation Area maps. St Mary’s Butts and Castle Street is located to the east and south of site, approximately 30m east of site at the closest point. Russell Street / Castle Hill and Market Place / London Street Conservation Areas are located to the west and east of site respectively.
69. There are 275 listed buildings within 1km of the site. The closest being 3 and 5 Cheapside (Grade II Listed: approximately 30m north of site), The Allied Arms Inn (Grade II Listed: approximately 30m east of site) and 55 and 55a St Mary’s Butts (Grade II Listed: located approximately 30m east of site). The Reading Minster, a Grade I listed building, is located approximately 90m to the east.
70. There is one scheduled monument, Reading Abbey, located approximately 710m away from the site.

SCOPE SUMMARY

71. Table 1 sets out the proposed scope of the ES.
72. Further detail on each topic is provided in the following technical sections of this EIA Scoping document.

Table 1 Environmental Topics to be Assessed for Demolition and Construction and Operation

Environmental Topics	Demolition and Construction	Operation
Socio Economics	✓	✓
Air Quality	✓	✓ (although dependent on the number of traffic movements generated/energy centre included)
Noise	✓	✓ (apart from noise from traffic, which has been scoped out)
Vibration	✓	✗
Wind Microclimate	✓ (qualitatively)	✓
Daylight, Sunlight and Overshadowing – internal, new receptors within the Proposed Development	✗	✗ (separate standalone document)
Daylight, Sunlight and Overshadowing – residential properties outside of the red line boundary	✗	✓
Light Pollution and Solar Glare	✗	✗
Townscape, Built Heritage and Visual Impact Assessment	✓	✓
Climate Change, including Greenhouse Gas Emissions	✓	✓
Health	✗	✗

Traffic and Transport	✗	✗
Water Resources and Flood Risk	✗	✗ (separate standalone document)
Ecology	✗	✗
Archaeology	✗	✗
Ground Conditions and Contamination	✗	✗
Waste	✗	✗

PLANNING CONTEXT

Planning Policy Context

73. The ES (within ES Volume 1) will define the relevant national, regional and local policy context. Specifically, the ES will list out the key relevant policy documents but will not discuss the policies within these in any detail.
74. Although relevant policies out of the key planning policy documents will, in some instances, inform the scope and the methodology of the technical assessments within the EIA, the Proposed Development’s compliance with and performance against the relevant planning policies will be appraised within the Planning Statement which will be a standalone document that is submitted in support of the planning application. It is not the purpose of the ES to appraise the Proposed Development against relevant national, regional and local planning policy standards / targets.
75. Where planning policy informs the scope and the methodology of the technical assessments of the EIA, the policies will be presented in the ES (in the relevant technical topic chapters) and discussed as necessary. Any policy detail required to support the relevant impact assessment scope, methodology or assessment of effects, will either be provided within the technical topic chapter itself or within an appendix to the ES.

National Planning Policy and Guidance

76. The EIA will be undertaken having regard to the National Planning Policy Framework (‘NPPF’)⁷. The NPPF sets out the Government’s economic, environmental and social planning policies for England. The policies contained within the NPPF articulate the Government’s vision of sustainable development, which are intended to be interpreted at a local level, to meet the requirements of local aspirations.
77. As relevant to the EIA, specifically to the scope, methodology and assessment of effects for the EIA technical topics, the NPPF shall be considered throughout undertaking of the EIA and preparation of the ES.

The EIA will also refer to, as relevant to the EIA technical topics, the Planning Practice Guidance (‘PPG’), which is an online resource. The PPG aims to make planning guidance more accessible, and to ensure that the guidance is kept up to date.

Local Planning Policy

78. As relevant to the EIA technical topic scope, methodology or assessment of effects, the ES will have regard to the following key strategic planning documents. Any additional strategic planning policy and guidance documents considered relevant to the technical assessments which are covered by the EIA will also be considered:
- Reading Borough Council, (2008); Tall Building Strategy;

• Reading Borough Council, (2018); Significant Views with Heritage Interest Assessment;

• Reading Borough Council (2018); Minster Quarter Outline Development Framework;

⁷ Ministry of Housing, Communities and Local Government, 2023, National Planning Policy Framework

- Reading Borough Council (2019); Reading Borough Local Plan;
- Supplementary Planning Notes and Guidance;
 - RBC has adopted and is preparing a number of Supplementary Planning Documents (SPDs) to provide further guidance on policies set out in Local Plan documents;
- Technical reports and background evidence; and
 - These supplementary documents provide further advice for design and planning, including the Tall Building Strategy.

Other Guidance

79. In addition to any relevant planning policies that inform the scope, methodology or assessment of effects, as relevant, the technical topic chapters of the ES will present a summary of any pertinent recognised industry guidance documents.

EIA PROCESS AND METHODOLOGY

EIA Approach and Methodology

80. In addition to the EIA Regulations, there is also guidance available that has been referenced where appropriate, including but not limited to:
- In February 2020, the Withdrawal Agreement⁸ came into force that established the terms of the United Kingdom's orderly withdrawal from the European Union (EU). As the UK is no longer part of the EU, it is not required to adhere to EU laws (regulations, directives, decisions) or guidance. Nonetheless, reference has still been made to the European Commission's (EC's) various EIA guidance documents as these currently remain in line with the UK's EIA Regulations⁹, and therefore provide applicable guidance¹⁰;
 - At a domestic level, reference has been made to the Ministry of Housing, Communities and Local Government (MHCLG) overarching PPG;
 - In addition, the Highways England, 2020, Design Manual for Roads and Bridges 'Sustainability and Environment' – LA104 Environmental assessment and monitoring has been referred to as applicable;
 - In relation to publications from professional bodies, reference has been made to IEMA publications as these include best practice/suggested improvements to the EIA process. This includes:
 - IEMA ES Review Criteria (COM3-6)¹¹;
 - IEMA 'Guidelines for Environmental Impact Assessment' (2004)¹²;
 - IEMA 'Special Report into the State Environmental Impact Assessment Practice in the UK' (2011)¹³;
 - IEMA 'Shaping Quality Development' (2015)¹⁴;
 - IEMA 'Delivering Quality Development' (2016)¹⁵;

⁸ European Commission (2019); The EU-K Withdrawal Agreement. Available at: https://ec.europa.eu/info/strategy/relations-non-eu-countries/relations-united-kingdom/eu-uk-withdrawal-agreement_en

⁹ His Majesty's Stationery Office (HMSO) 2017. The Town and Country Planning (Environmental Impact Assessment) (England) Regulations 2017 (as amended in 2018 and 2020).

¹⁰ European Commission (n.d.); Environmental Impact Assessment. Available at: <http://ec.europa.eu/environment/eia/eia-support.htm>

¹¹ Institute of Environmental Management and Assessment, undated; EIA Quality Mark – ES Review Criteria COM 3-6.

¹² Institute of Environmental Management and Assessment, 2004, Guidelines for Environmental Impact Assessment.

¹³ Institute of Environmental Management and Assessment, 2011. The State of Environmental Impact Assessment Practice in the UK.

¹⁴ Institute of Environmental Management and Assessment, November 2015. Shaping Quality Development.

¹⁵ Institute of Environmental Management and Assessment, 2016; Delivering Quality Development.

- IEMA 'Delivering Proportionate EIA' (2017)¹⁶;
- IEMA 'Guide to Materials & Waste in EIA' (2020)¹⁷;
- IEMA 'Climate Change Resilience and Adaption' (2020)¹⁸;
- IEMA 'Major Accidents and Disasters in EIA: A Primer' (2020)¹⁹;
- IEMA 'Principles of Cultural Heritage Impact Assessment in the UK' (2021)²⁰;
- IEMA 'Assessing Greenhouse Gas Emissions and Evaluating their Significance' (2022)²¹;
- IEMA 'A New Perspective on Land and Soil in Environmental Impact Assessment' (2022);
- IEMA 'Determining Significance for Human Health in Environmental Impact Assessment' (2022)²²
- IEMA 'Effective scoping of Human Health in Environmental Impact Assessment' (2022)²³; and
- IEMA 'Environmental Assessment of Traffic and Movement' (2023)²⁴.

- Whilst primarily written for major infrastructure projects, reference is also made to guidance/advice notes published by the National Infrastructure Planning where appropriate; and

- Applicable case law.

81. The method behind the EIA process generally²⁵ considers the existing conditions of the area into which the development is being introduced (**the baseline**) and makes reasonable predictions of the likely change (**the impact** – in terms of magnitude) that may occur, during both its construction and when the development is completed and operating as proposed. The predicted impact is considered in terms of key environmental and social aspects (**receptor / resource**) found within the surrounding area, and based on their sensitivity to change, the resulting change experienced by the receptor / resource (**the effect**) is then determined. Any mitigation measures required in order to reduce or eliminate adverse effects are then considered and assessed, with the residual effect being determined as significant or not. The likely significant effects are then reported (within an **Environmental Statement**) for consideration by the relevant planning authority when considering whether to grant planning permission for a development.

Assessment Scenarios

82. The ES will consider the following main assessment scenarios:

- Baseline Year - of 2022/2023 (or an alternative baseline year as identified within the technical assessments);
- Demolition and Construction (including phasing, where applicable to each technical assessment);
- Opening Year – opening year of the fully completed and operational development; and

¹⁶ Institute of Environmental Management and Assessment, 2017; Delivering Proportionate EIA.

¹⁷ Institute of Environmental Management and Assessment, 2020; Guide to Materials and Waste in Environmental Impact Assessment

¹⁸ Institute of Environmental Management and Assessment, 2020; Climate Change Resilience and Adaption'

¹⁹ Institute of Environmental Management and Assessment, 2020, Major Accidents and Disasters Guidelines

²⁰ Institute of Environmental Management and Assessment, 2021; Principals of Cultural Heritage Impact Assessment in the UK

²¹ IEMA, 2022. Institute of Environmental Management and Assessment (IEMA) Guide to: Assessing Greenhouse Gas Emissions and Evaluating their Significance, 2nd Edition

²² Institute of Environmental Management and Assessment, 2022; Determining Significance for Human Health in Environmental Impact Assessment'

²³ Institute of Environmental Management and Assessment, 2022; Effective scoping of Human Health in Environmental Impact Assessment

²⁴ Institute of Environmental Management and Assessment, 1993 'Environmental Assessment of Road Traffic'

²⁵ There may be exceptions to the general approach described. Where there are exceptions, this will be clearly described within the relevant methodology section, outlining both the departure from the general EIA methodology and the description of the alternative approach.

- Cumulative – the Proposed Development with other surrounding development schemes, often referred to as ‘cumulative schemes’.

83. Where any future years are required to be assessed by the technical assessments, these will be clearly identified within the relevant technical ES Chapters.

84. The EIA will assess both planning applications (the main application and the temporary construction planning application) as the one EIA Development.

Baseline Conditions

85. Baseline assessments will utilise any existing and available information, as well as new information collected through baseline surveys undertaken during the EIA process.. This information will be used to present within the ES (within the individual technical chapters) an up-to-date description of the current baseline conditions of the site and surrounding area.

86. In accordance with industry best practice, some assessments (such as traffic and transport and air quality) when assessing the effects of the operation of the Proposed Development will include a projected environmental condition in the future (i.e., ‘future baseline’), at the projected year of opening of the Proposed Development (if relevant a different future year appropriate/specific for the technical assessment may be used). Where using a future baseline is more appropriate, this will be detailed in the relevant methodology of the technical assessment and be made clear in the ES.

87. In addition, as per the requirements of the EIA Regulations, consideration as to how the current baseline conditions may evolve in the future in the absence of the Proposed Development will also be presented in the ES (within the individual technical chapters). This likely evolution of the baseline conditions will be considered qualitatively, supplemented by quantitative information where relevant and will be used to support the assessment of cumulative development effects.

Demolition and Construction

88. The ES (within an ES chapter titled ‘Demolition and Construction’) will provide an outline of the anticipated construction programme and related activities and aspects (i.e. demolition, enabling works, substructure works, superstructure works etc., waste volumes and construction material quantities, HGV movements and HGV routing). In addition, the standard environmental controls required under legislation and best practice guidance (including relevant codes of construction practice) will be presented.

89. This information will inform the demolition and construction impact assessments. Throughout the demolition and construction impact assessments, the assumption will be made that the standard environmental controls required under legislation and best practice guidance are met as a matter of course.

90. The assessment of the potential impacts and likely significant effects arising during the demolition and construction works will be addressed within each of the individual technical assessment chapters of the ES. The demolition and construction assessments presented within the technical chapters of the ES will identify the need for any additional or bespoke environmental management or mitigation measures in order avoid, prevent, reduce or off-set any significant adverse effects identified.

91. Where required, a description of any proposed monitoring arrangements will also be presented and would define (where appropriate) the procedures regarding the monitoring of the relevant significant adverse effects, the types of parameters to be monitored and the monitoring duration.

92. All the measures proposed within the technical chapters will be compiled and presented in a mitigation and monitoring schedule (for ease of reference, to be presented in the ES as one of the concluding chapters).

93. It is anticipated that any required construction related environmental management / mitigation and monitoring measures would be secured and controlled through appropriate Construction Environmental Management Plans (CEMP) (or equivalent). It is proposed that the requirement for these documents be secured by means of a suitably worded planning condition to be attached to the permission (if

granted). Key mitigation and management controls that would later form part of a CEMP will be presented in the ES to help define the policies, procedures and management framework for the implementation of any identified specific environmental management and mitigation controls and monitoring.

Completed Development

94. The ES will present a description of the Proposed Development. Enough information on the Proposed Development, in terms of the key aspects (see below), will be presented to allow an understanding of the development being proposed, in order to enable the assessment of potential and likely significant environmental effects of the completed and operational development. Any assumptions made will be clearly presented in the narrative.

95. The ES (in a non-technical chapter titled ‘The Proposed Development’), will present information on the details of the development sought for approval (including but not limited to):

- Layout – building footprints;
- Means of access and egress and circulations – vehicular and pedestrian and cyclist accessibility into, out of and around the site;
- Scale – the massing, specifically heights of buildings;
- Amount of development – floors areas and uses classes, residential unit numbers and mix;
- Appearance – architectural detail and materiality of the Proposed Development;
- Landscaping – including planting strategy, species and habitats;
- Amenity space and children’s playspace – amount of provision and locations / facilities;
- Ecological enhancements;
- Flood resilience and resistance;
- Plant locations;
- Energy strategy;
- Deliveries and servicing strategy (including estimates of the types and quantities of waste anticipated, waste storage, handling and collection);
- Car parking, motorcycle parking, and cycle parking;
- Sustainability (including climate change resilience and adaptation (as relevant)); and
- Utilities (including potable / cold water supply, wastewater, below ground and surface water drainage, gas, electricity, telecommunications).

Cumulative Effects and Effect Interactions

96. The EIA will identify the potential for (a) Cumulative Effects and (b) Effect Interactions as described below.

Cumulative Effects

97. The EIA Regulations require that, in assessing the effects of a particular development proposal, consideration should also be given to the likely significant effects arising from the “*cumulation with other existing and/or approved projects*” (Schedule 4, 5(e)).

98. Cumulative effects can occur as interactions between the effects associated with a number of projects in an area (i.e. Cumulative Schemes) which may, on an individual basis be insignificant, but together (i.e. cumulatively), result in a significant effect. Cumulative effects arising from the Proposed Development in combination with identified Cumulative Schemes will be considered throughout the ES. The potential for cumulative effects arising during the construction works and once the Proposed Development is complete and operational will be considered. Each individual technical chapter of the ES will present an assessment of the cumulative effects of the Proposed Development coming forward

alongside the Cumulative Schemes.

99. The Cumulative Schemes that will be considered within the ES will typically be located within a 1km radius from the centre of the site, as this spatial extent is considered appropriate for determining cumulative effects in this context.
100. It is acknowledged that for certain topics of the EIA (specifically townscape and visual), there is a need to consider more distant schemes within the cumulative effects assessment. This is entirely appropriate, given the view locations associated with the townscape and visual effects assessment.
101. Generally, the cumulative schemes will either have:
 - Full planning consent or a resolution to grant consent; and
 - Produce an uplift of more than 10,000 square meters (Gross External Area (GEA)) of mixed-use floorspace, or over 150 residential units.
102. In addition, any office to residential conversions (granted under the General Permitted Development Order) giving rise to >150 residential units will be considered.
103. These parameters have been set to allow all the schemes coming forward within the area of the site to be subject to an initial screening exercise to determine the schemes that, based on the scale of development (amount and mix of uses), could potentially have a cumulative effect with the Proposed Development and should be considered further within the cumulative effects assessment of the EIA.
104. By applying these parameters to all the schemes coming forward, the cumulative effects assessment of the EIA becomes more focused on the larger schemes (i.e. those with the potential to interact in a cumulative manner), rather than trying to assess all, including the smaller, domestic applications such as loft and garage conversions and changes of use. Each technical chapter of the ES will be clear on the Cumulative Schemes that have been considered within the cumulative effects assessment of the topic in question, including a reasoning behind their inclusion. Where Cumulative Schemes are 'screened out' of the cumulative effects assessment, the reasoning for doing so will be presented.
105. Other schemes that are under construction, where the construction works are significant progressed or where early phases are occupied, will be factored into the baseline conditions as appropriate.
106. In some instances, cumulative developments that are under construction, where the construction works are significantly progressed or where early phases are occupied, will be factored into the baseline conditions. This will be clearly set out within each individual topic's cumulative assessment methodology text.
107. A preliminary list of cumulative schemes for consideration within the EIA has been identified and is presented in **Appendix A**.
108. The Minster Quarter site, as subject to the Minster Quarter Development Framework, is located adjacent to the south of the site. This will be considered qualitatively within the ES, considering the information provided within the Development Framework.
109. To allow for consideration of the Minster Quarter Development Framework, a two-stage cumulative scheme assessment will be undertaken. This will consider a scenario where all of the identified cumulative schemes are considered along with the Proposed Development, and a second scenario which considers the Minster Quarter with the Proposed Development.

Effect Interactions

110. Effect interactions occur as interactions between effects associated with just one project, i.e. the combination of individual effects arising as a result of the Proposed Development, for example effects in relation to noise, airborne dust or traffic on a single receptor.
111. Effect Interactions from the Proposed Development itself on particular receptors at the site will be considered during the construction works and also once the Proposed Development is completed and operational. 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 effect interactions. It should be noted that only residual effects that are of minor, moderate or major significance, will be considered within this assessment. Residual effects of negligible or neutral significance will be excluded from this assessment by virtue of their definition, they are considered to be imperceptible.

112. There is no established methodology for assessing the impact of cumulative effects and effect interactions on a particular receptor. Therefore, a significance threshold will not be applied to the combination of individual effects, instead the effect interaction will be discussed and where possible, professional judgement will be applied to determine whether the effect interaction is considered significant.
113. Consideration of effect interactions will be presented within the ES in a separate chapter titled 'Effect Interactions'.

DETERMINING EFFECT SIGNIFICANCE – TERMINOLOGY AND APPROACH

Reference to 'Impact' and 'Effect'

114. It is noted that the terms 'impact' and 'effect' are distinctly different. Having gained an understanding of the likely impact it is then important to know whether the change in environmental or socio-economic conditions results in a significant environmental effect. The impacts of the Proposed Development may or may not result in significant effects on the environment, depending on the sensitivity of the resource or receptor and potentially other factors (such as duration). The assessment of the likely significant effects of the development is a requirement identified by Schedule 4 of the EIA Regulations.

Receptor Sensitivity and Magnitude of Impact

115. To achieve a consistent approach across the different technical disciplines addressed within the ES (Volume 1), assessments will broadly define the sensitivity of the receptors that could be affected by the Proposed Development and the magnitude of impact or change from the baseline conditions in order to derive the resultant effect.
116. Terminology to describe the sensitivity of receptors and magnitude of impact or change from the baseline conditions is broadly as follows:
 - High;
 - Medium;
 - Low; and
 - No Impact (in relation to magnitude of impact or change only).
117. Each of the technical assessment chapters of the ES (Volume 1) will provide further detail on the definition of each of the above terms specific to the topic in question and will also provide the criteria, including sources and justifications, for quantifying the different levels of receptor sensitivity and 'impact magnitude'. Where possible, this will be based upon quantitative and accepted criteria (for example, national standards for air quality and noise), together with the use of value judgement and expert interpretation.
118. Alternatively, some technical assessment chapters may differ in the terminology adopted to describe the magnitude of impact or change from the baseline conditions. Where this occurs, the alternative terminology adopted will be clearly set out within the individual ES chapter.

Identification of a Resultant Effect

119. The basis for determining the resultant effect generally takes into account the sensitivity of the receptor and magnitude of impact or change from the baseline conditions. A generic matrix that combines the sensitivity of the receptor and the magnitude of impact to identify the resultant effect is provided within **Table 2**.

Table 2 Resultant Effects

Receptor Sensitivity	Magnitude of Impact			
	High	Medium	Low	Negligible
High	Major	Major	Moderate	Minor
Medium	Major	Moderate	Minor	Negligible
Low	Moderate	Minor	Negligible	Negligible
Negligible	Minor	Negligible	Negligible	Negligible

Scale of Effect

120. Table 3 provides the broad definition of the ‘scale’ of the resultant effect i.e. definitions of Major, Moderate, Minor and Negligible effects. The definitions may be adjusted to suit the technical topic in question; where this is the case revised definitions of effect scale will be presented in the technical assessment chapters of the ES (Volume 1) and in ES Volume 2.
121. Where there is ‘No Effect’ this will be stated.

Table 3 Broad Definitions of the Scale of the Resultant Effect

Type of Effect	Description
Major	These effects may represent key factors in the decision-making process. Major effects generally result from receptors of high sensitivity (such national importance or likely to be important considerations at a regional or district scale) and/or impacts of a high magnitude (such as the loss of large areas of land). Major effects can also result from receptors of medium sensitivity combined with an impact of a high magnitude, or receptors of high sensitivity combined with an impact of a medium magnitude.
Moderate	These effects, if adverse, are likely to be important at a local scale and on their own could have a material influence on decision-making. Moderate effects generally result from receptors of medium sensitivity combined with an impact of a medium magnitude. Moderate effects can also result from receptors of low sensitivity combined with an impact of a high magnitude, or receptors of high sensitivity combined with an impact of a low magnitude.
Minor	These effects may be raised as local issues and may be of relevance in the detailed design of the project but are unlikely to be critical in the decision-making process. Minor effects generally result from receptors of medium sensitivity combined with an impact of a low magnitude, or receptors of low sensitivity combined with an impact of a medium magnitude.
Negligible	Effects which are beneath levels of perception, within normal bounds of variation or within the margin of forecasting error, these effects are unlikely to influence decision making, irrespective of other effects. Negligible effects generally result from receptors of low sensitivity, combined with an impact of a low magnitude.

Effect Nature

122. Table 4 provides definitions of the ‘nature’ of the resultant effect i.e. definitions of Adverse and Beneficial.

Table 4 Definition of the Nature of the Resultant Effect

Type of Effect	Description
Adverse	Detrimental or negative effects to an environmental / socio-economic resource or receptor. The quality of the environment is diminished or harmed.
Beneficial	Advantageous or positive effect to an environmental / socio-economic resource or receptor. The quality of the environment is enhanced.
Neutral	On balance, the effect is considered neither beneficial nor adverse overall, having made a ‘net equation’ judgment that takes into account both beneficial and adverse impacts

Geographic Extent of Effect

123. The ES (Volumes 1 and 2) will identify the geographic extent of the identified effects. At a spatial level, ‘site’ or ‘local’ effects are those affecting the site and neighbouring receptors, while effects upon receptors in RBC beyond the vicinity of the site and its neighbours are considered to be at a ‘district / borough’ level. Effects affecting Berkshire are considered to be at a ‘regional’ level, whilst those which affect different parts of the country, or England as a whole, are considered being at a ‘national’ level.

Effect Duration

124. For the purposes of the ES, effects that are generated as a result of the construction works (i.e. those that last for this set period of time) will be classed as ‘temporary’; these maybe further classified as either ‘short term’ or ‘medium-term’ effects depending on the duration of the construction works that generate the effect in question. Effects that result from the completed and operational phases of the Proposed Development will be classed as ‘permanent’ or ‘long-term’ effects.

Direct and Indirect Effects

125. The ES will identify whether the effect is ‘direct’ (i.e. resulting without any intervening factors) or ‘indirect’ or ‘secondary’ (i.e. not directly caused or resulting from something else).

Residual Effects

126. Where mitigation measures are identified to either eliminate or reduce adverse effects, these will be incorporated into the ES, for example either through the design, or will be translated into construction commitments; or operational or managerial standards / procedures.
127. The ES will then highlight the ‘residual’ effects (those effects which remain following the implementation of suitable mitigation measures).

Effect Significance

128. Following identification of an effect, the effect scale, nature, geographic extent and duration using the above summarised terminology, a clear statement will then be made within the ES as to whether the effect is significant or not significant. As a general rule, the following applies:
 - ‘Moderate’ or ‘major’ effects are deemed to be ‘significant’.
 - ‘Minor’ effects are considered to be ‘not significant’, although they may be a matter of local concern; and
 - ‘Negligible’ effects are considered to be ‘not significant’ and not a matter of local concern.
129. Where mitigation measures are identified to either eliminate or reduce likely significant adverse effects, these will be incorporated into the ES, for example either through the design, or will be translated into construction commitments; or operational or managerial standards / procedures. These measures will be compiled in a Mitigation and Monitoring Schedule, included in the ES as a separate chapter.
130. The ES will then highlight the ‘residual’ likely significant effects (those effects which remain following the implementation of suitable mitigation measures) and classifies these in accordance with the terminology defined above.

TOPICS WITH THE POTENTIAL FOR LIKELY SIGNIFICANT EFFECTS

Socio-Economics

Introduction

131. The ES will include an assessment of the likely socio-economic effects of the Proposed Development associated with both the construction phase and completed development i.e. operational phase. The assessment will be undertaken by Trium Environmental Consulting LLP.

Baseline

132. The site is situated within a West Side Major Opportunity Area, specifically 'CR12d – Broad Street Mall', of the Reading Borough Local Plan, and currently comprises existing retail space and office space at Broad Street Mall. The area immediately surrounding the site is dominated by retail and office uses of varying density and some of poor quality.
133. The refurbishment and regeneration of the site would provide an important regeneration opportunity for the area in terms of the provision of new homes, creation of new jobs which would provide longer term socio-economic benefits to the area. The Proposed Development will attract additional population in the locality, which would place additional demand on local recreational spaces, healthcare and educational facilities in the vicinity of the site.
134. A detailed assessment of the baseline conditions will be considered as part of the socio-economic assessment. This will include a review of the relevant local demographic, social and economic characteristics of the area surrounding the site, including the availability of local social infrastructure.
135. Baseline conditions will be assessed at several geographic levels, including the site level (where data is available at this spatial level), the local area (Abbey Ward), the borough (Reading Borough Council (RBC)), the County (Berkshire) and regional area (South East England).
136. The baseline review will consider available information relating to the site from the current owners and from publicly available data base records for the study area. This includes the following sources:
- Office for National Statistics (ONS) and NOMIS;
 - Business Register and Employment Survey (BRES) and Labour Market Statistics;
 - Indices of Multiple Deprivation (2019);
 - NHS Choices and NHS Digital (2022); and
 - RBC and UK Government data.
137. The most recent published sources will be used in doing so – data sources published in 2022/23 will be used where possible, but where this is not available the next best alternative (i.e. the most up to date) will be used. This may also be relevant where data is still influenced by the Covid-19 pandemic, and where applicable will be detailed within the ES chapter.

Sensitive Receptors

138. Receptors are likely to include, but may not be limited to:
- Existing uses on-site;
 - The local economy and labour market i.e. local businesses and economically active residents;
 - The local housing market;
 - Local social infrastructure and its users, specifically:
 - Primary schools within a 2 mile (3.2km) radius of the site;
 - Secondary schools across the Borough (Reading);
 - GP surgeries within a 1 mile (1.6km) radius of the site; and

- Open space and playspace within 1km radius of the site.

139. The Proposed Development will also introduce new residents to the site which will be sensitive to socio-economic impacts.
140. It is not possible to ascribe specific 'values' or a quantifiable scale of 'sensitivity' to all socio-economic receptors due to their diversity in nature and scale. The assessment will therefore focus on the qualitative "sensitivity" of each receptor, and on their ability to respond to change created by the Proposed Development.

Potential Effects

141. Based on the sensitive receptors and impacts outlined above, the Proposed Development is expected to generate a range of socio-economic effects during demolition and construction and once operational.
142. The assessment will consider the potential for the following likely significant effects:
- Loss of existing employment;
 - The generation of temporary employment opportunities during the construction phase;
 - Creation of permanent employment opportunities once operational;
 - Delivery of new homes contributing to local housing targets;
 - Increased demand for social infrastructure as a result of the increase in the residential population, specifically GP surgeries, education and open space and playspace provision; and
 - Spending effects associated with the residents and employees brought to the site by the Proposed Development.

Assessment Methodology

143. There are no published standards or technical guidelines that set out a preferred methodology for assessing the likely socio-economic effects of a development. However, there are a series of commonly used methodologies for quantifying economic effects both during the construction of a development and following its completion. Where possible, the likely significant socio-economic effects will be quantified, but where this is not feasible, a qualitative assessment will be provided using professional judgement and experience. The following section summarises the approach that will be used to conduct the assessment. Full details of the methodology including all sources and references will be provided as part of the ES. The proposed methodology will include:
- Identification and assessment of likely effects, using appropriate modelling techniques where necessary. This will include:
 - An estimation and quantification of any existing on-site Full Time Equivalent (FTE) jobs lost as a result of the Proposed Development. These will be estimated using existing floorspace schedules and relevant employment densities based on the Homes and Communities Agency's (HCA) Employment Density Guide 3rd Edition (2015), unless more specific figures can be provided by the Applicant;
 - An estimation of the FTE jobs generated during the construction phase. This will use data on construction spend estimates and use Homes and Communities Agency labour co-efficient ratios to derive estimates of the likely number of temporary construction workers per annum during the construction phase;
 - An estimation and quantification of the FTE jobs created by the completed and operational Proposed Development. On-site jobs will be estimated using established HCA employment density ratios. Off-site jobs will be estimated using standard HCA Additionality Guide (2014) multipliers;
 - Delivery of housing will be assessed against the Reading Borough Local Plan (2019) housing targets, in the context of recent housing delivery performance;

- The estimated population to be accommodated by the Proposed Development will be based on the proposed residential mix of units applied to the average household size (1.99 persons per household) for the local Abbey Ward area, derived from the Census 2011, unless the Census 2021 average is available at the time of writing the ES chapter;
- Estimates of child yields will be calculated using the following yield factors unless the Council have revised metrics they would prefer be utilised:

Age Group	1 bed	2 bed	3 bed
Early Years	0.09	0.32	0.33
Primary School	0.02	0.19	0.35
Secondary School	0	0.05	0.2
Post 16	0	0.02	0.06

- An assessment on the demand for state-funded education facilities – based on the above-mentioned child yields and against available baseline data on existing school capacities;
 - An assessment on the demand for Primary Healthcare Facilities (GP surgeries) – based on the total population of the Proposed Development (calculated as noted above) will be assessed against the baseline, in line with the Healthy Urban Development Unit (HUDU) benchmark of 1,800 registered patients per NHS FTE GP;
 - A qualitative assessment on the impact to open space and child play spaces; and
 - An estimation and quantification of the additional expenditure created by the completed and operational Proposed Development. Household expenditure would be estimated using the ONS Family Expenditure Survey (FES), with employee expenditure estimated based on thresholds set out within the HMRC Employment Income Manual²⁶ for daily meal allowances as well as local retail assessments (£10 per person, per working day);
- Following this assessment, any required mitigation or monitoring shall be identified;
 - Consideration will be given to the potential for cumulative effects associated with the Proposed Development and other surrounding Cumulative Schemes on the receptors identified previously;
 - The assessment will conclude with a summary of the likely significant socio-economic effects.

Conclusion

144. As noted above, it is concluded that the Proposed Development could potentially give rise to significant residual effects with respect to Socio-Economics. Therefore, it is proposed Socio-Economics is **SCOPED IN** to the EIA.

Air Quality

Introduction

145. The air quality assessment will be undertaken by Air Pollution Services (APS) and will address the key air quality impacts and effects associated with the construction and operation of the Proposed Development and will identify appropriate mitigation measures as necessary.

146. Air Quality is **SCOPED IN** to the EIA.

Baseline Conditions

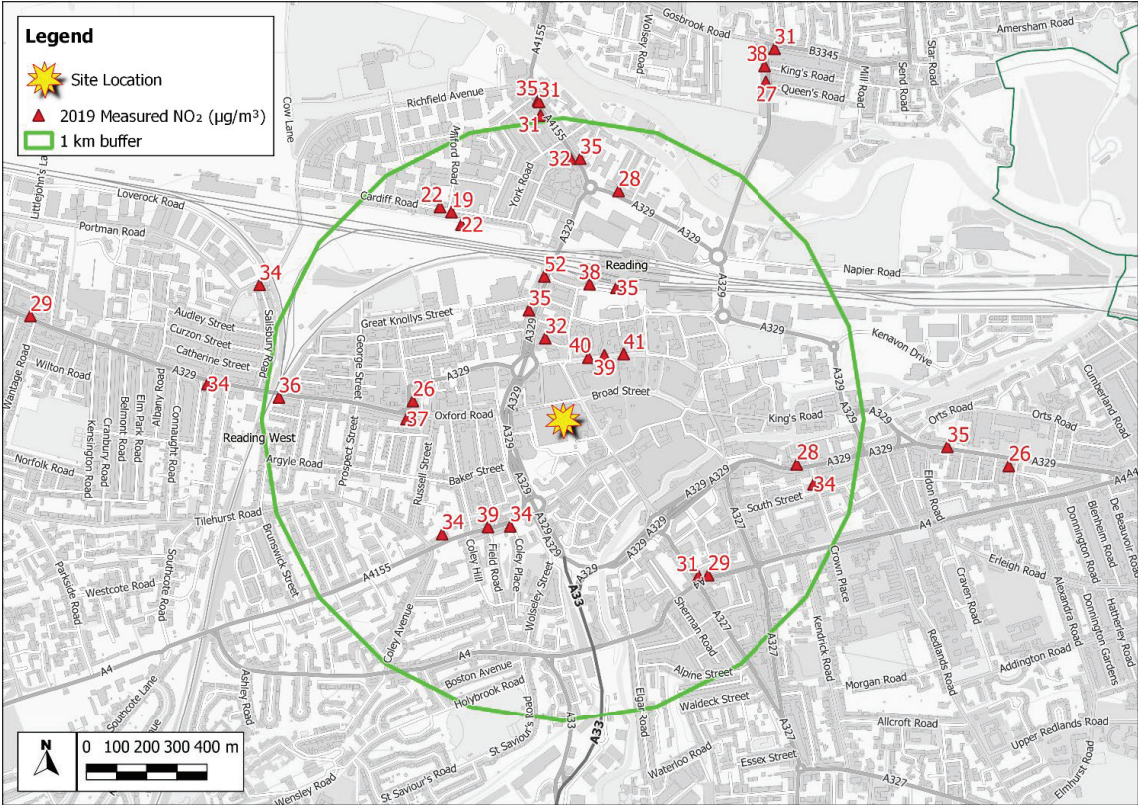
Current Baseline Conditions

147. The Proposed Development lies within Reading Borough, which currently has an Air Quality

Management Area (AQMA) occupying the centre of reading and the main arterial roads. The Proposed Development sits approximately within this area. The Reading AQMA was declared for exceedances of the annual mean nitrogen dioxide (NO₂) Air Quality Objective (AQO).

148. Reading Borough Council monitors concentrations of NO₂ and PM₁₀ at four automatic monitoring stations, and PM_{2.5} at one of the above four automatic monitoring stations within the borough, all of which are located approximately 1 km or more away from the Proposed Development. The Council also measures NO₂ using 60 passive monitors (diffusion tubes), of which there are many located within 1 km of the Proposed Development, as shown in Figure 4. The measured NO₂ concentrations (µg/m³), shown in the figure for the year 2019, have been taken from the Reading Borough Council's Air Quality Annual Status Report for 2020²⁷.

Figure 6 Monitoring Station Locations (with 2019 Annual Mean NO2 Concentrations) and Proposed Development Location



149. Measured NO₂ concentrations approximately 200 m north of the application site shown in Figure 1 ranged between 39 – 41 µg/m³ (AQO 40 µg/m³). These sites are located along Friars Street and Friars Walk. Of these three sites, only Friars St (Nando's) has historic measurements. Measurements at this location have been consistently above the AQO between 2015 and 2019 with concentrations ranging between 41 – 52 µg/m³. These monitoring stations are located close to a main road, which is a key source of pollution. The Proposed Development is located both close to major roads and away from roads depending on which part of the site is being considered.
150. In the wider 1 km area, there has been a mix of both decreasing and increasing trends at the different diffusion tube monitoring sites. It is, however, expected that concentrations will reduce in the future with the increasing uptake of electric and hydrogen fuelled vehicles.
151. Baseline concentrations of NO₂, PM₁₀ and PM_{2.5} at sensitive receptors will be predicted using dispersion modelling (see 'Scope of Assessment' section below), based on existing relevant traffic flows on local

²⁶ HMRC, January 2023, HMRC Internal Manual – Employment Income Manual, <https://www.gov.uk/hmrc-internal-manuals/employment-income-manual/eim30240>

²⁷ Reading Borough Council (2020) Air Quality Annual Status Report for 2020, taken from: <https://www.reading.gov.uk/climate-and-pollution/2020-air-quality-annual-status-report-asr/>

roads and car parks, and taking account of current background pollutant concentrations.

Future Baseline Conditions

152. Air quality is expected to improve into the future due to more stringent emission standards for motor vehicles, stricter air quality legislation, improvements in technology, and a greater uptake of renewable technologies. Air quality in the local area is therefore expected to improve in the future, including at the site even in the event that the Proposed Development is not implemented. Future baseline conditions will be estimated based on background and roadside predictions from the Department for Environment, Food and Rural Affairs (Defra). Consideration will be given to account for the likelihood of predicted vehicle emission reductions not occurring in line with Defra's forecasts.

Receptors

153. During the earthworks and construction phase of works, potentially sensitive receptors in the local area and within the site (as it is phased) will include residential dwellings and retail facilities (medium and high sensitivity receptors). Receptor locations will be identified following a desk-based exercise using detailed maps, satellite imagery, and plans of the site. The assessment will consider the potential for impacts within 350 m of the Proposed Development site boundary, within 50 m of the routes to be used by construction vehicles, and up to 500 m from the Proposed Development site entrance(s), as set out in the Institute of Air Quality Management (IAQM) Construction Dust Guidance .
154. Once the Proposed Development is completed and operational, potentially sensitive receptors in the local area and within the Proposed Development itself will include residential dwellings and locations where members of the public would be expected to spend one hour or more, such as local parks, roof gardens and outdoor retail areas, etc. These selected receptors will be classified as being high sensitivity receptors. Receptor locations will be identified following a desk-based exercise using detailed maps, satellite imagery, and plans of the site. The locations selected will be dependent on the layout of the Proposed Development, the location of exhausts serving any proposed on-site combustion plant and car parks, and the volume and routing of traffic generated by the Proposed Development. The receptors will be identified to represent a range of exposure but will focus on worst-case locations closest to the sources of emissions.

Potential Effects

Demolition and Construction

155. Potential significant air quality effects as a result of demolition works and the subsequent construction of the Proposed Development relate to the following:
- Impacts of dust and PM10 emissions during demolition and the construction of the Proposed Development;
 - Impacts from non-road mobile machinery (NRMM) emissions; and
 - Impacts of emissions from construction traffic (including both heavy goods vehicles (HGVs) and light duty vehicles (LDVs)).
156. Appropriate mitigation measures associated with the minimisation of potential dust and elevated PM10 concentrations, to be applied during demolition and construction works, will be identified within the air quality assessment. With the mitigation measures in place, it is expected that residual demolition and construction dust and PM10 effects will be 'not significant'.
157. Suitable mitigation measures for construction plant will be identified based on advice presented in the IAQM guidance documents. It is expected that residual NRMM effects as a result, will be 'not significant'.
158. If construction traffic impacts cannot be screened out, the potential for significant air quality effects resulting from changes in vehicle emissions on local roads will be assessed and, if necessary, appropriate mitigation measures will be identified. This will be determined upon evaluation of construction traffic data.

Completed Development

159. The potential for significant air quality effects as a result of the operation of the Proposed Development will be addressed by considering the following:

- Impacts at local existing sensitive receptors from additional pollutant emissions generated during the operation of the Proposed Development due to changes in road traffic, changes in streetscape, any on-site combustion plant and car parking; and
- Impacts on the future occupants and users of the Proposed Development from existing sources of pollution combined with the additional pollutant emissions from changes in traffic flows, streetscape, and on-site combustion plant and car parking.

160. The potential for significant air quality effects associated with the operation of the Proposed Development will be determined based on predicted impacts at potentially sensitive receptors, compliance with the UK's limit values and professional judgment, using the EPUK and the IAQM guidance²⁸. If significant effects are identified, appropriate mitigation measures will be identified to reduce the potential impact so that, where possible, residual air quality effects are not significant.

Methodology

Demolition and Construction

161. During demolition and construction, dust and PM₁₀ emissions can be released into the air. Emissions will vary substantially from day to day, depending on the level of activity and the specific operations being undertaken, along with the influence of the weather conditions. An assessment of potential dust impacts will be carried out using a risk-based approach developed by the Institute of Air Quality Management (IAQM), taking account of the likely activities carried out and the areas over which they will occur.
162. Mitigation measures will be incorporated into a Dust Management Plan (DMP) and/or Construction Environmental Management Plan (CEMP) (or equivalent).
163. Guidance from the Institute of Air Quality Management (IAQM) states that "experience from assessing the exhaust emissions from on-site plant (also known as non-road mobile machinery or NRMM) [...] suggests that they are unlikely to make a significant impact on local air quality and in the vast majority of cases they will not need to be quantitatively assessed". On this basis, significant effects as a result of NRMM emissions can thus be discounted. However, suitable mitigation measures for construction site plant will be presented as part of the mitigation measures based on advice presented in the IAQM guidance documents.
164. The number of vehicles associated with the demolition and construction works will be compared to screening criteria set out in EPUK and IAQM guidance. If the number of vehicle movements is above this threshold (i.e. >25 HGVs or >100 LDVs), a detailed assessment will be undertaken using the ADMS-Roads dispersion model with the latest vehicle emission factors available. The focus of the assessment would be on NO₂, PM₁₀ and PM_{2.5} concentrations, as these are likely to be the main pollutants of concern. This will include predicting concentrations at potentially sensitive receptors in the local area and the significance of the air quality effects would be determined following the EPUK and IAQM guidance, and appropriate mitigation measures will be identified, as necessary, based on the outcomes of the assessment.

Completed Development

165. Pollutant emissions generated by changes in road traffic associated with the Proposed Development, changes in streetscape, and emissions from any on-site combustion plant, may impact upon local air quality for both existing sensitive receptors and future sensitive receptors introduced as part of the Proposed Development.
166. To assess the effects of changes in vehicle emissions, including consideration of vehicles using local roads and the on-site car parking, a detailed modelling study will be undertaken using the ADMS-Roads dispersion model with the latest vehicle emission factors available. The focus of the assessment will be on NO₂, PM₁₀ and PM_{2.5} concentrations, as these are likely to be the main pollutants of concern. This will include predicting concentrations at potentially sensitive receptors in the local area for three scenarios;

²⁸ EPUK & IAQM (2017) Land-Use Planning & Development Control: Planning For Air Quality

- Baseline year, which will be based on the most current full year of monitoring data available that is not affected by the Covid-19 Pandemic (i.e. 2019);
 - Opening year (future baseline - 2029) without the Proposed Development, including traffic generated by relevant cumulative schemes; and
 - Opening year (future baseline - 2029) with the Proposed Development, including traffic generated by relevant cumulative schemes and the Proposed Development itself.
167. The Proposed Development is anticipated to be phased; therefore an interim year may be assessed as part of the air quality assessment. This will be determined as further detail in regard to the phased nature of the scheme is available.
168. Baseline concentrations will be compared against appropriate monitoring data from Reading Borough in order to verify the model, following the methodology set out in the Department for Environment, Food and Rural Affairs (Defra) Local Air Quality Management Technical Guidance (TG16) guidance document²⁹. Consideration will be given to account for the likelihood of predicted vehicle emission reductions not occurring in line with Defra's forecasts.
169. For any on-site combustion plant, if the effects cannot be screened out against criteria sets out within the EPUK and IAQM guidance, then a quantitative assessment of the impacts of the emissions from combustion plant will be carried out using the ADMS-5 dispersion model. This will be based on information relating to the plant and their emissions, as well as utilisation of the plant and location of the exhaust flues. This will include predicting concentrations at potentially sensitive receptors in the local area assuming the Proposed Development is operational.
170. The concentrations as a result of the Proposed Development will be compared to the AQOs using the guidance set out by EPUK and the IAQM3 and with regards to compliance with the limit values, in order to derive the impacts and significance of the Proposed Development.

Effect Significance

Demolition and Construction

171. The IAQM guidance on the assessment of dust from demolition and construction states that the primary aim of the risk assessment is to identify site specific mitigation that, once implemented, should ensure that there will be no significant effect. Assuming the relevant mitigation measures outlined in the mitigation section are implemented, the residual effect from dust generating activities associated with this phase of the Proposed Development will be considered to be 'not significant'.

Completed Development

172. The approach developed by EPUK and the IAQM3 will be used for assessing the overall significance of effects based on the predicted impacts upon AQOs and limit value compliance. The guidance states that the assessment of significance should be based on professional judgement, with the overall air quality effect of the Proposed Development described as either 'significant' or 'not significant'.
173. In determining the significance, the following factors will be taken into account:
- the existing and future air quality in the absence of the Proposed Development;
 - the extent of current and future population exposure to the air quality impacts associated with the Proposed Development;
 - the introduction of new exposure to poor air quality within the Proposed Development;
 - the influence and validity of any assumptions adopted when predicting impacts;
 - the potential for cumulative impacts:
 - When considering the cumulative interaction of impacts, a number of different components are considered to identify whether effects should be considered significant, with the resulting classification based on professional judgement. E.g., where several impacts that are described individually as "slight" could, when considered together, have a significant effect

²⁹ Defra (2021) Local Air Quality Management Technical Guidance (TG16)

- overall, especially where it is proving difficult to reduce concentrations of a pollutant. Conversely, a "moderate" or "substantial" impact may not result in a significant effect if confined to a very small area, and where it is not obviously the cause of harm to human health;
- the judgement on significance relates to the consequences of the impacts:
 - i.e. will they have an effect on human health that could be considered as significant? In the majority of cases, the impacts from an individual development will be insufficiently large to result in measurable changes in health outcomes that could be regarded as significant by health care professionals;
 - consideration of World Health Organization's (WHO) guideline values for pollutants. These are particularly important to consider where there is a high density of people, such as for residential apartments and shopping centres. In addition, the recent (December 2020) coroners court case investigating Ella Abdoo Kissi-Debrah's death in 2013 concluded that air pollution was a significant contributing factor to both the induction of Ella's asthma and the exacerbation of her symptoms, due to exposure in exceedance of WHO guideline values for pollutants;
 - consideration of the reduction of PM2.5 annual mean concentration in the Environment Act 2021; and
 - consideration of the private member's bill into the House of Lords on Clean Air (Human Rights) in 2022 which will have its second reading in the House of commons on the 24th February 2023.
174. Where mitigation measures are identified to either eliminate or reduce likely significant adverse effects, these will be incorporated into the ES.
175. The ES will then highlight the 'residual' likely significant impacts (those effects which remain following the implementation of suitable mitigation measures) and classify these in accordance with the approach set out above.

Cumulative Effects

176. The potential for cumulative air quality effects from road traffic and combustion plant emissions associated with the Proposed Development in combination with other Cumulative Schemes within the local area will be considered both in relation to cumulative demolition and construction related air quality effects and effects associated with the completed and operational scheme. The cumulative assessment will be undertaken using publicly available data, with the assessment approach to be determined after reviewing the level and type of information available.
177. As explained within the methodology section above, the air quality assessment will consider a cumulative assessment considering other surrounding schemes (as noted within **Appendix A** of this Scoping document) and the Proposed Development.

Climate Change

Introduction

178. The need to consider climate within an EIA is stipulated by the EIA Regulations which outline a requirement for a description of 'the impact of the project on climate' and 'the vulnerability of the project to climate change' (Schedule 4, paragraph 5(f)). Based on this requirement and that it is considered that there is the potential for likely significant effects relating to climate change resilience and impact, this topic shall be assessed and will be undertaken by The Climate Consultants (TCC).
179. Climate Change is **SCOPED IN** to the EIA.
180. The Climate Change ES Chapter shall:
- Define the project's baseline conditions;
 - Identify relevant project receptors; and
 - Assess:
 - a. the potential for climate change and GHG impacts throughout the enabling, construction and operational phases of the development;

- b. the likely significant climate change and GHG effects;
- c. any required mitigation or monitoring to address identified likely significant adverse climate change and GHG effects; and
- d. the potential for cumulative climate change and GHG impacts.

The Proposed Development's Potential Impact on Climate – GHG Emissions

181. The greenhouse gas (GHG) assessment will address the key greenhouse gas impacts and effects of the Proposed Development associated with the demolition and construction phase, the activities associated with the operation of the Proposed Development during its lifetime and the decommissioning at the Proposed Development's end of life.

Baseline Conditions

Current Baseline Conditions

182. Baseline GHG emissions for the Application Site located in Reading, South East and the UK will be estimated using a variety of databases, including the National Atmospheric Emission Inventory (NAEI), the Committee on Climate Change (CCC), the Department for Business, Energy and Industrial Strategy (BEIS), and the Department for Environment, Food and Rural Affairs (Defra).

Receptors

183. The assessment of GHGs does not typically include identification of sensitive receptors, as GHG emissions do not exclusively affect specific locations or receptors but leads to impacts on the global climate through indirect effects by contributing to climate change. The assessment will consider the effects on the global climate in the context of Reading, South East and UK wide scales.

Potential Effects

184. The potential for significant GHG effects as a result of the Proposed Development will consider the following:

Demolition and Construction

- Embodied carbon from the extraction, manufacture, transportation, assembly, replacement, and deconstruction of materials used to construct the Proposed Development.
- Direct emissions from the transportation of demolition and construction materials and earthworks, as well as construction workers accessing the site.
- Direct emissions from non-road mobile machinery.

Completed Development

- Direct emissions from road or other traffic generated due to the Proposed Development.
- Direct emissions from any on-site combustion plant.
- Indirect emissions from imported consumables, including power, fuel usage, and water usage.
- Direct emissions from any on-site refrigerant accidental leakages.
- Embodied carbon from building occupant consumables, such as food, commodities, and waste.
- Embodied carbon from repair, maintenance, and refurbishment of the building during its lifetime.

Decommissioning

- Direct emissions from transportation of materials.
- Direct emissions from non-road mobile machinery.

185. The potential for significant GHG effects as a result of the Proposed Development will consider the following:

186. The main direct and indirect GHGs of concern for the Proposed Development are carbon dioxide (CO₂), nitrogen oxides (NO_x), dust and fine particulate matter (PM₁₀ and PM_{2.5}).

187. The assessment will not consider the impacts of Covid-19 on GHG emissions, as there remains too

much uncertainty at this stage to consider this explicitly.

188. The potential for significant effects associated with the Proposed Development will be determined based on predicted changes in GHG emissions and professional judgement. This will include specifying the Proposed Development's contribution to Reading, South East and the UK's carbon budgets for each five-year budget period. The overall significance will be based on a blended quantitative-qualitative approach, including guidance from the Institute of Environmental Management and Assessment (IEMA)³⁰, the Task Force on Climate-related Financial Disclosures framework³¹, ISO guidance³², PAS 2050 specifications³³, the Department of Energy and Climate Change (DECC)³⁴ guidance, and the EU Emissions Trading system³⁵. This will include consideration of the impact magnitudes and receptor sensitivities when describing the significance of effects of GHG emissions.

Methodology

189. The assessment will be undertaken in line with the IEMA guidance, taking account of all relevant national, regional, and local policies relating to GHG emissions, and will include a summary of mitigation measures designed into the scheme to prevent, reduce, and offset its GHG emissions.

Policy and Legislation

190. The Climate Change ES Chapter will refer to the Local, Regional (where applicable) and the National Planning Policy Framework (and any associated guidance available) with reference to all environmental, social, and economic policies of relevance to the proposed development.

Demolition and Construction

191. The Proposed Development will lead to embodiment and release of GHGs during demolition, construction works. The embodied carbon (as carbon dioxide equivalent (CO₂e)) in the materials used to construct the Proposed Development will be calculated using carbon factors for individual materials (including production and transport), based on published information from The Inventory of Carbon and Energy (ICE) produced by the University of Bath and other databases. This can be used to identify potential low-carbon alternatives, which may be built into the design as mitigation. If details of the individual materials are not known at the application stage, then embodied carbon may be approximated based on conservative estimates derived from a range of published information.

192. GHG emissions from construction traffic will be predicted using Defra's Emission Factor Toolkit (EFT)³⁶ and the BEIS's GHG conversion factors³⁷, taking account of traffic volumes, distances travelled and vehicle types.

193. Consideration will also be given to GHG emissions from non-road mobile machinery ('NRMM'), including the energy and fuel use associated with construction plant and facilities used within the demolition and construction activities. Emissions will be approximated based on type of machinery, taking account of the likely engines and their operational usages.

Completed Development

194. GHG emissions generated by changes in road traffic associated with the Proposed Development, emissions from any on-site combustion plant, and the on-site use may impact climate change.

³⁰ IEMA (2017) *Environmental Impact Assessment Guide to: Assessing Greenhouse Gas Emissions and Evaluating their Significance V4*

³¹ International Finance Corporation (2012) *Performance Standards on Environmental and Social Sustainability*. Available at: https://www.ifc.org/wps/wcm/connect/topics_ext_content/ifc_external_corporate_site/sustainability-at-ifc/publications/publications_handbook_pps.

³² International Organization for Standardization, (2018) *ISO/ISO 14064-1: 2018. Greenhouse Gases - Part 1: Specification with Guidance at the Organization Level for Quantification and Reporting of Green House Gas Emissions and Removals*.

³³ British Standards Institution, (2011) *PAS 2050:2011 Specification for the assessment of the life cycle greenhouse gas emissions of goods and services*.

³⁴ DECC (2013) *The Department of Energy and Climate Change (DECC) (2013) Guidance on Annual Verification for emissions from Stationary Installations*.

³⁵ Ricardo Energy & Environment, (2019) *Preparation for the implementation of the EU ETS provisions for small installations - Best Practice Guidance. Report for European Commissions - DG Climate Action*.

³⁶ Defra (2022). *Emission Factor Toolkit*. Retrieved from Defra: <https://laqm.defra.gov.uk/review-and-assessment/tools/emissions-factors-toolkit.html>

³⁷ BEIS. (2020). *Greenhouse gas reporting: Conversion factors 2020*. Retrieved from GOV.UK: <https://www.gov.uk/government/publications/greenhouse-gas-reporting-conversion-factors-2020>

195. To assess the effects of changes in road traffic, GHG emissions from road traffic will be predicted using Defra's Emission Factor Toolkit (EFT)³⁶ and BEIS's GHG conversion factors³⁷, taking account of traffic volumes, distances travelled and vehicle types. This will include predicting emissions for a range of years covering the lifetime of the Proposed Development.
196. Direct GHG emissions from operational energy consumption will be calculated using BIES GHG conversion factors³⁷ and operational usage information obtained from the energy strategy for the Proposed Development, which will be based on the predicted energy consumption (electricity and gas) of the Proposed Development. Indirect GHG emissions from on-site combustion plant will be calculated based on the design, emission rates and operational usage of the plant. The assessment will consider regulated energy consumption, which is energy consumption from heating and cooling, lighting, and on-site infrastructure such as lifts, and unregulated energy consumption, which is electricity consumption from the behaviour of the building's users, such as personal electrical appliances (phones, laptops, televisions etc.), and kitchen appliances. Potential GHG emissions from refrigerants leakage from any air source heat pumps will also been given consideration.
197. Additional consideration will also be given to GHG emissions associated with potential consumables throughout the lifetime of the Proposed Development, such as food, material commodities and waste. These emissions, although uncertain, will vary depending on the use of the site. For example, indirect emissions associated with water use and food consumption from restaurants will be higher than offices. Relevant emission factors will be taken from a range of published information.
198. Over the lifetime of the Proposed Development there will also be embodied carbon associated with the repair, maintenance, and refurbishment of the building. These emissions are effectively 'unregulated' as there is no policy or standard for establishing compliance nor is there published data on good practice against which developments can be benchmarked. Nonetheless, emissions from repair, maintenance and refurbishment will be considered following the approach set out in paragraph 10, taking account of material lifespans (as defined by the Royal Institution of Chartered Surveyors (RICS)³⁸).

Decommissioning

199. The embodied carbon associated with the end of life/decommissioning of the building are highly uncertain, but emissions have been estimated, where possible, following the approach set out in paragraph 10.
200. GHG emissions from NRMM used during the decommissioning activities (i.e. enabling and demolition works) have been considered. Emissions have been calculated following the approach set out in paragraph 12, taking account of the likely number of engines for the Proposed Development.

Mitigation

201. The net change in total GHG emissions during enabling and construction, operation and decommissioning of the Proposed Development will be calculated and compared to existing baseline emissions for the Application Site, the Reading, South East and the UK. Suitable mitigation measures will be set out, following the principles set out in the IEMA guidance (do not build, build less, design clever, construct efficiently, and offset and sequester), in order to minimise, as far as reasonably practicable, the anticipated GHG emissions over the Proposed Development's lifecycle.

The Potential Impact of Climate Change on The Proposed Development - Resilience

202. The approach to assessing the potential impact of climate change on the Proposed Development will be undertaken in accordance with the IEMA guidance '*Climate Change Resilience and Adaption*' (2020)³⁹, which presents a framework for the consideration of climate change resilience and adaption in the EIA process. It recognises a need for a proportionate approach to the assessment, due to the uncertainties associated with predicting how the environment will respond to climate change.
203. The guidance advises on *inter alia*, defining the future climate scenario, the integration of climate change adaption into the design, and the process for EIA. The guidance also provides advice on the execution of the impact assessment across the technical topics, including the identification of the climate related parameters which are likely to influence the project in question, and the anticipated

³⁸ RICS. (2017). *Whole life carbon assessment for the built environment*.

³⁹ Institute of Environmental Management and Assessment, (2020); *Environmental Impact Assessment Guide to: Climate Change Resilience and Adaptation*. (website: <https://www.iema.net>)

changes to those parameters under a future climate scenario.

204. Consistent with the guidance, the EIA will describe a future climate scenario which will be developed using the future climate projections published by the Met Office (through the UK Climate Projections (UKPC18) website). The results include projections for variables including annual mean temperatures, and annual changes in summer and winter precipitation.
205. To describe the predicted future climate, it is proposed that the worst-case scenario (RCP8.5) for 2080 will be utilised as the future baseline. RCP8.5 represents a suitably conservative emissions scenario with regards to climate policy, land use, and technological development. This is in accordance with the Institute of Environmental Management and Assessment's (IEMA's) Climate Change Resilience and Adaptation guidance^{Error! Bookmark not defined.}, which states that "*Recommended best practice is to use the higher emissions scenario (RCP 8.5 in the latest UKCP18 projections) at the 50th percentile, for the 2080s timelines, unless a substantiated case can be made for not doing this (e.g. anticipated lifespan of the project is shorter than 2080s)*".
206. The future climate change scenario will be considered within the ES across each of the technical topics being presented, and the level of assessment and methodology will be proportional to the available evidence base. The aim of the assessment will be to consider whether the effect on receptors (under the current condition, without climate change) are likely to be different under an alternative future climate regime; in particular, to identify whether the potential impacts of the Proposed Development will be worse or improve under the future baseline accounting for climate change, and therefore if these changes alter the scale and significance of effects identified for the Proposed Development under the current condition (without climate change). A key aspect of the assessment will be to identify the likely effect of those receptors considered more vulnerable to changes in climate, having taken into account the resilience and adaptive measures (being either design or management) which are proposed for the scheme in order to mitigate the risk presented by climate change.
207. Due to the level of uncertainty in both the future climate projections and how the future climate conditions may affect sensitive receptors, the assessment will be qualitative, based on objective professional judgement, unless where there is published, accepted quantifiable methods available (i.e., in relation to the assessment of flood risk).
208. The ES will present the adaption and resilience measures proposed as part of the description of the Proposed Development (**ES Volume 1, Chapter 4: The Proposed Development**), and also report the process of design for the resilience and adaptive measures developed for the scheme as part of the consideration of alternatives (**ES Volume, Chapter 3: Alternatives and Design Evolution**). The assessment of the potential impact of climate change on the Proposed Development, in terms of climate change affecting the residual effects of the Proposed Development under the future climate scenario will be presented within the ES Chapter.

Noise and Vibration

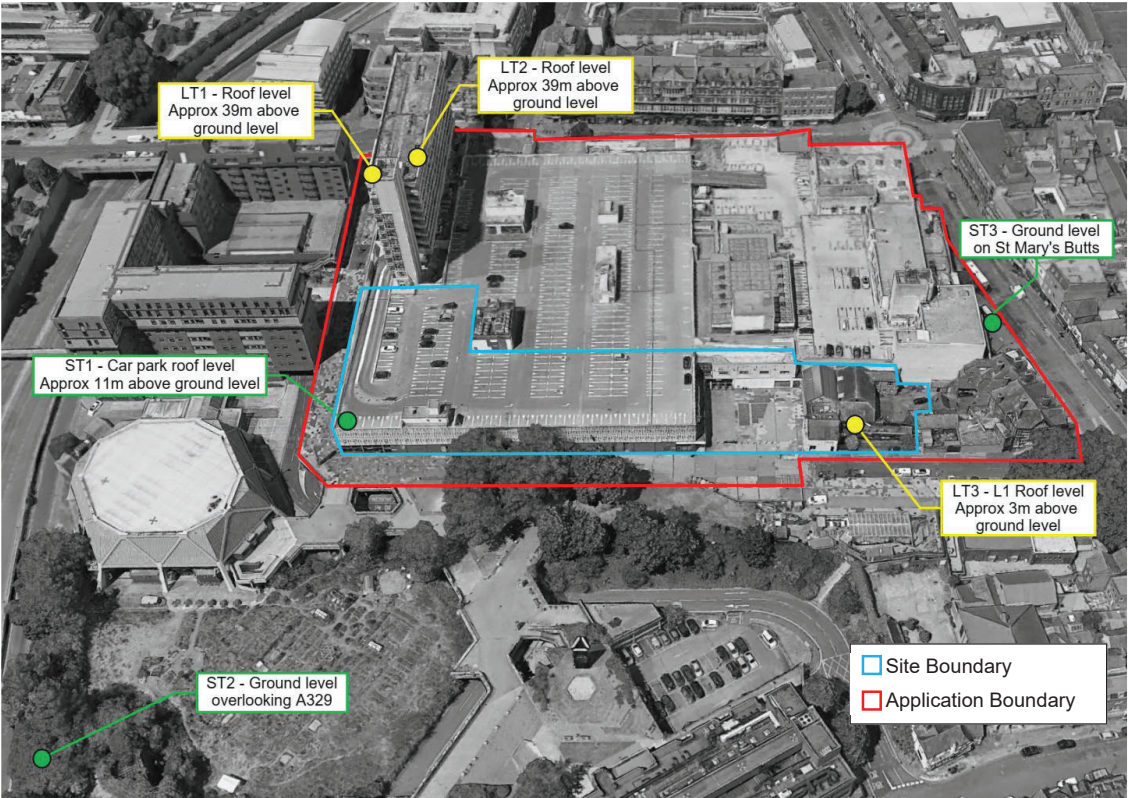
Introduction

209. A noise and vibration assessment will be prepared by Sol Acoustics.

Baseline

210. A baseline environmental noise survey was carried out around the Proposed Development between 13 January 2023 and 19 January 2023. The survey duration included both weekday and weekend periods. The survey comprised unattended continuous noise logging at three locations and three attended locations around the perimeter of the Broad Street Mall site overlooking the surrounding streets and the nearest noise sensitive receptors. The proposed measurement positions and their respective heights above ground level are indicated in **Figure 5**.
211. The locations of the measurement positions were informed by the need to capture the prevalent noise levels incident around the site as well as determine the background noise levels outside the nearest surrounding premises receptors within practical site constraints.
212. The purpose of this study is to determine the predominant noise sources (including but not limited to road traffic, air traffic, industrial, domestic or natural sources) around the site and the existing prevalent noise levels in the area resulting from these.

Figure 7 Noise Survey Measurement Locations



Sensitivity	Typical Descriptors
Very Low	Industrial receptors (e.g. workshops, warehouses)

Potential Effects

217. The following elements are the key noise and vibration issues relating to the Proposed Development:
- Noise and vibration will be generated during the construction works of the Proposed Development as well as during any required enabling works which has the potential to affect nearby residential receptors. Whilst general construction activities are not likely to generate perceptible levels of vibration at the nearby sensitive receptors. However, piling and enabling structural bracing works may generate perceptible levels of construction vibration within the existing Broad Street Mall;
 - The Proposed Development has the potential to generate noise during operation that may affect nearby residential receptors such as new building services plant associated with the proposed residential units; and
 - The Proposed Development site is exposed to noise from external noise sources (i.e. road traffic from the surrounding road network) ('site suitability').
218. It is anticipated that the completed development will generate a negligible increase in road traffic flows due to the limits already imposed on traffic circulation around the Proposed Development. Therefore, the noise and vibration effects of road traffic flows during the finished operation of the Proposed Development are proposed to be scoped out of the assessment.
219. It is not anticipated that any new building plant will generate new vibration effects, and therefore this has been scoped out of the EIA.
220. As the Proposed Development is located at a large distance from the nearest vibration sources, it is proposed that the assessment of 'site suitability' in relation to vibration be scoped out of the assessment.

Scope of Assessment

221. Consequently, the noise and vibration chapter will include:
- Assessment of demolition and construction noise. Demolition and construction noise is temporary and cannot be assessed in the same way as more permanent operational impacts. Based on likely construction plant and the works programme, anticipated noise levels will be predicted at the most relevant sensitive locations identified below using the methodology set out in BS 5228:2009 "Code of practice for noise & vibration control on construction and open sites" (Part 1). Where the types of plant are not known, a representative sound power level will be applied from BS 5228-Part 1. Given the location of the Proposed Development next to the existing Broad Street Mall structure, construction vibration will be assessed based on likely construction plant and the works programme using the methodology set out in BS 5228:2009 "Code of practice for noise & vibration control on construction and open sites" (Part 2). Where the types of plant are not known, representative vibration data will be applied from BS 5228-Part 2;
 - Assessment of the existing and potential future external noise effects on the scheme. This assessment will be carried with regards to any existing RBC planning guidance documentation;
 - Based upon the outcome of the assessment, the chapter will outline mitigation measures to achieve internal noise levels set out within BS 8233:2014 "Guidance on sound insulation and noise reduction for buildings"; and
 - Noise from new building services plant associated with the Proposed Development are proposed to be assessed in accordance with B S 4142:2014 "Methods for rating and assessing industrial and commercial sound", relative to the baseline noise conditions measured during the survey and the nearest existing noise sensitive receptors.
222. The predicted scale of an effect will be determined through a standard method of assessment based

213. To assess the potential noise impact of The Hexagon theatre on the Proposed Development, short-term attended measurements will be taken at the site perimeter adjacent to the theatre during a typical performance and as visitors leave the premises.
214. The Proposed Development is to be located at the following approximate distances from potential vibration sources:
- 500 m away from the nearest major vibration source, the railway line to the north of Reading city centre; and
 - 80 m away from the A329 ring road, to the west.

Sensitive Receptors

215. The key sensitive receptors around the site perimeter will be identified with consultation with the council tax registry in the area. These will also inform the assessment of plant noise egress from building services plant, subject to future proposed plant locations.
216. Table 5 outlines receptor sensitivity, this table indicates that all residential receptors as highly sensitive.

Table 5 Noise Receptor Sensitivities

Sensitivity	Typical Descriptors
High	Residential receptors (e.g. houses, apartments and hotels, as well as residential healthcare and educational establishments). Educational facilities (e.g. schools and colleges).
Medium	Non-residential: healthcare and hospitals. Noise sensitive leisure receptors (e.g. theatres museums, libraries, etc.).
Low	Commercial facilities (e.g. retail, office developments).

on professional judgement, considering the sensitivity of the receptor and magnitude of change / impact as detailed in **Table 6**. These criteria apply to all sources of noise.

Table 6 Scale of Potential Effects

Receptor Sensitivity	Magnitude of Impact					
		Very High	High	Medium	Low	Very Low
	High	Major	Moderate	Minor	Minor	Negligible
	Medium	Moderate	Minor	Minor	Negligible	Negligible
	Low	Minor	Minor	Negligible	Negligible	Negligible
	Very Low	Minor	Negligible	Negligible	Negligible	Negligible

223. All major and moderate impacts are to be considered as ‘significant’ in the context of the noise impact assessment for the EIA.

Wind Microclimate

Introduction

- 224.** The wind microclimate chapter will be prepared by FD Global Limited (FDG).
- 225.** The wind microclimate chapter will include the results of detailed quantitative assessments based on the results from a series of initial Computational Fluid Dynamics (CFD) simulations and also from a subsequent series of model scale wind tunnel tests using UK industry standard Atmospheric Boundary Layer (ABL) modelling techniques for wind flows in the built environment . The wind microclimate will be benchmarked against the UK industry standard London Docklands Development Corporation (LDDC) variant of the Lawson Comfort And Safety Criteria⁴⁰ which represent the most widely accepted criteria for the assessment of wind microclimate in the built environment in the UK.
- 226.** The wind tunnel model will be built at a scale of 1:400 and cover an area centred on the site with a full radius of 450 meters at full scale from the nominal centre of the site.
- 227.** The wind tunnel test results will combine the wind speed data around the building with accepted long-term meteorological data for the local Reading area (London Heathrow Airport) in order to provide a full statistical breakdown of the mean and gust wind conditions both onsite and at off-site locations for all wind directions.

Baseline

- 228.** The baseline assessment will evaluate the existing wind microclimate at the site and benchmark those conditions against the Lawson Comfort and Safety Criteria.
- 229.** The basic methodology for quantifying the baseline pedestrian level wind environment is outlined below:
- Step 1: Adjust standard meteorological data to account for differences in upwind terrain between the measurement site and the target site on each wind sector to establish site-specific wind climate statistics;
 - Step 2: Measure the building-induced wind speeds at pedestrian level using initial CFD simulations and subsequently using model scale ABL wind tunnel testing;
 - Step 3: Combine these to obtain the expected frequency and magnitude of wind speeds at pedestrian level; and
 - Step 4: Compare the results with the Lawson Comfort and Safety Criteria to ‘grade’ existing conditions around the site.

Sensitive Receptors

- 230.** The wind conditions will be primarily compared with the intended pedestrian use of the development because this assessment will take into account changes in pedestrian activities that accompany

⁴⁰ Lawson, T. (2001). *Building Aerodynamics*. London: Imperial College Press.

development.

- 231.** The likely impacts would therefore relate to a wind microclimate that is too windy for the intended use of an area and/or in more extreme cases the generation of strong winds capable of impeding movement.
- 232.** With respect to the site itself, sensitive receptors will include the following locations (where present on the development) – with the required wind conditions specified for each use (if included):
- Thoroughfares (at ground level) – targeting strolling wind conditions;
 - Entrances – targeting standing wind conditions;
 - Seating areas (including that associated with any proposed cafés etc.) – targeting sitting wind conditions during the summer season
 - Amenity spaces (including child playspace) – targeting sitting to strolling wind conditions; and
 - Terraces (podium or roof level, if included) – targeting sitting wind conditions during the summer season.
- 233.** In addition, the wind conditions on the surrounding area will also be considered within the area that would potentially be influenced by the Proposed Development. For sensitive receptors surrounding the site, consideration will be given to the uses listed above where appropriate, as well as:
- Bus stops – targeting standing wind conditions;
 - Pedestrian crossings – targeting walking wind conditions; and
 - Amenity spaces – targeting sitting to strolling wind conditions.

- 234.** The ES will include plans that provide details on the location and sensitivity of these uses.

Potential Effects

- 235.** When a new development is built, wind flow patterns within the site and its immediate surrounds are often modified; this could either result in increased wind speeds or increased shelter at certain locations and for certain wind directions.
- 236.** The likely effects relate to:
- A wind microclimate that is too windy for the intended use of an area; and/or
 - In more extreme cases, the generation of ‘strong winds’ capable of impeding movement. ‘Strong winds’ are defined as wind speeds in excess of 15 m/s for more than 2 hours of the year in accordance with the LDDC variant of the Lawson Comfort and Safety Criteria.
- 237.** The wind assessment will take account of the wind microclimate for 36 wind directions in order to provide a fully quantifiable assessment of the calm and windy zones around and within the site.

Scope of Assessment

- 238.** The following methodology will be used to quantify the pedestrian level wind environment:
- Measure the building-induced wind speeds at pedestrian level using initial CFD simulations and subsequently also using model scale ABL wind tunnel testing;
 - Adjust standard meteorological data to account for conditions at the site;
 - Combine these to obtain the expected frequency and magnitude of wind speeds at pedestrian level; and
 - Compare the results with the Lawson Comfort and Safety Criteria to ‘grade’ conditions around the site.
- 239.** The suitability thresholds for different activities (as per the Lawson Comfort Criteria) are shown in **Table 7** and the scale of effect on wind microclimate are outlined in **Table 8**.
- 240.** In addition to the criteria for pedestrian comfort, there is an additional threshold for occasional strong

winds, which would potentially represent a safety concern. This threshold is a wind speed of 15m/s for more than two hours in a year.

Table 7 Lawson Comfort Criteria (LDDC Variant)

Suitability	Wind speed threshold (5% time)	Description
Uncomfortable	>10 m/s	Winds of this magnitude are considered a nuisance for most activities, and wind mitigation is typically recommended.
Walking	8-10 m/s	Relatively high wind speeds that can be tolerated if the objective is to walk, run or cycle without lingering.
Strolling	6-8 m/s	Moderate breezes that would be appropriate for strolling along a city/town centre street, plaza or park
Standing	4-6 m/s	Gentle breezes suitable for main building entrances, pick-up/drop-off points and bus stops.
Sitting	0-4 m/s	Light breezes desired for outdoor restaurants and seating areas where one can read a paper or comfortably sit for long periods.

Table 8 Scale of Effect

Expected Wind Microclimate	Scale of Significance
Wind conditions are 3-steps calmer than those desired	Major Beneficial
Wind conditions are 2-steps calmer than those desired	Moderate Beneficial
Wind conditions are 1-step calmer than those desired	Minor Beneficial
Wind conditions are as desired	No Effect
Wind conditions are 1-step windier than those desired	Minor Adverse
Wind conditions are 2-steps windier than those desired	Moderate Adverse
Wind conditions are 3-steps windier than those desired	Major Adverse

241. Analysis will be conducted on a seasonal basis, however, the chapter will focus on the worst case results, which occur during the windiest season (normally winter but can be other times of the year) and those for the summer season, when the use of amenity spaces is usually more utilised.

Construction

242. The construction phase will be assessed qualitatively based on the professional judgement of an experienced wind engineer, using the assessment of the background wind climate at the site and an understanding of the effects of wind in the built environment. This due to the continuous changing nature of the works, and the activity on site being (e.g. construction activity) less sensitive to wind conditions.

Operation

243. Four configurations will be evaluated using initial CFD simulations and subsequently also using model scale ABL wind tunnel testing, as set out below:

- Configuration 1: existing site (baseline scenario) with the existing surrounding buildings;
- Configuration 2: Proposed Development with the existing surrounding buildings;
- Configuration 3: Proposed Development cumulative developments; and
- Configuration 4: any required mitigation (if required).

244. With respect to Configuration 4, mitigation can usually be divided into two categories based upon changes to the massing to fundamentally influence the way in which the wind interacts with the building and more localised mitigation such as landscaping, screening and canopy features. On the former, the ES will stipulate what details have been included within the design of the development to mitigate adverse effects. These will be inherent in the design of the development and will therefore not need to be tested separately.

245. On the latter, in the assessment with and without the soft landscaping in order to establish their impact on the local wind microclimate. Should the testing identify that mitigation is required, suggested mitigation will be tested within the wind tunnel model after it will have initially been validated in the CFD modelling.

246. All adverse effects (minor, moderate or major) would be considered significant, on the basis that they would require mitigation in order to create conditions that are suitable for the intended use. Beneficial effects are not considered to be significant.

Daylight, Sunlight, Overshadowing, Light Pollution and Solar Glare

Introduction

247. It is considered that there is the potential for likely significant effects relating to daylight, sunlight and overshadowing ('DSO') and therefore this topic should be scoped into the EIA.

248. The DSO assessment will consider the potential daylight, sunlight and overshadowing impacts from the Proposed Development on the relevant surrounding properties. The approach and methodologies used will be with reference to the BRE Guidelines publication Building Research Establishment publication 'Site Layout Planning for Daylight and Sunlight a guide to good practice' 2022 ("BRE Guidelines").

249. Internal daylight and sunlight to the new residential units and overshadowing to the new open space associated with the Proposed Development will be assessed separately and presented as a standalone report within the appendices to be submitted in support of the Planning Application.

250. The ES will outline the following:

- Define the DSO baseline conditions;
- Identify relevant DSO receptors.
- Assess the likely significant DSO effects;
- Detail any required mitigation or monitoring to address any likely significant adverse DSO effects; and
- Identify the potential for cumulative effects in relation to DSO with consented schemes in the surrounding area.

Baseline Conditions

Current Baseline Conditions

251. An existing baseline scenario of the surrounding area has been established following a review of information available via the Valuation Office Agency ('VOA') website (i.e., council tax records). This approach allows for the identification of potentially sensitive receptors within sufficient proximity of the site.

252. The baseline daylight and sunlight conditions within each of the residential properties considered will be based upon the BRE Guidelines and will be defined by reference to the Vertical Sky Component ('VSC'), No-Sky Line ('NSL') and Annual Probable Sunlight Hours ('APSH') methods.

253. The baseline level of overshadowing, with regard to relevant surrounding amenity spaces will be defined in terms of the Sun Hours on Ground assessment calculated on the 21st March and the Transient Overshadowing method.

254. The DSO effects of the Proposed Development will then be assessed against the baseline condition.

Future Baseline Conditions

255. As well as any committed developments within sufficient distance to the site, the Future Baseline will consider the new developments proposed to be submitted on a similar timeframe where relevant.

Receptors

Daylight and Sunlight

256. The daylight and sunlight analysis assessment will focus on sensitive residential properties that may

have their existing levels of daylight and sunlight amenity potentially impacted by the Proposed Development. Commercial properties or non-residential properties, such as office, shops, sports pavilions and halls will not be assessed, due to their reliance on electric lighting and/or transient nature in terms of occupation.

257. The following sensitive receptors have been identified and will be considered within the EIA:

- 40-42 Oxford Road;
- 38 Oxford Road;
- McIlroys Building;
- 61-62 St. Mary's Butts;
- 59-60 St. Mary's Butts;
- 58 St. Mary's Butts;
- 57 St. Mary's Butts;
- 55-56 St. Mary's Butts;
- 2-4 Castle Street;
- 8 Castle Street;
- 16 Castle Street; and
- 15 Queen's Walk (Queen's Court).

Overshadowing

258. Surrounding areas of public and private amenity space will be considered for the Sun Hours on Ground and Transient Overshadowing assessments.
259. The surrounding areas of existing public and private amenity space are limited to the extent of the rear gardens of 58 St. Mary's Butts, and 21-23 St. Mary's Butts and areas along Hosier Street and Queens Walk. If any other amenity spaces are proposed as part of any cumulative schemes, AY will re-assess the areas currently scoped into our report to ensure they are all covered off sufficiently.

Potential Effects

Demolition and Construction

260. Owing to the constantly evolving and changing nature of demolition and construction activities, the assessment of potential effects during demolition and construction of the Proposed Development on daylight, sunlight and overshadowing to the surrounding sensitive receptors will not be modelled and analysed. The effects experienced by the sensitive receptors during the demolition and construction phases will be no greater than that described within the Completed Development section.

Completed Development

261. The potential effects which may occur as a result of the Proposed Development coming forward are outlined in Table 9.

Table 9 Potential Effects on Nearby Sensitive Receptors

Effect	Receptor
Loss of natural light (daylight) to adjacent properties	40-42 Oxford Road 38 Oxford Road McIlroys Building 61-62 St. Mary's Butts 59-60 St. Mary's Butts 58 St. Mary's Butts 57 St. Mary's Butts 55-56 St. Mary's Butts 2-4 Castle Street 8 Castle Street 16 Castle Street 15 Queen's Walk (Queen's Court)
Loss of natural light (sunlight) to adjacent properties	
Overshadowing of public/ private amenity space	Rear gardens at 58 St. Mary's Butts and 21-23 St. Mary's Butts

Methodology

Completed Development

Daylight and Sunlight

262. The daylight, sunlight and overshadowing technical assessments will be carried out in accordance with the BRE Guidelines, 2022. The analysis will be calculated using a 3D computer model constructed using specialist software.
263. The VSC, NSL and APSH assessments will be used to quantitatively assess the impact of the Proposed Development upon sensitive neighbouring properties and relevant amenity areas.
264. In regard to sunlight, the percentage APSH will be assessed in the winter and throughout the year as per the BRE Guidelines. Due to the southerly rotation of the sun, this assessment will consider those windows which face the site and are located within 90 degrees of due south.
265. In line with the BRE Guidelines, both the VSC and NSL assessments will be undertaken for the Baseline, Proposed Development and Cumulative Scenarios for all receptors sensitive to daylight impacts identified above.
266. The sunlight amenity to the surrounding receptors will be considered by reference to the APSH method for the Baseline, Proposed Development and Cumulative Scenarios for all receptors sensitive to sunlight impacts identified above and where the windows face within 90 degrees due south.
267. The significance of effects will be determined using professional judgement and by reference to Appendix H of the BRE Guidelines.
268. The numerical values quoted in the BRE Guidelines are purely advisory. Therefore, different values may be used depending on the type of development proposed, and calculation methods are flexible in this respect. Appendix F of the BRE Guidelines provides the guidelines for setting alternative daylight values of skylight and sunlight access.

Overshadowing

269. The Sun Hours on Ground assessment considers the proportion of a designated amenity space which receives two hours of direct sunlight on the 21st of March. The BRE Guidelines provide numerical criteria for the sun hours on ground assessment and where the results show compliance, the potential effect will be negligible (not significant).
270. Where the effects are not in accordance with the BRE Guidelines, professional judgement will be used to establish the nature and scale of the potential impact and whether the likely effect is considered to be significant or not.
271. For the Transient Overshadowing assessment, the path of shadow will be mapped for each of the

Assessment Scenarios on the following dates, as suggested by the BRE Guidelines:

- 21st March (Spring Equinox);
- 21st June (Summer Solstice); and
- 21st December (Winter Solstice).

272. The BRE Guidelines do not provide any specific criteria for transient overshadowing other than to establish the time of year and day when shadow will be cast on the surrounding areas of outdoor amenity space. Professional judgement will be used to establish the nature and scale of the potential effect and whether this is significant or not.

Cumulative Effects

273. Cumulative effects comprise the combined effects of reasonably foreseeable human induced changes within a specific geographical area and over a certain period of time and can be both direct and indirect.
274. If applicable, in order for the assessment to capture that part of the cumulative effect which can be attributed to the Proposed Development, a Future Baseline scenario will be used which considers any cumulative schemes that come forward as built in the existing condition.
275. The cumulative assessment will consider those same methodologies outlined as part of the operational daylight and sunlight section above and the likely scenarios are included in the list of assessment scenarios listed above. Cumulative DSO assessments, which take into account the in-combination effects of the Proposed Development and any pertinent nearby consented schemes (see **Appendix A: Cumulative Schemes** of this EIA Scoping document) whose completion date is unknown or likely to come forward after the Proposed Development and therefore not included in the baseline scenario, will be carried out where necessary based upon proximity / orientation to the site.

Non-Significant Effects

Solar Glare

276. The predominant local and emerging vernacular is likely to be dominated by brick cladding. As such, much of new buildings will likely be brick dominated, although other materials such as precast concrete and metal cladding may be incorporated. Given the evolution of the design and the envisaged palate of materials will not be highly reflective and / or will work to break-up significant extents of glazed areas, the Proposed Development is unlikely to give rise to significant incidences of solar glare. It is therefore proposed to scope an assessment of solar glare out of the ES.

Light Pollution

277. Light pollution is defined as any light emitting from artificial sources into spaces where it is unwanted, such as spillage of light from office or commercial buildings onto streets, or, into residential accommodation, such as bedrooms, where this would cause nuisance to the occupants. The Institute of Lighting Professionals ('ILP') Guidance Notes provide measurable lighting level values to ascertain the acceptability of lighting levels at night.
278. Light pollution was introduced within the Clean Neighbourhoods and Environment Act (2005) as a form of statutory nuisance under the Environmental Protection Act (1990), which was amended to include the following nuisance definition: 'Sec 79(1)(fb) artificial light emitted from premises so as to be prejudicial to health or nuisance'.
279. Adverse effects caused by electric lighting relate to the intrusion of light into sensitive locations, including adjacent residential accommodation. Commercial buildings with large areas of glazing can sometimes cause light intrusion from their internal luminaires to nearby sensitive receptors, and quantitative Light Pollution assessments should be undertaken in relation to these internal luminaires.
280. A light pollution assessment has not been considered necessary on the basis that the Proposed Development will predominately comprise of residential uses, meaning night-time illumination will be broken up by the façade and intermittent. As such, significant effects are not considered to be likely.

Townscape, Built Heritage and Visual Impact Assessment

282. The Townscape, Built Heritage and Visual Impact Assessment (TBHVIA) will be produced by Montagu Evans LLP.

Introduction

283. This section considers the potential significant effects of the Proposed Development on built heritage assets (referred to as heritage 'receptors' in EIA terminology), visual and townscape receptors at the site and within the surrounding area. For the purposes of this chapter, the term 'built' heritage refers to the above ground heritage assets – below ground heritage assets are considered in the 'archaeology' section of this report.

Site Description

284. The site comprises part of the Broad Street Mall shopping centre, located to the southwest of Oxford Road and St Mary's Butts. Broad Street Mall is an indoor shopping complex which opened in 1971. It also incorporates part of a large multi storey car park.
285. The site is not located in a conservation area and does not include any statutorily or locally listed buildings.
286. The site forms part of the West Side Major Opportunity Area and is designated under Policy CR12d as a site for redevelopment. It also forms part of an area within Reading Borough identified as being appropriate for tall buildings, CR10b: Western Grouping.

Methodology

287. Structured, informed and reasoned professional judgement will be used to take account of quantitative and qualitative factors. This is widely accepted as best practice and is based on analysis of desk-based research and field assessment.
288. A site visit has been undertaken as part of the ES Scoping to identify the heritage, townscape and visual receptors that could experience a material change to their setting. This Scoping document therefore identifies the heritage receptors that will be assessed as part of this ES.

Baseline Methodology

289. The following baseline studies have been completed so far:

Study / Survey / Analysis / Evaluation	Overview	Date of Completion
Identification of Heritage Receptors	Review of desktop secondary sources, including the local list contained on the RBC website and statutory list on the Historic England website.	November 2022
Identification of Townscape Receptors	Has been formed on the basis of site observations, a manual desk-based review of OS maps, characterisation studies, location of heritage receptors, prevailing building locations and heights, topography and townscape features, and an understanding of the scale of the Proposed Development.	December 2022
Identification of Visual Receptors	Has been informed by a site visit, the location of heritage receptors, townscape considerations, the production of a Zone of Visual Influence (ZVI) prepared by GMJ, and any views identified in the statutory development plan, as well as those additionally requested by RBC.	November 2022

Heritage

290. The proposed study area for designated heritage receptors (listed buildings and conservation areas) would comprise an area of 500m from the site boundary.
291. Buildings and structures identified by Reading Borough Council to be of local architectural or historical interest (as NDHAs) will be considered within an area of 250m from the site boundary.
292. The study areas have been informed by site observations, a manual desk-based review of OS maps, characterisation studies and relevant heritage receptors. It has been informed by building locations and heights, topography and townscape features and an understanding of the scale of the Proposed

Scheme.

293. Non-designated heritage assets for the purposes of the assessment are locally listed buildings identified by Reading Borough Council ("RBC") and other structures which meet the terms of a non-designated heritage asset as set out in the NPPF, that is, those buildings or structures which have a degree of architectural or historic significance meriting consideration in the planning process. These are to be identified by appropriately qualified staff undertaking the assessment and through the consultation process with RBC.
294. The identification of the built heritage baseline has been informed by secondary resources, including:
- Reading Borough Council website;
 - The National Heritage List for England (NHLE);
 - Conservation Area Appraisals; and
 - Site Observations.
295. A Historic Environment Record search will be undertaken as part of the ES process.
296. In respect of the baseline assessment, receptors scoped out at baseline stage will include those receptors whose setting will not be materially altered by the Proposed Development for instance due to occlusion through the orientation of streets and spaces and by reason of interposing development, and where there is no historic functional relationship between the heritage receptors and the site.

Townscape

297. Townscape is the "built up area, including the buildings, the relationship between them, the different types of urban open spaces, including green spaces, and the relationship between buildings and open spaces", as defined in GLVIA⁴¹.
298. Townscape receptors within 500m of the site boundary will be assessed. This has been formed on the basis of site observations, a manual desk-based review of OS maps, characterisation studies, location of heritage receptors, prevailing building locations and heights, topography and townscape features, and an understanding of the scale of the Proposed Development. A Townscape Character Area Plan illustrating identified character areas within the radius will be produced and included in the Heritage, Townscape and Visual Impact Assessment (HTVIA).

Views

299. The visual study area has not been defined in the same way, although viewpoints proposed for assessment have been informed by a site visit, the location of heritage receptors, townscape considerations, the production of a Zone of Visual Influence (ZVI) prepared by GMJ, and any views identified in the statutory development plan, as well as those additionally requested by RBC.

Assessment Methodology

300. 'Heritage' and 'Townscape and Visual' are to be treated as individual disciplines and separate assessments are to be provided in accordance with legislation, planning policy and best practice guidance.
301. Each assessment will be prepared in accordance with legislation, planning policy and best practice guidance. In particular, the heritage assessment will be carried out in accordance with the Historic England guidance documents GPA2⁴², GPA3⁴³ and GPA4⁴⁴. The assessment is also informed by the Principles of Cultural Heritage Impact Assessment (2021)⁴⁵ prepared by the Institute of Historic Building Conservation (IHBC), the Institute of Environmental Management and Assessment (IEMA) and the Chartered Institute for Archaeologists (CIfA). The baseline and assessment will have regard to

⁴¹ Landscape Institute (2013); *Guidelines for Landscape and Visual Impact Assessment Third Edition (GLVIA) (2013)*

⁴² Historic England (2015) *Historic Environment Good Practice Advice in Planning: 2 – Managing Significance in Decision-Taking in the Historic Environment*.

⁴³ Historic England (2017) *Historic Environment Good Practice Advice in Planning: 3 (2nd Edition) – The Setting of Heritage Assets*.

⁴⁴ Historic England (2022) *Historic England Tall Buildings Advice Note 4*.

⁴⁵ IEMA, IHBC, CIfA (2021) *Principles of Cultural Heritage Impact Assessment in the UK*.

conservation area appraisals prepared by RBC.

302. The methodology for the townscape and visual impact assessment will be based on the principles set out in the third (2013) edition of 'Guidelines for Landscape and Visual Impact Assessment' (GLVIA), produced by the Landscape Institute of Environmental Management and Assessment. Reference will also be made to national, regional, and local policies and guidance.
303. Based on best practice, such assessments are tailored to meet specific site circumstances and ensure that the effects of new development on heritage receptors, townscape characteristics and visual receptors are considered.
304. As stated above, the heritage and townscape study areas for the HTVIA will include the site and its wider context at radii of 500m for designated heritage receptors, 250m for non-designated receptors and 500m for townscape receptors. A map illustrating the relevant heritage considerations within the proposed study area is reproduced at Appendix D. This Scoping document identifies the heritage receptors and viewpoints that would be scoped into assessment in the ES.
305. The HTVIA will include the following:
- Identification of existing heritage receptors and townscape character receptors along with the visual amenity of the site from within the surrounding area through desk-based analysis and field study;
 - Series of AVRs based on the sensitivity of locations and the likelihood of visibility. The location of viewpoints has been agreed with the Council. The proposed viewpoint locations are presented on the map at Figure 1 and Figure 2 at the end of this topic sheet; and
 - Identification and assessment of potential changes to setting of heritage receptors, townscape character receptors and visual receptors in accordance with relevant guidance. This assessment will be supported through the selected and agreed representative views.
 - The HTVIA will establish the sensitivity of the heritage, townscape character and visual receptors and their capacity to accommodate the Proposed Development. It will consider the likely effects associated with both the construction and operational (post-completion) stages of the Proposed Development. The assessment will also take into consideration any potential mitigation measures included to determine the significance of any residual effects.
 - Sensitivity is identified by calibrating the baseline value of the receptor with its susceptibility to change, this will be clarified in our methodology within the HTVIA.
 - The magnitude of change to the existing heritage, townscape character and visual receptors as a result of the Proposed Development will take into account factors including the proximity, scale, and contribution the site makes to these receptors.
 - The assessment will take into account the Proposed Development's interaction with the existing heritage and townscape character receptors and the effect of the Proposed Development on these as experienced by visual receptors. This will be supported through the series of AVRs. The assessment will also consider the cumulative impact of the Proposed Development and its interaction with the identified Cumulative Schemes.

Receptors

306. The Proposed Development will not introduce any new heritage, townscape or visual impact receptors that may be affected by any planned phasing of development.

Heritage:

Heritage Receptors within the St Mary's Butts and Castle Street CA

307. The St Mary's Butts and Castle Street Conservation Area (made up of three character areas: St Mary's Church and Graveyard; St Mary's Butts and Gun Street and Castle Street Frontages), is located approximately 120m to the east of the centre of the site. The conservation area includes a number of statutorily listed buildings which include the following:
- St Mary's Church (Grade I) located approximately 145m to the east of the site;

- 15, 17, 19 Castle Street (Grade II*), located approximately 135m to the southeast of the site;
 - Church of St Mary, Castle Street (Grade II*), located approximately 105m to the southeast of the site;
 - Culvert, Holy Brook (Grade II*), located approximately 185m to the southeast of the site;
 - Holybrook House (Grade II*), located approximately 250m to the southwest of the site;
 - Sun Inn (Grade II), located approximately 100m to the southeast of the site;
 - The Allied Arms Inn (Grade II), located approximately 110m to the east of the site;
 - 8 and 10 and 12, Castle Street and Former Cottage at Rear of No 8 (Grade II), located approximately 125m to the southeast of the site;
 - 11 and 13 Castle Street (Grade II), located approximately 150m to the southeast of the site;
 - 33-37 and 39 Castle Street (Grade II), located approximately 160m to the southeast of the site;
 - 3 and 5, 7 and 9 Castle Street (Grade II), located approximately 165m to the southeast of the site;
 - Jubilee Cross (Grade II), located approximately 150m to the southeast of the site;
 - Group of 4 Churchyard Tombs North of St Mary's Church (Grade II), located approximately 155m to the southeast of the site;
 - 43, 45, 47 and 49 and 51 Castle Street (Grade II), located approximately 180m to the southwest of the site;
 - 2 and 4 and 6-10 Bridge Street (Grade II), located approximately 185m to the southeast of the site;
 - Church House and Building to West of Church House (Grade II), located approximately 190m to the east of the site;
 - Talbat House (Grade II), located approximately 220m to the southwest of the site;
 - Vachel Almshouses (Grade II), located approximately 215m to the southwest of the site;
 - Group of 4 Churchyard Tombs, East of St Mary's Church (Grade II), located approximately 210m to the east of the site;
 - 7,8 and 9 Gun Street (Grade II), located approximately 210m to the southeast of the site;
 - 59 and 61 Castle Street (Grade II), located approximately 240m to the southwest of the site;
 - 10,11 and 12, and 13 and 14, Gun Street (Grade II), located approximately 225m to the southeast of the site; and
 - La Corbiere Restaurant (Grade II), located approximately 230m to the southeast of the site.
308. No 1 Gun Street (the former Cross Keys PH) is identified as a 'building of townscape merit' in the conservation area appraisal.

Heritage Receptors in close proximity to the Site:

309. Outside the St Mary Butt's and Castle Street Conservation Area, but in close proximity to the site are the following heritage receptors:
- Queen Victoria Jubilee Fountain (Grade II) – located approximately 130m to the southeast of the site;
 - 3 and 5 Cheapside (Grade II) located approximately 145m to the northwest of the site;
 - 67 and 68 Broad Street (Grade II) located approximately 240m to the northeast of the site; and
 - Congregational Church and Nos 89 and 89a (Grade II), located approximately 200m to the northeast of the site.

Long distance Heritage Receptors:

310. Across longer distances there are heritage receptors located within and surrounding the city core. These are primarily concentrated within the Russell Street and Castle Hill conservation area to the west of the site and the Market Place and London Street conservation area to the east of the site (see Appendix D).
311. There are other highly graded receptors (Grade I and II*) including Greyfriars Church (Grade I), not within either conservation area, but located approximately 275m to the north of the site. These include Church of St Lawrence (Grade I), The Simeon Monument (Grade II*), the Town Council Chamber and Offices with Clock Tower (Grade II*) and Nos 154 to 160 (even) and railings to St (Grade II*).
312. There is one Registered Park and Garden, The Forbury Garden (Grade II), located approximately 660m away from the site.
313. There is one scheduled monument, Reading Abbey, located approximately 785m away from the site.
314. Identified Designated and Non-Designated Heritage Receptors are set out in the Heritage Asset Plan located in Appendix D.

Townscape:

315. Townscape receptors within 500m of the site boundary will be assessed. The following townscape character areas have been identified within the study area:
- Reading Town Centre;
 - Residential;
 - St Mary Butts CA;
 - Shopping Centres;
 - Institutional;
 - Light Industrial
 - A329/Associated Roundabouts.
316. The site forms part of the West Side Major Opportunity Area and is designated under Policy CR12d as a site for redevelopment. It also forms part of an area within Reading Borough identified as being appropriate for tall buildings, CR10b: Western Grouping.

Visual:

317. GMJ have been appointed to produce Accurate Visual Representations (AVRs).
318. The set of viewpoints will cover:
- Any protected views;
 - The range of points of the compass from which the development will be visible;
 - A range of distances from the site; and
 - Different types of townscape areas.
319. A plan of proposed viewpoints is provided at Appendix E. These viewpoints have been agreed with the Council and comprise the following:
- View 1: River Kennett towards BSM;
 - View 2: Looking north-west towards Broad Street Mall along the A33/A329;
 - View 3: Looking east along Oxford Road close to its junction with Russell Street;
 - View 4: Looking west along Oxford Road from West Street/Broad Street junction;
 - View 5: From the Oxford Road/Thorn Street junction;

- View 6: From the Gun Street/Bridge Street junction north-west towards Broad Street Mall;
 - View 7: From in front of Reading Minster looking west directly towards 21-23 St Mary's Butts and the entrance to Hosier Street;
 - View 8: Looking west from Hosier Street;
 - View 9: From Forbury Gardens Bandstand looking towards Broad Street Mall;
 - View 10: From Balmore Park, looking south;
 - View 11: From Kings Meadow looking south-west;
 - View 12: From Friar Street looking down West Street;
 - View 13: From Church of St Giles, looking north-west along Southampton Street (A327);
 - View 14: From Mount Pleasant area along A327 looking north-west towards Broad Street Mall;
 - View 15: From Castle Street looking north, between the Sun Inn and St Mary's Church; and
 - View 16: From Castle Street roundabout looking north (wide angle to include Magistrates' Court building).
320. Following pre application discussions with the Council on the 22nd December 2022, the following additional viewpoints were requested to be scoped in by the Council:
- View from Chain Street;
 - View from Oxford Road;
 - View from the junction between Castle Hill and Coley Place;
 - View from Mclroy Park; and
 - Kinetic sequence of views along Castle Street (east to west).
321. The viewpoint plan has been derived from modelling work and field inspection, including a ZVI, and includes both views identified in relevant policy documents and those with a particular heritage/townscape/amenity value or interest.
322. It is noted that due to landform and height of the buildings proposed, the Proposed Development may be visible over significant separating distances and from locations not identified in the visual assessment. It is considered the Proposed Development will not affect such visual receptors in a significant way and the proposals will form background elements in such views, and from some locations be experienced as part of a wider urban townscape that includes taller buildings.

Potential Effects

Demolition and Construction

323. Enabling works, demolition and construction effects are likely to vary according to their temporary nature and some operations may have more perceptible effects than others. The assessment in the HTVIA forming part of the ES will be based on a worse-case scenario when construction activities are at their peak (such as when the Proposed Development is at its tallest point, and when construction activity such as traffic and cranes is more intense). The effects are likely to vary according to the distance between the receptors and the Site, with those receptors located closer to the site more exposed to a higher visibility of machinery and infrastructure as well as non-visual effects such as noise, and likely to experience a larger effect than those located at greater distance. These effects are likely to be adverse but short-term and temporary.

Completed Development

324. The assessment will consider the following potential impacts and associated likely effects of the completed Proposed Development:

- Visibility of the Proposed Development in local views and effects on the quality of local views, the amenity of the viewer and the character of the local townscape;
- Visibility of the Proposed Development and associated change in the townscape and spatial character and quality within the study area; and
- The effect of the Proposed Development on heritage receptors (conservation areas, listed or locally listed buildings) and potential effects on their heritage significance, including consideration of visibility and other non-visual setting effects.

325. Significant effects during the operational stage are identified as those which result in a moderate or major effect, using the assessment methodology outlined below.

326. Visibility over a longer distance have a lower potential for significant effects.

Heritage Receptors

327. The receptors which will be considered in the full assessment include:

- St Mary's Butts and Castle Street CA;
- Church of St Mary (Grade I);
- Church of St Mary (Grade II*);
- 5, and 17, Castle St., and 19 Castle St. and Associated Front Railings (Grade II*);
- Queen Victoria Jubilee Fountain (Grade II);
- The Allied Arms Inn (Grade II);
- 55 and 55a St Mary's Butts (Grade II);
- Sun Inn (Grade II);
- 8, and 10 and 12, Castle St., and Former Cottage at Rear of No 8 (Grade II); and
- 35, 36 and 37 St Mary's Butts, and The Horn Inn (Grade II).

328. We would suggest the other heritage receptors are scoped out of full assessment and would welcome the Council's feedback on this.

Townscape Receptors

329. The Proposed Development may have significant effects on the following townscape character areas:

- TCA4: Shopping Centres; and
- TCA5: Institutional.

330. It should be noted that these significant effects are likely to be beneficial in nature.

Visual Receptors

331. Changes to visual amenity should not be judged in relation to static views (which are abstractions and not real) but in relation to the overall experience of an area and dependent upon the experiences and expectations of different receptors.

332. Often, on visual receptors, the Proposed Development will have varied effects such that a hard and fast categorisation of an effects quality is finely balanced as between beneficial or harmful. In many instances, therefore, the final identification of impact and effect will turn on discursive analysis. This makes a necessary professional adjustment to the tabular analysis format which can produce inaccurate reporting.

Cumulative Effects

333. There are a number of Cumulative Schemes in the setting of the site at different stages of the planning system which will be considered in the assessment for each discipline. These are listed in **Appendix A** of this EIA Scoping document.

334. The assessment for each discipline (heritage, townscape and visual) will include a two-stage cumulative assessment as per the following structure:
- Cumulative – ‘proposed’ plus material consents surrounding the site (i.e. the Cumulative Schemes).
335. Further details on the two-stage cumulative assessment is provided in the ‘Scope of the EIA-EIA Methodology’ section of this EIA Scoping document.

OTHER TOPICS TO BE ADDRESSED WITHIN THE EIA

336. This section sets out those environmental issues that will not have their own specific chapter in the ES, but due to their importance, will be covered where appropriate in the ES.

Health

337. The health and wellbeing of individuals and communities is influenced by a range of factors. The basis of a health impact assessment (HIA) is therefore a broad model of health taking into account a number of factors, known as determinants of health, including age and genetics; individual life style factors; living and working conditions; and general socio-economic, cultural and environmental conditions.
338. The Proposed Development is not considered to be of at a scale that would have overwhelming impacts on any of the above factors. It is therefore proposed to scope health out of the EIA, as significant effects are not considered to be likely. That said, the technical chapters of the ES will consider the effects on air quality and noise receptors, as well as the socio-economic chapter assessing the effects on existing health facilities.
339. The HIA is also not identified as a validation requirement by RBC.

TOPICS WHERE NO LIKELY SIGNIFICANT EFFECTS ARE ANTICIPATED

340. The following topics areas are not likely to have any significant effects as a result of the Proposed Development, and therefore will be scoped out of the EIA.

Highways and Transport

341. A full Transport Assessment (TA) will be undertaken, by Stantec, to determine the highways and transport effects of the Proposed Development. The TA will be submitted as a standalone document in support of the planning application.
342. As well as policy and guidance, the following will be used to inform the TA baseline conditions on the highways and transport networks (the baseline data will reflect the existing 2023 environment):
- Site visits;
 - Desktop research into relevant published information (e.g. timetables, planning application documents, public consultations);
 - Pre-Application consultation with RBC as the Local Highway Authority;
 - Personal Injury Collision Data; and
 - Car Park Occupancy and Traffic survey Data.
343. Highways and transport impacts and resultant effects can be considered under two scenarios:
- Construction – highways and transport related impacts and effects associated with the demolition of existing buildings / structures across the site and construction of the Proposed Development; and
 - Operational / Completed Development – highways and transport related impacts and effects following the development and full occupation of the site.
344. The proposed site is located within Reading town centre therefore within easy walking distance of high quality and high frequency public transport services. Numerous bus stops are accessible via a short walk which are served by approximately 30 routes which have frequencies in the range of 1 per hour to 8 per hour. The site is also within a 750m walking distance (approximately 9 minutes) of Reading Train Station, which has direct connections by rail to major destinations in the UK including London, Gatwick Airport, Bristol and the South West, Birmingham, and Southampton. The site is accessible by rail.
345. Primary vehicle access to the site is gained from the basement level which provides access to the shopping centre service area and Multi-Story Car Park (MSCP) access ramp. The basement level access roads can be accessed from the south via Castle Street and from the west via the A329 Inner

Distribution Road (IDR). To the east Hosier Street provides access to Dusseldorf Way, although general vehicle access onto Dusseldorf Way is restricted via bollards.

346. Pedestrian access to the site can be gained from multiple points around the site. Queens Walk and Dusseldorf Way, which form the west and southern boundary of the site, provide traffic free routes and link to Oxford Road and Hosier Street /St Mary's Butts. To the south pedestrian and cycle access is provided onto Castle Street via San Francisco Libre Walk.
347. RBC is the local planning and highway authority responsible for the local road network and National Highways (on behalf of the Department for Transport) responsible for the motorway and trunk road strategic network.
348. A car park occupancy survey was undertaken at the Broad Street Mall MSCP during November 2022, which recorded the number of vehicles parked in the multi-storey car park every 15 minutes for 24 hours per day, for Monday to Sunday. The survey company recorded a total of 740 marked spaces and a maximum parking demand of 562 vehicles which occurred on Tuesday at 12:45 – 13:00 hrs. Based on this, the multi-storey car park has 178 unoccupied spaces.
349. From the car parking survey, it was found that an average weekday has a peak occupancy of 422 vehicles between 13:45 – 14:00 hrs, thus having an occupancy rate of 59%, with 318 unoccupied spaces. While a weekend had an average peak occupancy of 467 between 12:45 – 13:15 hrs, thus having an occupancy rate of 65%, with an average of 273 unoccupied spaces.
350. The operational / completed development assessment would account for any measures embedded into the Proposed Development as part of the design and operational strategy to reduce the impact of the Proposed Development on highways and transport networks and in response to climate change e.g. secure high quality cycle parking for residents and visitors to encourage modal shift to active travel choices.

Potential Effects

Construction

351. **Severance** - During construction it will be necessary for various plant, equipment, and materials to be transported to the site. The estimated peak construction vehicle movements are equivalent to 4 HGV movements per hour (2 in, 2 out), 40 vehicle movements per day. .
352. During periods of the construction programme, the existing car park will be closed to allow for the partial demolition and new ramp construction. Associated parking demands will be relocated to other nearby town centre car parks, namely Q-Park Chatham Place and Riverside Car Park (Oracle). Once the MSCP is reopened, to reduce the interaction between construction vehicles and other vehicles in the basement level, all MSCP vehicle access/egress will be via the A329 to the west with car park access via Castle Street temporarily restricted. Delivery and servicing access requirements associated with the Hexagon will be retained as existing.
353. A Construction Logistics Plan (CLP) is expected to be secured through an appropriately worded planning condition to manage routing and arrival profile of construction related vehicles to minimise disruption to the surrounding area. Construction related vehicles are expected to arrive at the site directly from Castle Street which, based on its character and nature, is not particularly sensitive to construction road traffic related severance.
354. To enable the construction of the proposal development substructure and lower levels, for a temporary period Dusseldorf Way would be demolished to basement level. During this period, a temporary pedestrian access will be provided at ground level to maintain a level of pedestrian access linking through to Hosier Street to/from east. Queens Walk and San Francisco Libre Walk will remain open and continue to provide local access to Oxford Road and Castle Street.
355. The Proposed Development is not expected to result in changes to the external highway network which could affect severance and perceptions of severance.
356. No likely significant effects to severance or the perception of severance as a result of the construction works are therefore anticipated and as such, an assessment of severance during construction is scoped out of the EIA.
357. **Driver Delay** – No likely significant effects to driver/bus delay are anticipated on the basis that the

construction works are unlikely to generate congestion on the highway network which could affect delay to these receptors.

358. While Dusseldorf Way is used for construction access, temporary pedestrian and cycle access will be provided, and therefore will not create significant pedestrian and cyclist delay.
 359. Assessment of driver / bus delay and pedestrian and cyclist delay is therefore scoped out of the EIA.
 360. As the volume of construction related staff travelling by bus and train is unlikely to significantly increase from the baseline demand across the existing services, no likely significant effects to bus or rail delay are anticipated. As such, an assessment of public transport delay during the construction works is scoped out of EIA.
 361. **Amenity, Fear and Intimidation** - No likely significant effects to amenity, fear and intimidation are anticipated on the basis that the construction works are unlikely to result in changes to the highway and transport networks which could affect perceptions of amenity, fear and intimidation.
 362. The change in HGV activity associated with the construction works relative to the baseline conditions is unlikely to be perceptible. The presence and movement of construction vehicles will also be managed and mitigated through the CLP to minimise the potential for effects on amenity, fear and intimidation. Assessment of amenity, fear and intimidation during the construction works is therefore not considered to be significant and so has been scoped out of the EIA.
 363. **Accidents and Safety** - Traffic changes arising as a result of the construction works associated with the Proposed Development will be low and unlikely to be perceptible relative to baseline condition. As such, no likely significant effects associated with accidents and safety are anticipated and so any further consideration of this has been scoped out of the EIA. Road safety would also be further managed and mitigated through the Construction Logistics and Cycle Safety (CLOCKS) scheme and use of contractors registered on the Considerate Constructors Scheme.
 364. **Hazardous Loads** - The Proposed Development is not expected to generate or attract hazardous loads during the construction works; on this basis, no likely significant effects are anticipated and so an assessment of hazardous loads is scoped out of the EIA.
 365. Hazardous loads include substances such as explosives, flammable, toxic, corrosive or radioactive materials. Abnormal loads such as movement of tower cranes is not considered a hazardous load. Abnormal loads would be managed via agreements and licenses as appropriate.
- Operational / Completed Development*
366. **Severance** - The Proposed Development is not expected to result in changes which could detrimentally affect perceptions of severance during operation as no additional physical barriers are to be introduced.
 367. The development will result in a reduction of around 250-300 public parking spaces at the MSCP and as such potentially reduced vehicle trips to/from the shopping centre. The trip generation associated with this number of units is not anticipated to approach or exceed the 30% increase threshold on local network and the effect of the development is likely to be focussed around the access from the A329 with some vehicles potentially arriving at the development via Castle Street.
 368. No further assessment is proposed on the basis that likely significant effects are not anticipated for any surrounding road links.
 369. **Delay** – The Proposed Development is not expected to result in changes to the highway or transport networks which could affect perception of driver/bus delay, pedestrian and cyclist delay, and rail delay during its operation; no likely significant effects are anticipated to these receptors. Assessment of delay on these sensitive receptors is therefore scoped out of the EIA.
 370. **Amenity, Fear and Intimidation** - The Proposed Development will include a package of public realm proposals to Dusseldorf Way which would enhance the quality of the area along with active frontages. Therefore, is not expected to result in changes to the highway network which could affect amenity, fear and intimidation during its operation; no likely significant effects are anticipated to these receptors. Assessment of amenity, fear and intimidation on these sensitive receptors is therefore scoped out of the EIA.
 371. **Accidents and Safety** – The Proposed Development is not expected to result in changes to the highway network which could affect accidents and safety during its operation (any changes are likely to

be negligible and therefore not significant). Assessment of accidents and safety during the operation of the Proposed Development has therefore been scoped out of the EIA.

- 372. Hazardous Loads** – The Proposed Development is not expected to generate or attract hazardous loads once complete and occupied; on this basis, no likely significant effects associated with hazardous loads are anticipated. Assessment of hazardous loads during the operation of the Proposed Development has therefore been scoped out of the EIA.
- 373.** In summary, as no significant effects are anticipated, highways and transport has been scoped out of the ES.

Water Resources

Flood Risk and Surface Water Drainage

- 374.** Flood risk is regulated through the NPPF which requires a site-specific FRA to be produced for developments:
- Within Flood Zone 2 and 3;
 - Greater than one hectare in Flood Zone 1;
 - Less than 1 ha in flood zone 1 that could be affected by sources of flooding other than rivers and the sea; or
 - Within flood zone 1 which has critical drainage problems as notified by the Environment Agency.
- 375.** The Proposed Development is located within Flood Zone 1, located between the River Thames to the north and the River Kennet to the south and east. Flood Zone 1 is classified as an area where there is a low probability of fluvial and tidal flooding, having less than 1 in 1000 annual probability of flooding. The site is also at low risk from surface water flooding, this is defined as chance of 0.1% to 1% annually.
- 376.** Whilst within Flood Zone 1, the site is over 1 ha and therefore an FRA is required to be undertaken. The FRA will investigate the potential sources of flooding and demonstrate that any flood risk to the Proposed Development, or caused by the Proposed Development, is mitigated through the use of appropriate design solutions and management procedures.
- 377.** In line with local and national policy and best practice, the FRA will include an outline surface water drainage strategy. The outline surface water drainage strategy will demonstrate the optioneering work undertaken throughout the design evolution process for the sustainable management of surface water runoff through the use of sustainable drainage systems (SuDS) at the site.
- 378.** The surface water drainage strategy will reduce discharge rates for the new build elements to greenfield runoff rates in line with local policy requirements and therefore will aid in improving overall surface water capacity and therefore helps reduce surface water flood risk.
- 379.** The FRA will be informed by consultation with key stakeholders including the Environment Agency (EA), the RBC (both as local planning authority and in their role of Lead Local Flood Authority (LLFA)) and Thames Water (TW).
- 380.** It will also use the background information contained within strategic documents, such as the RBC Strategic Flood Risk Assessment (SFRA), SFRA Level 2 and Surface Water Management Plan (SWMP), and the Local Flood Risk Management Strategy (LFRMS).
- 381.** In summary, the FRA will investigate:
- Sources of flooding (i.e. tidal, surface water, groundwater and artificial water sources (e.g. reservoirs)) which could affect the site;
 - Structures influencing local hydraulics;
 - Probability of flooding;
 - Residual flood risk; and
 - Appropriate strategies for surface water drainage.

- 382.** Through a well informed and considered design process, with regard to flood risk and surface water drainage considerations, coupled with appropriate measures to manage the residual flood risk at the site following development, no significant effects associated with flooding and surface water drainage are likely.
- 383.** A list of some of these measures are outlined within the **Appendix C** of this Scoping document. It is envisaged that these measures would be included within the CEMP prepared for the site. The measures outlined within **Appendix C**, to be implemented during the period of construction works, will be presented within the introductory sections of the ES.
- 384.** In recognition that an FRA will be prepared and submitted in support of the planning application which will address in detail the issues identified above, a separate flood risk impact assessment (provided as part of a 'Water Resources, Drainage and Flood Risk' ES chapter) is not considered necessary and so will not be presented in the ES to avoid duplication.
- 385.** The results and conclusions of the FRA will however be presented in the introductory sections of the ES.

Wastewater (Foul Drainage)

- 386.** Foul water discharge rates are expected to increase as a consequence of the Proposed Development. However initial consultation via a capacity check with TW has indicated that foul water capacity for the development proposal exists without the need for offsite upgrade works.
- 387.** An outline foul water drainage strategy will be produced as part of the FRA which will detail consultant and agreements with TW regarding foul water capacity.
- 388.** In recognition that TW have already confirmed that capacity exists to cater for the Proposed Development, no significant effects associated with waste water discharges are anticipated as a result of the Proposed Development. On this basis, no further assessment work with regards to foul water drainage will be presented within the ES.
- 389.** The design principles set by the outline foul water drainage strategy (including assumptions on expected population living within the Proposed Development and estimated wastewater volumes) and its conclusions will be presented in the ES (in Chapter 3: The Proposed Development (Volume 1)).

Water Demand

- 390.** There is a potential impact in the form of increased potable water demand resulting from the Proposed Development. The expected increase in water demand as a consequence of the Proposed Development will be discussed with TW and where required additional capacity will be requested to supply the Proposed Development.
- 391.** The inclusion of water efficiency measures to reduce water usage, in addition to the implementation by TW of the Thames Water Resource Management Plan (i.e. management and provision of water supply at a strategic level which has been made to accommodate future projected housing, commercial and population growth), it is considered that sufficient measures will be in place for water demand to be met and so no likely significant effects are anticipated.
- 392.** In recognition of the above, no further assessment work with regards to potable water demand and supply will be presented within the ES.
- 393.** The ES will however summarise any discussions had with TW on this aspect (including assumptions on expected population living within the Proposed Development and estimated water demand) within the introductory sections of the ES.

Ecology

- 394.** A Preliminary Ecological Appraisal (PEA) has been undertaken of the site. This comprised a UK Habitat Classification survey (undertaken in December 2022 and July 2023), protected species assessment and ecological evaluation.
- 395.** FPCR Environment and Design Ltd produced a bat report in July 2023, reviewed as part of the PEA.
- 396.** The appraisal was prepared with reference to best practice guidance published by the Chartered

Institute for Ecology and Environmental Management (CIEEM, 2013), and as detailed within British Standard 42020:2013.

397. The findings of the PEA are summarised in this section.
398. There is one statutory nature conservation designations present within a 2km radius:
- Lousehill Copse Local Nature Reserve (LNR) located 2 km west of the site
399. The site is not subject to any non-statutory nature conservation designations. There are eight non-statutory designated sites (Local Wildlife Sites) within a 2km radius, the closest of which is Holy Brook (LWS) located approximately 490m south of site.
400. There are no records of ancient woodland Habitats of Principal Importance within 1km of from the site. There are areas of lowland mixed deciduous woodland and wet woodland within a 1km radius (at Holy Brook (LWS) and Cow Lane Depot (LWS)).
401. It is considered unlikely that the Proposed Development will have an impact on the above designated sites or priority habitats.
402. The survey identified that the site predominantly comprises hard standing and part of an existing shopping mall and multi-storey car park. A basement is present under the current shopping centre. There is a small area of species-poor, modified grassland with scattered trees to the south of the site.
403. The trees to the south of the site include semi-mature to mature London planes (*Platanus × hispanica*). Should the trees be felled to accommodate works, they should be replaced with sufficient street trees to compensate for their loss. Details will be included in the Biodiversity Net Gain report.
404. A total of 819 records of 11 species of bat were returned in the desk study. The FPCR Environment and Design Ltd Bat Report undertook a detailed internal and external bat roost assessment, concluding the buildings in the southeast of the site have a moderate suitability for roosting bats. Emergence/re-entry surveys undertaken in 2017 and updated in 2023 found no evidence of roosting bats. Additionally, the site has limited connectivity to areas of suitable foraging habitat, and the small areas of amenity and species-poor grassland and semi-mature trees within the urban park to the south of the site would provide limited foraging habitats for bats within the local area.
405. The site has the potential to support nesting birds (feral pigeons (*Columba Livia*). All nesting birds are protected under the Wildlife and Countryside Act 1981 (as amended). To comply with current legislation, and as the main concern is a nesting pigeon, a species that is known to breed throughout the year, it is recommend that a search is carried out prior to works starting at any time of year, although if works commence during the winter months it is probably less likely that there will be an active nest, but it cannot be ruled out unless a search has been made. Consequently, a search for nesting birds within the building up to 48 hours prior to any site works taking place must be undertaken by an experienced ecologist. If any nests are found, the nests are to be protected by an exclusion zone around the nest. Works may then proceed up to, but not within, this exclusion zone until such time as an ecologist confirms the young have fledged the nest. If nesting birds are found at any time during the works, work must stop immediately, and an ecologist must be consulted immediately. It should be noted that feral pigeon will breed throughout the year, and therefore a licence may be required to remove them legally unless they stop breeding.
406. In conclusion, the potential impacts on ecological features include mature trees and breeding birds. The felling of any mature trees will be compensated for through the planting of additional street trees. Potential impacts and legislation breaches relating to breeding birds will be mitigated by a check for nests by a suitably qualified ecologist immediately ahead of works commencing and protection of any active nests.
407. Based on the results of the PEA, it is considered that the Proposed Development does not have the potential to generate any significant ecological effects. As such, it is proposed to scope any further work relating to ecology out of the EIA.
408. Whilst significant effects are not considered to be likely, recommendations to enhance the biodiversity value of the site in accordance with national and local planning policies and the Reading Biodiversity Action Plan (BAP) comprise the inclusion of wildlife planting, flowering lawn, provision of bird nesting opportunities, bug hotels, log piles and biodiverse green roof / biosolar options. Measures proposed as part of the proposed landscaping designs to enhance the ecological value of the site (and their

associated biodiversity benefits) will be described in the introductory sections of the ES.

Archaeology

409. An Archaeological Desk-Based Assessment (DBA) of the Proposed Development has been undertaken⁴⁶.
410. The DBA is a desk-based study which assesses the impact on buried heritage assets (archaeological remains). The DBA comprises an examination of evidence on the Berkshire Archaeology Historic Environment Record (BHER) and other sources, in particular the results of previous archaeological work from within the vicinity of the site. The DBA presents the archaeological potential of various part of the site, by drawing on the available archaeological, topographic and land-use information.
411. The DBA identified that there are no World Heritage, Historic Battlefield or Historic Wreck study sites lie within, or within the study area (note, the study area was a 250 m radius around the site).
412. The Reading AAP lies adjacent, to the south, east and north, of the site. This designation comprises areas indicated as having the potential for archaeological discoveries. The archaeological potential can be influenced by geological, land use and topographical factors.
413. According to the Historic Environment Record projection of the Saxon Reading settlement, the north-west corner of this extended into the eastern half of the site. A range of finds dating to this period have been found from c 70m to the east of the site suggesting that the site would have been on the periphery of the Saxon settlement.
414. Reading was subject to considerable urban development during the medieval period, which is reflected in the fact that archaeological investigations nearby have revealed evidence of occupation along Hosier Street, to the south of the site, as well as further structural and cut features in the wider study area. Abraded human remains have been found at the Civic Centre 70m south of the site. These remains have not been dated and it is not known whether they represent an anomaly or are indicative of further interments in the area.
415. Cartographical evidence provides evidence that the site has been developed since at least the 17th century. In the 19th century the site was almost fully occupied by a combination of commercial, industrial and residential buildings. By 1912 a timber yard, associated with a saw mill, is noted on the west of the site. By 1931-1983 the site has been redeveloped as residential buildings. It is noted in mapping from 1962 the site comprises a garage and car park. Historical mapping from 1969-1970 shows the site to be undeveloped. With the current site development present on site from 1979-1983, with the multi-storey car park noted on historical mapping from 1980-1986.
416. The site can be considered to have a low to moderate potential for post-medieval remains, low to moderate potential for Saxon remains and low to moderate potential for late medieval remains.
417. The existing basement covers approximately 88% of the site and will have removed all archaeological remains within its footprint.
418. Five percent of the remaining site is located at the northern edge of the footprint and is described on the topographic survey as a 'floated area'. It is assumed for the purposes of assessment that the depth of truncation is at least as deep as that of the existing basement levels.
419. The remaining 7% of the site at the eastern edge and south-east corner of the footprint will also have been disturbed as part of the process of excavating the existing basement and the construction of the retaining walls. It is thus also very likely that this area has been heavily disturbed however this has not been confirmed.
420. Although the precise details would need to be agreed with the RBC's archaeological advisor, it is suggested that the most appropriate investigation strategy is likely to entail geo-archaeological boreholes to determine the depth of the underlying deposits in the areas outside of the existing basement. The results would be used to target further archaeological evaluation if necessary to confirm the presence, nature and significance of archaeological remains. This would in turn enable an informed decision to be made in respect of an appropriate mitigation strategy for any significant archaeological

⁴⁶ As the Reading Borough Council validation checklist does not require an Archaeological DBA for the temporary construction Planning Application, this is not specifically covered within the appended DBA. However, a review of the proposals confirm that, the conclusions remain the same in that significant effects to archaeology would not be identified.

assets, such as targeted excavation, and / or a watching brief during ground works for remains of lesser significance. This would ensure that significant archaeological assets are not removed without record.

421. Any archaeological work would need to be undertaken in accordance with a Written Scheme of Investigation (WSI) and could be carried out under the terms of a standard archaeological planning condition set out with the granting of planning consent.
422. On the basis that the DBA has defined the potential for remains of limited heritage significance only, the development of the site is unlikely to generate any significant archaeological (buried heritage assets) related effects. The likely effects can be adequately managed so as not to cause unacceptable harm to any surviving assets.
423. As such, it is considered that the likely archaeological effects are sufficiently well understood and that based on the information currently available, it is likely that the residual archaeological effects would not be significant.
424. Furthermore, planning conditions attached to the planning permission are envisaged to cater for any further required archaeological work and subsequent recording and reporting prior to the start of works on site.
425. On this basis, an archaeological impact assessment has been scoped out of the EIA. The DBA will however be submitted in support of the planning application the ES (Volume I) will cite the above measures (specifically those that would be undertaken pursuant to planning conditions attached to the planning permission).

Geoenvironmental (Land Contamination, Ground Conditions and Groundwater)

426. A Phase 1 Environmental Desktop Study for the site has been undertaken. The review was undertaken by desk-based research.
427. Historical maps indicate that from at least 1879, the site comprised numerous unlabelled (assumed residential) properties and commercial buildings. Furthermore, at this time, steam saw mills and a timber yard were labelled within the north-western area of the site and a brewery ('Lion Brewery') was labelled within the southern area of the site. By 1895, the brewery on-site had been re-labelled as a furniture depository and by 1899, a smithy was present within the north-western area of the site. Between 1931 and 1957 the timber yard and saw mills had been redeveloped into a car park and a garage was present within the centre of the site. By 1958 a 'sunk petrol tank' was labelled adjacent to the east of the garage on-site and a furniture warehouse was labelled within the eastern area of the site. Furthermore, by this time an electricity sub-station, a rifle range and two further small garages were labelled within the southern area of the site. By 1970 the majority of the site (apart from the furniture warehouse within the eastern area of the site) had been cleared. Between 1970 and 1973, the entire site had been redeveloped into a shopping centre ('The Butts Centre') forming much of the current site layout. Furthermore, at this time a public house was present within the southern area of the site. By 1988 the shopping centre had been re-labelled as 'The Broad Street Mall' and by 1990, the public house on-site was no longer labelled (assumed cleared). By 1999, a fire station was located in the southeast of the site, and a public house was located adjacent to the smithy which is referenced above.
428. The site is partially located within the an existing shopping mall ('Broad Street Mall') arranged over basement level, ground floor and one upper floor. This includes part of the existing multi-storey car park. The existing basement level extends underneath the development and includes numerous plant rooms, the main waste storage area and numerous storage rooms associated with the retail units on-site.
 - A walkover of the site confirmed that there are 5 electricity sub-stations within the Broad Street Mall basement area. At least 2 of them appear to fall within the area intended for redevelopment.
 - Surface water and foul water are both disposed of into foul water sewers.
 - There were 2 main gas inlet locations within the basement, and the gas pipes are overhead rather than underground services.
 - There is a sewage pit located in the basement. It is understood that the sewage pit acts as a sump which discharges into the foul water sewers.

- There are multiple waste disposal wheelie bins being stored in the basement.
 - The facility keeps three 200litre drums of diesel on site to power generators. There are two generators on site, one for electricity and one to power the sprinkler system in case of a fire, they are tested once a week.
 - There is a 400,000 gallon water tank located beneath the basement to supply the sprinklers in the case of a fire.
429. The British Geological Survey (BGS) 1:50,000 Digital Geological Map of Great Britain shows that the site is underlain by superficial deposits relating to the Taplow Gravel Member (Sand and Gravel). The Taplow Gravel Member comprises a succession of sand and gravel, locally with lenses of silt, clay or peat. The bedrock geology underlying the site comprises the Seaford Chalk Formation and Newhaven Chalk Formation (undifferentiated), part of the White Chalk subgroup. The Chalk is underlain by the Upper Greensand and the Gault Formation at depth.
 430. Regarding the surrounding geology, alluvial deposits (associated with the nearby river and its tributaries) are located to the north and the south of the site. River Terrace Deposits (sands and gravels) overlie the London Clay Formation south of the site. The Lambeth Group can be found to the southwest of the site, which is overlain by the Lynch Hill Gravel Member.
 431. There is no available data for the made ground. However, it is known that the existing foundations bear onto natural strata at basement level and therefore any made ground which may have existed prior to construction of the mall is likely to have been removed. The ground surrounding the site is retained by the basement structure, which would have been backfilled against the retaining wall utilizing suitable excavated material. Historic borehole records from 1968 show a variable thickness of made ground ranging from 1.8m to 3.3m below ground level. Based on the knowledge that the existing foundations bear onto natural strata it is likely that made ground was removed prior to construction of the shopping mall, but it should be noted that historically there was a significant thickness of made ground and it cannot be ruled out that it is no longer present.
 432. The BGS Database identifies the following geological risks within 100m around the site boundary and their associated risk rating:
 - Potential for Collapsible Ground – Very Low;
 - Potential for Compressible Ground Stability Hazards – Negligible;
 - Potential for landslide ground instability – Very Low;
 - Potential for Running Sand Ground – Very Low;
 - Potential for shrinking or swelling Clay – Negligible; and
 - Potential for soluble rocks – High.
 433. Based on the Edmund's risk assessment model for natural dissolution features referred to in CIRIA Report C574 (Lord et al. 2002), the site falls into the 'moderate anticipated subsidence risk' category. With reference to Edmund's database of known natural and man-made chalk solution features there are 4 solution pipes within 500m of the site (157m NW, 222m SE, 249m E, 256m SE), and a chalk mine shaft entry located 695m SW.
 434. The environmental database report describes the presence of the underground Reading Chalk Mines located 327m southwest of the site, which are not illustrated on the historic maps. The extent of the mines beneath Reading seems to be relatively unknown, and there have been incidents of extreme damage to residential homes due to previously unknown underlying mines collapsing.
 435. According to the environmental database report, the superficial Taplow Gravel Member underlying the site and the nearby alluvium deposits to the north and south of the site form a Secondary A Aquifer. This aquifer comprises permeable layers capable of supporting water supplies at a local rather than strategic scale, and in some cases forming an important source of base flow to rivers. These are generally aquifers formerly classified as minor aquifers.
 436. The underlying Seaford and Newhaven Chalk Formation is designated as a Principal Aquifer, geology comprising high intergranular and/or fracture permeability - meaning they provide a high level of water

storage. They may support water supply and/or river base flow on a strategic scale.

437. A surface water features (Holy Brook) is located approximately 154m southeast. Groundwater abstractions are present within a 1km radius of the site (for various retail, commercial / industrial / public services).
438. The site is not located within a Source Protection Zone.
439. A preliminary contamination risk assessment has been carried out using best practice methodology in the context of the site setting, assessing the potential pollutant linkages to site receptors. The conceptual site model (CSM) identifies the site as generally having a very low risk to current and future users, workers, neighbouring residents and construction workers. The main findings of the study can be summarised as set out below.
440. The site has been subjected to significant industrial use during its history, including on site uses of steam sawmill, smithy, brewery, car park and garage. This is likely to have resulted in the introduction of a variety of soil contaminants to the site, however, the current shopping centre and the proposed development are hard-standing underlain entirely by a basement and therefore there is no viable pathway associated with impacted soil and current/future site users. Please note that construction workers and future maintenance workers have not been identified in the conceptual model as receptors because risks are considered to be managed through health and safety procedures according to the CDM Regulations.
441. The low risk associated with potentially impacted soils beneath the site is based on the understanding that the proposed development comprises high rise apartment blocks and ground floor retail units underlain entirely by a basement – with the only soft-landscaping comprising podium level communal landscaping, for which it is assumed topsoil and subsoil will be imported. No site-won soils will be used for communal soft-landscaping. Should the development intend to reuse site-won soils, further investigation will be required.
442. The Phase 1 desk-study has identified risks associated with potential ground gas arising from both on-site and off-site made ground which may be of a significant thickness, infilled ground associated with opencast mining from the Lambeth Group (600m south/southwest), and an infilled pond (300m northeast) and potential mine gas originating from underground chalk mines located 327m southwest. The granular and porous nature of the underlying geology represents a viable pathway for any potential ground gas.
443. The site is designated as having a low risk for Unexploded Ordnance (UXO). The risk associated with UXO is considered further minimized due to the previous development on site, including the basement, and the limited scope of intrusive works associated with the Proposed Development.
444. A geotechnical ground investigation is recommended, to assess the risk of instability due to soluble rock, any ground strengthening works which may be required will be developed once the findings of the intrusive ground investigation are made available. Please note the presence of solution pipes close to the site (157m NW, 222m SE, 249m E, 256m SE), and the unlikely but possible presence of unknown chalk mines in the area.
445. Based on the findings of the study undertaken to date, it is considered that further investigation is required to establish any risk associated with ground gas. This would require the installation of a number of gas monitoring wells, with weekly monitoring visits being undertaken for a period of 4-6 weeks. At least one of the monitoring rounds must be undertaken at low pressure.
446. It is anticipated that the proposed mitigation / management and monitoring measures will be secured by the RBC through appropriately worded planning conditions, which will be attached to the planning permission and which will secure further detailed geoenvironmental analyses, including but not limited to: carrying out ground investigations to establish geotechnical parameters to inform design. On this basis, a ground conditions impact assessment is scoped out of the EIA.

Waste and Materials

447. Mitigation measures to avoid, remedy or mitigate adverse effects in terms of material consumption, waste and recycling during the construction can include:
- Provision of a CEMP to include waste and material reduction and management objectives;

- The appropriate management of any potential contamination identified on-site; and
 - The minimising of stockpiling of construction materials and consideration of material quantities to avoid over-ordering.
448. The specific mitigation measures to be implemented throughout the construction works will be outlined within the introductory chapters of the ES. Through the implementation of mitigation measures, amount of waste generated and materials consumed will be minimised.
449. An operational waste and recycling management strategy will be prepared and will calculate waste storage provisions based on unit mix and area schedule and will outline associated waste management measures. The Proposed Development will be designed to accommodate the required waste storage. In particular, the strategy will provide details on how each waste stream generated from each use class will be managed, and details on how waste will be reduced, minimised and recycled, where possible (in line with the Waste Hierarchy). Measures relating to the Proposed Development once complete and occupied, including a summary of the waste strategy, will be presented in the introductory chapters of the ES.
450. The ES will also set out the approximate type and quantities / volumes of materials that are anticipated to be required for the construction of the Proposed Development.
451. With these measures in place, it is considered that the likely waste and materials effects would not be significant. As such, no technical waste assessment is proposed to be undertaken, but as stipulated above, will be referenced as appropriate within the ES, and where appropriate, appended to the ES.
452. It is therefore proposed to scope out waste and materials from the EIA.

FORMAT AND CONTENT OF THE EIA

453. The proposed scope and structure of the ES is as follows:
- **ES Volume 1: Main ES** – a document which forms the main body of the ES and which comprises of the following non-technical and technical chapters:
 - Chapter 1: Introduction ;
 - Chapter 2: EIA Methodology
 - Chapter 3: Alternatives and Design Evolution;
 - Chapter 4: The Proposed Development;
 - Chapter 5: Demolition and Construction;
 - Chapter 6: Socio-Economics;
 - Chapter 7: Air Quality;
 - Chapter 8: Noise and Vibration;
 - Chapter 9: Daylight, Sunlight and Overshadowing;
 - Chapter 10: Wind Microclimate;
 - Chapter 11: Climate Change;
 - Chapter 12: Effect Interactions;
 - Chapter 13: Likely Significant Effects and Conclusions;
 - Chapter 14: Environmental Management, Mitigation and Monitoring Schedule; and
 - Chapter 15: Glossary and Abbreviations.
 - **ES Volume 2: Townscape, Built Heritage and Visual Impact Assessment** – a separate townscape, built heritage and visual impact assessment (THVIA) document that will be accompanied by a full set of views and verified images, as agreed with RBC;
 - **ES Volume 3: Technical Appendices** – comprises background data, technical reports, tables, figures and surveys.
 - **ES Non-Technical Summary (NTS)** - this will be a separate document providing a concise description of the Proposed Development, the alternatives considered, identified mitigation measures and the residual likely significant environmental and socio-economic effects.
454. Schedule 4 of the EIA Regulations sets out the information for inclusion within an ES. In response to this schedule of the EIA Regulations, **Appendix B** provides a ‘way-finding’ table which sets out the information for inclusion within an ES and where this information will be presented within the ES.

APPENDIX A – Cumulative Schemes

For the Proposed Development, the following preliminary list and map of cumulative schemes have been identified for consideration within the EIA (**Table A.1** and **Figure A.1**).

Table A.1 Details of Existing or Approved Projects to be Included in the Cumulative Schemes

Reference	Cumulative Scheme	Application No.	Scheme Description	Status at Scoping
1	52-55 Friar Street Reading and 12 Greyfriars Road, RG1 1DX	162210	Demolition of existing building and structures (Class A1) and erection of 3 new buildings ranging between 6 - 12 (and basement) storeys in height to provide 135 (1xstudio, 54x1, 73x2 & 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 Rd, with associated access, parking, servicing, landscaping and engineering works (amended description).	Permitted (Not yet under construction)
2	Station Hill, Reading	130436	Outline application for mixed use redevelopment of the site through the demolition and alteration of existing buildings and erection of new buildings & structures to provide Offices (Use Class B1), a range of town centre uses including retail and related uses (Use Class A1- A5) leisure (Use Class D2) and residential units, associated infrastructure, public realm works and ancillary development (all matters reserved).	Permitted ⁴⁷ Under construction – Phase 1 due to complete in Q3, 2023.
		192032	i) application for Full Planning Permission for Phase 2 (Plot G and public realm) including demolition of existing structures, erection of an eighteen storey building containing office use (Class B1) and flexible retail, non-residential institution and assembly and leisure uses (Class A1, A2, A3, A4, A5, D1 and D2). Provision of podium deck, vehicular access and parking. New public open space and landscaping. Bridge link over Garrard St. ii) Application for Outline Planning Permission for Phase 3 (all Matters reserved) for four building plots (A, B, C and D). Demolition of existing buildings and structures. Mixed-use redevelopment comprising residential dwellings (Class C3), hotel (Class C1), residential institutions (Class C2), office use (Class B1), Flexible Retail, financial and professional services, restaurants and cafes, drinking establishments, hot food takeaways, non-residential institutions and assembly and leisure (Class A1, A2, A3, A4, A5, D1 and D2). Provision of podium deck and basement storey running beneath Phase 2 and 3. Formation of pedestrian and vehicular access. Means of access and circulation and car parking within the site. Provision of new public open space and landscaping.	Permitted in July 2021
		220594	Non-Material Amendment to permission 192032. Amendments to Plot G: Internal changes to office entrance lobby layout; Additional entrance to retail units; Reconfiguration of office toilet layouts; Provision of glazed 'box' meeting room at first floor; Amendments to terrace access doors at eight and fifteenth floors.	Permitted in July 2022
		201532	Outline application under s.73 of the Town & Country Planning Act 1990 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 & 4 to 20 Garrard Street) to comprise the demolition of existing buildings and erection of new buildings/ structures to provide residential units (Use Class C3), a range of town centre uses, including retail and related uses (Use Class E (a),(b) and (c); Drinking establishments (sui generis) and Hot food takeaways (sui generis)), and leisure uses (Use Class E (d), (e), and (f); Class F.1; Class F.2; and Theatres; Cinemas; Concert Halls; Bingo Halls; Dance Halls (sui generis)), associated infrastructure, public realm works and ancillary development as permitted by planning permission 190442 granted on 6 December 2019 (as amended).	Permitted in July 2021
		201536	Outline application (pursuant to Section 73 of the Town & Country Planning Act 1990) for mixed use redevelopment of the site through the demolition and alteration of existing buildings and erection of new buildings & structures to provide	201536

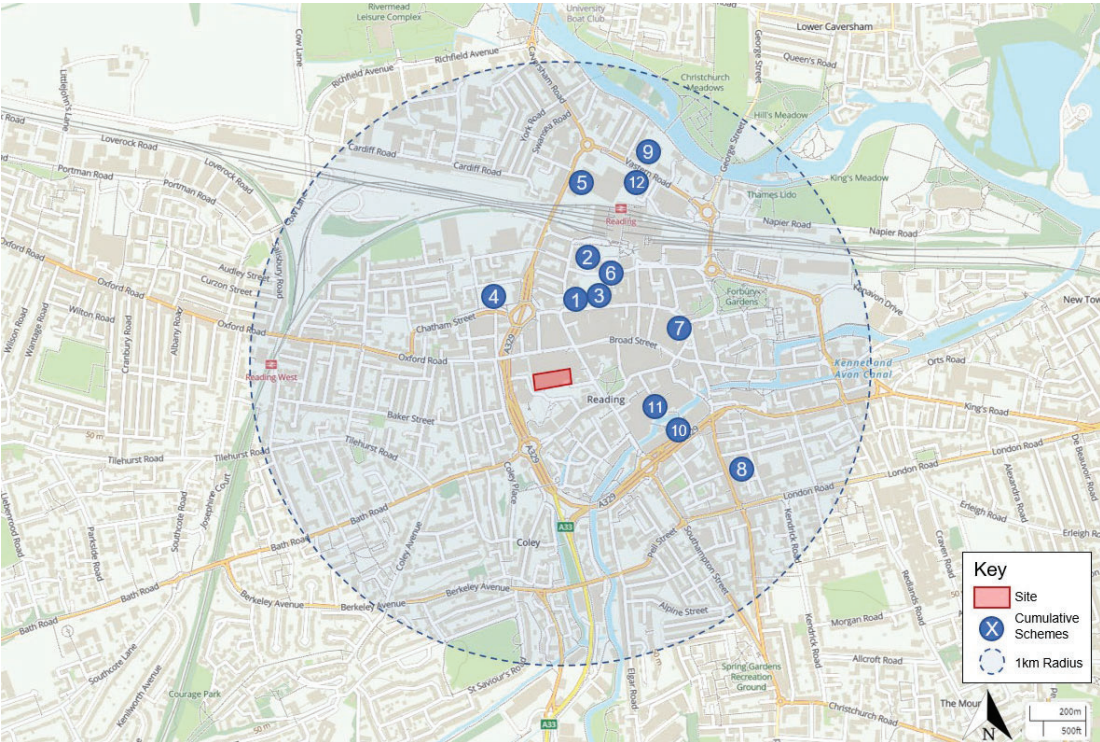
⁴⁷ The first Built-to-Rent homes in Phase One will be ready for occupation from Q3 2023 and work is also underway on Phase Two – featuring ONE, a 275,000 sq ft office building alongside 2 acres of public realm ready for occupancy by early 2024. <https://www.stationhill.co.uk/info/>

Reference	Cumulative Scheme	Application No.	Scheme Description	Status at Scoping
			Offices (Use Class E (g)(i) and (g) (ii)), a range of town centre uses including retail and related uses (Use Class E (a),(b) and (c); Drinking establishments (sui generis) and Hot food takeaways (sui generis)), leisure and community (Use ClassE (d), (e), and (f); Class F.1; Class F.2; and Theatres; Cinemas; Concert Halls; Bingo Halls; Dance Halls (sui generis)), and residential units (Use Class C3), associated infrastructure, public realm works and ancillary development (all matters reserved) as permitted by planning permission 190441 granted on 6 December 2019 (as amended).	
3	Plot E & Telecom House Land Friar Street/ Garrard Street Station Hill RG1 1DX	151426	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 & 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.	Permitted Under construction – Phase 1 due to complete in Q3, 2023.
4	Land between Weldale Street and Chatham Street Reading	170326	Demolition of all existing buildings (including 3 retail units) and structures, and erection of new buildings ranging between lower ground& 4 storeys to lower ground & 11 storeys in height, providing 427 (233x1, 182x2 & 12x3-bed) residential units (Class C3) and 1 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).	Permitted Under construction, Phase 1 complete and Phase 2 due to complete in 2025/49.
5	Former Sorting Office, Caversham Road / Vastern Road	110024	Outline planning application for business uses (Use Class B1), residential accommodation (Use Class C3), hotel (Use Class C1), retail floor space (Use Class A1), food and drink uses (Use Class A3, A4 and A5), leisure uses (Use Class D2), and associated car parking, open space and landscaping, highways, access and associated works.	Permitted
6	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 (ClassA1, A2 or A3) use at part ground floor level, a 135-bedroom hotel (Class C1) at 1st to 16th floors and offices (Class B1a) at 17th to 21st floors, associated servicing from Garrard Street and other associated works (amended description).	Permitted
7	Bristol & West Arcade Market Place Reading RG1 1JL	180358	Demolition of vacant former Bristol & West Arcade (173 – 175 Friar Street) and erection of an eight storey mixed–use building (plus basement) to provide 35 residential units, 4,212 sqm of B1 office floorspace, and 5 retail units (A1/A2/A3), demolition of rear parts of 29 – 31 and 32 Market Place, the change of use of the retained units at 27 – 28, 29 - 31 Market Place at first, second and third floors to provide 8 residential units, change of use at ground and basement level of 32 Market Place from A2 to flexible retail use (A1/A2/A3), retention of 260.4 sqm of A4 use at ground and basement at 29-31 Market Place, change of use at ground and basement of 27 - 28 Market Place to flexible retail use (A1/A2/A3), and associated internal and external works to the Listed Buildings, landscaping, refuse, plant, cycle stores and substation at basement level.	Permitted

⁴⁸ Note – Plot E seems to be combined with the BTR aspect of the Station Hill, Reading scheme (ref 2).
⁴⁹ <https://www.linkedin.com/pulse/crossmark-appointed-phase-2-domain-weldale-st-reading-glen-ingleson/>

Reference	Cumulative Scheme	Application No.	Scheme Description	Status at Scoping
8	Former Car Park East Street Reading RG1 4QH	181849	Erection of a part 4 part 5 storey building (plus basement) to provide 135 units of purpose built student accommodation and associated facilities (Sui Generis), landscaping and access	Permitted
9	55 Vastern Road Reading RG1 8BU	200188	Demolition of existing structures and erection of a series of buildings ranging in height from 1 to 11 storeys, including residential dwellings (C3 use class) and retail floorspace (A3 use class), together with a new north-south pedestrian link, connecting Christchurch Bridge to Vastern Road	Permitted
10	Existing Vue Cinema Complex Land West of Yield Hall Place / London Road The Oracle Reading RG1 2AG	221917	Mixed use development comprising demolition of existing buildings and erection of new building comprising up to 247 no. build-to-rent residential dwellings (Class C3) and up to 3,046 sqm commercial floorspace comprising cinema (Sui Generis) and ground floor commercial uses within Use Class E and / or Bar (Sui Generis Use). Associated public realm and infrastructure works.	Pending
11	Former Debenhams Department Store West of Yield Hall Place The Oracle RG1 2AS	221916	Mixed use development comprising part demolition of former department store and erection of new building comprising up to 202 no. build to rent residential dwellings (Class C3) and 1,209 sqm commercial uses within Uses Class E and / or bar (Sui Generis Use). Reconfiguration and change of use of up to 5,866 sqm remaining department store floorspace (Class E) to uses within Use Class E and / or bar (Sui Generis Use) and / or experiential leisure use (Sui Generis Use). Associated public realm, infrastructure works and external alterations to shopping centre, including creation of new shopping centre entrance.	Pending
12	Vastern Court Caversham Road Reading	200328	Outline planning permission with the details of access, appearance, landscaping, layout and scale reserved for later determination. A demolition phase and phased redevelopment (each phase being an independent act of development) comprising a flexible mix of the following uses, Residential (Class C3 and including PRS), Offices (Use Class B1(a), development in Use Classes A1, A2, A3 (retail), A4 (public house), A5 (take away), D1 and D2 (community and leisure), car parking, provision of new plant and renewable energy equipment, creation of servicing areas and provision of associated services, including waste, refuse, cycle storage, and lighting, and for the laying out of the	At Appeal – Appeal due to be decided by late September 2023.

Figure A.1 Cumulative Schemes Map



APPENDIX B – Information for Inclusion within an ES: Way Finding

455. Table B.1 is a wayfinding table outlining the expected layout and organisation of the final ES.

Table B.1 Wayfinding table

	Information for Inclusion in Environmental Statements, as Specified in Schedule 4 of the EIA Regulations 2017	How the EIA addresses the Information Specifications
1.	A description of the development, including in particular:	
(a)	a description of the location of the development;	ES Volume 1: Chapter 1: Introduction and EIA Methodology
(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;	ES Volume 1: Chapter 3: The Proposed Development Chapter 4: Construction
(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.	ES Volume 1: Chapter 3: The Proposed Development
	...nature and quantity of the materials and natural resources (including water, land, soil and biodiversity) used; and	ES Volume 1: Chapter 3: The Proposed Development Chapter 4: Construction
(d)	an estimate, by type and quantity, of expected residues and emissions (such as water, ...	ES Volume 1: Chapter 1: Introduction and EIA Methodology ES Volume 3: Appendix EIA Methodology
	...air, ...	ES Volume 1: Chapter 6: Air Quality ES Volume 3: Appendix Air Quality: Supporting Technical Data
	...soil and subsoil pollution,...	ES Volume 1: Chapter 1: Introduction and EIA Methodology ES Volume 3: Appendix EIA Methodology
	...noise, vibration, ...	ES Volume 1: Chapter 7: Noise and Vibration ES Volume 3: Appendix Noise and Vibration: Supporting Technical Data
	...light, ...	ES Volume 1: Chapter 1: Introduction and EIA Methodology Chapter 8: Daylight, Sunlight and Overshadowing ES Volume 3: Appendix EIA Methodology Appendix Daylight, Sunlight and Overshadowing
	...heat, radiation and ...	ES Volume 1: Chapter 3: The Proposed Development Chapter 8: Daylight, Sunlight and Overshadowing ES Volume 3: Appendix Daylight, Sunlight and Overshadowing Appendix Climate Change: GHG Emissions Assessment
	...quantities and types of waste produced during the construction and operation phases;	ES Volume 1: Chapter 3: The Proposed Development Chapter 4: Construction

	Information for Inclusion in Environmental Statements, as Specified in Schedule 4 of the EIA Regulations 2017	How the EIA addresses the Information Specifications
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.	ES Volume 1: Chapter 2: Alternatives and Design Evolution
3.	A description of the relevant aspects of the current state of the environment (baseline scenario) ...	ES Volume 1: Chapter 1: Introduction and EIA Methodology Technical Chapters 5 – 9 ES Volume 3: Appendix Climate Change: GHG Emissions Assessment
	...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.	ES Volume 1: Chapter 1: Introduction and EIA Methodology Technical Chapters 5 – 9
4.	A description of the factors specified in regulation 4(2) likely to be significantly affected by the development: population, human health, ...	ES Volume 1: Chapter 5: Socio-Economics ES Volume 3: Appendix EIA Methodology
	...biodiversity (for example fauna and flora), ...	ES Volume 1: Chapter 1: Introduction and EIA Methodology ES Volume 3: Appendix EIA Methodology
	...land (for example land take), ...	ES Volume 1: Chapter 1: Introduction and EIA Methodology ES Volume 3: Appendix EIA Methodology
	...soil (for example organic matter, erosion, compaction, sealing), ...	ES Volume 1: Chapter 1: Introduction and EIA Methodology ES Volume 3: Appendix EIA Methodology
	...water (for example hydromorphological changes, quantity and quality), ...	ES Volume 3: Appendix EIA Methodology
	...air, ...	ES Volume 1: Chapter 6: Air Quality ES Volume 3: Appendix Air Quality: Supporting Technical Data
	...climate (for example greenhouse gas emissions, impacts relevant to adaptation), ...	ES Volume 1: Chapter 2: Alternatives and Design Evolution Chapter 3: The Proposed Development Technical Chapters 5 – 9 ES Volume 3: Appendix Climate Change: GHG Emissions Assessment
	...material assets, cultural heritage, including architectural and archaeological aspects, and landscape...	ES Volume 1: Chapter 1: Introduction and EIA Methodology ES Volume 2: Townscape, Built Heritage and Visual Impact Assessment ES Volume 3: Appendix EIA Methodology

	Information for Inclusion in Environmental Statements, as Specified in Schedule 4 of the EIA Regulations 2017	How the EIA addresses the Information Specifications
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.	ES Volume 1: Chapter 4: Construction
(b)	the use of natural resources, in particular land, soil, ...	ES Volume 1: Chapter 3: The Proposed Development Chapter 4: Construction
	...water and ...	ES Volume 3: Appendix EIA Methodology
	...biodiversity, ...	ES Volume 1: Chapter 1: Introduction and EIA Methodology Chapter 3: The Proposed Development ES Volume 3: Appendix EIA Methodology
	...considering as far as possible the sustainable availability of these resources;	ES Volume 1: Chapter 3: The Proposed Development Technical Chapters 5 – 9
(c)	the emission of pollutants, ...	ES Volume 1: Chapter 1: Introduction and EIA Methodology Chapter 7: Air Quality ES Volume 3: Appendix EIA Methodology Appendix Air Quality: Supporting Technical Data Appendix Climate Change: GHG Emissions Assessment.
	...noise, vibration,...	ES Volume 1: Chapter 8: Noise and Vibration ES Volume 3: Appendix Noise and Vibration: Supporting Technical Data
	...light, ...	ES Volume 1: Chapter 1: Introduction and EIA Methodology Chapter 8: Daylight, Sunlight and Overshadowing, ES Volume 3: Appendix EIA Methodology Appendix Daylight, Sunlight and Overshadowing
	...heat and radiation, ...	ES Volume 1: Chapter 3: The Proposed Development Chapter 8: Daylight, Sunlight and Overshadowing ES Volume 3: Appendix Daylight, Sunlight and Overshadowing
	...the creation of nuisances, ...	ES Volume 1: Chapter 8: Noise and Vibration ES Volume 3: Appendix Noise and Vibration: Supporting Technical Data
	...and the disposal and recovery of waste;	ES Volume 1: Chapter 3: The Proposed Development Chapter 4: Construction
(d)	the risks to human health, cultural heritage or the environment (for example due to accidents or disasters);	ES Volume 1: Chapter 1: Introduction and EIA Methodology ES Volume 2:

	Information for Inclusion in Environmental Statements, as Specified in Schedule 4 of the EIA Regulations 2017	How the EIA addresses the Information Specifications
		Townscape, Built Heritage and Visual Impact Assessment ES Volume 3: Appendix EIA Methodology
(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;	ES Volume 1: Technical Chapters 5 – 9 Chapter 10: Effect Interactions
(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; and	ES Volume 1: Chapter 3: The Proposed Development ES Volume 3: Appendix Climate Change: GHG Emissions Assessment
(g)	the technologies and the substances used.	ES Volume 1: Chapter 3: The Proposed Development Chapter 4: Construction Technical Chapters 5 – 9
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.	ES Volume 1: Chapter 1: Introduction and EIA Methodology Technical Chapters 5 – 9
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.	ES Volume 1: Chapter 3: The Proposed Development Chapter 4: Construction Technical ES Chapters 5 – 9 Chapter 12: Mitigation & Monitoring Schedule
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(c) of the European Parliament and of the Council or Council Directive 2009/71/Euratom(d) 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.	See section 'EIA and the Scoping Process – Project Vulnerability' of this report
9.	non-technical summary of the information provided under paragraphs 1 to 8.	ES Non-Technical Summary
10.	A reference list detailing the sources used for the descriptions and assessments included in the environmental statement.	ES Volume 1: Chapter 1: Introduction and EIA Methodology Technical Chapters 5 – 9

APPENDIX C – Mitigation Register – Water Resources

456. Table F.1 provides a list of potential water resource mitigation measures which could be included in the final Proposed Development.

Table F.1 Water Resource Mitigation Register

WATER RESOURCES, DRAINAGE AND FLOOD RISK: MITIGATION MEASURES
Through the design of the Proposed Development, the adoption of best practice construction methods, and management controls once the Proposed Development is complete and occupied there are various measures that can be considered as embedded mitigation which will reduce the risk and hence likelihood that some potential effects on water resources or flood risk would occur. Best practice construction methods and other measures will be developed and detailed in the Construction Environmental Management Plan (CEMP) for the Proposed Development which will be prepared and agreed with the RBC in advance of construction.
Sediment in Runoff
- The following mitigation measures for sediment in runoff will be embedded within the CEMP and implemented during the Site works; - Site access points will be regularly cleaned to prevent build-up of dust and mud; - Earth movement will be controlled to reduce the risk of construction silt combining with the Site surface water runoff; - Properly contained wheel wash facilities will be used where required, to isolate sediment rich runoff; and - Drainage of surface runoff and de-watering effluents to settling tanks to remove suspended solids prior to discharge to sewer or removal by a suitably licenced waste operator.
Leaks and Spillages of Contaminants
The following measures will be implemented, where possible: - Implementing control procedures during delivery or movement of service materials; - The drainage system will have cut-off measures that will allow a spill to be contained within the Site, so that it can be effectively controlled and managed without leading to off-site effects; - An Emergency Response Plan will be put in place; - Education / information on waste treatment / emergency events/spills etc. can be provided to the building servicing staff and building occupants as appropriate; and - Oil interceptors would be used in association with the drainage network in high-risk areas to reduce the potential risk for contamination. The appropriate utility company would be consulted on the potential requirement for an oil interceptor at the point where site surface water runoff enters the combined sewer. The following mitigation measures will be embedded within the CEMP and implemented during the Site works: - Spillages and leakages will be immediately contained in line with an emergency response plan and managed through the use of geotextile bunding of adequate capacity (110%) to isolate and minimise the ingress of surface water runoff to non-decommissioned boreholes or exposed surface water drainage pipes. Valves and trigger guns will be protected from vandalism and kept locked when not in use; - An emergency spillage action plan will be produced, which site staff will have read and understood. On-site provisions will be made to contain a serious spill or leak through the use of booms, bunding and absorbent material; - Wherever possible, plant and machinery will be kept away from the drainage system and will have drip trays beneath oil tanks/engines/gearboxes/hydraulics which will be checked and emptied regularly via a licensed waste disposal operator; - Following the discharge of surface runoff and de-watering effluents to settling tanks the drainage would be routed to oil interceptors prior to discharge to sewer; - The majority of concrete used will be pre-mixed and delivered from an off-site source, thereby negating the need to mix concrete on-site and reducing the creation of alkaline wastewater. Any mixing and handling of wet concrete on-site will be undertaken in designated impermeable areas, away from any drainage channels or surface water; - A designated impermeable area will be used for any washing down or equipment cleaning associated with concrete or cementing processes and wastewater will be discharged to the foul drainage system (with approval from TWUL) or contained and removed by tanker to a suitable discharge location by a suitably licenced waste operator; and - The proposed drainage/service runs will be surrounded by appropriate granular bedding materials and located above the static level of any shallow groundwater. The drainage network installed as part of the Proposed Development will be constructed to meet with Building Regulations 2000, Part H. All liquids and solids of a potentially hazardous nature (e.g. diesel fuel, oils and solvents) are to be stored in designated locations with specific measures to prevent leakage and release of their contents, include the siting of storage area away from surface water drains, on an impermeable base with an impermeable bund that has no outflow and is of adequate capacity to contain 110% of the contents, in accordance with the EA's requirements. Any tanks storing more than 200 litres of oil on-site, would have secondary bunding. All storage will be protected from vandalism and kept locked up when not in use. Wherever possible, plant and machinery will have drip trays beneath oil tanks/engines/gearboxes/hydraulics, which will be checked and emptied regularly via a licensed waste disposal operator.

On-site provisions will be made to contain a serious spill or leak through the use of booms, bunding and absorbent material in accordance with an Emergency Response Plan (ERP).
Refuelling and delivery areas will be located away from the local sewer network drains.
Disturbance of Existing Drainage Systems and Water Supply Network
The following mitigation measures will be embedded within the CEMP and implemented during the Site works: - All existing utilities will be identified and marked prior to works commencing; - Signs will be used to warn of the presence of utility infrastructure; and - Any damage to the drainage network will be immediately repaired.
Groundwater Flow and Quality
The preparation of a Piling Method Statement which will detail the depth and type of piling to be undertaken and the methodology by which such piling will be carried out, including measures to prevent and minimise the potential for damage to subsurface sewerage and water infrastructure and to demonstrate appropriate design and piling methods to avoid linking shallow and deep groundwater. The following mitigation measures will be embedded within the CEMP and implemented during the Site works: - Pile casing will be used during piling and the area around the piling will be isolated from surface water until piling is complete; - Any existing boreholes found on-site would be decommissioned; - If perched groundwater is encountered during establishment of basement and core foundations dewatering may be required. The most appropriate methods to dewater excavations will be selected, for example, prior to dewatering the perimeter of the excavation could be enclosed with either sheet-pile or a diaphragm wall. Piezometers (standpipes) could then be placed outside the sheet pile wall to monitor groundwater levels; - In the event that ground contamination is discovered, work will stop immediately and measures will be taken to prevent disturbance and mobilisation of contaminants, until the contamination has been treated in-situ or removed for off-site disposal or treatment; - If contaminated soils are encountered at the position where piling is due to be undertaken, then these materials should be removed prior to piling in order to prevent the dragging of contaminated soils with the piles to depth; - Contaminated soil requiring disposal will be excavated and kept separate from other soil and waste materials in protected temporary stockpiles prior to disposal; - Water arising from excavations will be disposed of to the local sewer network (subject to agreement with the appropriate authority) if uncontaminated and following the removal of silt via settlement ponds or alternative measures. All existing utilities will be identified and marked prior to works commencing; and - Damp-proof membranes will be incorporated into the construction. These membranes will prevent the ingress of groundwater and reduce the risk of contaminants from reaching underground strata or groundwater. The watertight basement will therefore prevent any interior leaks or spillages from freely percolating into the shallow groundwater. Appropriate methods to dewater excavations are to be selected to ensure that groundwater does not drop below the critical level. Groundwater level monitoring will be undertaken as necessary to assess deformation and stability of surrounding structures, including neighbouring property. Seepage analysis and groundwater level monitoring will be carried out as appropriate to assess deformation and stability of surrounding structures, including neighbouring property, as considered necessary.
Temporary Settlement and Surface Water Drainage
Temporary drainage facilities will be provided during the construction phase, where necessary, to ensure controlled discharge of surface water runoff. It will be a requirement to ensure that runoff from the Site does not cause pollution or flooding. Measures that will be considered for implementation for temporary drainage through the construction design and/ or CEMP include: Site access points will be regularly cleaned to prevent build-up of dust and mud: - Oil interceptors to be installed (notably the outflow from the settlement pond/ tank) to reduce the potential risk for contamination of groundwater and surface water; and - All potentially polluted waters (including washdown areas, stockpiles and other areas of risk for water pollution) to have separate drainage and to be tankered away from the Site. In addition, if monitoring demonstrates unsatisfactory levels of solids or other pollutants, measures will be implemented to control suspended solids or other polluted discharge to watercourses (e.g. changes to Site drainage and settlement facilities and/or use of flocculants).
Foul Drainage
A connection to the foul sewer will be needed for sanitary connection from offices/admin/welfare facilities. It is possible this connection may also be licensed for discharge of process effluent in abnormal circumstances if required.
Flood Risk
The CEMP will incorporate measures to prevent an increase in flood risk or pollution during the construction works, in addition to the provision of temporary settlement and drainage measures (where required).

Water Demand

The following measures will be implemented:

- Selection and specification of equipment to reduce the amount of water required;
- Implementation of staff-based initiatives such as turning off taps, plant and equipment when not in use both on-site and within Site offices;
- Use of recycling water systems such as wheel washes, Site toilets hand wash; and
- Use of a rainwater harvesting system for use in equipment and vehicle washing.

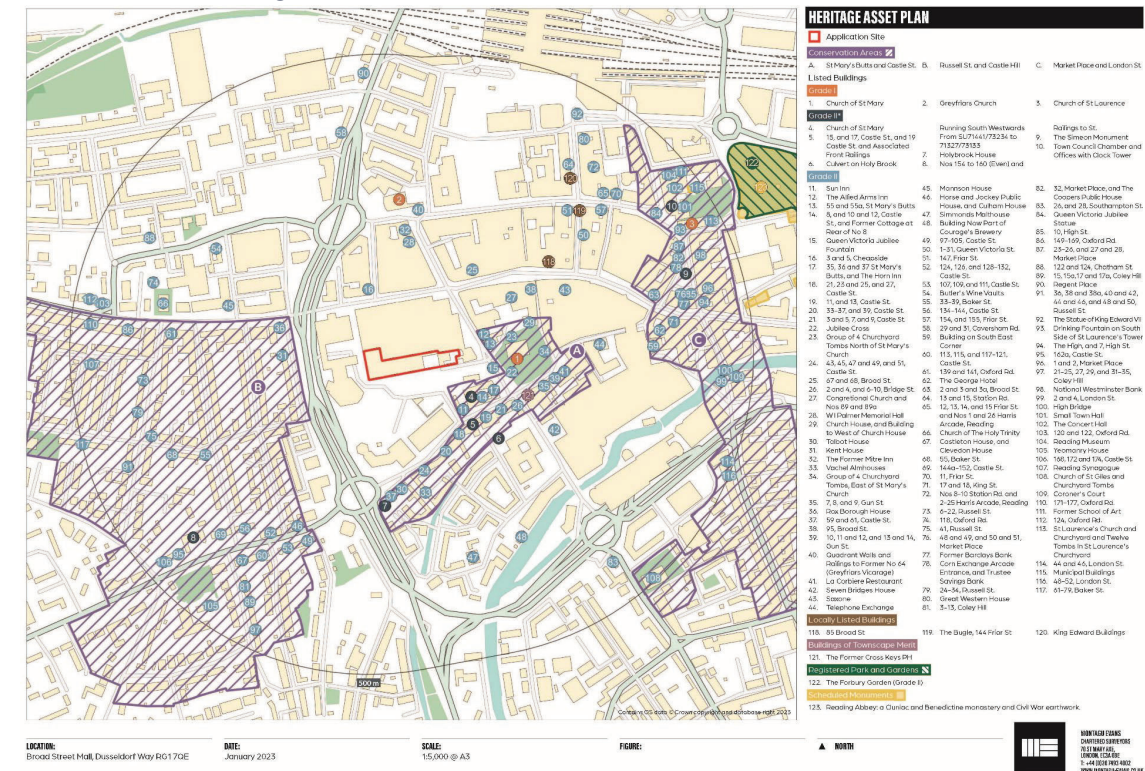
The water consumption throughout the construction works will be monitored, either through sub-metering or reading of utility bills, to allow comparison against best practice benchmarks and improvements to be made.

Wastewater Generation

The installation of water efficient fixtures and fittings can help further reduce the volume of foul water generated on-site.

Any waste effluent will be tested and any water that may have come into contact with contaminated materials or be identified as being contaminated, will be disposed of appropriately and, to the satisfaction of the EA and/or TWUL; and where necessary, disposed of at the correctly licensed facility by a licensed specialist contractor/s.

APPENDIX D – Heritage Asset Plan

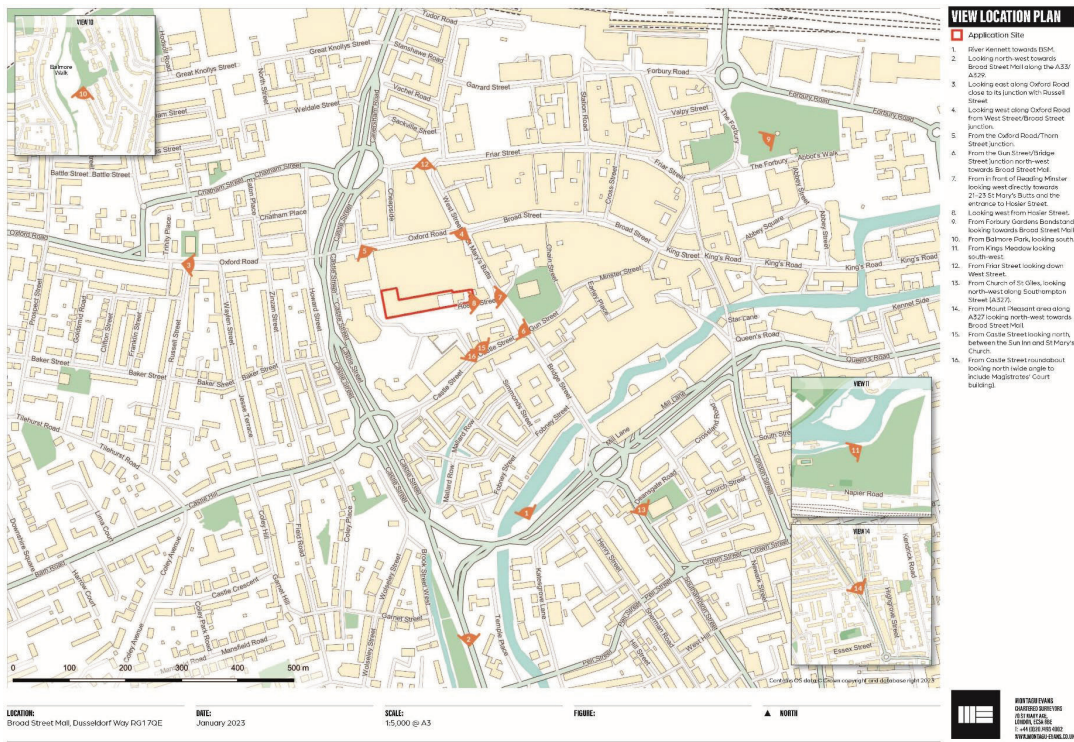


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Project Reference: TEC0366

Broad Street Mall, Reading

APPENDIX E – View Location Plan



Appendix: EIA Methodology

Annex 1: EIA Scoping Document

Annex 2: Cumulative Schemes List and Map

Annex 3: Traffic Data

Cumulative Schemes

Cumulative Scheme List

The EIA Regulations require that, in assessing the effects of a particular development proposal, consideration should also be given to the likely significant effects arising from the “cumulation with other existing and/or approved projects” (Schedule 4, 5(e)) (i.e., Cumulative Schemes).

To ensure that cumulative impacts and effects are assessed as comprehensively and realistically as possible, the EIA would only consider other ‘Cumulative Schemes’. The Cumulative Schemes that will be considered within the ES will typically be located within a 1-kilometer (km) radius from the centre of the site.

The Cumulative Schemes identified will be guided by the following criteria:

- Full planning consent or resolution to grant consent;
- Produce an uplift of more than 10,000 square metres (Gross External Area (GEA)) of mixed-use floorspace, or over 150 residential units.

In addition, any office to residential conversions (granted under the General Permitted Development Order) giving rise to >150 residential units will be considered.

Note that the above criteria form a guide in the absence of any formal EIA cumulative scheme guidance. Additional factors taken into account to help determine which schemes are included (or excluded) include (amongst others) distance of the scheme from the Site, and nature and scale of the development for the scheme. Where relevant, the assessment within the respective chapter may only identify a selection of Cumulative Schemes for the assessment (i.e., because of distance to the Site), or alternatively identify additional schemes for inclusion (i.e., within the 1km radius) – with a clear reason and rationale for doing so.

Cumulative effects arising from the Proposed Development, in combination with Cumulative Schemes, will be considered throughout the ES. The potential for cumulative effects arising during the demolition and construction works and once the Proposed Development is complete and operational will be considered. Each individual technical chapter of the ES will present an assessment of the cumulative effects of the Proposed Development coming forward alongside the Cumulative Schemes.

For the Proposed Development, the following preliminary list of Cumulative Schemes have been identified for consideration:

Broad Street Mall Cumulative Schemes

Table 1 Details of Existing or Approved Projects to be Included in the Cumulative Schemes

Reference	Cumulative Scheme	Application No.	Scheme Description	Status as of January 2024
1	52-55 Friar Street Reading and 12 Greyfriars Road, RG1 1DX	162210	Demolition of existing building and structures (Class A1) and erection of 3 new buildings ranging between 6 - 12 (and basement) storeys in height to provide 135 (1xstudio, 54x1, 73x2 & 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 Rd, with associated access, parking, servicing, landscaping and engineering works (amended description).	Permitted (Not yet under construction)
2	Station Hill, Reading including Plot E and Telecom House	130436	Outline application for mixed use redevelopment of the site through the demolition and alteration of existing buildings and erection of new buildings & structures to provide Offices (Use Class B1), a range of town centre uses including retail and related uses (Use Class A1- A5) leisure (Use Class D2) and residential units, associated infrastructure, public realm works and ancillary development (all matters reserved).	Permitted ¹ Under construction – Phase 1 due to complete in Q3, 2023.
		192032	i) application for Full Planning Permission for Phase 2 (Plot G and public realm) including demolition of existing structures, erection of an eighteen storey building containing office use (Class B1) and flexible retail, non-residential institution and assembly and leisure uses (Class A1, A2, A3, A4, A5, D1 and D2). Provision of podium deck, vehicular access and parking. New public open space and landscaping. Bridge link over Garrard St. (ii) Application for Outline Planning Permission for Phase 3 (all Matters reserved) for four building plots (A, B, C and D). Demolition of existing buildings and structures. Mixed-use redevelopment comprising residential dwellings (Class C3), hotel (Class C1), residential institutions (Class C2), office use (Class B1). Flexible Retail, financial and professional services, restaurants and cafes, drinking establishments, hot food takeaways, non-residential institutions and assembly and leisure (Class A1, A2, A3, A4, A5, D1 and D2). Provision of podium deck and basement storey running beneath Phase 2 and 3. Formation of pedestrian and vehicular access. Means of access and circulation and car parking within the site. Provision of new public open space and landscaping.	Phase 2 under construction.
		220594	Non-Material Amendment to permission 192032. Amendments to Plot G: Internal changes to office entrance lobby layout; Additional entrance to retail units; Reconfiguration of office toilet layouts; Provision of glazed 'box' meeting room at first floor; Amendments to terrace access doors at eight and fifteenth floors.	Permitted in July 2022
		201536	Outline application (pursuant to Section 73 of the Town & Country Planning Act 1990) for mixed use redevelopment of the site through the demolition and alteration of existing buildings and erection of new buildings & structures to provide Offices (Use Class E (g)(i) and (g) (ii)), a range of town centre uses including retail and related uses (Use Class E (a),(b) and (c); Drinking establishments (sui generis) and Hot food takeaways (sui generis)), leisure and community (Use Class E (d), (e), and (f); Class F.1; Class F.2; and Theatres; Cinemas; Concert Halls; Bingo Halls; Dance Halls (sui generis)), and residential units (Use Class C3), associated infrastructure, public realm works and ancillary development (all matters reserved) as permitted by planning permission 190441 granted on 6 December 2019 (as amended).	Permitted in July 2021
		151426	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 & 4 to 20 Garrard Street) to comprise the demolition of existing	Permitted

¹ The first Built-to-Rent homes in Phase One will be ready for occupation from Q3 2023 and work is also underway on Phase Two – featuring ONE, a 275,000 sq ft office building alongside 2 acres of public realm ready for occupancy by early 2024. <https://www.stationhill.co.uk/info/>

Broad Street Mall Cumulative Schemes

Reference	Cumulative Scheme	Application No.	Scheme Description	Status as of January 2024
			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.	Under ² construction – Phase 1 due to complete in Q3, 2023.
		201532	Outline application under s.73 of the Town & Country Planning Act 1990 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 & 4 to 20 Garrard Street) to comprise the demolition of existing buildings and erection of new buildings/ structures to provide residential units (Use Class C3), a range of town centre uses, including retail and related uses (Use Class E (a),(b) and (c); Drinking establishments (sui generis) and Hot food takeaways (sui generis)), and leisure uses (Use Class E (d), (e), and (f); Class F.1; Class F.2; and Theatres; Cinemas; Concert Halls; Bingo Halls; Dance Halls (sui generis)), associated infrastructure, public realm works and ancillary development as permitted by planning permission 190442 granted on 6 December 2019 (as amended).	Permitted in July 2021
4	Land between Weldale Street and Chatham Street Reading	170326	Demolition of all existing buildings (including 3 retail units) and structures, and erection of new buildings ranging between lower ground & 4 storeys to lower ground & 11 storeys in height, providing 427 (233x1, 182x2 & 12x3-bed) residential units (Class C3) and 1 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).	Permitted Under construction, Phase 1 complete and Phase 2 due to complete in 2025 ³ .
5	Former Sorting Office, Caversham Road / Vastern Road	110024	Outline planning application for business uses (Use Class B1), residential accommodation (Use Class C3), hotel (Use Class C1), retail floor space (Use Class A1), food and drink uses (Use Class A3, A4 and A5), leisure uses (Use Class D2), and associated car parking, open space and landscaping, highways, access and associated works.	Permitted
6	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 or A3) use at part ground floor level, a 135-bedroom hotel (Class C1) at 1st to 16th floors and offices (Class B1a) at 17th to 21st floors, associated servicing from Garrard Street and other associated works (amended description).	Permitted
7	Bristol & West Arcade Market Place Reading RG1 1JL	180358	Demolition of vacant former Bristol & West Arcade (173 – 175 Friar Street) and erection of an eight storey mixed-use building (plus basement) to provide 35 residential units, 4,212 sqm of B1 office floorspace, and 5 retail units (A1/A2/A3), demolition of rear parts of 29 – 31 and 32 Market Place, the change of use of the retained units at 27 – 28, 29 - 31 Market Place at first, second and third floors to provide 8 residential units, change of use at ground and basement level of 32 Market Place from A2 to flexible retail use (A1/A2/A3), retention of 260.4 sqm of A4 use at ground and basement at 29-31 Market Place, change of use at ground and basement of 27 - 28 Market Place to flexible retail use (A1/A2/A3), and associated internal and external works to the Listed Buildings, landscaping, refuse, plant, cycle stores and substation at basement level.	Permitted

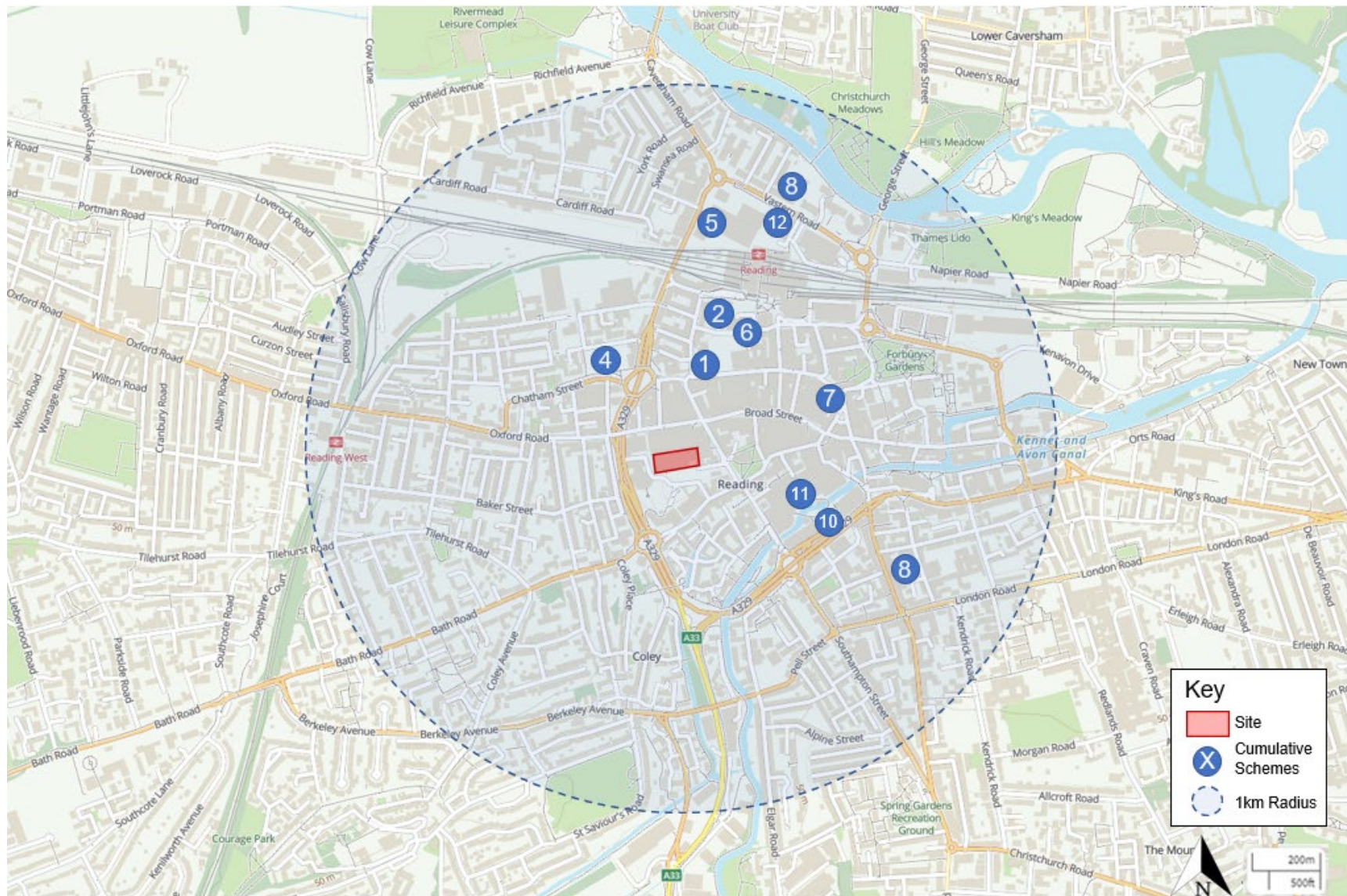
³ <https://www.linkedin.com/pulse/crossmark-appointed-phase-2-domain-weldale-st-reading-glen-ingleson/>

Broad Street Mall Cumulative Schemes

Reference	Cumulative Scheme	Application No.	Scheme Description	Status as of January 2024
8	Former Car Park East Street Reading RG1 4QH	181849	Erection of a part 4 part 5 storey building (plus basement) to provide 135 units of purpose built student accommodation and associated facilities (Sui Generis), landscaping and access	Permitted
9	55 Vastern Road Reading RG1 8BU	200188	Demolition of existing structures and erection of a series of buildings ranging in height from 1 to 11 storeys, including residential dwellings (C3 use class) and retail floorspace (A3 use class), together with a new north-south pedestrian link, connecting Christchurch Bridge to Vastern Road	Permitted
10	Existing Vue Cinema Complex Land West of Yield Hall Place / London Road The Oracle Reading RG1 2AG	221917	Mixed use development comprising demolition of existing buildings and erection of new building comprising up to 247 no. build-to-rent residential dwellings (Class C3) and up to 3,046 sqm commercial floorspace comprising cinema (Sui Generis) and ground floor commercial uses within Use Class E and /or Bar (Sui Generis Use). Associated public realm and infrastructure works.	Pending
11	Former Debenhams Department Store West of Yield Hall Place The Oracle RG1 2AS	221916	Mixed use development comprising part demolition of former department store and erection of new building comprising up to 202 no. build to rent residential dwellings (Class C3) and 1,209 sqm commercial uses within Uses Class E and / or bar (Sui Generis Use). Reconfiguration and change of use of up to 5,866 sqm remaining department store floorspace (Class E) to uses within Use Class E and / or bar (Sui Generis Use) and / or experiential leisure use (Sui Generis Use). Associated public realm, infrastructure works and external alterations to shopping centre, including creation of new shopping centre entrance.	Pending
12	Vastern Court Caversham Road Reading	200328	Outline planning permission with the details of access, appearance, landscaping, layout and scale reserved for later determination. A demolition phase and phased redevelopment (each phase being an independent act of development) comprising a flexible mix of the following uses, Residential (Class C3 and including PRS), Offices (Use Class B1(a), development in Use Classes A1, A2, A3(etail), A4(public house), A5(take away), D1 and D2(communit and leisure), car parking, provision of new plant and renewable energy equipment, creation of servicing areas and provision of associated services, including waste refuse, cycle storage, and lighting, and for the laying out of the	At Appeal – Appeal due to be decided by late September 2023.

Broad Street Mall Cumulative Schemes

Figure A.1 Cumulative Schemes Map⁴



⁴ Note: site red line boundary shown in this figure is indicative for the purposes of illustrating site location.

Appendix: EIA Methodology

Annex 1: EIA Scoping Document

Annex 2: Cumulative Schemes List and Map

Annex 3: Traffic Data

Link ID	Dft Ref	Road Name	Link Description
1	6924	Oxford Road	between Connaught Rd and Beresford Road
2	58002	A4155 Castle Hill	between Tilehurst Rd and A329
3	27954	A329 IDR	between Chatham Street and Castle Hill
4	18632	A329 IDR	south Abattoirs Rd
5	74217	A33	between A33/A239 split and Rose Kiln Lane
6	NA	Oxford Road	east of Thorn Street
7	-	St Mary's Butts	

2019 AADT			
Total	LDV	HGV	HGV%
13,721	12,868	853	6%
25,168	24,639	529	2%
47,889	46,768	1,121	2%
35,769	34,629	1,140	3%
29,413	28,428	985	3%
6,168	5,853	315	5%
3,584	2,688	896	25%

2022 AADT			
Total	LDV	HGV	HGV%
12,540	11,798	742	6%
23,778	23,131	647	3%
43,882	42,316	1,566	4%
26,246	25,033	1,213	5%
27,311	26,028	1,283	5%
5,637	5,350	287	5%
3,800	2,850	950	25%

Cumulative Development AADT			
Total	LDV	HDV	HGV %
598	559	39	6.5%
368	343	25	6.7%
988	888	100	10.1%
1452	1316	136	9.4%
663	672	79	11.9%
0	0	0	0.0%
0	0	0	0.0%

2026 Future Base AADT (2022+ CD)			
Total	LDV	HGV	HGV%
13,138	12,357	781	6%
24,146	23,474	672	3%
44,870	43,204	1,666	4%
27,698	26,349	1,349	5%
27,974	26,700	1,362	5%
5,637	5,350	287	5%
3,800	2,850	950	25%

Construction Traffic AADT			
Total	LDV	HDV	HGV %
10	6	4	35.9%
39	25	14	35.9%

2026 Future Base AADT + Construction			
Total	LDV	HGV	HGV%
13,138	12,357	781	6%
24,146	23,474	672	3%
44,880	43,210	1,670	4%
27,698	26,349	1,349	5%
28,101	26,725	1,376	5%
5,637	5,350	287	5%
3,800	2,850	950	25%

DfT Count Locations Plan



Link ID	Dft Ref	Road Name	Link Description	2019 AADT				2022 AADT				Cumulative Development AADT				2028 Future Base AADT (2022+ CD)			
				Total	LDV	HGV	HGV%	Total	LDV	HGV	HGV%	Total	LDV	HDV	HGV %	Total	LDV	HGV	HGV%
1	6924	Oxford Road	between Connaught Rd and Beresford Road	13,721	12,868	853	6%	12,540	11,798	742	6%	598	559	39	6.5%	13,138	12,357	781	6%
2	58002	A4155 Castle Hill	between Tilehurst Rd and A329	25,168	24,639	529	2%	23,778	23,131	647	3%	368	343	25	6.7%	24,146	23,474	672	3%
3	27954	A329 IDR	between Chatham Street and Castle Hill	47,889	46,768	1,121	2%	43,882	42,316	1,566	4%	988	888	100	10.1%	44,870	43,204	1,666	4%
4	18632	A329 IDR	south Abattoirs Rd	35,769	34,629	1,140	3%	26,246	25,033	1,213	5%	1452	1316	136	9.4%	27,698	26,349	1,349	5%
5	74217	A33	between A33/A239 split and Rose Kiln Lane	29,413	28,428	985	3%	27,311	26,028	1,283	5%	663	672	79	11.9%	27,974	26,700	1,362	5%
6	NA	Oxford Road	east of Thorn Street	6,168	5,853	315	5%	5,637	5,350	287	5%	0	0	0	0.0%	5,637	5,350	287	5%
7	NA	St Mary's Butts		3,584	2,688	896	25%	3,800	2,850	950	25%	0	0	0	0.0%	3,800	2,850	950	25%

DfT Count Locations Plan



Broad Street Mall, Reading

Site Annual Average Daily Traffic (AADT)

EXISTING BSM	In	Out	2-Way	LDV	HGV
Existing MSCP AADT	1066	1073	2139	2139	0
Basement Service Yard AADT	66	66	132	110	22
BSM AADT Total	1132	1139	2271	2249	22

PROPOSED BSM	In	Out	2-Way	LDV	HGV
Proposed MSCP AADT	536	539	1075	1075	0
Proposed Residential AADT	383	400	782	776	6
Basement Service Yard AADT	66	66	132	110	22
BSM AADT Total	985	1005	1989	1960	29
net change	-147	-134	-282	-288	6

Site Annual Average Weekday Traffic (AAWT)

EXISTING BSM	In	Out	2-Way	LDV	HGV
Existing MSCP AAWT	1009	1011	2020	2020	0
Basement Service Yard AAWT	79	79	158	131	27
BSM AAWT Total	1088	1090	2178	2151	27

PROPOSED BSM	In	Out	2-Way	LDV	HGV
Proposed MSCP AAWT	507	508	1015	1015	0
Proposed Residential AAWT	383	400	782	776	6
Basement Service Yard AAWT	79	79	158	131	27
BSM AAWT Total	969	987	1955	1922	33
net change	-119	-103	-223	-229	6

Notes:

- Existing CP ADDT based on 7 Day Nov 22 Car Park Surveys
- Basement service yard flows based on data provided by BSM management team. Daily average between Jan-Sept 2022.
- Existing MSCP has 784 Spaces
- Proposed MSCP will have 394 spaces
- Proposed Residential Flows based on 100 spaces in MSCP
- Basement service yards flows retained as per existing
- 12hr to AADT/AAWT Factor of 1.22