

Appendix 2.1

EIA Scoping Report



EIA Scoping Report

Red Bank Neighbourhood, Manchester

January 2023

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For and on behalf of Avison Young

1. Introduction

- 1.1 Far East Consortium International Limited (FEC) (hereafter referred to as the 'Applicant') will be seeking to obtain planning permission for a residential-led, mixed-use development for the Red Bank Neighbourhood project. This includes, but is not limited to, residential dwellings, commercial / retail uses, cafes, restaurants, community uses, employment uses, and social infrastructure (including a primary school, nursery and health centre) (hereafter referred to as 'the Proposed Development'). The Proposed Development is located on an area of land to the northeast of Victoria Station and to the south of Red Bank; the Site is immediately adjacent to Manchester City Centre and is referred to as 'Red Bank Neighbourhood' (hereafter referred to as the 'Site').
- 1.2 It is anticipated that planning permission will be sought through two planning applications:
- Outline planning application proposing a residential led mixed use development at Red Bank, Victoria North (referred to in this report as the Red Bank Outline Application); and
 - Full planning application proposing a residential led mixed use development at NT02-NT04, Dantzic Street (referred to in this report as the NT02-NT04 Full Application).
- 1.3 It is important to note that one Environmental Statement (ES) will be undertaken which covers both of the Red Bank Outline and NT02-NT04 Full applications.
- 1.4 The Site is located within the administrative authority of MCC in the ward of Cheetham.
- 1.5 The Applicant is in the process of undertaking a range of environmental surveys and technical assessments across the Site to inform the design evolution of the Proposed Development. The information obtained to date has been used to inform the scope of the EIA as set out in this Scoping Report.

Requirement for Environmental Impact Assessment

- 1.6 The Town and Country Planning (Environmental Impact Assessment) (England) Regulations 2017 (hereafter referred to as the 'EIA Regulations') require that for certain planning applications, an Environmental Impact Assessment (EIA) must be undertaken. Schedule 1 of the EIA Regulations lists developments that always require EIA and Schedule 2 of the EIA Regulations list developments that may require EIA if it is considered that they are likely to give rise to significant environmental impacts.
- 1.7 Regulation 6 of the EIA Regulations makes provision for a developer to request a 'Screening Opinion' from the Local Planning Authority (LPA) to ascertain whether an EIA is required to be undertaken where a development meets the thresholds set out in Schedule 2 of the EIA Regulations and so would be 'Schedule 2 development'. This decision is based on the likelihood of significant environmental effects arising in relation to the development proposals. It has been assumed for the purposes of the applications that a statutory EIA will be required and therefore the Applicant will be undertaking an EIA in respect of the proposals. It is accepted that the development falls within Schedule 2

(10b) 'Urban Development Projects' for the purposes of the EIA Regulations and forms part of a wider Project for EIA purposes as described in **Section 2** of the EIA Scoping Report.

EIA Scoping

- 1.8 Under Regulation 15 of the 2017 EIA Regulations, a person who is minded to submit an EIA application may ask the relevant planning authority to state in writing its opinion as to the information to be provided and subsequently reported in an Environmental Statement (ES). The scoping process is an integral part of undertaking an EIA and its purpose is to provide relevant background information about the Site, the Proposed Development, key environmental issues and the approach for the assessment of potential effects. This information is typically provided in a Scoping Report.
- 1.9 This EIA Scoping Report outlines the Proposed Development and identifies issues that will be assessed by the EIA and reported in the ES that will accompany the planning applications. The objectives of the scoping process are to:
- Provide a detailed description of the development, including its physical characteristics and land use requirements;
 - Identify key environmental topics that the EIA will consider;
 - Define the extent to which environmental topics will be investigated;
 - Allow consultation with the LPA, and Statutory and Non-Statutory consultees; and
 - Provide a mechanism for agreeing the content and methodology of the EIA with stakeholders at an early stage in the process.

Structure of Report

- 1.10 The report is divided into the following sections:
- **Section 1:** Introduction.
 - **Section 2:** Site Context: This section describes our understanding of the current conditions of the Site and the surrounding area.
 - **Section 3:** Description of Development: This section provides a description of the Proposed Development.
 - **Section 4:** EIA Approach: This section provides the proposed approach to undertaking the EIA.
 - **Section 5:** Alternatives: This section sets out the approach to the alternatives assessment.
 - **Section 6 - 18:** Environmental Assessment Topics: These sections outline the proposed methodology for the ES and for each technical assessment expressed as chapters and / or appendices of the ES.

- **Section 19:** Non-Significant Issues: This section sets out those environmental issues deemed to be non-significant for the purposes of EIA and would not be included as a chapter in the ES.
- **Section 20:** Structure of the Environmental Statement: This section defines the proposed structure of the ES, chapters and document formats.
- **Section 21:** Summary and Conclusions.

1.11 It should be noted that this EIA Scoping Report has been produced using currently available information in relation to the Site and the Proposed Development. However, the design of the Proposed Development is still evolving and will continue to do so throughout the EIA process. This is important as it allows an iterative design process to be followed which takes account of environmental issues and allows for the incorporation of mitigation measures into the proposals. Therefore, changes to the proposals between the scoping of the EIA and the submission of the applications would not necessarily require the EIA to be re-scoped. The assessment scopes presented here relate to the general principles of the proposals rather than the specifics; hence the scope can accommodate minor amendments to the Site and the proposals. If the scheme changes materially or if the Site expands significantly in area, further scoping may be required.

The Environmental Impact Assessment Team

1.12 The ES will be compiled using a wide range of sources and with inputs from competent experts. The organisations and their roles in the project team are listed in **Table 1.1** below.

Table 1.1: The EIA Project Team

Discipline	Company
Townscape and Visual	OPEN
Ecology and Nature Conservation	TEP
Archaeology and Heritage	WSP
Ground Conditions	WSP
Flood Risk and Drainage	WSP
Transport and Access	WSP
Air Quality and Dust	WSP
Noise and Vibration	WSP
Sunlight, Daylight and Overshadowing	WSP

Discipline	Company
Wind Microclimate	WSP
Socio-economics	WSP
Health	WSP
Climate Change	WSP
EIA Co-ordination	Avison Young

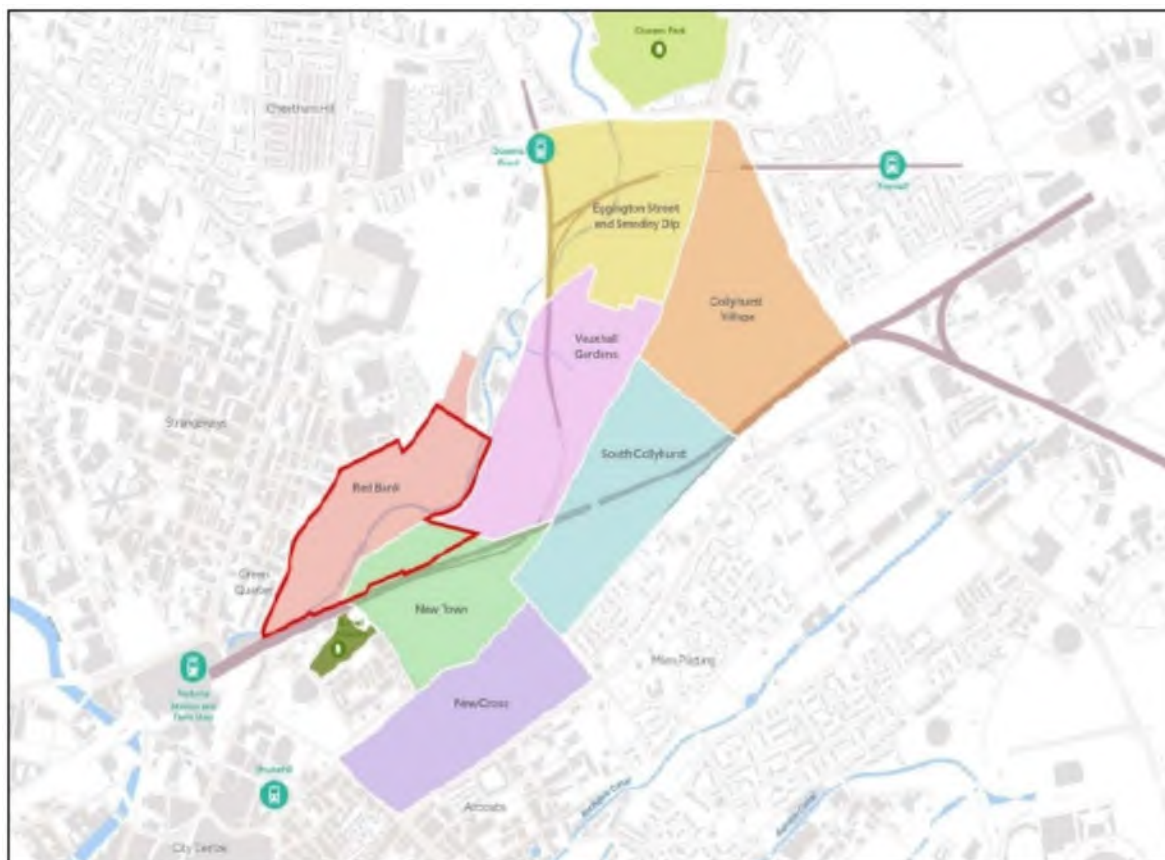
2. Site Context

- 2.1 This section sets out the geographical context of the Site and summarises potential environmental constraints and sensitive receptors in their vicinity.

The Development Project and EIA Strategy

- 2.2 The Victoria North initiative (formerly referred to as 'Northern Gateway') is an area of approximately 155 hectares to the north of Manchester City Centre and Victoria Station offering an opportunity to deliver approximately 15,000 new homes over the next 15-20 years, along with a range of employment, social, community, cultural and ancillary uses. Victoria North will establish a series of new, sustainable and integrated residential neighbourhoods, seeking a balanced mix of housing types and tenures, making it a desirable place for a variety of new and existing Manchester residents. Victoria North is one of the largest regeneration projects in the UK as well as being the largest single opportunity for residential redevelopment in Manchester, effectively a new town within the heart of an established, popular and growing city.
- 2.3 In April 2017, MCC appointed Far East Consortium International Ltd (FEC) as its Joint Venture (JV) investment and delivery partner, to accelerate the delivery of the Victoria North opportunity. This appointment was the conclusion of an international marketing exercise that commenced in April 2016. Since making this appointment, MCC has endorsed the Northern Gateway Strategic Regeneration Framework (SRF), which provides an updated vision, core objectives and development framework to guide the regeneration of Northern Gateway (now known as Victoria North), with a focus on the provision of housing and supporting infrastructure investment. In February 2019, MCC Executive endorsed the Northern Gateway SRF as a material consideration in the determination of all future planning applications relevant to the area.
- 2.4 **Figure 2.1** presents the extent of the Victoria North initiative, inclusive of the seven neighbourhoods identified within the SRF and an 'Initial Development Area'. This Initial Development Area (comprising land owned / controlled by MCC, FEC and third-party landowners) has been identified by the JV as having the potential to deliver an estimated 5,500 residential units across 21 development plots. The Initial Development Area shown is inclusive of the infrastructure enabling works and the subsequent neighbourhood development. FEC and MCC have created a First Phase within the Initial Development Area and within this first phase it is intended to deliver approximately 4,850 dwellings on land controlled / owned by the JV. It is worth noting the Initial Development Area spans two of the Northern Gateway SRF neighbourhood areas, encompassing the majority of the Red Bank area, together with the northernmost part (north of the railway line) of the New Town area.

Figure 2.1: Indication of the Initial Development Area in the context of the Victoria North initiative



- 2.5 The Initial Development Area comprises an area of approximately 20 hectares (ha). It is located within the Lower Irk Valley. The location has a history of more than 150 years of industrial uses and Victorian / pre-Victorian infrastructure. As a result, a comprehensive programme of infrastructure investment is required to facilitate development as works cannot be taken forward on a piecemeal, site by site basis, and are not viable for the private sector to fund in isolation.
- 2.6 To unlock the full potential of the area, MCC has secured £51.6m of Government Funding through the Housing Infrastructure Fund (HIF) to deliver critical infrastructure and enabling works within the Initial Development Area. The spend availability period runs until March 2024 and, therefore, it is expected that practical completion of the infrastructure and enabling works will take place by this date.
- 2.7 Alongside the delivery of the infrastructure and enabling works, JV investment is focused on plot development and housing delivery, whilst also addressing challenges / opportunities in adjoining neighbourhoods to ensure the delivery of the wider Victoria North Initiative, in accordance with the aspirations and timescales of the SRF.
- 2.8 The infrastructure and enabling works, and the plot development on land controlled and owned by MCC and FEC at Red Bank and NT02-04 (within the Initial Development Area) constitutes the “development project”. Due to the

HIF funding and programme requirements, it was decided to approach the delivery of this development project by a number of planning applications. It is anticipated that five will be made overall, as follows:

- HIF Advance Enabling Works (referred to hereafter as 'Application 1'). This application was permitted by MCC in December 2021 (Ref. 132252/VO/2021). This application was supported by an ES.
- HIF Infrastructure Works (referred to hereafter as 'Application 2'). This application was permitted by MCC in July 2022 (Ref. 133143/VO/2022). This application was also supported by an ES.
- Utility works application (referred to hereafter as 'Application 3'). This application was submitted to MCC in October 2022 and permitted in December 2022 (Ref 135190/FO/2022). This application was supported by the ES submitted with Application 2 above.
- Red Bank Outline (referred to hereafter as 'Application 4'), as described in this EIA Scoping Report, is anticipated to be submitted to MCC in spring 2023.
- Plots NT02-NT04 Full (referred to hereafter as 'Application 5'), as described in this EIA Scoping Report, is anticipated to be submitted to MCC in the spring 2023.

2.9 It is noted that, although the applications are given numbered references, this does not depict the order in which the applications are to be determined and does not denote a pre-determined sequencing of delivery.

2.10 The Site that is the focus of this EIA Scoping Report, relates to Application 4 and 5, and is shown on **Appendix I**.

Site Location and Description

2.11 The Site is irregular in shape and occupies approximately 15.67ha of land to the south of Red Bank, Manchester. The Site Location Plan is presented at **Appendix I**.

2.12 The Site is bound by existing commercial and industrial uses to the north, hardstanding car park, existing commercial units to the west, residential development along Dalton Street and Collyhurst Road to the east, and existing commercial units to the northeast Including the HMG Paint complex, and the railway line into Victoria Station to the south, southwest and southeast.

2.13 Historically the area was used as railway sidings and other industrial uses, following the route of the former Prestwich Branch of the Lancashire and Yorkshire Railway which started at Victoria Station to the southwest before heading northwest. This is now largely disused with some commercial/industrial uses present with much of the Site forming a plateau above the River Irk valley to the south-east. Immediately south of the River Irk there is existing commercial use and an area of hardstanding.

2.14 Manchester Victoria Station is the nearest train station and is located approximately 320m southwest of the Site. The station predominantly provides local and regional mainline services to the north of England.

- 2.15 There are no designated heritage assets (Scheduled Monuments, Grade I, II* and II Listed Buildings, Conservation Areas, Registered Parks and Gardens or Registered Battlefields) within the Site boundary. There are 35 Grade II listed buildings and one Grade II* listed building within 500m of the Site, the closest of which is the Grade II Listed Union Bridge, which spans the River Irk towards the south-eastern boundary of the Site.
- 2.16 There are no areas designated for their ecological value within the Site. There is one internationally designated site for nature conservation within 10km of the development boundary. This is the Rochdale Canal Special Area of Conservation (SAC) and is located 4.3km north-east of the Site. There is one nationally designated site within 5km of the Site. This is the Rochdale Canal Site of Special Scientific Interest (SSSI). There are no statutory locally designated sites within 2km of the Site, though four non-statutory locally designated sites lie within 2km, the closest of which is Rochdale Canal Stott's Lane – Ducie Street Basin Site of Biological Interest (SBI).
- 2.17 Much of the Site lies in Flood Zone 1 which is classified as having less than a 1 in 1,000 annual probability of flooding. However there are areas within the southern and eastern parts of the Site and areas which are adjacent to the River Irk that are in Flood Zones 2 (i.e. between a 1 in 100 and 1 in 1,000 annual probability of flooding) and Flood Zone 3 (i.e. having a greater than 1 in 100 annual probability of flooding). The River Irk flows adjacent to the north-eastern boundary of the Site before traversing around Travis Island within the south-central area.
- 2.18 Surface water flooding is assumed to occur due to localised low points, most notably within the south-western area of the Site where surface water flood risk ranges from Low to High risk. Although most of the Site is brownfield initial geotechnical investigation indicates that infiltration rates varies due to large areas of made ground beneath the Site, which may also contribute to surface water flooding.
- 2.19 The southern extent of Site lies within the Greater Manchester Combined Authority (GMCA) Air Quality Management Area (AQMA). This AQMA covers the city centre and its arterial routes.
- 2.20 The Site is not located in an Area of Outstanding Natural Beauty (AONB) or any other area designated for its landscape value.
- 2.21 According to British Geological Survey (BGS) maps the superficial deposits on site comprise Devensian Glacial Till, and the underlying bedrock is that of the Chester Formation (sandstone). A review of the Coal Authority Mining Risk GIS System indicates the Site is located within a coal mining reporting area though is not located within a Development High Risk zone.
- 2.22 The existing noise climate is dominated by road traffic noise emanating from the surrounding highway network within the City Centre and train lines associated with Victoria Station.

Environmental Constraints and Potentially Sensitive Receptors

- 2.23 Features of the Site and surrounding area may form a constraint to development or be identified as a sensitive receptor that may be affected by the Site. Identifying such constraints and receptors early in the design process ensures that mitigation measures are designed into the proposals from the outset and are fully integrated into the design where appropriate. Details on specific environmental constraints and opportunities found at and around the Site are presented within the technical sections of this document (see **Sections 7 to 19**).

Planning History

- 2.24 The Site has been subject to six previous planning applications as well as Applications 1, 2 and 3 noted above. These are presented in **Table 2.1**.

Table 2.1: Site Planning History

Planning Ref.	Description of Development	Status
027230	CITY COUNCIL DEVELOPMENT Landscaping of railway embankments involving tree and shrub planting, re-surfacing of a footpath and repairs to fences.	Application approved (08/10/1986)
044486/OO/NORTH1/93	Redevelopment of former railway sidings for Light Industrial Purposes (class B1) with part of the Site to be retained as open land, incorporating a linear pedestrian/cycle path. Not proceeded with	Application approved (25/03/1996) Not proceeded with
052458/FO/NORTH1/97	Construction depot for temporary use in connection with Manchester Victoria Railway infrastructure.	Application approved (10/09/1997)
064544/FU/NORTH1/02	Change of use of land from vehicle breakers to car park. Retention of pallisade boundary fencing.	Application approved (19/03/2002)
080765/VO/2006/N1	CITY COUNCIL DEVELOPMENT erection of temporary caravan park to provide alternative accommodation for existing caravan parks for an 18 month period.	Application approved (19/09/2006)

Planning Ref.	Description of Development	Status
088693/FO/2008/N1	Application for temporary consent for up to 3 years for office accommodation associated storage containers and enabling works in association with Queens Road Metrolink depot operations.	Application temporarily approved (15/05/2009)
132252/VO/2021 (Application 1)	City Council Development for enabling works including tree and vegetation removal, creation of a temporary haul road and demolition of the Creamline Dairies buildings in association with the future delivery of the new Red Bank Neighbourhood.	Application approved (21/12/2021)
133143/VO/2022 (Application 2)	City Council Development for the creation of development platforms, including remediation and earthworks, and change in site levels, to allow delivery of future residential-led development at the Red Bank Neighbourhood, together with the construction of a new road and priority junction from Red Bank, new drainage infrastructure, utility and services connections and diversions, preparatory tree and shrub clearance, and demolition of certain existing structures, along with the creation of new and improved green infrastructure and landscaping including the improvements of St Catherine's Wood to form part of a City River Park, and other associated works	Application approved (14/07/2022)
135190/VO/2022 (Application 3)	City Council Development for utility and services connections and diversions to Dantzic Street, Dalton Street and Collyhurst Road associated with the delivery of future residential-led development at the Red Bank Neighbourhood, Victoria North	Application approved (81/12/2022)

3. Description of Development

- 3.1 The planning applications (outline and detailed) will be submitted to MCC and are currently anticipated to comprise the following:
- **Application 4** – An outline planning application for up to 3,250 new homes (Use Classes C3 and C2) with residential amenity space, non-residential uses (Use Class E, F and Sui Generis), a health centre, a primary school, cycle parking and car parking and associated landscaping.
 - **Application 5** – A detailed planning application for up to 1,600 homes along with residential amenity space, flexible non-residential space and associated cycle parking, car parking and landscaping.
- 3.2 The Proposed Development will be delivered through Applications 4 and 5. Application 4 will cover the Development Plots and associated areas to the north of Dantzic Street. Application 5 will cover the Development Plots to the south of Dantzic Street.
- 3.3 The Proposed Development would comprise three Development Areas, which are divided into a number of Development Plots:
- **Red Bank Plateau** – this area includes the Development Plots north of Dantzic Street and includes Development Plots RB01, RB02, RB03, RB04, RB05A, RB05B, RB05C and RB12B;
 - **Red Bank Viaduct** – this area includes the Development Plots surrounding the Red Bank Viaduct, west of Dantzic Street and includes Development Plots RB06, RB07 and RB10; and
 - **New Town** – this area includes the Development Plots south of Dantzic Street and includes Development Plots RB16, RB17, NT02, NT03 and NT04.
- 3.4 The Planning Strategy Plan in **Appendix V** illustrates the locations of each Development Plot associated with the Proposed Development.

Key Construction Management Activities

- 3.5 It is anticipated that a Construction Environmental Management Plan (CEMP) will be prepared for the Works. The CEMP will describe the environmental controls / protection measures and safety procedures that will be adopted during the Works thereby providing a tool to ensure the successful management of environmental effects as a result of construction activities.
- 3.6 The construction activities would be managed in accordance with the Environment Agency Guidance for Pollution Prevention and CIRIA guidance 'C532 - Control of Pollution from Construction Sites' to help ensure a well-managed operation which minimises potential environmental risks.

- 3.7 It is anticipated that all construction waste (including any material arising from earthworks / excavations) will be controlled and managed as appropriate. Where appropriate, the re-use of such material (e.g. demolition waste) will be considered.

Proposed Building Heights

3.8 Building heights would vary across the Proposed Development. Maximum heights within the Red Bank Plateau area would vary between up to 73m AOD (up to 8 storeys) and up to 123m AOD (up to 24 storeys). Maximum building heights in the Red Bank Viaduct area who vary between up to 124m AOD (up to 27 storeys) and up to 211m AOD (up to 55 storeys). Building heights within the New Town area would vary between 98m AOD (up to 19 storeys) and 155m AOD (up to 37 storeys). The principles of the building heights within the Proposed Development would be to:

- Create consistent shoulder heights along key routes;
- Stagger taller elements to avoid facing towers;
- Identify appropriate locations for the landmark towers at the Red Bank Viaduct and New Town to positively respond to the expanding city centre, Dantzig Street and the railway viaduct; and
- Create a dynamic skyline through variation in heights.

Proposed Access and Circulation

3.9 The Proposed Development would include a limited vehicular network and promote active travel through and to the Site. However, servicing and emergency vehicular access will be provided to all blocks. Vehicular movement through the Site will be primarily restricted to Roger Street, Dantzig Street and a new "Plateau Avenue" with provision for emergency vehicle access and servicing only along other internal routes.

Proposed Green Space and Landscape Areas

3.10 The Proposed Development will include both hard and soft landscaping in the form of new public realm space which will feature focal squares, formal and informal play areas.

Proposed Drainage Strategy

3.11 The proposed surface water drainage strategy will reflect the existing site catchment and will discharge at a rate to be agreed through consultation with relevant stakeholders. In order to limit the rate of surface water runoff, the surface water drainage system will incorporate various Sustainable Drainage System (SuDS) techniques and features.

Proposed Operational Waste Management Strategy

3.12 Waste will be generated by the land uses proposed within the Proposed Development. The Proposed Development will include measures for the appropriate storage, handling and collection of commercial waste.

4. EIA Approach

- 4.1 **This section** details the proposed technical areas for assessment within the ES. It sets out the legislative framework, an outline of the intended approach to assessment and the potential effects that have been identified at this stage. Where appropriate and where sufficient information is known, it outlines potential mitigation measures.

Potentially Significant Issues

- 4.2 The scoping exercise has identified several Study Areas which have the potential to generate significant environmental effects. Accordingly, the following environmental issues have been 'scoped in' to the EIA for the Proposed Development:

- Townscape and Visual.
- Ecology and Nature Conservation.
- Archaeology and Heritage.
- Ground Conditions.
- Flood Risk and Drainage.
- Transport and Access.
- Air Quality and Dust.
- Noise and Vibration.
- Sunlight, Daylight and Overshadowing.
- Wind Microclimate.
- Socio-economic.
- Health.
- Climate Change.

- 4.3 Each of these technical assessment areas is discussed in greater detail in **Sections 6 – 18** of the EIA Scoping Report.

EIA Approach and Methodology

4.4 The ES will be prepared in accordance with Schedule 4 (Part I and II) of the 2017 EIA Regulations: 'Information for Inclusion in Environmental Statements'; and in accordance with National Planning Practice Guidance ('NPPG').

4.5 The 2017 EIA Regulations state that:

4. *"A description of the factors specified in regulation 4(2) likely to be significantly affected by the development: population, human health, biodiversity (for example fauna and flora), land (for example land take), soil (for example organic matter, erosion, compaction, sealing), water (for example hydromorphological changes, quantity and quality), air, climate (for example greenhouse gas emissions), impacts relevant to adaptation), material assets, cultural heritage, including architectural and archaeological aspects, and landscape.*
5. *A description of the likely significant effects of the development on the environment resulting from, inter alia:*
 - a) *the construction and existence of the development, including, where relevant, demolition works;*
 - b) *the use of natural resources, in particular land, soil, water and biodiversity, considering as far as possible the sustainable availability of these resources;*
 - c) *the emission of pollutants, noise, vibration, light, heat and radiation, the creation of nuisances, and the disposal and recovery of waste;*
 - d) *the risks to human health, cultural heritage or the environment (for example due to accidents or disasters);*
 - e) *the cumulation of effects with other existing and/or approved projects, taking into account any existing environmental problems relating to areas of particular environmental importance likely to be affected or the use of natural resources;*
 - f) *the impact of the project on climate (for example the nature and magnitude of greenhouse gas emissions) and the vulnerability of the project to climate change;*
 - g) *the technologies and the substances used.*

The description of the likely significant effects on the factors specified in regulation 4(2) should cover the direct effects and any indirect, secondary, cumulative, transboundary, short-term, medium-term and long-term, permanent and temporary, positive and negative effects of the development. This description should take into account the environmental protection objectives established at Union or Member State level which

are relevant to the project, including in particular those established under Council Directive 92/43/EEC(a) and Directive 2009/147/EC(b)."

4.6 As such a consistent approach will be adopted throughout the EIA to ensure that likely significant effects are identified and evaluated in a transparent manner. Each environmental assessment topic will adopt the following approach:

- Identification of the Study Area and sensitive receptors.
- Baseline Assessment.
- Identification of Potential Impacts during Construction and Operation of the Proposed Development (including indirect, direct, adverse and beneficial)
- Assessment of Impact Significance.
- Identification of Mitigation Measures.
- Assessment of Residual Effects.
- Assessment of Cumulative Effects.

Assessment Parameters

4.7 The EIA will be based on of the following information:

Red Bank Outline Application (Application 4)

- The red line application boundary.
- The written description of the Proposed Development including construction timescales and proposed construction methods and management protocols to be included in (ES Chapter 5: The Proposed Development).
- A maximum quantum of development and series of parameter plans submitted for approval as part of Application 4.
- The Development Specification and
- A design guidance document setting out the design principles for the Development.

4.8 Assessment on this basis allows the likely significant effects of the applications individually and in combination (ICA) to be fully assessed and appropriate mitigation measures to be secured.

NT02-NT04 Full Application (Application 5)

- The red line application boundary.

- The written description of the Proposed Development including construction timescales and proposed construction methods and management protocols to be included in (ES Chapter 5: The Proposed Development).
- The Detailed drawings for which approval is sought.
- The Development Specification; and
- Design information.

EIA Strategy

- 4.9 The EIA Regulations and case law provide the legal framework for the process of EIA and contents of Environmental Statements, and this has established that EIA cannot be avoided by breaking down a large development project which is EIA development into a series of smaller phases or developments (so-called "salami slicing"). Indeed identifying "the project" for the purposes of the EIA Regulations is a key component of the assessment process.
- 4.10 A review of applicable case law has been undertaken to identify the appropriate EIA strategy in respect of the five applications for the delivery of the Initial Development Area, as identified in **Section 1**. Specifically, the aim of this review has been to identify an approach that ensures a robust assessment approach is undertaken, whilst still allowing for applications to be made and approvals gained to enable the necessary infrastructure and enabling works to be carried out in accordance with the HIF funding timescale and for these works to be followed by the delivery of the Development.
- 4.11 The timing for the delivery of the HIF works meant that separate planning applications were prepared for the different elements of the works. Each of the planning applications for the HIF works was accompanied by an ES, with each ES assessing the impacts of each application together with an assessment of the impacts associated with the wider development project, including for all of the associated planning applications in combination. Therefore, the planning applications that form part of the overall development project have been or will have been properly assessed through the EIA process. The timescales for applications 4 and 5 are such that these two applications, that form part of the project, will be assessed individually and in-combination in a single ES, and they will also be assessed in combination with the wider SRF and other cumulative schemes.

Assessment Approach

- 4.12 The structure for the EIA to be presented in the ES for Applications 4 and 5 is that of a 'typical' assessment, that is, for each of the applications individually to be assessed allowing impacts, mitigation and residual effects to be identified for each.
- 4.13 This will then be followed by an assessment of the in-combination effects of applications 4 and 5 together and then the effects of both applications in combination with the effects associated with the development of the SRF. As

the in-combination effects would be the same for both applications (the combined effects of applications 4 and 5) they would be addressed just once by each assessment topic in a predominantly quantitative manner. However, the lack of information for the remainder of the SRF will inevitably result in a qualitative assessment.

4.14 The assessment scenarios are presented in **Table 4.1**.

Table 4.1: *Assessment Scenarios*

Assessment	Scenario
Application 4	Demolition, groundworks, and construction effects
	Operational Effects
	Cumulative effects with identified Committed schemes
Application 5	Demolition, groundworks, and construction effects
	Operational Effects
	Cumulative effects with identified Committed schemes
In combination effects of Applications 4 and 5	Demolition, groundworks, and construction effects
	Operational Effects
	Cumulative effects with identified Committed schemes
In combination effects of Applications 4 and 5 and SRF	Demolition, groundworks, and construction effects
	Operational Effects
	Cumulative effects with identified Committed schemes

Assessment Assumptions

- 4.15 The HIF applications that form part of the project have already been approved (Applications 1,2 and 3) in advance of the submission of Applications 4 and 5. The works in Applications 1, 2 and 3 are expected to have been completed in advance of Application 4 and is expected to be concurrent with the construction of Application 5. As such the works comprised within Applications 1,2 and 3 will form part of a future baseline into which Applications 4 and 5 will be introduced. These HIF works are described in Table 4.2 below.
- 4.16 Application 5 is a detailed application and so can readily be assessed. Application 4 is an outline application for which parameters and a development specification will be provided which will provide 'up to' figures for a number of use classes for which permission will be sought. For assessment purposes a maximum, upper quantum and / or worst-case position has been assumed, for each assessment. This serves to ensure that the ICA and CEA presented assess the worst case and are robust.
- 4.17 The SRF-wide Design and Development principles (Section 5 of the Northern Gateway SRF) provide a general overview of the whole framework area, and information with regards to urban form and scale, land use, movement and public realm, and these plans will be used as the basis of the assessment. The SRF covers an area of some 155ha and sets the framework for residential-led regeneration scheme proposing approximately 15,000 dwellings over a 15–20-year period along with employment and commercial uses, retail provision and green and blue infrastructure (GI) along with improved transport and access.
- 4.18 **Table 4.2** provides the details of the HIF works.

Table 4.2: Details of the Approved HIF Works

Application / Project	Applicant	Site Location Plan	Estimated Site Area (ha)	Indicative Quantum of Development
HIF Advanced Enabling Works Application. (Application 1)	Manchester City Council	See Appendix II	2.88ha	• Description of development as shown on application form: “City Council Development for enabling works including tree and vegetation removal, creation of a temporary haul road and demolition of the Creamline Dairies buildings in association with the future delivery of the new Red Bank Neighbourhood” • Including for: ○ The demolition of Creamline Dairies. ○ Tree and shrub clearance to facilitate the construction of a temporary haul road ○ The construction of the temporary haul road ○ The detailed planning application and full ES has been submitted in respect of this application and was approved in Dec 2021. As such, full details of the proposals are available.
HIF Red Bank Neighbourhood Infrastructure Works	Manchester City Council	See Appendix III	15.74ha	• Description of development as shown on application form: “City Council Development for creation of a new City River Park (Phase 1) and other green infrastructure and green links, creation of development platforms for future delivery of the new Red Bank Neighbourhood including remediation and

Application / Project	Applicant	Site Location Plan	Estimated Site Area (ha)	Indicative Quantum of Development
Application (Application 2).				earthworks, construction of a new road and priority junction from Red Bank road, preparatory tree and shrub clearance, demolition of certain existing structures, and other associated works” • Including for: ○ Creation of development platforms within the Red Bank Plateau ○ Demolition sections of the existing River wall adjacent to the northern banks of the River Irk ○ Remediation and earthworks across site ○ Construction of Plateau Avenue and junction from Red Bank ○ Creation of SUDs ○ Utility and services connections and diversions. The redline extends to Queens Park sub-station to cover the proposed service connections in the adopted highway ○ Provision of green infrastructure including (among others): ○ Creation of green links; and ○ Creation of new City River Park

Application / Project	Applicant	Site Location Plan	Estimated Site Area (ha)	Indicative Quantum of Development
				The detailed planning application and full ES has been submitted in respect of this application and was approved in July 2022. As such, full details of the proposals are available.
HIF Utility Works (Application 3)	Manchester City Council	See Appendix IV (Indicative location plan only)	0.99	Utility and services connections and diversions, street works for new utilities including ducting up to the Queens Park substation.

Significance Criteria

4.19 The assessment of significance will be undertaken for potential effects to determine their relative importance. The following criteria will be considered when assessing their significance:

- Magnitude (size of effect);
- Spatial extent (size of the area affected);
- Duration (short, medium or long term);
- Nature of the effect (direct or indirect, reversible or irreversible);
- Sensitivity of the surrounding environment and receptors;
- Inter-relationship between effects;
- International, national or local standards; and
- Relevant planning policy.

4.20 Where appropriate and not restrictive of the requirements of specific guidance, the significance criteria in **Table 4.3** will be used to categorise predicted effects. Where alternative classifications have been used in order to comply with specific guidance, they will be explained in the methodology sections within each technical assessment. The significance levels identified can be either adverse or beneficial.

Table 4.3: *Significance Criteria*

Significance	Criteria
Major	These impacts are likely to be important considerations at a regional or district scale but, if adverse, are potential concerns to the project, depending upon the relative importance attached to the issue during the decision-making process. Mitigation measures and detailed design work are unlikely to remove all of the impact upon the receptor.

Significance	Criteria
Moderate	These impacts, if adverse, while important at a local scale, are not likely to be key decision-making issues. Nevertheless, the cumulative effect of such issues may lead to an increase in the overall effects on a particular area or a particular resource. They represent issues where impacts will be experienced but mitigation measures and detailed design work may ameliorate/enhance some of the consequences upon affected communities or interest. Some residual impact may still arise.
Minor	These effects may be raised as local issues but are unlikely to be of importance in the decision-making process. Nevertheless, they are of relevance in the detailed design of the project and consideration of mitigation measures.
Negligible	Potential impact is beneath levels of perception, within normal bounds of variation or within the margin of forecasting error.
No Impact	No Impact is predicted.

Mitigation

4.21 As set out within paragraph 7 of Schedule 4 of the 2017 EIA Regulations, the EIA will include:

“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”.

4.22 Mitigation is defined as those measures that are required to avoid, remedy or offset the identified environmental impacts of a project. Those mitigation measures that are identified through the EIA process and which have been designed into the proposals such that they appear on the submitted plans for approval and are integral to the development will be considered to be part of the development for the final assessment as presented in the ES. Embedded mitigation will be described in full in **Chapter 5: The Proposed Development**. This ‘embedded’

mitigation will be described in each technical chapter prior to the assessment of potential impacts. It is placed in this order to enable an assessment of the impacts to be made which takes into account the mitigation measures which have been designed into the Proposed Development, i.e. embedded into the design.

- 4.23 Mitigation that is not embedded into the proposals and which requires a commitment from the applicants to carry out further actions will be specified in the Mitigation section of each technical chapter. These measures would then be secured through the application of conditions attached to the planning permission or through an appropriate legal framework, such as the Section 106 agreement.

Residual Effects

- 4.24 Each ES chapter will conclude with a summary of the residual effects of the developments once all related mitigation measures have been taken into account.

Cumulative Effects

- 4.25 The EIA Regulations also require the assessment of cumulative effects (CEA). Cumulative effects may be divided into two categories as follows:

- Additional effects arising from interrelationship of effects within the same scheme; and
- Those arising from the scheme in combination with other proposed developments.

- 4.26 Cumulative effects will be discussed within each technical chapter, assessing the potential for cumulative effects for each technical assessment, thus ensuring that the LPA can evaluate the impacts of the development in isolation and in conjunction with other developments in the area.

- 4.27 A series of assessment scenarios are to be considered and presented in respect of cumulative effects as set out in **Table 4.1** above. The Cumulative Schemes are those approved projects within 1km of the Site considered as having potential for cumulative effects with the Proposed Development. This is the typical approach to CEA undertaken for an EIA. The proposed Cumulative Schemes have been identified by Avison Young from MCC's and Salford City Council's (SCC) planning portals, as applicable.

- 4.28 Wherever possible, definitive and fixed information relating to each application has been used. Where definitive information is not available, a maximum, upper quantum and / or worst-case position has been used. This will ensure that the CEA presented assesses the worst case and is as robust.

- 4.29 Schemes for consideration in the cumulative effects assessment were identified through a planning application search of the MCC and SCC planning portals.

- 4.30 **Table 4.4** and **Figure 4.1** show the potential Cumulative Schemes that have been identified in the vicinity of the Proposed Development. These Cumulative Schemes will be reviewed by each assessor to identify those that are

relevant to each assessment as not all the identified Cumulative Schemes will have the potential to give rise to cumulative effects in each assessment. The ES shall consider the potential cumulative effects in combination with the Proposed Development as part of the CEA.

Table 4.4: Cumulative Schemes

Scheme No.	Planning Ref.	Proposal	Approx. Distance and Direction	Status
Manchester City Council (MCC)				
1	129393/VO/2021	Collyhurst Village City Council Development for the erection of 168, three and four storey dwellinghouses (Use Class C3a) and two, five and six storey apartment buildings to form 76 residential apartments (Use Class C3a) with associated ground floor flexible commercial unit (162 sqm) (Use Class E); and the creation of a new public park; all with associated car and parking, refuse storage, landscaping, public realm and other associated works and infrastructure following demolition of 29 existing residential dwellinghouses, the Collyhurst Village Store and associated car parking	650m north-east	Application approved: 21 June 2021 Groundworks started
2	127971/FO/2020	Osborne Yard Erection of a 6 storey building to form 90 residential apartments (Use Class C3a) following demolition of existing structures with associated access, car parking, amenity space, landscaping and other associated works	950m east	Application approved: 07 May 2021 Construction not yet started
3	128248/FO/2020	The Gasworks	45m south	Application approved: 03 June 2021

Scheme No.	Planning Ref.	Proposal	Approx. Distance and Direction	Status
		Erection of 9 buildings ranging from 8 to 34 storeys in height to form 1202 residential apartments (Use Class C3a) and ground floor commercial uses (Use Class E) (192 sqm) together with associated car parking, new vehicular and pedestrian access, public realm, landscaping and other associated works following demolition of existing structures and buildings Land Bound By Gould Street, Williamson Street, Bromley Street And Bilbrook Street Manchester M4 4DD		Construction not yet started
4	116366/FO/2017	Victoria Meadowside Erection of four residential buildings (22 storey building, 17 storey building, 40 storey building and part 12, part 9 storey building) to form 756 residential apartments (Use Class C3a) together with ground floor commercial uses (616 sqm) (Use Classes A1, A2, A3, A4, A5, D1 and B1) with associated car parking, landscaping, amenity areas, creation of new public realm following the closure of Aspin Lane, Mincing Street and Irk Street and other associated works following demolition of existing structures Land Bounded By Dantzic Street & Aspin Lane, Land Bounded By Gould Street & Angel Meadows And Land Bounded By Old Mount Street, School Street, Naples Street & Ludgate Street Manchester	90m south Construction started	Application approved: 25 August 2017 Under construction, with three of the Scheme's four buildings now complete and occupied.
5	118120/FO/2017	Ancoats Gardens Erection of a part 15, part 9, part 7 storey building to form 155 residential apartments together with ground floor commercial uses (Use Classes A1, A3 and B1) (288 sqm) with associated car parking, access arrangements and other associated works following the	360m south	Application approved: 23 May 2018 Under construction

Scheme No.	Planning Ref.	Proposal	Approx. Distance and Direction	Status
		demolition of existing buildings and structure and the closure of Hatter Street Land Bounded By Thompson Street / Mason Street / Bendix Street And Rochdale Road Manchester		
6	127537/FO/2020	25 Rochdale Road Erection of a 11 storey 229 bedroom hotel (Use Class C1) with ancillary ground floor bar/restaurant together associated public realm and other associated works 25 Rochdale Road Manchester M4 4HT	340m south	Application approved: 19 October 2020 Construction not yet started
7	124973/FO/2019	2 and 3 Angel Square Erection of an 11 storey building and a 12 storey building with plant rooms above to form a mixed use development comprising 39,184 sq.m (NIA) of Class B1a office use and commercial units of 1,286 sqm (NIA) (Use Classes A1, A2, A3, A4, B1a and D1) along with associated lower ground level car parking, hard and soft landscaping and associated works, including the creation of a new pedestrian route between Angel Street and Miller Street. Land Bounded By Co-op Headquarters Miller Street And Angel Street Manchester	260m south	Application approved: 12 February 2020 Construction not yet started
8	123437/FO/2019	4 Angel Square Demolition of existing buildings to facilitate construction of an 11 storey building with external terrace to form a mixed use development comprising office use (Use Class B1) and	110m south	Application approved: 26 July 2019

Scheme No.	Planning Ref.	Proposal	Approx. Distance and Direction	Status
		ground floor commercial units (Use Classes A1, A2, A3, A4, B1 and D2); creation of a new public square and associated landscaping, undercroft car and cycle parking, provision of plant and servicing and related access and highways' works and associated works. 4 Angel Square Corporation Street Manchester M4 4DU		Under construction
9	111777/FO/2016/C1	New Victoria Erection of two residential buildings of a maximum 21 and 26 storeys to accommodate 520 apartments (178 x 1 bed, 286 x 2 bed and 56 x 3 bed apartments) (Use Class C3). Erection of one office building of maximum eight storeys comprising up to 11,647 sq. m (GIA) of office accommodation. Ground floor commercial space (Use Class A1, A2, A3 and B1), lower ground level car parking, access and servicing arrangements, alterations to Corporation Street, new public realm and other associated works. New Victoria Land At Corporation Street Manchester M3 1NX	190m south-east	Application approved: 29 September 2016 Under construction
10	126638/FO/2020	Glassworks Erection of part 17 storey (plus roof top plant behind parapet), part 6 storey building and the conversion with single-storey rooftop extension of the existing building at 1 & 3 Back Turner Street to comprise office accommodation (Class B1(a)) with front of house and commercial floorspace at ground floor Class A1 (Shop), A2 (Financial and Professional Services), A3 (Café and Restaurant), A4 (Drinking Establishment) B1 (Office) and D2 (gym	550m south	Application approved: 26 June 2020 Under construction

Scheme No.	Planning Ref.	Proposal	Approx. Distance and Direction	Status
		and cinema) use with associated landscaping and other works following demolition of existing buildings at 30 & 32 Shudehill and 1 & 3 Nicolas Croft.		
11	126944/FO/2020	Victoria Riverside Erection of a residential-led mixed use development comprising 3 no. towers (37, 26 and 18 storeys) and podium levels (6 storey) to form 634 residential apartments and townhouse accommodation (Use Class C3) together with commercial accommodation (1222 sqm) (Use Classes A1,A2,A3,A4,A5,B1, D1 and D2)); with associated residential amenity areas, refuse storage, plant (including substation), car parking, cycle storage, landscaping and new public realm including the re-instatement of Bromley Street and other associated works	0m south (adjacent to Site boundary)	Application approved: 24 September 2020 Under construction
12	131708/FO/2021	87 Rochdale Road Erection of a part 11, part 13 storey building to form residential apartments (Use Class C3a) together with the erection of two blocks of 3 storey townhouses (Use Class C3a) to form 237 residential homes in total with associated commercial floor (Use Class E) (132 sqm), basement car parking, landscaping and public realm, and associated engineering and infrastructure works following demolition of existing buildings and structures	200m south	Application approved: 18 February 2022 Construction not yet started

Scheme No.	Planning Ref.	Proposal	Approx. Distance and Direction	Status
13	128997/FO/2020	40 Swan Street Erection of a ground plus 9-storey building to form 118 no. residential apartments (Use Class C3), including amenity areas, ground floor food and beverage/ commercial units (Sui Generis/ Use Class E), public realm and landscaping, with supporting infrastructure and associated works following demolition of existing building	560m south	Application approved: 22 September 2021 Construction not yet started
14	121380/FO/2018	Swan House Erection of a part 31, part 13, part 5 storey building to form 373 residential apartments (Use Class C3a) and 12 serviced apartments (Use Class C1) together with a ground floor commercial unit (408 sqm) (Use Class A1, A2 or A3) with associated car parking, public realm and other associated works following demolition of existing buildings	510m south	Application approved: 24 October 2019 Under construction
15	124888/FO/2019	New Cross Central Erection of a 6-9 storey residential building (Use Class C3) comprising 80 no. dwellings including 9 no. townhouses and 71 no. apartments with residents lounge, refuse, plant, new substation, cycle storage, an internal landscaped courtyard and improvements to the adjacent footways	665m south	Application approved: 16 January 2020 Under construction

Scheme No.	Planning Ref.	Proposal	Approx. Distance and Direction	Status
16	125686/FO/2019	Oldham Road (Mulbury City) Erection of a 12-storey residential building (Use Class C3) comprising 144 residential units, with ground floor commercial use (Use Class A1, A2, A3, B1, and /or D1 (excluding Places of Worship)) (144 sqm) or ancillary residents lounge, disabled car parking, with highways, landscaping and other associated works following demolition of existing buildings. Site Bound By Oldham Road To The South East, Marshall Street To The North East, Chadderton Street To The North West, And Addington Street To The South West Manchester	550m south	Application approved: 18 December 2020 Under construction
17	125681/FO/2019	Bendix Street (Mulbury City) Erection of a ground plus 12-storey residential building (Use Class C3) comprising 161 residential units, with ground floor commercial use (Use Class A1, A2, A3, B1, and / or D1 (excluding Places of Worship)) (160sqm) or ancillary residents lounge, disabled car parking, with highways, landscaping and other associated works following demolition of existing buildings	520m south	Application approved: 23 April 2021 Under construction
18	110074/FO/2015/C2	The Quarters Demolition of existing building and site structures and construction of 2no. mixed use buildings (Buildings A and B). Building A - Part 4, part 5, part 6 and part 8 storey building including ground floor and plus basement with ancillary facilities services and commercial use (A1, A3, B1) at ground floor and basement levels, 72 residential apartments (C3) above	720m south	Application approved: 30 August 2016 Under construction

Scheme No.	Planning Ref.	Proposal	Approx. Distance and Direction	Status
		and 2 green roofs. Building B - Part 3 and part 5 storey building including ground floor and plus basement with 100 cycle parking spaces, building services and commercial space at basement level and 9 car parking spaces, ancillary facilities and services and commercial space (A1, A3, B1) at ground floor level and 28 residential apartments (C3) above and 1 green roof. Land At 76 - 82 Oldham Street And Land Bounded By Spear Street, Warwick Street And Houldsworth Street Ancoats Manchester M4 1LF		
19	119731/FO/2018	Deluna, 32 – 38 Oldham Road Erection of 7 storey building to form 38 apartments and ground floor retail unit (Class A1) together with associated car and cycle parking following demolition of existing building	625m south	Application approved: 15 November 2018 Under construction
20	121375/FO/2018	20 – 36 High Street Construction of a 22 storey building comprising 361 residential apartments (122 x 1 bed 2 person, 119 x 2 bed 3 person, 94 x 2 bed 4 person, 21 x 3 bed 5 person and 5 x 3 bed 6 person (34% 1 bed, 59% 2 bed and 7% 3 bed) ground floor commercial floorspace (Use Classes A1 (Shop), A3 (Restaurant and Cafe), A4 (Drinking Establishment) and A5 (Hot Food Take-away) associated landscaping, including new public realm and pedestrian route, together with servicing, cycle parking, access and other associated works following demolition of buildings at 20-22 and 24-26 High Street and 5 market stalls to Church Street.	720m south	Application approved: 02 October 2020 Construction not yet started

Scheme No.	Planning Ref.	Proposal	Approx. Distance and Direction	Status
21	125678/FO/2019	Peeler's Yard Erection of 8-storey residential building (Use Class C3) comprising 73 residential units, with ground floor commercial use (Classes A1, A2, A3, B1 and D1 (excluding Places of Worship)) (205 sqm); alterations to the retained perimeter wall and chimney including the introduction of a light box; disabled car parking, highways, landscaping and other associated works	480m south	Application approved: 18 December 2020 Under construction
22	132416/FO/2021	Great Ducie Street Erection of two buildings part 27, 20, 17 storeys and part 11 and 10 storeys to form a mixed use development comprising of 461 residential apartments (Use Class C3a) and ground floor commercial uses (Use Class E) (718 sqm) together with public realm including courtyard pocket park, landscaping, car parking and other associated works	390m south-east	Application approved: 30 June 2022 Construction not yet started
23	124995/FO/2019	Manchester College Strangeways Campus Erection of a five storey educational building (18495 sqm) (Use Class D1) with associated access, servicing, landscaping, public realm and other associated works following removal of existing car park	360m south-east	Application approved: 19 December 2019 Under construction

Scheme No.	Planning Ref.	Proposal	Approx. Distance and Direction	Status
24	122280/FO/2019	Mirabel Street Erection of new mixed-use development to comprise of one 10 storey building fronting Mirabel Street to accommodate 45 no. Use Class C3 residential apartments (9 no. 1-bed studios, 27 no. 2-bed 3 person apartments and 9 no. 2-bed 4 person apartments) and 7 no. residential car parking spaces at ground level and one part 10, part 14 storey building fronting Great Ducie Street to accommodate 84 no. Use Class C3 residential apartments (31 no. 1-bed 2 person apartments, 26 no. 2-bed 3 person apartments, 18 no. 2-bed 4 person apartments and 9 no. 3-bed 5 person apartments) and 345 sq. m of commercial floor space at ground level (flexible use Use Class A1 shop, Use Class A2 financial and professional services and Use Class A3 cafe/restaurant) together with creation of roof terrace amenity space, cycle parking, access, servicing and associated works following demolition of existing building Land Bounded By Great Ducie Street And Mirabel Street Manchester M3 1PJ	450m south-east	Application approved: 17 December 2020 Construction not yet started
25	127901/FO/2020	Manchester Arena Expansion Expansion of Manchester Arena from 21,000 seats to 24,000, making it Europe's largest indoor arena. Improvement of access from Hunt's Bank and Victoria station.	290m south-east	Application approved: 16 April 2021 Construction not yet started
26	131314/FO/2021	39 Deansgate (Speaker's House)	820m south-east	Application approved: 21 January 2022

Scheme No.	Planning Ref.	Proposal	Approx. Distance and Direction	Status
		Erection of a 17 storey building comprising office use (Use Class E(g)(i)) and flexible ground floor commercial units (Use Classes E(a),(b),(c) and sui generis 'drinking establishment'), new electricity sub-station, basement cycle parking and rooftop plant enclosure, together with access, servicing and associated works following demolition of the existing building		Construction not yet started
27	130553/FO/2021	Island, John Dalton Street Demolition of the existing buildings and structures and the erection of a 10-storey plus basement office building (Use Class E(g)), with flexible ground floor and basement uses (Use Class E) and rooftop amenity space, works to facilitate the pedestrianisation of the southern part of Ridgefield and other associated works.	1.1km south-east	Application approved: 27 September 2021 Construction not yet started
28	130354/FO/2021	Eliza Yard Erection of an 8 storey building to form 118 residential apartments (Use Class C3) and ground floor commercial floorspace (Use Class E (a),(c),(g)(i)) (583 sqm) together with amenity space, car and cycle parking provision, hard and soft landscaping, access, servicing and other associated works	870m south-east	Application approved: 30 July 2021 Construction not yet started
29	130627/FO/2021	Ancoats Mobility Hub Erection of an 8 storey building to form Mobility Hub including ground floor commercial unit (Use Class E(b)) (221 sqm), delivery hub, 150 cycle spaces and 408 car parking spaces	770m south-east	Application approved: 30 July 2021

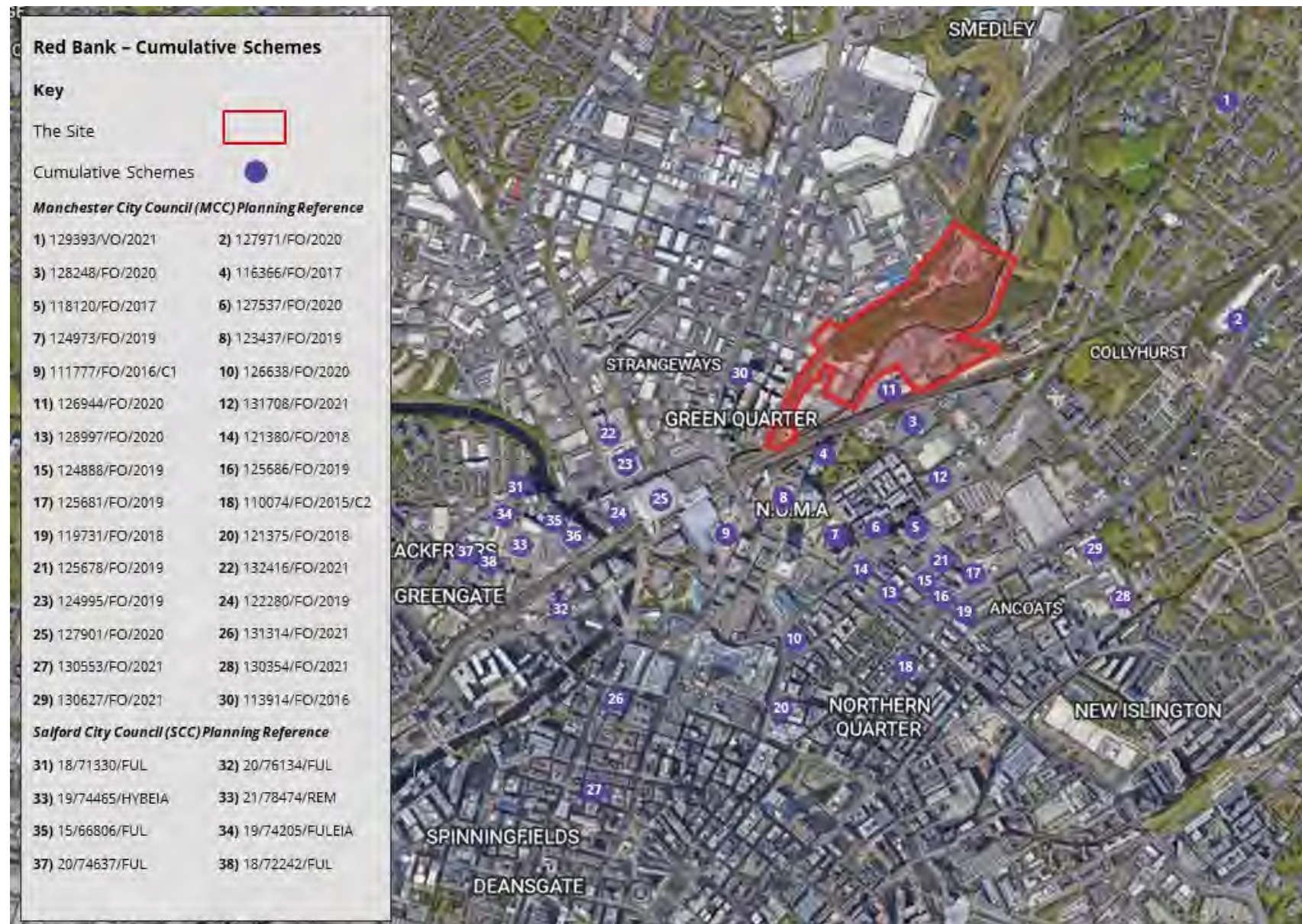
Scheme No.	Planning Ref.	Proposal	Approx. Distance and Direction	Status
		with associated landscaping, access and other associated works following demolition of existing structures		Construction not yet started
30	113914/FO/2016	1 Lord Street Erection of a 16 storey building to form 192 residential apartments (Use Class C3a) together with ground floor commercial unit (172 sqm) (Use Class A1, A2, A3 or B1) with associated vehicular access from Fernie Street, car parking and hard and soft landscaping following demolition of existing buildings	140m west	Application approved: 21 November 2016 Construction not yet started
Salford City Council (SCC)				
31	18/71330/FUL	Uptown Erection of three residential blocks, comprising of a total of 156 apartments, together with car parking and landscaping	850m south-west	Application approved: 01 October 2018 Under construction
32	20/76134/FUL	Maldron Hotel, Chapel Street	1km south-west	Application approved: 28 July 2021

Scheme No.	Planning Ref.	Proposal	Approx. Distance and Direction	Status
		Erection of 16-storey building plus plant comprising a hotel (Use Class C1) with ancillary bar and restaurant uses, access, servicing, landscaping and other associated works		Under construction
33	19/74465/HYBEIA	Cortland at Collier's Yard Hybrid planning application for demolition of existing buildings on the site and comprehensive redevelopment to create between 1,407 and 1,521 dwellings, comprising of: (a) Phase 1 (submitted in full with no matters reserved) for development of a 50-storey residential building; commercial floor-space (Use Classes A1, A2, A3, A4, A5, B1, D1 and D2); new public park; highways and public realm improvements and other associated works; and, (b) Phases 2 and 3 (submitted in outline with all matters reserved) for the development of two residential buildings up to 42 storeys in height; commercial floor-space (Use Classes A1, A2, A3, A4, A5, B1, D1 and D2); new highways; a public square; public realm improvements and other associated works. (EIA development, accompanied by Environmental Statement) Land Bound By Greengate, Collier Street, Queen And King Street And Gravel Lane M3 7BN	960m south-west	Application approved: 27 March 2020 Under construction
34	21/78474/REM	Bankside Application for approval of Reserved Matters (Access, Appearance, Landscaping, Layout and Scale) pursuant to Outline Planning Permission 21/78473/HYBEIA for Plot C, comprising the demolition of existing buildings and a residential-led development of a 42-storey (plus ground) building containing 444 apartments together with associated	750m south-west	Application approved: 02 March 2022 Under construction

Scheme No.	Planning Ref.	Proposal	Approx. Distance and Direction	Status
		residents' amenities, ground floor commercial floorspace, basement parking, public realm improvements including the delivery of Boulevard West, Collier Square and Collier Street, and other associated infrastructure works. (EIA Development Application accompanied by an Environmental Statement Addendum) Land Bound By Greengate And Trinity Way And Collier Street And Intersected By Boond Street And Caygill Street M3 7BN		
35	15/66806/FUL	Embankment Exchange Demolition of existing factory walls and river walk way to provide mixed use development comprising of 2 blocks ranging from 15 to 34 storeys in height total of 300 residential units with associated off street parking , together two commercial units comprising of 474sqm of floor space (A1, A2, A3 and B1) at ground floor level.	640m south-west	Application approved: 03 December 2015 Construction not yet started
36	19/74205/FULEIA	Waterloo Place Erection of a mixed use development comprising a single building with two blocks (14 and 55 storeys) to include: 542 residential apartments, associated residents' facilities and basement parking; and 3 no. commercial units (use classes A1, A2, A3, B1 & D1) with associated landscaping and public realm works.	620m south-west	Application approved: 23 January 2020 Under construction
37	20/74637/FUL	55 Queen Street	920m south-west	Application approved: 05 March 2020

Scheme No.	Planning Ref.	Proposal	Approx. Distance and Direction	Status
		Demolition of existing building and erection of a new building (ground plus 17 storeys) comprising 115 residential units (Use Class C3) with associated residents' facilities at ground floor and other ancillary functions; associated access, public realm and other associated works. 55 Queen Street Blackfriars Salford M3 7DQ		Under construction
38	18/72242/FUL	The Copper Works Demolition of existing and former light industrial / commercial units, and the construction of a residential-led mixed-use development. Erection off a building ranging from 7-14 storey high comprising 104 residential apartments (C3 use) with ancillary communal spaces, a commercial unit (A1, A2, A3, B1, D1), together with associated parking and amenity space. 28 King Street And 49-51 Queen Street Blackfriars Salford M3 7DG	900m south-west	Application approved: 17 January 2019 Under construction

Figure 4.1: Map of Cumulative Schemes



- 4.31 We invite MCC to confirm whether there are any other approved or committed developments in the area that should be included within the list of Cumulative Schemes. The assessment of the Cumulative Schemes will be based upon the description of development, red line plans and any available masterplans / parameter plans for any identified sites.
- 4.32 Consideration will be given to the potential synergistic cumulative effects, arising from the interaction of two or more environmental effects associated with the Proposed Development on a given receptor or resource.

5. Alternatives

5.1 The 2017 EIA Regulations require that the ES provide:

“A description of the reasonable alternatives (for example in terms of development design, technology, location, size and scale) studied by the developer, which are relevant to the proposed project and its specific characteristics, and an indication of the main reasons for selecting the chosen option, including a comparison of the environmental effects.”

5.2 Therefore, the ES will define the following types of alternatives considered by the Applicant:

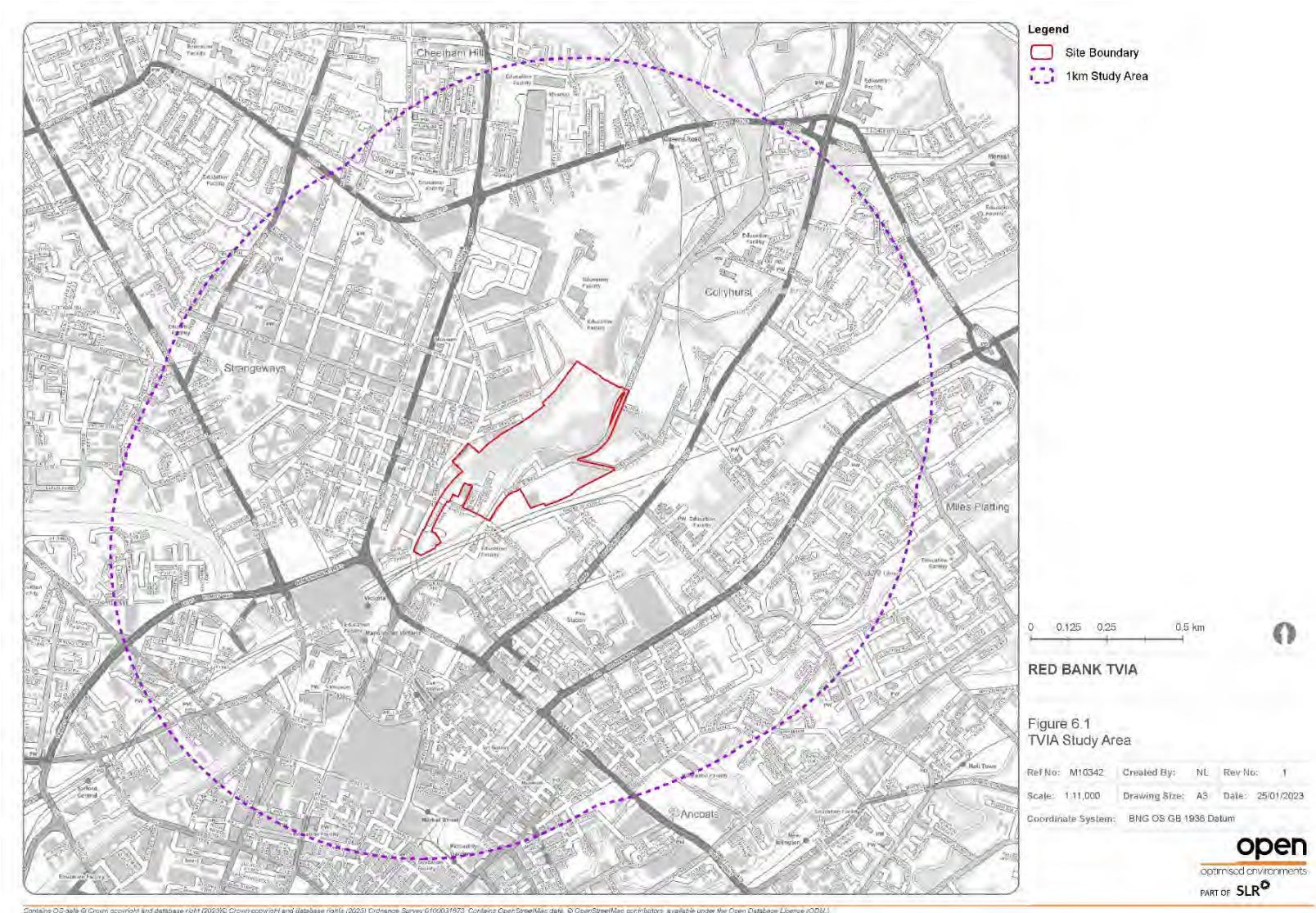
- The ‘do nothing’ alternative: Consideration of the impacts in the absence of the development; and
- Alternative layout and designs: A description of the design evolution based on environmental constraints, potential effects and other considerations, with a description and account of the main reasons why alternative layouts were dismissed and why the preferred design option was selected.

5.3 No alternative sites were considered for the Development. The Site is within the JV’s control and is located within the Northern Gateway SRF and HIF funding secured specifically for delivery of housing in this area.

6. Townscape and Visual

- 6.1 Townscape and visual effects are independent but related issues. Townscape effects are changes in the townscape as a resource, including its constituent elements, the aesthetic and perceptual aspects of the townscape, and its distinctive character; visual effects relate to the effects of change upon the views available to people and their visual amenity. The Townscape and Visual Impact Assessment (TVIA) will assess the potential significant effects during the construction and operational phases of the Proposed Development on townscape and visual receptors in the surrounding area.
- 6.2 The TVIA will be undertaken by Chartered Members of the Landscape Institute (CMLI) within Optimised Environments Ltd (OPEN). OPEN is a registered practice of the Landscape Institute with considerable experience in TVIA. The TVIA will accord with the Landscape Institute (LI) and Institute of Environmental Management and Assessment (IEMA) (2013) 'Guidelines for Landscape and Visual Assessment. Third Edition'.
- 6.3 The TVIA will be undertaken in line with the EIA Strategy set out in Section 4: EIA Approach, within one ES assessing the two applications – Red Bank Neighbourhood outline application and NT02-04 detailed application. Each application will be assessed in respect of townscape and visual construction effects, operational effects and cumulative effects (with the identified cumulative schemes) against the existing baseline. There will then be an 'in-combination' assessment of the two applications; and the two applications with cumulative schemes in the cumulative effects assessment. Finally, a more qualitative, high-level assessment of the two applications with cumulative schemes and the rest of the SRF area will be undertaken as part of the TVIA. The scope of works for the TVIA in this Scoping Report (Section 6) applies to both the outline and detailed applications unless described otherwise.
- 6.4 Based on an analysis of the area through site visits, desk-based analysis and professional judgement, the proposed study area for the TVIA will cover a 1 km radius from the Proposed Development, as shown in **Figure 6.1**. This TVIA study area includes the Proposed Development site itself and the full extent of the wider townscape around it, with the study area based on the extent of townscape and designated receptors likely to be affected and the extent of the area from which the Proposed Development may have significant townscape and visual effects. Feedback and agreement on the TVIA study area is requested from consultees.

Figure 6.1: TVIA Study Area



Baseline Conditions

- 6.5 The baseline for the Proposed Development will consider both townscape and visual amenity / views. Due to the locality of the Proposed Development, located in an urbanised area, the issues normally referred to in an EIA as 'landscape' are referred to herein as 'townscape'. Townscape is defined in the Guidelines for Landscape and Visual Impact Assessment, 3rd Edition (GLVIA3) as:

'areas where the built environment is dominant. Villages, towns, and cities often make important contributions as elements in wider-open landscapes, but townscape means the landscape within the built-up area, including the buildings, the relationships between them, the different types of urban open spaces, including green spaces, and the relationship between buildings and open spaces. There are important relationships with the historic dimensions of landscape and townscape, since evidence of the way that village, towns, and cities change and develop over time contributes to their current form and character'.

- 6.6 Townscape effects are effects on the townscape as a resource in its own right, or effects on perceived character of the townscape.

- 6.7 Visual amenity is defined (in GLVIA3) as:

'The overall pleasantness of the views people enjoy of their surroundings, which provides the visual setting or backdrop for the activities of the people living, working, recreating, visiting or travelling through an area', with visual effects being effects on specific views and visual amenity experienced by people.

- 6.8 The baseline identifies those townscape and visual receptors in the study area that are likely to be assessed in detail in the TVIA. This is based on identifying sensitive receptors within the study area that are likely to experience significant effects as a result of the Proposed Development.

Townscape Baseline

Site and Immediate Context

- 6.9 The Site is located to the north-east of the city centre area of Manchester (**Figure 6.1**). The Site covers an area of approximately 15.67 ha. To the west, the Site adjoins parts of the urban area of Cheetham and Crumpsall, to the north-east is Harpurhey, to the south-east is Miles Platting, and Ancoats lies to the south.
- 6.10 The Site is bisected by the River Irk and Dantzig Street / Collyhurst Road. The river lies mainly within channel but has influenced the topography within the Site, which rises (steeply, in places) to the north and south. The highest parts of the Site rise to the north and south of the Irk Valley to approximately 41 m Above Ordnance Datum (AOD), while the low point of the Site generally follows the course of the River Irk, at approximately 30 m AOD. The baseline conditions that will be applicable at the start of the Proposed Development will differ from the baseline presented as the site works permitted as part of the HIF works will be assumed to have been implemented and nearing completion. These works will amend the existing site levels to those required for the Application 4.

- 6.11 The Site includes a variety of land uses. Within lower lying and level parts of the Site are one and two storey light industrial buildings and associated infrastructure, such as roads and car parking. There are several areas that are currently vacant or derelict land. Sections of brick Victorian viaducts remain to the north of the Site. St. Catherine's Wood is a notable area of existing vegetation within the Site. The woodland comprises plantation broad-leaved woodland and semi-natural broad-leaved woodland and a network of formal and informal recreational pedestrian paths.
- 6.12 To the south and south-west of the Site is the city centre of Manchester, containing a rich historic legacy of Conservation Areas (CAs), listed buildings, and street patterns. The area between the city centre and the Site is separated by the broad Miller St., to the east of which is a grouping of modern residential and office buildings within the 'NOMA' Strategic Regeneration Framework masterplan, which extends to the north of Angel Meadows. Between Old Mount Street and Rochdale Road are a series of smaller-scale city blocks, with a dense urban grain based around a regular street pattern. It contains a wide and closely integrated range of uses including commercial, civic, and residential activities set within iconic Victorian Architecture and large municipal buildings.
- 6.13 To the north of the Site is Cheetham Hill, Strangeways and the Green Quarter. Large swathes of Cheetham Hill and Strangeways are predominantly characterised by low-rise light industry, set within a tight urban grain based around a strict rectilinear street pattern. The Green Quarter lies in close proximity to the north-west, separated from the Site by an elevated Victorian railway viaduct (now derelict), and from the city centre by Miller Street and the railway to the south-west. Green Quarter is characterised by modern, high-rise residential apartments blocks, mixed commercial uses, and public realm spaces. The scale and massing of the Green Quarter stands apart from the prevailing low-rise scale of buildings within Cheetham Hill, and instead is more legible in relation to NOMA to the south-west.
- 6.14 The southern edge of the Site is defined by the railway corridor that extends broadly north-eastwards from Manchester Victoria station, which crosses the townscape on an elevated viaduct. The area to the south of the River Irk and the railway line is New Town / New Cross. A number of large vacant plots, containing fragments of undeveloped scrub, scattered light industry, or large areas of car parking, are likely to be developed in line with the strategic regeneration of this part of the city, as part of the Northern Gateway SRF. Further to the south and south-east are Ancoats (Conservation Area) and the residential suburb of Miles Platting.
- 6.15 The Irk Valley includes parts of the Site, as described above. The valley extends out to the east and north-east. This is noted one of the key 'green fingers' into the city centre. The valley comprises series of open, green spaces, including Queen's Park, that follow the sinuous course of the river, fringed by urban and suburban areas that occupy the upper slopes of the valley. The eastern fringes of the Irk Valley are bordered by the residential suburbs of Collyhurst, and Harpurhey further to the east.

Townscape Character

- 6.16 There are townscape receptors within the study area which have the potential to experience a significant effect from the Proposed Development. These will be assessed in full within the TVIA.

6.17 Strategic Character Areas (SCAs) are identified within the Manchester City Council (MCC) (2012) Core Strategy Development Plan Document (DPD). Eleven character areas are identified within the Manchester city area, of which the Site falls on to the boundaries of the following SCAs:

- Central Arc SCA: Described by the DPD as:

"The character of the area we have today is predominantly one of 1960's social housing estates and zoned industrial areas bisected by the transport network and largely resulting from the comprehensive redevelopment of the past. Significant areas of employment are found where this area overlaps with the fringe of the City Centre such as at Strangeways which is a large, distinctive, entirely industrial area suitable for further employment growth. Much of the Central Arc is experiencing regeneration with some contemporary urban solutions, for example in Hulme, now complete, and some still to be progressed."

- City Centre SCA: Described by the DPD as:

"The City Centre contains a rich legacy which reflects its urban evolution to the current day and includes listed buildings, conservation areas, archaeological remains and an historic street pattern. Its core area presents a particularly dense environment that accommodates a wide and closely integrated range of uses including commercial, civic and residential activities. Relative to the amount of development there is limited open space and this includes a range of civic and less formal green spaces and waterways. Outside the core and associated with the Inner Relief Route there are less active and less densely developed areas with significant elements of cleared land. The City Centre is the focus of the City's transport routes."

- Irk Valley SCA: Described by the DPD as:

"A tree-filled river valley, steeply cut in parts, used as informal open space. This river valley is bounded by and still contains many areas of low density residential and industrial activity with occasional formal open spaces. Its green character stops abruptly at Dantzic Street/Dalton Street where its character becomes more like that of the City Centre."

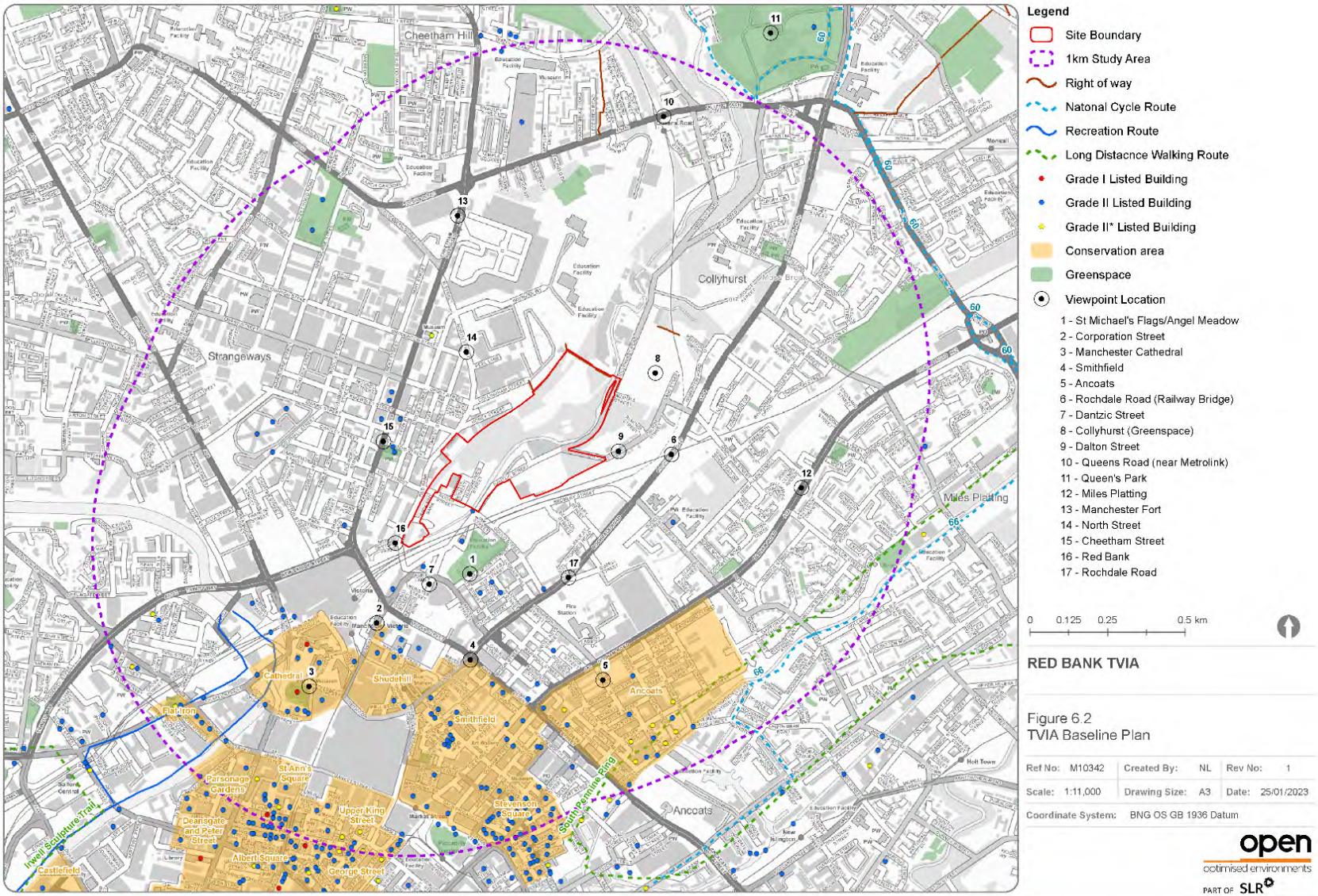
6.18 A finer grained assessment of the townscape character of the study will be undertaken as part of the TVIA, based on a refined and updated assessment of SCAs, analysis of the local townscape character within MCC's framework documents, consideration of townscape relevant designations, and the principles set out in Landscape Institute Technical Information Note 05/2017 (TIN 05/2017) in order to define and describe Townscape Character Areas (TCAs) within the TVIA study area. The effect of the Proposed Development on TCAs within the TVIA study area will then be assessed using the ZTV, analysis of visualisations from representative viewpoints, and site survey.

6.19 In order to assess the likely significant effects of the Proposed Development on the townscape character of these TCAs, the sensitivity to change of the townscape of each TCA will be assessed in conjunction with the magnitude of change arising from the Proposed Development.

Townscape Designations

- 6.20 The impact of the Proposed Development on individual historic designated elements (such as listed buildings) will be assessed in detail within the Cultural Heritage and Archaeology chapter of the ES. Their contribution in terms of townscape character will be considered in the TVIA chapter of the ES. The locations of relevant townscape designations within the TVIA study area are shown on **Figure 6.2**.

Figure 6.2: TVIA Baseline Plan



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Conservation Areas

- 6.21 The Site is not located within a Conservation Area (CA), but to the south-west, south, and south-east there are nine CAs within or partially located within the TVIA study area, shown on **Figure 6.2**. Considering the tight urban city centre townscape, intervening context of a variety of built form, and indeed the urbanised nature of CAs themselves, significant effects on the townscape character of CAs beyond 1 km of the Site are not predicted to occur and are proposed to be scoped out of the TVIA.
- 6.22 Each CA has a detailed description within the Manchester City Council Conservation Area appraisals detailing the identity, history, and townscape of each area as well as opportunities for improvement and enhancement and control of development.
- 6.23 The following CAs are defined within the southern portion of the TVIA study area, with summary extracts that describe these closest CAs to the Proposed Development included below. The full citations can be viewed online¹.

- Cathedral Conservation Area:

"The Cathedral area has been the ecclesiastical and scholastic centre of Manchester since the earliest times. Today, the Cathedral and Chetham's Hospital school form the focal point of a wider area notable for the diversity of activities carried on within its bounds.

To the south and east the two buildings, and the confined solemnity of the Cathedral Yard, are effectively separated from the rest of the city centre by a partial ring of Victorian Commercial buildings, including the impressive Corn and Produce Exchange. These all cluster around the medieval street pattern and bounded on the outside by the curving line of the Cateaton Street, Hanging Ditch, Todd Street, Victoria Station and Hunts Bank approach.

To the north and west the Cathedral overlooks the broad width of the busy Victoria Street and the deep cut of the River Irwell, both of which traverse the area, and beyond, into Salford, to the extensive cobbled forecourt of the disused Exchange Station which forms the western boundary of the area.

The area was designated as a Conservation Area in April 1972 in order to preserve and enhance the quality of the setting of the Cathedral and Chetham's Hospital School"

- Shudehill Conservation Area:

"Shudehill conservation area was designated in January 1987 together with two others on the north side of Manchester city centre - Smithfield and Stevenson Square.

The Shudehill conservation area is bounded by Hanover Street, Riga Street, Mayes Street, Shudehill, Withy Grove and Corporation Street. It also includes one building on the north side of Hanover Street, fronting Corporation Street."

- Smithfield Conservation Area:

¹ Manchester City Council (2022) Conservation Areas. Available at: https://www.manchester.gov.uk/info/511/conservation_areas

"Smithfield conservation area lies on the north-eastern edge of the city centre of Manchester. It is one of a group of three in this vicinity designated by the City Council in February 1987; the others are Shudehill and Stevenson Square, which lie to the north-west and south-east respectively.

The area is bounded by Swan Street, Oldham Street (a common boundary with the Stevenson Square Conservation Area), Market Street, High Street and Shudehill (a common boundary with the Shudehill Conservation area)."

- Ancoats Conservation Area.

"The area of Ancoats lies just outside the city centre, immediately to the north of Great Ancoats Street.

The principal buildings are the massive cotton spinning mills, which are located adjacent to the Rochdale Canal and the nearby housing. This juxtaposition and inter-linking of manufacturing, transport and residential uses meant that Ancoats functioned as the first industrial estate in the world.

Before the Industrial Revolution, textile and other manufacturing processes were carried on in and around worker's homes. Following the harnessing of water power, mills were sited alongside rivers but they had to be spaced out in order to extract the limited amount of power available from a certain stretch of water.

The invention of the steam engine overcame these limitations, ensuring that mills could be larger and sited where most convenient. Ancoats proved to be a suitable location for the larger mills and it eventually became recognised as the place where the Industrial Revolution commenced on a grand scale.

The part of Ancoats designated as a conservation area by Manchester City Council in June 1989, is bounded by Great Ancoats Street, Oldham Road, Kemp Street, Wadeford Close, Jersey Street and the Rochdale Canal."

- 6.24 In order to assess the likely significant effects of the Proposed Development on the townscape character of CAs within the TVIA study area (**Figure 6.2**), the sensitivity to change of the townscape of each CA will be assessed in conjunction with the magnitude of change arising from the Proposed Development. The present-day contribution to townscape character from CAs will be considered in the TVIA; the Cultural Heritage and Archaeology chapter of the ES will consider the effects on the historic and cultural aspects and setting of these designated areas.

World Heritage Sites

- 6.25 There are no World Heritage Sites located within the study area.

Registered Parks and Gardens (RPGs)

- 6.26 There are three Registered Parks and Gardens (RPGs) located within the TVIA study area.

- Queens Park (Grade II);
- Manchester General Cemetery (Grade II); and
- Philips Park Cemetery (Grade II).

- 6.27 The key reference material for consideration of RPGs is the Historic England Register of Parks and Gardens of Special Historic Interest in England. The present-day contribution to townscape character from these RPGs will be considered in the TVIA. The Cultural Heritage and Archaeology chapter of the ES will consider the effects on the historic and cultural aspects of RPGs and their settings.

Views and Visual Amenity Baseline

- 6.28 Visual effects will occur when the introduction of the Proposed Development changes or influences the visual amenity and views experienced by people in the area. The visual baseline will be defined by a Zone of Theoretical Visibility (ZTV) - the geographical area from which the Proposed Development is likely to be visible. The ZTV will show the main area in which the Proposed Development will theoretically be visible, highlighting the different groups of people who may experience views and assisting in the identification of representative viewpoints where they may be affected.
- 6.29 The principal visual receptors that are likely to be most susceptible to visual effects arising from the Proposed Development will be identified in the TVIA. The key visual receptors are the people within the area who will be affected by changes in views and visual amenity as a result of the Proposed Development. Within the TVIA study area these visual receptors include (but are not limited to):
- Residents of Manchester City Centre, Cheetham, Collyhurst and Miles Platting, Harpurhey, and Ancoats;
 - Motorists on the network of public roads in the study area;
 - Rail passengers, on the eastbound line from Manchester Victoria station;
 - People working in central Manchester;
 - Visitors, particularly to the civic centre around Manchester Cathedral and Northern Quarter;
 - Pedestrians using both footpaths around streets and long-distance paths, including the South Pennine Ring long-distance recreational trail.
 - Sustrans National Cycle Route 66 lies within the TVIA study area. The towpaths alongside the Rochdale / Ashton Canals are recreational routes as well as the canal itself.

Representative Viewpoints

- 6.30 A series of representative viewpoints will be assessed in the TVIA, from where it may be possible to see the Proposed Development from publicly accessible viewpoints, such as roads, public rights of way and areas of public open space.
- 6.31 A list of proposed viewpoint locations is shown in **Table 6.1** and **Figure 6.2**. Representative Viewpoints have been selected to illustrate potentially significant effects and represent views experienced by the visual receptors identified in the TVIA study area. Seventeen viewpoints for the TVIA were identified and agreed with MCC through pre-application discussions in August 2021.

Table 6.1: TVIA Viewpoint Locations

VP No.	Description	Rationale
1	St Michael's Flags / Angel Meadow	Closest urban greenspace to the Site.
2	Corporation Street	Closest point of Shude Hill Conservation Area. Near Victoria train station.
3	Manchester Cathedral	Within Cathedral Conservation Area and Cathedral Gardens public space. Grade 1 Listed Building.
4	Smithfield	Closest point of Smithfield Conservation Area.
5	Ancoats	Within Ancoats Conservation Area.
6	Rochdale Road	Main transport route to the east of site, with views of Manchester skyline approaching city centre.
7	Dantzic Street	Close in view from road through the Site.
8	Collyhurst	Elevated view from top of former colliery/tip off Collyhurst Road.
9	Dalton Street	One of closest residential areas to the east
10	Queen's Road (near Metrolink)	Major arterial road within the city.
11	Queen's Park	Important Park to the north, one of the first parks in Manchester, views of city skyline.
12	Miles Platting	Residential area to the east of the Site.
13	Manchester Fort	Major nearby shopping centre.
14	North Street	Major employment area in close proximity to the north of the Site.
15	Cheatham Hill	Near St Chad's Cathedral.
16	Red Bank	Residential area in close proximity to the west of the Site.
17	Rochdale Road	Major vehicular route into the city centre.

6.32 A detailed assessment will be undertaken in the TVIA for those viewpoints that are most susceptible to changes, which may experience significant visual effects as a result of the Proposed Development. The detailed assessment of visual effects from representative viewpoints will focus on those viewpoints where the combination of their sensitivity and potential magnitude of change resulting from the Proposed Development may give rise to significant effects.

- 6.33 The effect of the Proposed Development on principal visual receptors will be assessed in full in the viewpoint assessment. Viewpoints are selected in order to illustrate potentially significant effects and be representative of the views experienced by the different visual receptors identified. The viewpoint assessment will assess the likely significant effects of the Proposed Development on views experienced by each group of people that are likely to be affected at each viewpoint and the geographic extent of the change on each visual receptor.

Visualisations

- 6.34 Visualisations to be included in the TVIA will be prepared and presented in accordance with The Landscape Institute with the Institute of Environmental Management and Assessment (2013) Guidelines for Landscape and Visual Impact Assessment, Third Edition (GLVIA3) and 'Visual Representation of Development Proposals, Technical Guidance Note 06/19' (LI TGN 06/19).
- 6.35 The TVIA will include visually verified visualisations from the 17 viewpoints listed in **Table 6.1**. The visualisation type included will be tailored to each viewpoint depending on the visibility of the Proposed Development and likely magnitude of change. Visualisations of the outline application for Red Bank Neighbourhood will be location and scale verifiable, to represent scale, form, context and extent of development, showing a 3D massing block model of the maximum development scenario of the Proposed Development inserted into the baseline photograph (as per AVR level 1 or AVR level 2, shown in Appendix 6.4 of LI TGN 06/19²). The purpose of these visualisations is to inform the TVIA and consultees with an understanding of the relative scale, extent and visibility of the Proposed Development when compared with the surrounding context, however visualisations of the outline application for Red Bank Neighbourhood will not show architectural form, materiality or fully rendered detail, given the status and information available for the masterplan as an outline application. Visualisations showing the NT02-NT04 detailed application will show architectural form and materiality with relevant detail. Relevant cumulative assessment schemes would be presented in the visualisations as per AVR level 1 (LI TGN 06/19, Appendix 6.4), showing their location, maximum size, degree of visibility and planning status (but would also not show architectural form or materiality).
- 6.36 Photographs used to produce the visualisations will be taken using a digital SLR camera, with a fixed lens and a full-frame (35 mm negative size) CMOS sensor, taken on a tripod at a height of approximately 1.5 m above ground. Verified view wirelines (superimposed on existing view photographs) and/or 3D model view representations will be produced from the agreed viewpoints, to illustrate the scale and massing of the Proposed Development. The position of relevant committed developments (as listed in **Table 4.2**) will be indicated in the visualisations.
- 6.37 It is important to note that the visualisations such as photomontages to be used in the TVIA are for illustrative purposes only and, whilst useful tools, the assessments in the TVIA will be carried out from observations in the field and reasoned professional judgement.

² https://landscapewpstorage01.blob.core.windows.net/www-landscapeinstitute-org/2019/09/LI_TGN-06-19_Visual_Representation.pdf

Planning Policy Context

National Planning Policy

National Planning Policy Framework

- 6.38 Section 12 of the National Planning Policy Framework (revised 2021) relates to achieving well-designed places. Paragraph 126 (p.38) states:

"The creation of high quality, beautiful and sustainable buildings and places is fundamental to what the planning and development process should achieve."

- 6.39 An understanding of high quality and beautiful places, insofar as it relates to townscape and visual matters, can be further understood from NPPF paragraph 130 (p.30):

"...b) are visually attractive as a result of good architecture, layout and appropriate and effective landscaping;

c) are sympathetic to local character and history, including the surrounding built environment and landscape setting, while not preventing or discouraging appropriate innovation or change (such as increased densities);

d) establish or maintain a strong sense of place, using the arrangement of streets, spaces, building types and materials to create attractive, welcoming, and distinctive places to live, work and visit;"

- 6.40 Paragraph 134 (p.40) states that development that is not well designed should be refused, especially where it fails to reflect local design policies and government guidance on design contained in the National Design Guide and National Model Design Code (which provides detailed guidance on the production of design codes, guides, and policies by local authorities), considering any local design guidance and supplementary planning documents such as design guides and codes.

National Design Guide

- 6.41 The National Design Guide (2021) addresses how we recognise well-designed places by outlining the Government's priorities for well-designed places in the form of ten characteristics (paragraph 37, p.8). The following characteristics of well-designed places are of particular relevance to a consideration of potential townscape and visual impacts:

"Context - enhances surroundings

Identity - attractive and distinctive

Built form - A coherent pattern of development"

Local Planning Policy

Manchester's Local Development Framework, Core Strategy Development Plan Document (adopted 2012)

Spatial Objectives S06 Environment

"Protect and enhance both the natural and built environment of the City and ensure the sustainable use of natural resources, in order to mitigate and adapt to climate change, support biodiversity and wildlife, improve air, water and land quality, recreational opportunities and provide networks of high quality green infrastructure, ensuring that the City is inclusive and attractive to residents, workers, investors and visitors.

The development of networks of green infrastructure across the City and City Region, together with protecting and enhancing townscape character and securing a high standard of design in all development proposals, will promote healthy, low-carbon lifestyles, contribute to a sense of wellbeing, and help to facilitate the sustainable and inclusive growth of the City." (p.30)

Policy CC9 Design and Heritage

"Design of new buildings will need to be of the highest standard in terms of appearance and function. The standards and guidance explained in other LDF policies should be the basis for the approach to design, with particular attention to be given to the City Centre context and character.

Development in Manchester City Centre should preserve or enhance the heritage assets that have been identified, including listed buildings, conservation areas and scheduled ancient monuments.

The Council will support high density and mixed use development in the City Centre, but developers must recognise the specific design challenges that must be overcome to ensure complementarity of function and form. New development must support the range of uses the Council expects in the City Centre and contribute to a coherent and integrated physical environment." (p.63)

Policy EN1 Design Principles and Strategic Character Areas

- 6.42 *"New development in Manchester will be expected to take into consideration its location within the specific character areas and reinforce the sense of place and local distinctiveness of the City. This is considered an important element in increasing the sense of local ownership of and respect for a neighbourhood' and that 'Opportunities for good design to enhance the overall image of the City should be fully realised, particularly on major radial and orbital road and rail routes." (p.164)*

Policy EN2 Tall Buildings

"Tall buildings are defined as buildings which are substantially taller than their neighbourhoods and/or which significantly change the skyline. Proposals for tall buildings will be supported where it can be demonstrated that they

Are of excellent design quality,

Are appropriately located,

Contribute positively to sustainability,

Contribute positively to place making, for example as a landmark, by terminating a view, or by signposting a facility of significance, and

Will bring significant regeneration benefits.

A fundamental design objective will be to ensure that tall buildings complement the City's key existing building assets and make a positive contribution to the evolution of a unique, attractive and distinctive Manchester, including to its skyline and approach views." (p.169)

Policy EN3 Heritage

- 6.43 *"New developments must be designed so as to support the Council in preserving or, where possible, enhancing the historic environment, the character, setting and accessibility of areas and buildings of acknowledged importance, including scheduled ancient monuments, listed buildings, registered parks and gardens, conservation areas and archaeological remains." (p.172)*

Saved policies of the Manchester Unitary Development Plan (adopted July 1995)

Policy E3.4

"The Council will create a network of safe and attractive major linear recreational open spaces by linking and making better use of river valleys, canals, disused railways and other appropriate areas of open space. Within these areas measures will be taken to [inter alia]:

...a) achieve widespread environmental improvements;

b) protect the natural environment..."

Site Specific Policies

- 6.44 The Red Bank site is part of the Strategic Regeneration Framework (SRF) for the Northern Gateway, prepared by Manchester City Council (MCC) in 2019.
- 6.45 The geographic extent of the SRF is defined as:
- "The SRF area ("study area") covers approximately 155 hectares (ha) to the north of Manchester city centre between Victoria Station, NOMA and the Northern Quarter in the south-west, and Queens Park and the intermediate ring road (Queens Road) to the north-east. The Northern Gateway is surrounded by the established neighbourhoods of Ancoats and New Islington, Miles Platting, Monsall, Cheetham Hill and the Strangeways commercial district, and is the single largest opportunity for residential-led growth and transformational redevelopment in Manchester." (p.1)*
- 6.46 The SRF will be a material consideration in the determination of all planning applications relevant to the study area. It does not form part of the Development Plan; it has been prepared to be consistent with the policies of the Council's adopted Development Plan. The principles contained within the SRF are intended to guide new development towards achieving the Objectives and Vision of this strategic plan.

6.47 The design and development principles for the proposed Red Bank neighbourhood as set out under four themes: Transport, Accessibility and Permeability; Land Use; Scale, Density and Form; and Public Realm and Public Spaces.

6.48 The SRF states:

"The approach to defining the scale, density and form encouraged across the neighbourhoods varies, with building height parameters defined in some areas, whereas development density and typology precedents are provided for others. Potential locations for landmark buildings are also highlighted in neighbourhoods to indicate opportunities for height or distinctive architectural treatments. Where building heights are shown in a development parcel, it is expected that these heights are not uniformly applied across that development parcel in order to ensure an interesting and varied skyline. Planning applications for new development should be informed by detailed design, townscape, and sunlight/daylight assessments, and where appropriate, microclimate and heritage impact assessments." (p.71)

6.49 The principles of Scale, Density, and Form are of relevance to the consideration of townscape and / or visual matters. The SRF states:

"Red Bank provides opportunities for buildings of high density with landmark structures contributing to the skyline and reflecting the neighbourhood's close proximity to the city centre, and key strategic transport nodes... Building forms and heights will be designed in the context of the valley topography, with particular building shapes and taller structures making the most of Irk Valley views and vistas toward the city." (p.134)

6.50 In respect of massing, the SRF provides the following narrative:

"Shape of development.

Care will be taken to ensure that massing in Red Bank will transition seamlessly from the valley floor to the upper plateau. Buildings in the south of Red Bank should respond to the precedents for height set by nearby developments. There is potential for a tower to act as a landmark at the junction of the disused viaduct and the operational railway, to enable the emergence of a vibrant public realm animated by the potential reuse of the viaduct. The character of the plateau overlooking St Catherine's Wood will be strongly defined by woodland, topography and valley views. Therefore, the massing will see an (up to) 8 to 12-storey datum, punctuated by pop-up elements and heights stepping down to (up to) 4 storeys towards the valley, to encourage a mix of typologies and family housing options.

Landmark buildings.

The extended city centre location creates an opportunity for landmark buildings to form a strong gateway to the Irk Valley. To respond to the topography, taller elements are envisaged on the valley floor, south of the river and north of Dantzic Street. South of the Red Bank Viaduct, the potential to punctuate massing with well-considered towers will be explored. The western tip of the plateau also presents an opportunity for a landmark building to reinforce the gateway to St Catherine's Wood from the Honey Street area. There is also an opportunity to provide a landmark building at the northern edge of the neighbourhood close to Barney's Steps, to maximise views over the valley corridor.

Responding to the Topography of the Irk Valley.

The form of new development should respond to the topography of the Irk Valley and contribute to a seamless transition from the valley floor to the elevated plateau. The approach to massing in Red Bank will support forms stepping down towards the river front, maximising daylight and valley views, and minimising the visual impact of taller elements through a careful consideration of views and vistas.

Views and Vistas.

A considered approach to views and vistas will be encouraged. Wherever possible, blocks should be oriented towards the Irk Valley to maximise views to greenery from residential units and in the public realm. Housing fronting the northern edge of St Catherine's Wood will overlook the green space and merge into the existing valley, and natural landscape. Views to the city centre skyline will also be prioritised." (p.135)

- 6.51 The Proposed Development will be considered in the context of the SRF as part of the 'in combination' assessment in the TVIA. The in-combination effects of Red Bank outline and NT02-NT04 full will be considered in combination with the SRF. Due to the level of information available for the SRF, the assessment of the two applications with the SRF will inevitably be a qualitative assessment undertaken at a high-level within the TVIA.

Other Relevant Policy, Standards and Guidance

Manchester Residential Quality Guidance (2016)

- 6.52 The Manchester Residential Quality Guidance was developed by MCC to provide a baseline minimum requirements and mandatory standards that all new residential proposals will be required to satisfy or exceed in order to be considered sustainable development, and to deliver high-quality housing. The 2019 SRF states that Developers bringing forward sites for residential development in the Northern Gateway will be required to accord with the guidance through the planning and development process and demonstrate that the very highest standards of design are being achieved as part of new developments.
- 6.53 Of the nine 'Components of Residential Quality' set out by the guidance, 'Make it Manchester' is of particular relevance to townscape and / or visual matters. This component of the guidance requires applicants to demonstrate how proposals:

"Fully consider and appreciate the existing context and character;

Are distinctive and rooted in a sense of place;

Are well considered and use a high-quality material palette;

Properly consider architectural detailing to safeguard the future quality of proposals; and

Are of an appropriate scale. " (p.39)

Guide to Development in Manchester SPD (2007)

- 6.54 The Guide to Development in Manchester is a hybrid Supplementary Planning Guidance / Supplementary Planning Documents (SPD) that underpins the 2012 adopted Core Strategy, although it was originally produced to inform the Manchester Unitary Development Plan (UPD).

6.55 Part One of the document has SPD status. The second part provides additional guidance on the character of various areas within the city. The second section does not have SPD status but sets the context within which developers and architects will have to work, identifying key characteristics and highlighting important development issues and priorities within those different areas.

6.56 Underpinning the SPD are seven key principles:

- Character and Context: A place with its own identity
- Continuity and Enclosure: A place where public and private spaces are clearly distinguished
- Legibility: A place that has a clear image and is easy to understand
- Ease of Movement: A place that is easy to get to and move through
- Quality of the Public Realm: A place with attractive and successful public areas
- Diversity: A place with variety and choice
- Adaptability: A place that can accommodate change and innovation.

6.57 The wide-ranging subsections set out in detail what the Council means when it refers to high standard of urban design in the townscape.

Places for Everyone, Joint Development Plan

6.58 The emerging Places for Everyone Plan is a joint Development Plan Document of the ten Greater Manchester districts, which sets out the approach to housing and employment land across Greater Manchester for the next 20 years.

6.59 The Places for Everyone Plan is (at the time of writing, (January 2023) at Examination stage. Once adopted, it will form part of the relevant authority's development plan. The evidence that underpins the Places for Everyone Plan will also inform district level plans.

6.60 Policy JP-P 1: Sustainable Places is the overarching strategic policy that defines the attributes that all development, wherever appropriate, should be consistent with, including (inter alia):

"1. Distinctive, with a clear identity that:

A. Responds to the natural environment, landscape features, historic environment and local history and culture;

B. Enables a clear understanding of how the place has developed; and

C. Respects and acknowledges the character and identity of the locality in terms of design, siting, size, scale and materials used...

2. Visually stimulating, creating interesting and imaginative environments which raise the human spirit through the use of green space, public art and quality design...

6. Durable, being built to last and using robust materials that reflect local character, weather well and are easily maintained...

12. Legible, being easy to understand and navigate, with the protection and enhancement of key views and new development well-integrated into the place...

16. Incorporating high quality and well managed green infrastructure and quality public realm..." (p.175)

Approach and Methodology

- 6.61 The TVIA will be undertaken in accordance with GLVIA3, tailored to a town-based assessment of townscape and visual amenity issues.
- 6.62 The TVIA will be undertaken in line with the EIA Strategy set out in Section 4: EIA Approach, within one ES assessing the two applications, given they form part of the same development proposals – Red Bank Neighbourhood outline application and NT02-04 detailed application. Each application will be assessed in respect of townscape and visual construction effects, operational effects and cumulative effects (with the identified Cumulative Schemes) against the existing baseline. There will then be an ‘in-combination’ assessment of the impacts of the two applications; and an assessment of the two applications with cumulative schemes in the Cumulative Effects Assessment. Finally, a more qualitative, high-level assessment of the two applications with Cumulative Schemes and the rest of the SRF area will be undertaken as part of the TVIA.
- 6.63 The potential effects of the Proposed Development on the townscape and visual resource will be assessed in terms of three categories of effects: effects on townscape character; effects on views / visual amenity; and cumulative effects.
- 6.64 Effects on townscape character arise either through the introduction of new elements that physically alter the pattern of elements that makes up baseline character, or through visibility of the Proposed Development, which may alter the way in which the pattern of elements is perceived. This category of effects is made up of townscape character areas and areas designated townscape, such as conservation areas.
- 6.65 The assessment of effects on views is an assessment of how the introduction of the Proposed Development will affect views throughout the study area. The assessment of effects on views will be carried out in two parts:
- An assessment of the effects that the Proposed Development will have on views from principal visual receptors, which are the notable settlements, routes, features, and attractions found throughout the study area; and
 - An assessment of the effects that the Proposed Development will have on a series of viewpoints that have been selected to represent people's views from around the study area.
- 6.66 Townscape and visual effects will be assessed through an assessment of the sensitivity to change of each receptor, in conjunction with the magnitude of change arising from the Proposed Development, combining to inform judgements on significance of effect.

- 6.67 Sensitivity to change is an expression of the ability of a landscape or visual receptor to accommodate the Proposed Development. Sensitivity will be determined through a combination of the value attached to the receptor and the susceptibility of the receptor to the Proposed Development. The criteria used to define sensitivity in the townscape, visual and cumulative assessments vary. Levels of sensitivity - high, medium to high, medium, medium to low, low, and negligible will be applied in order that the judgement used in the process of assessment is made clear.
- 6.68 Magnitude of change is an expression of the degree of change that will occur on the townscape and visual receptors as a result of the introduction of the Proposed Development. The magnitude of change will be assessed in terms of the size and scale of the effect and the geographical extent of the area influenced. Levels of magnitude of change will be applied in order that the judgement used in the process of assessment is made clear. The criteria used to determine magnitude of change differs for assessment of effects on townscape receptors and visual receptors.
- 6.69 The effects of the Proposed Development are of variable duration, and will be assessed as either short-term or long-term, and permanent or temporary/reversible. Effects resulting from construction will be apparent only during the short-term. The main built components of the Proposed Development will be apparent after final completion and the effects resulting will be assessed as permanent.
- 6.70 The reversibility of effects is variable. The effects that will occur during the construction from the use of tall cranes and heavy machinery, are likely to be temporary. Permanent effects include physical removal of landscape / townscape elements required for the development of the Site and any residual effects that remain following construction of the built elements.
- 6.71 The objective of the assessment of the Proposed Development is to predict the likely significant effects on the townscape and visual resource. In accordance with The Town and Country Planning (Environmental Impact Assessment) Regulations 2017, effects will be assessed to be either significant or not significant.
- 6.72 The significance of effects is assessed through a combination of two considerations - the sensitivity of the landscape or visual receptor and the magnitude of change that will result from the Proposed Development. In accordance with the Landscape Institute's GLVIA3, the TVIA methodology requires the application of professional judgement. Although it is not reliant on its use, the following matrix (**Table 6.2**) has been included to illustrate how combinations of the ratings for sensitivity and magnitude of change can give rise to significant effects, as well as to give an understanding of the threshold at which significant effects may arise.

Table 6.2: Illustrative Significance Matrix

Sensitivity		Magnitude of Change					
		High	Medium - High	Medium	Medium - Low	Low	Negligible
	High	Major (significant)	Major (significant)	Major / moderate (significant)	Moderate (significant or not significant)	Moderate / minor (not significant)	Minor (not significant)
	Medium - High	Major (significant)	Major / moderate (significant)	Moderate (significant or not significant)	Moderate (significant or not significant)	Moderate / minor (not significant)	Minor (not significant)
	Medium	Major / moderate (significant)	Moderate (significant or not significant)	Moderate (significant or not significant)	Moderate / minor (not significant)	Minor (not significant)	Minor / negligible (not significant)
	Medium - Low	Moderate (significant or not significant)	Moderate (significant or not significant)	Moderate / minor (not significant)	Minor (not significant)	Minor / negligible (not significant)	Negligible (not significant)
	Low	Moderate / minor (not significant)	Moderate / minor (not significant)	Minor (not significant)	Minor / negligible (not significant)	Negligible (not significant)	Negligible (not significant)

6.73 Effects that are assessed within the red boxes in the matrix will be assessed to be significant. Those effects that are assessed within the orange boxes may be significant, or not significant, depending on the specific factors and effect that is assessed in respect of a particular landscape or visual receptor. In accordance with GLVIA3, experienced professional judgement will be applied to the assessment of all effects and reasoned justification will be presented in respect of the findings of each case.

6.74 The TVIA will determine the nature of the effects, i.e., whether townscape and visual effects are beneficial, neutral, or adverse in accordance with defined criteria.

Potential Significant Effects

6.75 The scope of the TVIA will focus on the effects of the Proposed Development on townscape character and visual amenity/views, within TVIA study area; and will assess the effects of the Proposed Development in the context of the existing baseline and predicted baseline with committed developments.

6.76 **Table 6.3** sets out the anticipated significant effects on landscape and visual receptors. This includes an analysis on what aspects can be scoped-in or scoped-out of the assessment due to the likelihood for significant environmental effects.

Table 6.3: Initial Townscape and Visual Scoping Review

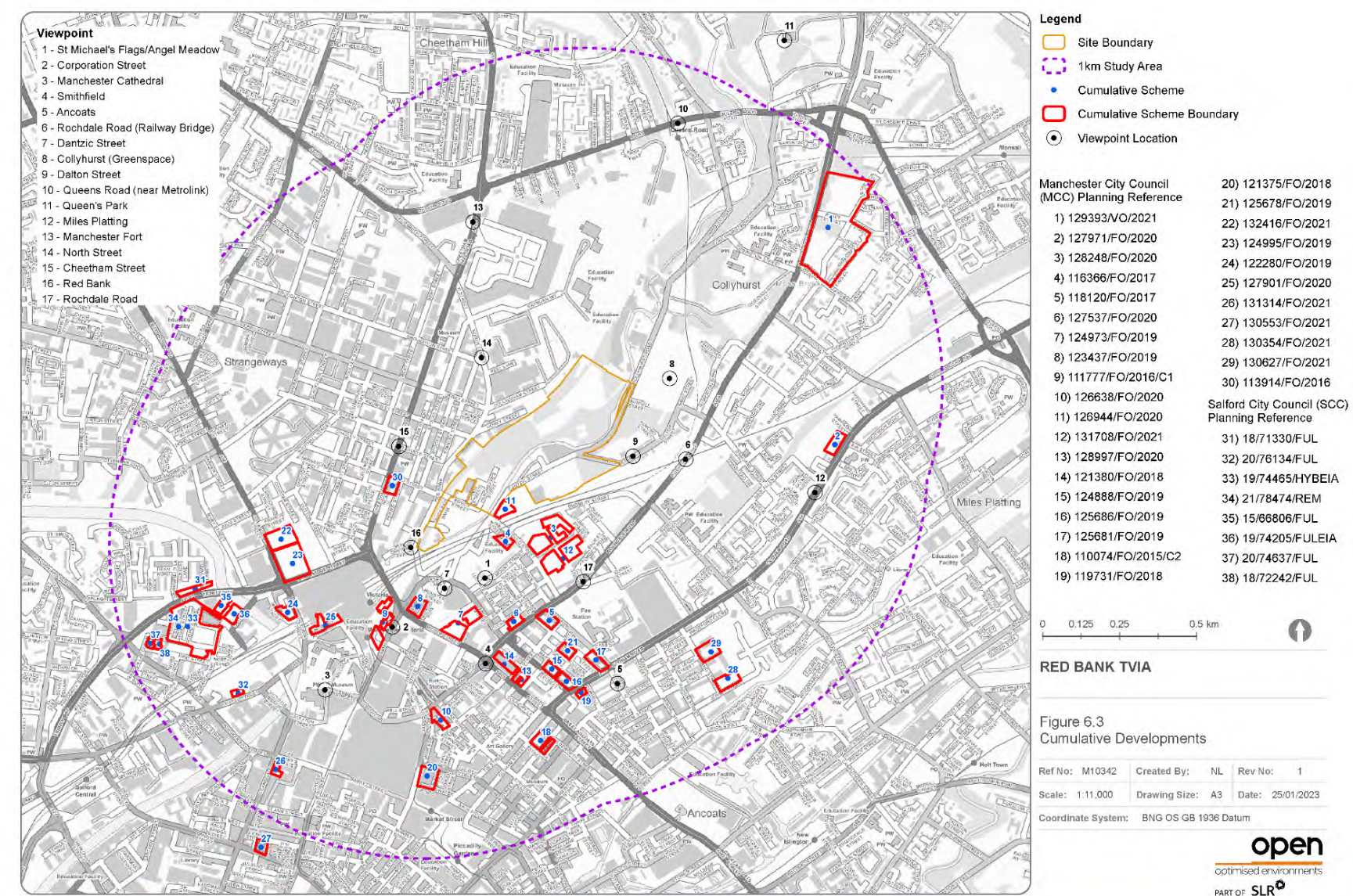
Topic Component	Construction Effect	Operational Effect	Scope In / Out
Townscape Character Areas within TVIA study area	Potential effects on townscape character areas, either through construction of the Proposed Development, which physically alter the pattern of elements that makes up baseline character, or through visibility of construction activities, which may alter the way in which the pattern of elements is perceived.		Potential effects on townscape character areas, either through construction of the Proposed Development, which physically alter the pattern of elements that makes up baseline character, or through visibility of construction activities, which may alter the way in which the pattern of elements is perceived.
Townscape Designations: <u>RPGs within 2 km:</u> - Queens Park (Grade II); - Manchester General Cemetery (Grade II); and - Philips Park Cemetery (Grade II). <u>CAs within 1 km:</u> - Cathedral Conservation Area; - Shudehill Conservation Area; - Smithfield Conservation Area; and	Potential cumulative effects arising against predicted baseline where relevant committed developments (Table 4.5) are present in the townscape.	Potential effects on townscape character areas, either through the introduction of the completed Proposed Development, which physically alter the pattern of elements that makes up baseline character, or through visibility of the Proposed Development, which may alter the way in which the pattern of elements is perceived.	Potential cumulative effects arising against predicted baseline where relevant committed developments (Table 4.5) are present in the townscape.

Topic Component	Construction Effect	Operational Effect	Scope In / Out
Ancoats Conservation Area			
Representative viewpoints of the visual receptors within the TVIA study area with the potential for a significant effect to arise, see Table 6.1 .	Potential cumulative effects of the two applications in conjunction with committed developments within the TVIA study area (Figure 6.3), as well as the wider SRF.	Scoped in	Potential cumulative effects of the two applications in conjunction with committed developments within the TVIA study area (Figure 6.3), as well as the wider SRF.

Cumulative Effects

6.77 Cumulative effects arise where the Proposed Development may be experienced in addition to other developments at a proximity where they may have an incremental effect or where developments may combine to have a sequential effect, irrespective of any overlap in visibility. A cumulative assessment will be undertaken, to assess the effects of the two applications (Red Bank Neighbourhood outline application and NT02-04 detailed application) in the context of relevant committed developments (as listed in **Table 4.5** and shown in **Figure 4.1**) that are located within the TVIA study area. Cumulative schemes will be reviewed as part of the TVIA to remove any that are unlikely to give rise to cumulative effects and to focus the cumulative effects assessed on those schemes within the TVIA study area and those with potential for cumulative effect interactions with the Proposed Development (as shown in **Figure 6.3**).

Figure 6.3: Cumulative Schemes



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7. Ecology and Trees

- 7.1 This section of the ES will present an assessment of the potential significant effects of the proposals on ecological receptors during both the construction and operational phases. These will be identified through the findings of a desk study, site surveys and published best practice guidelines. The ecology and trees assessment will be undertaken by TEP.

Baseline Conditions

Designated Wildlife Sites

- 7.2 A desk-based assessment has been undertaken for the Site which involved a typical buffer of 2km from the Site boundaries for protected species records and local designations. Records were gathered from the local record centre, Greater Manchester Ecology Unit (GMEU).
- 7.3 This search buffer was extended up to 5km for national and up to 10km for international designated sites. Results using Natural England's interactive, web-based MAGIC (Multi-Agency Geographic Information for the Countryside) database found that within the 10km search buffer there was one internationally designated site, Rochdale Canal Special Area of Conservation (SAC), located 4.3km north-east at its closest point from the Red Bank Outline planning application boundary and 4.4km north-east from the NT02-04 Full planning application boundary. The Rochdale Canal, which is also a nationally designated site, is the only Site of Special Scientific Interest (SSSI) within the search area, located 4.3km north-east from the Red Bank Outline planning application boundary and 4.4km north-east from the NT02-04 Full planning application boundary. There are no statutory locally designated sites, Local Nature Reserves (LNR), within 2km of the Site.
- 7.4 Four locally non-statutory designated Sites of Biological Interest (SBI) were found to be located within the 2km search area. Of these SBIs, one falls within 1km of the Site, Rochdale Canal; Scott's Lane to Ducie Street Basin SBI located 0.9km south of both the Red Bank Outline and NT02-4 Full planning application boundaries. Within 1-2km of the Site, there are three SBIs: Ashton Canal (west) SBI located 1.2km south from both the Site , Reservoirs at Harpurhey SBI located 1.8km north-east from the Red Bank Outline planning application boundary and 2km north-east from the NT02-04 Full planning application boundary and River Irwell SBI located 1.8km south-west of the Red Bank Outline planning application boundary and 2.2km from the NT02-4 Full planning application boundary.

Habitats

- 7.5 An extended Phase 1 Habitat survey was undertaken on 22nd and 29th March 2021. The survey was undertaken by an experienced botanist (qualified as Level 4 under the Field Identification Skills Certificate scheme). The methods employed were in line with the Phase 1 habitat assessment methods (JNCC 2010)³ and Guidelines for

³ JNCC (2010). Handbook for Phase 1 habitat survey – a technique for environmental audit. Peterborough, JNCC.

Preliminary Ecological Appraisal (CIEEM 2017)⁴. The survey included habitat assessments for protected and S41 priority species.

- 7.6 A UK Habitat Classification assessment of the Site was carried out by an experienced botanist (qualified as Level 4 under the Field Identification Skills Certificate scheme) at the same time as the Phase 1 Habitat survey. The UK Hab. assessment was carried out in accordance with Butcher et al., 2020⁵, to the relevant hierarchy for the metric.

Biodiversity Net Gain

- 7.7 A condition assessment was undertaken alongside the UKHAB assessment. The habitat condition assessment was originally undertaken using the guidance presented in Biodiversity Metric 2.0 - Technical Supplement⁶. Following release of Biodiversity Metric 3.0 in July 2021, a desk-based exercise using existing field notes and photographic evidence, was undertaken to update the condition assessment based on the updated criteria presented in the Biodiversity Metric 3.0 - Technical Supplement⁷. Due to the relatively simple nature of the habitats within the Site, no limitations with this translation to the Biodiversity Metric 3.0 condition assessment were identified.
- 7.8 The UKHAB survey and condition assessment information were inputted into the Defra 3.0 metric in line with the user guide⁸. Strategic significance was determined through a thorough desktop review of local planning policy and other relevant documentation. This metric serves as a tool to quantify the biodiversity value of the Site pre and post development in the form of a biodiversity unit (BU) score.
- 7.9 A high-level landscape scheme has been produced for the overall Landscape Masterplan, with each planning application (Applications 1, 2 and 3) contributing to the Masterplan commensurate with its impact, which is considered to be a reasonable worst-case scenario. This high-level landscape scheme has been used to determine both the impact and the habitat creation and enhancement within the wider site. The combined biodiversity metric will be updated following the production of a Landscape Plan for Applications 4 (in outline) and 5 (in detail).
- 7.10 In order to achieve 10% biodiversity net gain, it is anticipated that off-Site compensation would be agreed upon to make up for the biodiversity unit deficit. This exact nature and location of the mitigation will be determined through subsequent dialogue with MCC and other relevant stakeholders. However, given that the majority of

⁴ CIEEM (2017) Guidelines for Preliminary Ecological Appraisal. Chartered Institute of Ecology and Environmental Management

⁵ Butcher, B., Carey, P., Edmonds, R., Norton, L. and Treweek, J. (2020). The UK Habitat Classification Version 1.1 at <http://www.ukhab.org/>

⁶ Ian Crosher, Susannah Gold, Max Heaver, Matt Heydon, Lauren Moore, Stephen Panks, Sarah Scott, Dave Stone & Nick White. 2019. The Biodiversity Metric 2.0: Auditing and accounting for biodiversity value: technical supplement (Beta version, July 2019). Natural England

⁷ Stephen Panks A, Nick White A, Amanda Newsome A, Jack Potter A, Matt Heydon A, Edward Mayhew A, Maria Alvarez A, Trudy Russell A, Sarah J. Scott B, Max Heaver C, Sarah H. Scott C, Jo Treweek D, Bill Butcher E and Dave Stone A 2021. Biodiversity metric 3.0: Auditing and accounting for biodiversity – Technical Supplement. Natural England.

⁸ Stephen Panks A, Nick White A, Amanda Newsome A, Jack Potter A, Matt Heydon A, Edward Mayhew A, Maria Alvarez A, Trudy Russell A, Sarah J. Scott B, Max Heaver C, Sarah H. Scott C, Jo Treweek D, Bill Butcher E and Dave Stone A 2021..Biodiversity metric 3.0: Auditing and accounting for biodiversity – User Guide. Natural England.

habitat loss on-Site and that the majority of deficit in the 'Trading summary' in the Metric is attributed to loss of woodland, compensation would likely seek to create or enhance areas of woodland within the compensation area..

- 7.11 The Biodiversity Metric 3.1, released in April 2022, is an update to the previously published Biodiversity Metric 3.0. Given that the Biodiversity Net Gain strategy has been formulated to determine the cumulative impact of all five associated planning applications and Metric 3.0 has already been used to support planning applications 1 and 2, to date, it is deemed most appropriate to continue using this metric for all subsequent planning applications.

Arboriculture

- 7.12 An arboricultural survey was undertaken by an experienced Arborist on the 29th March 2021 in accordance with British Standard BS 5837:2012 Trees in Relation to Design, Demolition and Construction - Recommendations. A schedule of all trees and tree groups including data on species, condition, age, management recommendations and BS 5837:2012 quality categories were compiled during the survey. A summary of the quality criteria for each category is provided in Table 7.1.

Table 7.1: Summary of BS5837:2012 Tree Quality Categorisation Criteria

Tree Category	Description
Category A	Trees of high value including those that are particularly good examples of their species and/or those that have visual importance or significant conservation or other value.
Category B	Trees of moderate value including those that do not qualify as Category A due to impaired condition and/or those that collectively have higher value than they would as individuals; also trees with material conservation or other value.
Category C	Trees of low value including those with very limited merit or impaired condition; trees offering transient or temporary landscape benefits.

- 7.13 The majority of trees are of low quality (Category C), with some trees with moderate quality features (Category B) on site. No trees of high value (Category A) have been identified within the Site.

Bats

- 7.14 A daytime ground-based assessment of trees to identify any features of potential value for roosting bats was undertaken on 22nd and 29th March 2021, by a licensed bat surveyor. This involved searching trees with close focusing binoculars to look for any evidence of use by bats, such as droppings, staining or scratch marks. Potential roost features, such as holes, cracks, crevices or loose bark were also identified and noted. Trees

were categorised following the ground-based assessment according to the Bat Conservation Trust (BCT) Guidelines 2016⁹. No trees within the Outline or Full planning application boundaries were identified as having bat roost suitability.

- 7.15 A daytime external bat inspection of nineteen buildings present within the Site boundaries (B1-B19) and three bridge structures, was also undertaken by a licensed bat surveyor on the 22nd and 29th March 2021 and 22nd May 2022. The daytime assessment was carried out in accordance with the Bat Conservation Trust (BCT) Guidelines 2016. However, a precautionary approach to assessment was taken, as no internal access to the buildings was taken due to health and safety concerns surrounding COVID-19 at the time of the survey. Access to assess the bridge structures over the River Irk was limited. These structures were only viewed at a distance as there was limited views from the roadside and access to River Irk was not safe. Of the nineteen buildings, thirteen were assessed as having negligible suitability, one as having low suitability and one as having high suitability for roosting bats. Both bridge structures were assessed as having low bat roost suitability.
- 7.16 Nocturnal dusk emergence surveys were undertaken on three buildings (B12, B14 and B17) with roost suitability for bats, in accordance with their evaluation (low, moderate, high suitability receiving one, two or three surveys, respectively). Dawn re-entry surveys were not used at this site due to over-riding health & safety concerns. Surveyors were stationed at fixed vantage points around the buildings and trees such that all potential roost features were in view. Dusk emergence surveys commenced 15 minutes before sunset and finished 1.5 hours after sunset. Observations such as bat species, the number of bats entering or leaving the building, the location of entry and exit points, commuting or passing bats and weather conditions were recorded. Common pipistrelle day roosts were identified in building B14 during the nocturnal roost surveys. No other roosts were identified.

Badgers

- 7.17 A badger survey of the Site was undertaken on 22nd and 29th March 2021 by an experienced ecologist. The Site was surveyed for evidence of badger setts or other badger activity such as paths, latrines or signs of foraging. Methodologies used and any setts recorded were classified according to published criteria (Harris, Cresswell & Jefferies, 1988). Where possible and accessible to do so, a 30m buffer zone around the Proposed Development boundary was also surveyed. No evidence of badgers was identified within the Site or adjacent land during the survey.

Other Protected Species

- 7.18 Following a review of the desktop records, consultation exercise and our existing knowledge of the local area, no other protected species surveys are proposed to be undertaken.

Planning Policy Context

⁹ Bat Conservation Trust (2016). Bat Surveys for Professional Ecologists: Good Practice Guidelines (3rd edition). Bat Conservation Trust

National Planning Policy

7.19 The principal statutes relating to ecology and development are summarised as follows:

- The Environment Act 2021¹⁰
- The Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019¹¹.
- The Wildlife & Countryside Act 1981 (as amended)¹².
- The Countryside & Rights of Way Act 2000¹³.
- The Natural Environment and Rural Communities (NERC) Act 2006¹⁴.
- The Hedgerows Regulations 1997¹⁵.
- The Protection of Badgers Act 1992¹⁶.
- National Planning Policy Framework (NPPF) (2021)¹⁷, specifically Chapter 15: Conserving and Enhancing the Natural Environment (paragraphs 174 – 182).

7.20 Other national policy which supports the NPPF includes:

- Circular 06/2005: Biodiversity and Geological Conservation¹⁸.
- Making Space for Nature¹⁹.
- The Natural Environment White Paper (HM Government, 2011)²⁰.

Local Planning Policy

7.21 Manchester's Local Development Framework Core Strategy Development Plan (adopted 11th July 2012) has been reviewed for relevant local planning policies relating to ecology and development.

7.22 The following policies in the Local Development Framework Core Strategy Development Plan relate to biodiversity and nature conservation:

- Policy BM2 River Valley.
- Policy EN9 Green Infrastructure.

¹⁰ Environment Act 2021 c.30 <https://www.legislation.gov.uk/ukpga/2021/30/>

¹¹ Conservation of Habitats and Species Regulations 2010 (as amended). London: The Stationery Office.

¹² Wildlife & Countryside Act 1981 (as amended). London: The Stationery Office.

¹³ Countryside & Rights of Way Act 2000. London: The Stationery Office.

¹⁴ Natural Environment and Rural Communities (NERC) Act 2006. London: The Stationery Office.

¹⁵ Hedgerows Regulations 1997. London: The Stationery Office.

¹⁶ Protection of Badgers Act 1992. London: The Stationery Office.

¹⁷ Department for Communities and Local Government (2021) National Planning Policy Framework, DCLG, London

¹⁸ Office of the Deputy Prime Minister (Circular 06/2005): Biodiversity and Geological Conservation – Statutory Obligations and their Impacts. London: The Stationery Office.

¹⁹ Lawton, J. (2010). Making Space for Nature: A review of England's wildlife sites and ecological network. DEFRA, London.

²⁰ HM Government (2011) The Natural Choice: Securing the Value of Nature. London: The Stationery Office.

- Policy EN15 Biodiversity and Geological Conservation.

Strategic Regeneration Framework (SRF) Manchester Northern Gateway (February 2019)

- 7.23 Following endorsement, the SRF is a material consideration in the determination of all planning applications relevant to the study area. Whilst it does not form part of the Development Plan, it has been prepared to be consistent with the policies of the MCC's adopted Development Plan.

Other Relevant Policy, Standards and Guidance

- 7.24 The Greater Manchester Biodiversity Action Plan (GMBAP) is currently managed by Greater Manchester Ecology Unit (GMEU). This aim of the GMBAP is to conserve, protect and enhance biological diversity in Greater Manchester. The habitat and species action plans of key relevance to this proposal are:

- Native woodlands.
- Urban managed greenspace.
- Bats.

- 7.25 The Greater Manchester Combined Authority (GMCA) Biodiversity Net Gain (BNG) Guidance for Greater Manchester (2021) has been prepared to enable developers and potential offset providers to run biodiversity assessments in a consistent way across Greater Manchester. For Greater Manchester, the minimum level of BNG is considered to be achieved when the biodiversity units for the habitats impacted by the development is increased by 10% or more after the development. If changes decrease the gain for biodiversity below 10% further areas of compensation will be required.

- 7.26 Places for Everyone Joint Development Plan (PfE 2021) provides an important opportunity to create the conditions for inclusive economic growth, provide opportunities for provision of much needed homes and protect and enhance the natural environment. The following policies relate to biodiversity and nature conservation:

- Policy JP-G 2 Green Infrastructure Network
- Policy JP-G 3 River Valleys and Waterways
- Policy JP-G 6 Urban Green Space
- Policy JP-G 7 Trees and Woodland
- Policy JP-G 8 Standards for Greener Places
- Policy JP-G 9 A Net Enhancement of Biodiversity and Geodiversity.

- 7.27 The Birds of Conservation Concern 5 (BoCC) report (RSPB, 2021) splits UK birds into three categories of conservation importance – Red, Amber and Green. Red is the highest conservation priority, and includes species that are globally threatened, or have experienced historical UK population decline, a rapid decline in UK

breeding population, or a severe contraction of UK breeding range. Amber is the next most critical group, followed by Green, which includes birds whose populations are at least risk.

Approach and Methodology

- 7.28 The ES chapter will initially include an outline of the legislative framework in respect of nature conservation. It will then define the approach taken to the various desk-based and site surveys undertaken and set out the findings of these works.
- 7.29 Primary baseline data has been collected over the course of the 2021 survey season in accordance with standard best practice methodologies published by Natural England, Chartered Institute of Ecology and Environmental Management (CIEEM) and other recognised bodies, as appropriate.

Consultation

- 7.30 **Table 7.2** outlines the pre-application consultation undertaken to date with the relevant stakeholders for the proposed development.

Table 7.2: Summary of Consultation

Consultee	Date and Time	Comments	Actions
Greater Manchester Ecology Unit – Derek Richardson	16/08/21 Initial email sent 12:34. GMEU response 20:56.	Bat Activity - <i>"We would accept that records of bat activity collected during nocturnal roost surveys of buildings could be used when assessing the site for commuting & foraging bat activity, but we would also give bats the benefit of the doubt and recommend that landscape plans for the site take bats fully into account (e.g. linear planting, sensitive lighting, planting of value to bats etc)".</i>	GMEU agreed with approach that bat activity surveys unnecessary in light of the health and safety concerns on this site.
		Bat Roosting & Bridge Structures – <i>"We would accept that works to the bridges could be undertaken under Reasonable Avoidance Measures, supervised by a licenced ecologist during any proposed works"</i>	GMEU agreed with approach that nocturnal roost surveys of bridge structures unnecessary in the light of health and safety concerns and limited visibility from roadsides.
		Other Protected Species Surveys – <i>"We would accept that surveys for water voles, otters, amphibians and reptiles could be scoped out. We hold</i>	GMEU agreed with approach that water voles, otters amphibians and reptile surveys could be scoped out.

Consultee	Date and Time	Comments	Actions
		<i>no records of these species/groups being recorded on or near the site. However, if there are plans to improve the watercourse for wildlife these plans should make provision for future colonisation by these species, in line with the aspirations of the Local Nature Recovery Strategy"</i>	
Manchester Ecology Unit – Derek Richardson	02/11/21 14:00	Meeting to discuss the Biodiversity Net Gain (BNG) strategy for the combined four planning applications within the Red Bank Neighbourhood.	Combined BNG strategy agreed. Number of applications have increased to 5 but cover the same area.

- 7.31 Following consultation with GMEU, detailed within **Table 7.2**, water voles, otters, amphibians and reptile surveys are proposed to be scoped out of the assessment due to the lack of suitable habitat within the Site and lack of pre-existing data within the site and surrounding habitat.
- 7.32 Bat activity and static monitoring surveys and breeding bird surveys have not been undertaken at this site due to overriding health & safety concerns. It was agreed with GMEU that information regarding these species could be obtained using pre-existing historic data and collected incidentally during other surveys such as nocturnal bat roost surveys. Furthermore, a precautionary approach has been taken during the assessment of commuting/foraging bats and breeding birds.
- 7.33 Nocturnal roost surveys of existing bridge structures have not been undertaken at the Site. Visibility of these structures from the roadside is limited to the extent that undertaking this survey method would not be valid to inform this assessment. Furthermore, it was not viable to undertake these surveys from within the River channel due to overriding health & safety issues. As such, a precautionary approach has been taken during the assessment of roosting bats in bridge structures.
- 7.34 After consultation with GMEU, a bespoke approach to the Biodiversity Net Gain (BNG) assessment was agreed, which considers associated planning applications (Application, 1, 2, 3, 4 & 5) for the wider Red Bank Neighbourhood site in combination. This approach avoids a piecemeal approach to biodiversity impact and will ensure a measurable gain can be achieved.

Ecological Impact Assessment

- 7.35 The EclA method will follow the current applicable guidance, including the Chartered Institute of Ecology and Environmental Management ('CIEEM') Guidelines for Ecological Impact Assessment (2018)²¹.

Sensitivity, Value or Importance

- 7.36 The CIEEM EclA guidance confirms that detailed assessment of ecological features that are 'widespread, unthreatened and resilient to project impacts' is not necessary. It is therefore necessary to determine which ecological features are sufficiently important (and potentially affected by the Scheme). Decisions on relative importance will be outlined in the assessment and consider quality, extent, rarity (including local rarity) and threats or declines of a feature. Relevant statutory and non-statutory designations, legislation and policies will be taken account of, although not all populations of legally protected species show the same rarity, so contextual information is vital. Importance could also relate to the supportive function of the feature (i.e. providing a buffer, connections or opportunities for expansion / climate change resilience of a neighbouring feature).
- 7.37 The importance of a feature is identified within a defined geographical context, the scales relevant to the proposed development and its ecological features are presented in Table 7.3. These criteria provide a starting point for the assessment but specific site conditions together with information on the local and wider context may result in different criteria being applied.

Table 7.3: Evaluation of Ecological Features

Level of Importance	Example
International and European	Designated or proposed/candidate Special Areas for Conservation (SAC), Special Protection Areas (SPA) and Ramsar Sites and their qualifying features, some of which may depend on land outside the designation boundaries. Candidate or proposed designations are treated as of equal value to fully designated sites. Under the NPPF, land that is set aside as compensation for adverse effects of development on European Sites should also be regarded as of European value. Species populations or habitat areas (such as those listed in Annex I, II or IV of the Habitats Directive or Annex I of the Birds Directive) of international importance due to relative size, rarity or quality of the feature.
National	Designated or proposed Sites of Special Scientific Interest (SSSI), National Nature Reserves (NNR), Marine Nature Reserves (MNR) and their qualifying features, some of which may depend on land outside the designation boundaries.

²¹ CIEEM (2018) Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater and Coastal, 2nd edition. Chartered Institute of Ecology and Environmental Management, Winchester

Level of Importance	Example
	A viable area of ancient woodland. Species populations or habitat areas of national importance (including legally protected or NERC Act S41 species or habitats) due to relative size, rarity or quality of the feature.
Regional	Designated or proposed Site of Biological Importance (SBI), Local Wildlife Sites (LWS), Sites of Nature Conservation Importance (SNCI) and their qualifying features where they occur within the designation boundaries. 'Important' hedgerows (as described under the Hedgerows Regulations 1997) where these occur as an extensive network. Species populations or habitat areas (including legally protected or NERC Act S41) or Nationally Scarce species or habitats of district or regional importance due to relative size, rarity or quality of the feature. Sites should comfortably exceed local non-statutory designation criteria if these exist, but not meet SSSI selection criteria.
Local	Local Nature Reserves (LNR) unless also designated at a higher level, and other nature conservation designations (under local planning policies). Green infrastructure designations where these contribute to local landscape connectivity and/or buffer other ecological features valued at least this geographic scale. Species populations or habitat areas (including legally protected or NERC Act S41 species or habitats) of local importance due to relative size or quality. Features that appreciably enrich the local ecological resource, although these may themselves be common and widespread, such as long-established hedgerows, woodlands and ponds.
Negligible	Habitats of little or no ecological value or function e.g. densely urbanised environments, amenity grassland, hard standing etc.

Characterisation of Impact

7.38 Although not necessary, it is good practice to describe potential impacts without and with mitigation. The proposals may result in multiple potential impacts on an important ecological feature, the CIEEM approach requires that only those that are likely to occur and have significant impacts need be assessed, although a precautionary approach to scoping potential impacts is recommended. The following characteristics are used to describe impacts (not all may be relevant in all cases):

- Positive or negative.
- Extent.
- Magnitude.

- Duration.
- Timing.
- Frequency.
- Reversibility

Likelihood of Effect

7.39 The following four-point scale has been used to express the degree of confidence in the prediction of impact significance, for residual impacts this scale will also indicate the reliability of mitigation proposals.

- Certain/near certain
- Probable
- Possible
- Extremely unlikely

Significance Criteria

7.40 Once an impact has been described it is necessary to determine if the effect is 'significant'. In the context of CIEEM EcIA guidance a significant effect is one that either supports or undermines biodiversity conservation objectives for 'important ecological features'. This can include impacts on the structure and function of sites and habitats or the conservation status of habitats and species (i.e. whether or not the impact alters the extent, distribution or abundance of the feature). The decision on significance is made irrespective of the geographical scale of importance of the feature; if an effect is found not to be significant at the level at which the receptor has been valued, it may be significant at a more local level. A significant negative effect is not necessarily one that would make the proposals unacceptable.

Conversion Matrix

7.41 CIEEM guidelines for EcIA moves away from the traditional matrix assessment of significant effects. In these matrices, the significance of an adverse impact (or beneficial result) is calculated as the product of the magnitude of the impact and the value or sensitivity of the nature conservation resources affected. CIEEM guidelines propose an alternative approach which accommodates factors such as the size or conservation status of a species population, habitat quality or the natural geographical range of a species/habitat, for example.

7.42 Although the significance of impacts on ecological features will be determined in accordance with CIEEM Guidelines, in order to allow consistent comparison of the significance of ecological effects with other Chapters, it is proposed to transpose any significant residual effects, derived after following CIEEM guidelines, into the more traditional levels of significance used in EIA based on the character of the remaining effects. Table 7.4 provides a framework for transposing the significance of residual ecological effects.

Table 7.3: Conversion Matrix

Characterisation of affects using CIEEM scale of significance	Classification of Impact: CIEEM	Classification of Impact: Traditional
- Loss of, permanent damage to or adverse impact on any part of a site of international or national importance; - Loss of a substantial part or key feature of a site of regional importance; - Loss of favourable conservation status (FCS) of a legally protected species; Loss of or moderate damage to a population of nationally rare or scarce species.	Negative Significant Effect	Major Adverse
- Temporary disturbance to a site of international or national importance, but no permanent damage; - Loss of or permanent damage to any part of a site of regional importance; - Loss of a key feature of local importance; - A substantial reduction in the numbers of legally protected species such that there is no loss of FCS but the population is significantly more vulnerable; Reduction in the amount of habitat available for a nationally rare or scarce species, or species that are notable at a regional or regional level.		Moderate Adverse
- Temporary disturbance to a site of regional value, but no permanent damage; - Loss of, or permanent damage to, a feature with some ecological value in a local context but that has no nature conservation designation; - A minor impact on legally protected species but no significant habitat loss or reduction in FCS; - A minor impact on populations of nationally rare or scarce species or species that are notable at a regional or regional level.		Minor Adverse

Characterisation of affects using CIEEM scale of significance	Classification of Impact: CIEEM	Classification of Impact: Traditional
- No impacts on-sites of international, national or regional importance; - Temporary disturbance or damage to a small part of a feature of local importance; - Loss of or damage to land of negligible nature conservation value; - No reduction in the population of legally protected, nationally rare, nationally scarce or notable (regional level) species on the site or its immediate vicinity.	No Significant Effect	Negligible
Beneficial and adverse impacts balance such that resulting impact has no overall affect upon receptor		Neutral
A small but clear and measurable gain in general wildlife interest, e.g. small-scale new habitats of wildlife value created where none existed before or where the new habitats exceeds in area that habitats lost.	Positive Significant Effect	Minor Beneficial
Larger new scale habitats (e.g. net gains over 1 ha in area) created leading to significant measurable gains in relation to the objectives of biodiversity action plans.		Moderate Beneficial
Major gains in new habitats (net gains of at least 10 ha) of high significance for biodiversity being those habitats, or habitats supporting viable species populations, of national or international importance cited in Annexes I and II of the habitats Directive or Annex I of the Birds Directive.		Major Beneficial

Assumptions / Limitations

- 7.43 The assessment will be made on the available data, based on the information that has been gathered from stakeholders, other data sources and the surveys undertaken in 2021. All surveys were completed within appropriate seasons over appropriate periods in accordance with industry standards for the specific survey. The surveys will only identify habitats / species present at the Site at the time of surveys. Additionally, where

the species investigated are mobile, they can move into and out of areas over time. For these reasons a precautionary approach will be taken in the prediction of impacts. Where there is doubt, except where specifically noted, a species will be assumed present, and an impact will be given the higher level of significance.

Climate Change

- 7.44 European guidance requires that EclA considers the effects of projects on climate change and on biodiversity. The European Commission (EC) guidance indicates that impacts which are only likely to be experienced in the next 20 years should be based on current weather patterns or near-future projections if available and relevant. Beyond 20 years, identified potential impacts (associated with operation of the Proposed Development) may need to consider the projected climate. Climate change has therefore been accounted for in the assessment of operational effects.

Mitigation & Residual Effects

- 7.45 Recommendations will be made to mitigate any significant detrimental impacts associated with the construction and operation of the Proposed Development on any identified important ecological feature. Any other mitigation that is not related to an important ecological feature but is nonetheless considered necessary would also be set out. Once the appropriate mitigation measures and monitoring have been proposed, the residual impacts remaining once the mitigation is accounted for, will be identified.

Potential Significant Effects

- 7.46 **Table 7.5** sets out the anticipated significant effects on ecological receptors. This includes an analysis on what aspects can be scoped-in or scoped-out of the assessment due to the likelihood for significant environmental effects. This initial ecology scoping would be reviewed at the time of writing the ecology chapter of the Environmental Statement to ensure it remains robust.

Table 7.5: Initial Ecology Scoping Review

Topic Component	Construction Effect	Operational Effect	Scope In / Out
Internationally designated sites for nature conservation within 10km of the Site	N/A	N/A	Scoped out due to the distance of any internationally designated site from the applicant site and intervening development between them.
Nationally designated sites for nature conservation within 5km of the Site	N/A	N/A	Scoped out due to the distance of any nationally designated site from the applicant site and intervening development between them.
Locally designated sites (statutory and non-statutory) for nature conservation within 2km of the Site	N/A	N/A	Scoped out due to the distance of any locally designated site from the applicant site and intervening development between them.
Semi-natural woodland	Potential impacts on woodland areas during construction.	Potential impacts on retained woodland due to increased public pressure.	Scoped in due to presence of receptor on site.
Plantation woodland (St. Catherine's Wood)	Potential impacts on woodland areas during construction.	Potential impacts on retained woodland due to increased public pressure.	Scoped in due to close proximity of Proposed Development to St. Catherine's Wood.

Topic Component	Construction Effect	Operational Effect	Scope In / Out
River Irk Corridor	Potential impacts to water quality from construction activities.	Potential impacts to water quality from drainage and increased public pressure.	Scoped in due to close proximity of Proposed Development to River Irk.
Dense scrub	N/A	N/A	Scoped out: habitat type does not meet any National Vegetation Classification description and does not meet criteria of any Section 41 Natural Environment and Rural Communities Act 2006 habitat of principal importance.
Scattered scrub	N/A	N/A	Scoped out: habitat type does not meet any National Vegetation Classification description and does not meet criteria of any Section 41 Natural Environment and Rural Communities Act 2006 habitat of principal importance.
Scattered trees	Potential impacts on scattered trees during construction.	Potential impacts on retained scattered trees due to increased public pressure.	Scoped in due to presence of receptor on site.
Other Habitats: Continuous bracken, bare ground, hardstanding & Ephemeral and buildings.	N/A	N/A	Scoped out; due to the low-quality value for biodiversity.

Topic Component	Construction Effect	Operational Effect	Scope In / Out
Invasive species: Himalayan balsam, Japanese knotweed & Giant hogweed	Construction activities have the potential to spread invasive species within the Site and off-site.	N/A	Scoped in due to presence of non-native invasive species on site and adjacent to site.
Bats: Roosting	Potential impacts on known bat roost (loss/disturbance/modification) and other features with bat roost suitability.	Potential impacts from artificial lighting on known roost and other features with bat roost suitability (if retained).	Scoped in due to the potential for direct impacts on known bat roost and features with bat roost suitability.
Bats: Foraging & Commuting	Potential impacts from construction activities on foraging and commuting bats.	Potential impacts from internal and external artificial lighting on commuting and foraging bats.	Scoped in due to potential impacts on commuting and foraging bat assemblage.
Badger	N/A	N/A	Scoped out; no evidence of badger has been identified on site or within influencing distance
Breeding Birds	Potential impacts from construction activities on breeding birds and potential loss of breeding habitat.	N/A	Scoped in due to the potential for impacts on breeding birds.

Topic Component	Construction Effect	Operational Effect	Scope In / Out
Water vole	N/A	N/A	Scoped out; River Irk is considered sub-optimal for water vole due to highly engineered banks, limited sources of food and disturbed nature of watercourse.
Otter	N/A	N/A	Scoped out; River Irk is considered sub-optimal for otter due to highly engineered banks, limited sources of food and disturbed nature of watercourse.
Amphibians	N/A	N/A	Scoped out; no suitable breeding habitat on site or within 500m of the Site. While the Site itself has some suitable terrestrial habitat, the wider landscape does not offer suitable habitat.
Reptiles	N/A	N/A	Scoped out; no records of reptiles within influencing distance of the Site. While the Site itself has some suitable terrestrial habitat, the wider landscape does not offer suitable habitat.
Invertebrates (terrestrial & aquatic)	N/A	N/A	Scoped out; the Site lacks floristic diversity to support any important assemblage of invertebrates. The River Irk has poor water quality and is unlikely to support significant assemblages of invertebrates.

Topic Component	Construction Effect	Operational Effect	Scope In / Out
Fish assemblage	Potential construction impacts on fish assemblage not yet known, potential for impacts associated with any drainage/ utilities works.	N/A	Scoped in due to the potential for impact of fish assemblages in River Irk.

Cumulative Effects

- 7.47 A cumulative effects assessment will also be presented within the chapter. This will assess the cumulative impacts of the Proposed Development in conjunction with any committed developments within the vicinity of the Sites identified through the scoping process, as well as the wider development project (Applications 1, 2, 3, 4 and 5) and the wider SRF. The approach will be aligned with the assessment scenarios outlined in Section 4 of this Scoping Report.

8. Archaeology and Heritage

8.1 This Chapter of the ES will present an assessment of the potential significant effects of the proposals on the archaeology and heritage of the proposals during both the construction and operational phases. The assessment will be undertaken by WSP.

8.2 Statutory provision for the safeguarding of cultural heritage assets (archaeology and heritage) has been made at a national and local level. These include a building, monument, site, place, area or landscape identified as having a degree of significance meriting consideration in planning decisions, because of its heritage interest.

Baseline Conditions

8.3 An Historic Environment Desk-based Assessment (HEDBA) was undertaken in October 2021 by WSP (WSP, 2021). The production of the assessment followed the Chartered Institute for Archaeologists (CIfA) *Standard and guidance for undertaking Historic Environment desk-based assessments* (CIfA, 2020c). The desk-based study included a review of publicly available resources and databases to determine the presence of designated assets and below ground archaeology.

8.4 A site visit was undertaken on the 30th of July 2021 by members of the WSP Cultural Heritage and Archaeology Team. The Site visit was undertaken to assess any potential for buried archaeology within the Proposed Scheme area and to assess nearby above ground heritage assets which may be impacted upon by the development. Not all areas of the Site were accessible due to limitations imposed by the presence of another construction site around Dantzic Street and Roger Street. The baseline conditions that will be applicable at the start of the Proposed Development will differ from the baseline presented here due to the implementation of the HIF works on the Application 4 site.

8.5 Professional judgement has been used to define appropriate Study Areas to determine the likely cultural heritage effects of the proposals. These are determined by buffers from the boundary of the Site and are the same as those used in the HEDBA. A 500m Study Area around the Site has been applied for the assessment of designated heritage assets. A 300m Study Area has been applied for non-designated heritage assets and was used to establish the known historic environment context and the potential. Whilst these Study Areas are considered to be proportionate to the Site, they may be refined during the assessment as the impact of the Site during construction and operation is better understood.

8.6 The following data sources have been used to inform the historic environment baseline, and to provide an initial indication of the likely key issues for the assessment:

- Historic England databases: statutory Designated Heritage Assets (World Heritage Sites (including buffers), scheduled monuments, listed buildings, registered parks and gardens and registered battlefields).

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- Historic Environment Data: Greater Manchester Archaeological Advisory Service; Non-Designated Heritage Assets, Conservation Areas and previous archaeological investigations.
 - Site visits: walk-over survey of the Site boundary and visits to assess potential impacts on the settings of the designated heritage assets.
 - Internet: Web-published local history, Archaeological Data Service, British Geological Survey (BGS), The North West England Regional Research Framework.
- 8.7 There is one designated heritage assets within the Site: Union Bridge (NHL 1255163), which is a Grade II listed building.
- 8.8 Within the 500m Study Area, there are 35 designated heritage assets, comprising:
- One Grade I listed buildings
 - One Grade II* listed buildings
 - 33 Grade II listed buildings; and
 - Three conservation areas.
- 8.9 The results of the HEDBA also identified 71 non-designated heritage assets within the 300m Study Area, including seven within the Site. These assets span from the prehistoric period to the modern period and include prehistoric caves (12422.1.0), the site of Portland Street Glass Works (12422.1.0), site of Travis Isle Mill (9857.1.0), site of Collyhurst Dye Works (9656.1.0), site of Terraced Housing, Flag Row (15724.1.0), site of Iron and Red Liquor Works (15731.1.0) and Manchester, Whitefield and Radcliff line Viaduct.
- 8.10 The majority of the buried non-designated heritage assets are of low value and mainly relate to post-medieval industrial sites and housing. Assets of medium value relate to important post-medieval industrial sites, two of which lie within the proposed scheme area. Collyhurst Dye works (9656.1.0) and Iron and Red Liquor Works are part of an important group of early chemical-manufacturing plants in Manchester. There are three assets of high value, comprising St Michael's Graveyard (site of), also known as St Michael's Flags (MGM11079), Collyhurst Common (site of) (MGM10858) and Walkers Croft Burial Ground (site of) (MGM11116) none of which lie within the Proposed Scheme area.
- 8.11 To the north of the River Irk, the Site is heavily overgrown, which prevented a comprehensive walkover survey from being undertaken. Much of the Collyhurst sidings plateau has been cleared of structures. These appear to have been razed to ground level only and there is the potential for buried remains of rail related structures. The need for level ground for this rail infrastructure led to extensive cut and fill operations across the area north of the River Irk, with the infilling of a former meander bend on the river and the eastern section of the mill race. Earlier archaeological remains may be present below any remnant of the sidings.
- 8.12 Travis Isle is currently in use as a park and was historically the site of a school, St Catherine's Church, and a mill. Although the area is clear of upstanding building remains, the Site contains roughly landscaped and vegetated spoil heaps holding brickwork and worked stone rubble which would suggest that the clearance of these buildings was not comprehensive and remains may exist below ground. The Irk originally flowed
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round both sides of this 'island' and the branch to the north was used as a leat for the mill. Evidence of the water management systems may still remain below ground. Research suggests that St Catherine's Church did not have a graveyard, therefore, there is low potential for human remains.

- 8.13 The Site has shown various phases of residential and commercial development, and major interventions, including filling to create the railway sidings, the construction of a gas works, and modifications to the river channel.
- 8.14 The site adjacent to the railway (NT04) retains a cobbled surface, which suggests both that the area has not undergone extensive redevelopment and that there is good potential for the survival of any underlying archaeological features or deposits.
- 8.15 Borehole data indicates that made ground deposits up to 5m deep lie over the natural geology which is typically Glacial Till, or Alluvium closer to the river. In some areas, these soils appear to be absent, and the made ground lies directly over the Coal Measures bedrock (typically a sandstone rockhead formation) (ARUP 2021).

Planning Policy Context

National Planning Policy

Statutory Protection

Listed Buildings and Conservation Areas

- 8.16 The Planning (Listed Buildings and Conservation Areas) Act 1990 sets out the legal requirements for the control of development and alterations which affect buildings, including those which are listed or in conservation areas. Buildings which are listed, or which lie within a conservation area are protected by law. Grade I listed buildings are of exceptional interest. Grade II* are particularly significant buildings of more than special interest. Grade II are buildings of special interest, which warrant every effort being made to preserve them.

National Planning Policy Framework

- 8.17 The Government issued the revised National Planning Policy Framework (NPPF) in July 2021 (MHCLG 2021) and supporting Planning Practice Guidance. The National Planning Policy for "Conserving and Enhancing the Historic Environment" is found in section 16, paragraphs 184–208 (MHCLG 2021). The section is split into two main considerations "Proposals affecting heritage assets" and "Considering potential impacts".

Local Planning Policy

Manchester's Local Development Framework: Core Strategy Development Plan (2012)

- 8.18 The Core Strategy was adopted by Manchester City Council on 11th July 2012. It sets the out the long-term strategic policies for Manchester's future development and will form the framework that planning

applications will be assessed against. It is the key document in Manchester's Local Development Framework and covers a period of 15 years from 2012 to 2027. The Manchester Core Strategy contains policy which relate to the historic environment.

Policy CC 9 Design and Heritage

8.19 The policy states that:

- *'Design of new buildings will need to be of the highest standard in terms of appearance and function. The standards and guidance explained in other LDF policies should be the basis for the approach to design, with particular attention to be given to the City Centre context and character.'*
- *Development in Manchester City Centre should preserve or enhance the heritage assets that have been identified, including listed buildings, conservation areas and scheduled ancient monuments.*
- *The Council will support high density and mixed-use development in the City Centre, but developers must recognise the specific design challenges that must be overcome to ensure complementarity of function and form. New development must support the range of uses the Council expects in the City Centre and contribute to a coherent and integrated physical environment.'*

8.20 The Core Strategy also states that: *The City Centre has 14 conservation areas and numerous listed buildings. These are essential to the City's sense of place, providing aesthetic quality and strong references to the City's past, which will always be a central part of Manchester's character. Development which fails to respond to the opportunities that this context affords should not be supported* (8.52, Objective 2 Economy and City Centre).

Policy EN 3 Heritage

8.21 The policy states that:

- *Throughout the City, the Council will encourage development that complements and takes advantage of the distinct historic and heritage features of its districts and neighbourhoods, including those of the City Centre.*
- *New developments must be designed so as to support the Council in preserving or, where possible, enhancing the historic environment, the character, setting and accessibility of areas and buildings of acknowledged importance, including scheduled ancient monuments, listed buildings, registered parks and gardens, conservation areas and archaeological remains.*
- *Proposals which enable the re-use of heritage assets will be encouraged where they are considered consistent with the significance of the heritage asset.*

8.22 The Core Strategy also states that: *'Historic sites and areas of particular heritage value should be both safeguarded for the future and, where possible, enhanced both for their own heritage merits and as part of wider heritage regeneration proposals. Conservation areas and buildings that are statutorily listed are protected under national legislation guidance. The Council maintains information on the City's heritage assets. It is expected that developers will carry out an appropriate appraisal of issues relating to heritage assets. Re-use of empty listed buildings will be encouraged subject to consideration of the building's special interest and significance'* (12.21, Objective 6 Environment).

Approach and Methodology

- 8.23 The Cultural Heritage assessment will be supported through the use of the baseline compiled by WSP (WSP, 2021) which includes a narrative of the historical and archaeological context of the Site boundary and immediate environment within the Study Areas. This will be updated to the review the new Site boundary, which has been provided by the client, and supplemented with data compiled from a broad and standard range of data sources, including all relevant statutory datasets, local authority data sources, along with published works, cartographic sources, and topographic, geological and geotechnical data, where available. The results of any non-intrusive or intrusive archaeological investigation, if required, will also be used to tailor the specific impacts of the scheme.
- 8.24 It is likely that, in accordance with the NPPF and local planning policy, an appropriate level of evaluation is required pre-determination to determine the form, date, level of preservation, extent of remains and the value of any archaeological remains within the Site. This may include geophysical survey or evaluation excavation in the form of trial trenches.
- 8.25 The methodology for assessing effects, either adverse or beneficial, will follow that outlined in **Section 4**. Value, or sensitivity, of an asset will be assessed as very high, high, medium, low, or negligible; and magnitude of impact will be assessed as major, moderate, minor, negligible, or no change. The resulting significance of effect will be very large, large, moderate, slight or neutral, with a significance of moderate or higher resulting in an effect that can be considered a material consideration.
- 8.26 The qualitative evaluation of potential effects upon the setting of designated and non-designated heritage assets during the construction and operation phase will be undertaken in line with the methodology set out in Historic England guidance²²²³.

Potential Significant Effects

- 8.27 There are 37 above ground heritage assets located in the 500m Study Area. These were initially assessed to determine whether they were at risk of harm through a change in setting from the Site. Due to the built-up nature of the area, and the lack of sight lines in or out, most of the built heritage assets required no further assessment. **Table 8.1** sets out the anticipated significant effects on archaeology and heritage receptors. This includes an analysis on what aspects can be scoped-in or scoped-out of the assessment due to the likelihood for significant environmental effects.
- 8.28 The EIA chapter will include consideration of required archaeological mitigation. Any impacts would be permanent and irreversible, potentially resulting in significant effects, depending on the value of the heritage asset impacted.

²² Historic England (2019) Statements of Heritage Significance: Historic England Advice Note 12

²³ Historic England (2016) The setting of heritage assets. Historic Environment Good Practice Advice in Planning Note 3.

8.29 The assessment has established that there is a high potential for buried heritage assets (i.e. archaeological remains) within the Site. In accordance with the NPPF and local planning policy, an appropriate level of evaluation is required pre-determination to determine the form, date, level of preservation, extent of remains and the value of any archaeological remains within the Site.

Table 8.1: Initial Archaeology and Heritage Scoping Review

Topic Component	Construction Effect	Operational Effect	Scope In / Out
<i>Designated heritage assets within the Site</i>	Potential impacts from proposals	Potential impacts from proposals	Scoped in. There is potential for effects from changes to landscape character and setting of one designated heritage asset, Union Bridge (NHL 1255163), which is a Grade II listed building, during the construction and operational phases of works.
<i>Designated heritage assets within 500m of the Site</i>	None	None	Scoped out. There is no potential for significant effects from changes to landscape character and setting of designated heritage assets during the construction and operational phases of works as these assets are within built up areas and have a lack of sight lines in or out of the Site.
<i>Non-designated heritage assets and palaeoenvironmental deposits within the Site</i>	Potential impacts from proposals	Potential impacts from proposals	Scoped in. There is potential for effects from physical impacts on non-designated heritage assets within the Site during construction as they may be damaged or wholly removed. Any non-designated heritage assets that survive construction have potential to have impacts on their setting.
<i>Non-designated heritage assets and palaeoenvironmental deposits within 300m of the Site</i>	None	None	Scoped out. There is no potential for significant effects from physical impacts to non-designated heritage assets during the construction phase of works as these are outside of the Site boundary. There is no potential for significant effects on setting.

Cumulative Effects

- 8.30 A Cumulative Effects Assessment (CEA) will also be presented within the chapter. This will assess the cumulative effects of the Site in conjunction with any committed developments within the vicinity of the assets identified through the scoping process and the wider SRF. The approach will be aligned with the assessment scenarios outlined in **Section 4** of this EIA Scoping Report.

9. Ground Conditions

- 9.1 The Chapter will present the baseline ground / groundwater conditions including contamination status and assess potential effects from the Proposed Development on sensitive receptors and existing ground conditions.
- 9.2 The assessment will be undertaken by WSP.
- 9.3 The Chapter will not consider effects on the following ground-related items since they are not relevant to the Site location:
- Potentially valuable agricultural land;
 - Sites of geological importance;
 - Sterilisation of minerals – the Site is not within a Minerals Safeguarding Area; and
 - Ground stability relating to historical coal mining – the Site is not within an area expected to be at risk from coal mining related instability.
- 9.4 The assessment will assume ‘embedded mitigation’ will be undertaken (i.e. mitigation required to prevent adverse effects that is already embedded in the regulatory regime controlling the development process).
- 9.5 The assessment will be undertaken for a Study Area up to 250m from the Site Boundary in relation to risk to human health receptors and extending up to 1km from the Site Boundary in relation to sensitive Controlled Water receptors.

Baseline Conditions

Information Sources

- 9.6 The following data sources (prepared for the HIF infrastructure works) have informed this review:
- Ove Arup and Partners Ltd (for MCC), Victoria North Infrastructure Works, Ground Investigation Interpretative Report²⁴. This GIR reports on intrusive investigations that were undertaken in 2019 and 2021 and has been used to support a 2022 planning application for the HIF Infrastructure works; and
 - Ove Arup and Partners Ltd, Northern Gateway, Ground Conditions Desk Study²⁵. Includes information from AEG Factual Report 2019.

²⁴ Reference: VNIF-ARP-ZZ-YYY-RP-CG-0009 GIR (Arup ref 282022-00, ref 4-05-11), dated 22 December 2021

²⁵ Reference: MNG-ARP-SW-RP-CG-102, dated 15 August 2019

Baseline Context

- 9.7 The baseline conditions presented below (based on the above sources of information) are reflective of conditions prior to the proposed HIF Infrastructure works, which will involve earthworks to create development platforms and remedial works to be specified in a Remediation Strategy (which is an example of embedded mitigation).
- 9.8 The baseline conditions that will be applicable at the start of the Proposed Development will differ from the baseline presented below. A Preliminary Risk Assessment is currently being prepared by WSP to support the 2022 planning application for the Redbank Neighbourhood Proposed Development, in which expected baseline conditions will be described.

Current Baseline Conditions

- 9.9 The north-western portion of the site, known as Red Bank Plateau, is approximately 10-15m higher than areas to the west and south. Ground level falls steeply from the plateau in the north down a heavily vegetated embankment adjacent to the northwest of the River Irk, which flows northeast to southwest alongside / through the southern portion of the Site.
- 9.10 The plateau was constructed during the late 1800s to create a level area of railway sidings with carriage sheds in the north, which were served by an onsite gas works formerly located in the northeast. Other areas of the Site have been used for industrial purposes since before 1850, including the Rochdale Road Gas Works in the southern area between the River Irk and Dantzic Street.
- 9.11 Published geology indicates the Site is within an area of 'artificial ground' underlain by drift deposits of Glacial Till in the northwest and southeast, with drift deposits absent in the central section alongside the River Irk. A thin line of Alluvium is indicated along the line of the river.
- 9.12 Solid geology comprises sandstone of the Chester Formation with an area of Manchester Marls (mudstone) and Collyhurst Sandstone in the east.
- 9.13 Superficial deposits are classified by the Environment Agency (EA) as Secondary A Aquifer. The Manchester Marls bedrock is classified by the EA as a Secondary B Aquifer whilst the Chester Formation and Collyhurst Sandstone are classified as more sensitive Principal aquifers, likely separate units separated by the mudstone.
- 9.14 Perched water within Made Ground is considered likely separated from the underlying solid geology aquifers by low permeability Glacial Till; however, the Till is noted to be absent in places.
- 9.15 There are no groundwater Source Protection Zones within 500m of the Site boundary. However, there are three recorded active surface water / groundwater abstraction licences located 270m northeast and 400m northwest for cooling and process water (brewery).

- 9.16 The River Irk runs through the southern part of the Site flowing northeast to southwest. The former river channel and a mill race were infilled during creation of the plateau and the river re-routed to its current course.
- 9.17 Ground investigations have confirmed a maximum recorded Made Ground thickness of 15.7m below ground level (bgl) in the plateau area. Made Ground depths of several metres were recorded in other lower-lying parts of the Site area.
- 9.18 Natural soils have been confirmed to comprise Glacial Till away from the river and Alluvium up to 5m depth associated with the River Irk (consistent with published geology). Bedrock has been encountered at depths of between 1.8m bgl at Red Bank Viaduct (at a lower topographic level in the southwest) and 18m bgl beneath the made up plateau area.

Potential Risks from Contamination

- 9.19 Field evidence of hydrocarbon contamination has been recorded in various locations, with the most significant contamination being observed at the north-eastern end of the plateau within the footprint of the former railway gas works (dark blue sand with strong hydrocarbon odour to a depth of up to 4.5m bgl); at the northern end of the plateau in an area formerly occupied by a carriage shed; and in the northwest in the area of a former reservoir (covered when the plateau was constructed - strong hydrocarbon odour 10.1-10.5m bgl). Given the previous uses of the Site hotspots of localised hydrocarbon impact are expected.
- 9.20 Potential risks to human health and controlled waters (groundwater, surface water) from contamination have been identified and a programme of supplementary ground investigation is being prepared by the HIF team that will inform further risk assessment and a subsequent remediation strategy, with specified remedial works to be undertaken and validated during HIF infrastructure works.
- 9.21 The Proposed Development will take place following preparation of development platforms as part of the HIF infrastructure works. Additional confirmatory investigation may be required to confirm residual risks to receptors that require additional minor remedial action by the developer to render the Site suitable for use with no unacceptable ongoing risks to identified sensitive receptors.
- 9.22 The following receptors are considered potentially sensitive to risks associated with contaminated soil and groundwater:
- Ground workers / construction workers;
 - Future residents;
 - Future Site users;
 - Future maintenance workers;
 - Third party neighbouring Site users;
 - Groundwater – Secondary A Aquifers and Principal Aquifer; and

- Surface water features – the River Irk.

Land Contamination Assessment, Legislation and Planning Policy Context

National Legislation and Guidance

- 9.23 Part 2A of the Environmental Protection Act (EPA) 1990 introduced a statutory regime for the identification and remediation of statutory 'Contaminated Land' (known as the contaminated land regime). It provides a definition of statutory 'Contaminated Land' based on significant harm or the likelihood of significant harm (including risks to human health) or the pollution or likely pollution of controlled waters (all groundwater, inland waters and estuaries, excluding water perched above the zone of saturation).
- 9.24 Local authorities are the primary regulators under the Part 2A regime with a duty to identify whether the land in their area is statutory 'Contaminated Land' and arrange for it to be remediated, although provision is made for consultation and co-ordination with the Environment Agency in situations where pollution of controlled waters is an issue.
- 9.25 The contaminated land regime is implemented via the Contaminated Land (England) (Amendment) Regulations 2012.
- 9.26 The principal objectives of the Act are described in the DEFRA Contaminated Land Statutory Guidance (paragraph 1.4) (2012), as follows:
- Identify and remove unacceptable risks to human health and the environment.
 - Seek to ensure that contaminated land is made suitable for its current use.
 - Ensure that the burdens faced by individuals, companies and society as a whole are proportionate, manageable and compatible with the principles of sustainable development.
- 9.27 These three objectives underpin the 'suitable for use' approach to the assessment and remediation of land contamination. This approach recognises that the risks presented by any given level of land contamination will vary greatly according to the use of the land and a wide range of other factors, such as the sensitivity of the underlying geology and the receptors which may be affected. The 'suitable for use' approach consists of three elements:
- Ensuring that land is suitable for its current use.
 - Ensuring that land is made suitable for any new use.
 - Limiting requirements for remediation to the work necessary to prevent unacceptable risks to human health or the environment in relation to the current use or future use of the land.

National Planning Policy and Guidance

9.28 Paragraph 183 of the NPPF states that planning policies and decisions should ensure that:

- The Site is suitable for its proposed use, taking account of ground conditions and any risks arising from land instability and contamination. This includes risks arising from natural hazards or former activities such as mining, and any proposals for mitigation including land remediation (as well as potential impacts on the natural environment arising from that remediation).
- After remediation, as a minimum, land should not be capable of being determined as Contaminated Land, as defined under Part 2A of the EPA 1990 (as amended).
- Adequate site investigation information, prepared by a competent person, is available to inform these assessments.

9.29 Paragraph 184 states that where a site is affected by contamination or land stability issues, responsibility for securing a safe development rests with the developer and / or landowner.

9.30 In addition, the UK Government's Planning Practice Guidance titled 'Land Affected by Contamination' (2019) provides guiding principles on how the planning process can deal with land affected by contamination. The guidance outlines the interaction of planning with other regimes, such as Part 2A, Building Regulations and the Environmental Permitting Regulations, in order to deal adequately with contamination which may limit or preclude development whilst protecting human health, property and the wider environment.

9.31 Improvement and betterment of land condition on brownfield sites or those affected by less harmful levels of contamination is often achieved during redevelopment of sites through the planning regime, via the application of a variety of principles outlined in a large number of guidance documents. Dealing with non-statutory land contamination via the planning regime ensures a developed site is suitable for its new use and prevents unacceptable risks from pollution during and after redevelopment.

Regional / Local Policies

9.32 Manchester City Council's Manchester Core Strategy 2012 to 2027 contains the following references to redevelopment of land affected by contamination or previously developed land:

- **Policy SP1:** Spatial Principles. Refers to Core Development Principles including to 'minimise emissions, ensure efficient use of natural resources and reuse previously developed land where possible'.
- **Policy H1:** Overall Housing Provision. Includes the assertion that '90% of residential development will be on previously developed land'.
- **Policy EN 18:** Contaminated Land and Ground Stability: 'The council will give priority for the remediation of contaminated land to strategic locations as identified within the document. Any proposal for development of contaminated land must be accompanied by a health risk assessment. All new

development within former mining areas shall undertake an assessment of any associated risk to the Proposed Development and, if necessary, incorporate appropriate mitigation measures to address them'. Includes the following paragraphs:

- **Para 12.88** The Council's target is for 90% of new development to be on previously developed land. This is in line with historical trends across Manchester and will ensure a sustainable approach is taken with regard to the use of land as a limited resource.
- **Para 12.89** Successful remediation of contaminated land is crucial to improve the image of Manchester as a place in which to live and work. The Council works with landowners and developers to ensure that land is improved, greatly benefitting the local community.

Other Mechanisms

9.33 In addition to the contaminated land regime and the planning regime (which provide embedded mitigation in relation to risks from contamination), other mechanisms relevant to the control of contamination in ground and groundwater include:

- Building Regulations, which require that reasonable precautions are taken to avoid risks to health and safety caused by contaminants in ground to be covered by buildings and associated ground.
- Environmental Permitting Regulations, under which an Environmental Permit from the Environment Agency is normally required to cover the treatment and/or redeposit of contaminated soils if the soils are classified as a 'waste'.

Approach and Methodology

9.34 The Environment Agency's Land Contamination Risk Management framework (LCRM) (2020) advocates the use of a Conceptual Site Model (CSM) to assess the significance of contamination. The CSM considers the presence of, and linkage between, the following three elements:

- Contamination source (i.e. hazardous chemical);
- Viable exposure / migration pathway; and
- Sensitive receptor.

9.35 Without the presence of all three elements there can be no risk.

9.36 In accordance with the LCRM guidance, a CSM will be prepared for the Proposed Development based on the expected conditions following remedial works by the HIF team. The CSM will be used to identify the mitigation measures required to manage the identified risks, which will be presented in a Remediation Strategy for implementation by the developer.

- 9.37 The CSM will be provided in the Preliminary Risk Assessment for the Proposed Development and provides the basis for the environmental impact assessment, which will be undertaken as described below.
- 9.38 The potential effects of baseline ground conditions on the sensitive receptors (in the context of the proposed Site use) and the potential effect of the Proposed Development on baseline ground conditions will be assessed. All effect durations will be considered, from short-term temporary effects to permanent effects.
- 9.39 The significance level attributed to each identified effect will be assessed on the basis of the value / sensitivity of the affected receptor / receiving environment and the magnitude of impact due to the Proposed Development.
- 9.40 The value / sensitivity of the affected receptor / receiving environment is assessed as either high, medium or low as described in **Table 9.1**. Note that negligible sensitivity has been removed, as it is deemed irrelevant as no receptor is classed as negligible when considering risks from contamination.
- 9.41 The sensitivity of a potential receptor is assigned using professional judgement based on various factors including:
- Age, weight, sex, duration on-site, distance from the Site (Human receptors).
 - Resource potential and distance from the Site (Controlled Waters receptors).
- 9.42 The magnitude of impact due to the Proposed Development is assigned as either high, medium, low or negligible as described in **Table 9.2**. Magnitude criteria are also based on professional judgement.

Table 9.1: Sensitivity Classification for Receptor / Receiving Environment

Sensitivity	Criteria	Example
High	High quality and / or rarity on local scale	Construction and maintenance workers (where extensive earthworks and demolition of buildings are proposed) Groundwater aquifers currently used, or likely to be suitable for use as public potable supplies (e.g. Principal Aquifer or site within Source Protection Zone for a potable groundwater supply) Controlled water bodies with national or international ecological designations.

Sensitivity	Criteria	Example
Medium	Medium quality and / or rarity on local scale	Construction workers (where limited earthworks are proposed) Groundwater aquifer providing abstraction water for agricultural or industrial use Commercial landscaping or open space areas Buildings, including services and foundations.
Low	Attribute has a low quality and / or rarity on local scale.	Construction and maintenance workers (minimal disturbance of ground) Unproductive strata such as Made Ground

Table 9.2: *Magnitude of Effect Classification*

Magnitude	Example of Effect caused by the Proposed Development
High	Change in ground contamination status or ground gas regime for a large area (>20ha), sufficient to change suitability for future use (e.g. remediation of 20ha of industrial land sufficient to enable mixed residential / commercial use). Change in groundwater conditions sufficient to change aquifer use (e.g. contamination that prevents abstraction for potable supplies, or remediation of impacted aquifer sufficient to enable future potable abstractions). Generation of large volumes of non-inert waste materials for disposal off-site to landfill.
Medium	Change in ground contamination status or ground gas regime for a moderate area (<20ha) sufficient to change suitability for future use in localised portions of the Site or sufficient to require a change in management / mitigation measures for Site use. Change in groundwater conditions sufficient to change local groundwater regime and potential aquifer uses (e.g. localised contaminant impact, localised change in groundwater levels).

Magnitude	Example of Effect caused by the Proposed Development
Low	Measurable but relatively small-scale change in ground contamination status or ground gas regime that does not alter suitability for future land use. Change in groundwater conditions that do not change status or potential use of the water body.
Negligible	Very limited mass of contamination mobilised – just detectable. Barely discernible change to groundwater regime.

9.43 The significance of the Effect will be determined using the matrix presented in **Table 9.3**. An effect is considered to be a 'significant effect' if assessed as **moderate** or **major**, as indicated in red in the **Table 9.3**.

Table 9.3: Significance of Potential Effects Matrix (Significant Effect shown in red)

Sensitivity of Receptor	Significance based on Magnitude of Impact shown			
	Negligible	Low	Medium	High
High	Neutral	Minor – Moderate	Moderate – Major	Major
Medium	Neutral	Minor	Moderate	Major
Low	Neutral	Neutral	Minor	Minor – Moderate

9.44 Descriptions of the significance criteria presented in **Table 9.3** are provided in **Table 9.4**, with those classified as 'significant effects' shown in red.

Table 9.4: Significance of Effects Descriptions (Significant Effects Shown in Red)

Criteria	Description
Major Adverse	High risk site classification – acute or severe chronic effects to human health and / or animal / plant populations predicted. Effect on a potable groundwater or surface water resource of

Criteria	Description
	regional importance e.g. Principal Aquifer, public water reservoir or inner protection zone of a public supply borehole
Moderate Adverse	Medium risk site classification and proven (or likely significant) pollutant linkages with human health and / or animal / plant populations, with harm from long-term exposure. Effect on a potable groundwater or surface water resource at a local level e.g. effect on an outer groundwater Source Protection Zone. Temporary alteration to the regional hydrological or hydrogeological regime or permanent alteration to the local regime.
Minor Adverse	Medium risk site classification and potential pollutant linkages with human health and / or animal / plant populations identified. Reversible, localised reduction in the quality of groundwater or surface water resources used for commercial or industrial abstractions, Secondary Aquifer, etc.
Negligible / Neutral	Low risk site classification – no appreciable effect on human, animal or plant health, potable groundwater or surface water resources.
Minor Beneficial	Risks to human, animal or plant health are reduced to acceptable levels. Local scale improvement to the quality of groundwater or surface water resources used for commercial or industrial abstraction.
Moderate Beneficial	Significant reduction in risks to human, animal or plant health, to acceptable levels. Significant local improvement to the quality of potable groundwater or surface water resources. Significant improvement to the quality of groundwater or surface water resources used for public water supply.
Major Beneficial	Major reduction in risks to human, animal or plant health. Significant regional scale improvement to the quality of potable groundwater or surface water resources

Potential Significant Effects

- 9.45 As described earlier, embedded mitigation applied via the contaminated land regime (if applicable) would ensure that land is remediated so that it is fit for purpose and the planning regime ensures that unacceptable risks to human health and controlled waters receptors within a new development are managed and mitigated appropriately during redevelopment and that the redeveloped site is 'suitable for use'.
- 9.46 For the Proposed Development, this will involve initial remedial works by the HIF team during earthworks and infrastructure installation followed by appropriate additional remedial measures during the construction phase, to render the Proposed Development suitable for use.

9.47 This process, which is tightly controlled and recorded, negates the requirement to assess potential effects on sensitive receptors (e.g. future users, third party neighbours, River Irk) from contamination during the operational phase (i.e. occupation and use).

9.48 The effects requiring assessment in the Ground Conditions chapter are therefore be restricted to the construction phase, as follows:

- Effect on groundworkers and construction workers;
- Effect on third-party neighbours; and
- Effect on Controlled Waters.

9.49 The construction phase effects scoped in / out of the assessment as described above are summarised in **Table 9.5**. All operational phase effects are scoped out.

Table 9.5: Initial Ground Conditions Scoping Review

Topic Component	Construction Effect	Operational Effect	Scope In / Out
Effect on construction workers	Direct contact with contaminants during ground works or from the migration of contaminated dust / fibres. Inhalation of ground gases / vapours within building spaces or excavations.	Remedial measures to address potential adverse effects from residual contamination will be identified in the HIF and FEC Remedial Strategies according to risk assessment based on the proposed uses. Remedial works undertaken by the HIF / FEC developments will be validated and regulated through the planning process.	Construction - In Operational - Out
Effect on third party neighbours	Direct contact with contaminants during ground works or from the migration of contaminated dust / fibres. Inhalation of ground gases / vapours within building spaces.	The proposed use is not potentially contaminative and any small-scale activities that would be considered potentially contaminative will be controlled by appropriate planning / other regulations to prevent future ground contamination.	Construction - In Operational - Out

Topic Component	Construction Effect	Operational Effect	Scope In / Out
Effect on Controlled Waters	Potential for increased mobilisation of chemical contaminants. Potential for presence and migration of contaminated groundwater which may impact offsite groundwater and surface waters.	This negates the requirement to consider effects to receptors during the operational phase.	Construction - In Operational - Out

Cumulative Effects

- 9.50 The potential for cumulative effects will be considered within the chapter.
- 9.51 Cumulative effects arise when effects from the Proposed Development combine with effects from other likely developments in the vicinity of the Site.
- 9.52 Other committed developments, identified through the scoping process, will include the wider development project (Applications 1, 2, 3, 4 and 5) and the wider SRF.
- 9.53 The approach will be aligned with the assessment scenarios outlined in **Section 4** of this EIA Scoping Report.

10. Flood Risk and Drainage

- 10.1 The purpose of this assessment is to assess the likely significant effects on the water environment as a result of the Proposed Development during both the construction and operational phases. It also provides an assessment of flood risk and a Flood Risk Assessment (FRA) will form an appendix to the ES. The FRA and ES Chapter will be completed by WSP.

Baseline Conditions

- 10.2 The existing site hydrology and hydrogeology will be established based on a desktop review of all reasonably available information. This review will identify surface water features such as ponds and rivers, underlying groundwater and aquifers and local flood risk. It will also identify any man-made hydrological features, any water resources and any abstraction / discharge locations. The following baseline information has been collated from the following sources:

- Environment Agency's online Flood Map for Planning²⁶;
- Environment Agency's online Flood Risk from Surface Water map²⁷;
- Environment Agency's online Flood Risk from Reservoirs map⁸;
- Environment Agency's Recorded Flood Outlines map²⁸;
- Environment Agency's online Catchment Data Explorer²⁹;
- Environment Agency's North West River Basin District Management Plan³⁰;
- Ordnance Survey Mapping³¹;
- DEFRA 'Magic Map' online GIS portal³²;
- British Geological Survey (BGS) Geology of Britain Viewer³³;
- BGS Geoindex online database³⁴;
- Flood Estimation Handbook Web Service³⁵;

²⁶ Environment Agency (2022) available online: <https://flood-map-for-planning.service.gov.uk/>

²⁷ Environment Agency (2022) available online: <https://flood-warning-information.service.gov.uk/long-term-flood-risk/map>

²⁸ Environment Agency (2022) available online: <https://data.gov.uk/dataset/16e32c53-35a6-4d54-a111-ca09031eaaaf/recorded-flood-outlines>

²⁹ Environment Agency (2019) available online: <https://environment.data.gov.uk/catchment-planning/ManagementCatchment/3076>

³⁰ Environment Agency (2016) available online: <https://www.gov.uk/government/publications/north-west-river-basin-district-river-basin-management-plan>

³¹ Ordnance Survey (2022) available online: <https://osmaps.ordnancesurvey.co.uk/>

³² DEFRA (2022) available online: <https://magic.defra.gov.uk/MagicMap.aspx>

³³ British Geological Survey (2022) available online: <http://mapapps.bgs.ac.uk/geologyofbritain/home.html>

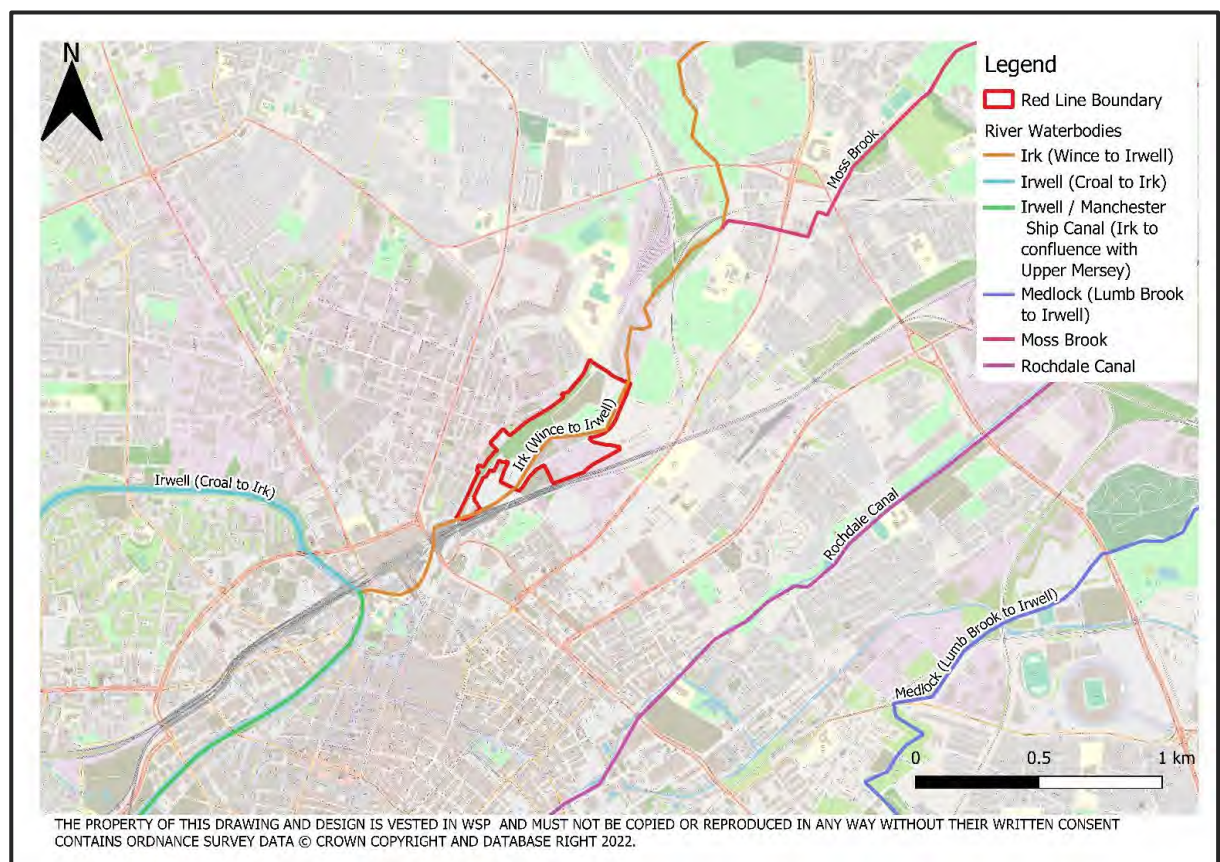
³⁴ British Geological Survey (2022) accessed online: <http://mapapps2.bgs.ac.uk/geoindex/home.html>

³⁵ UK Centre for Ecology & Hydrology (2022) *Flood Estimations Handbook Web Service* Available online: <https://fehweb.ceh.ac.uk/GB/map>

- Cranfield Soil and Agrifood Institute online Soils³⁶;
- National River Flow Archive³⁷; and
- Victoria North Infrastructure Works – Ground Investigation Interpretative Report³⁸.

10.3 The Proposed Development is located in the north of Manchester City Centre, near the 'Green Quarter' of Manchester. The Proposed Development is located within a brownfield site, located north of Dantzic Street and south of Red Bank and Honey Street. The Study Area is defined by a 1km radius surrounding the Proposed Development (see **Figure 10.1**).

Figure 10.1: Surface WFD Waterbodies



Existing Baseline

Surface Water

10.4 The River Irk is the only main river within the planning boundary of the Proposed Development. At the point where the River Irk enters the planning boundary of the Proposed Development, the catchment of the River Irk is 72.20 km². The River Irk Catchment elevation ranges between 29.40 mAOD (meters above ordinance datum)

³⁶ Cranfield Soil and Agrifood Institute (2022) *Soils* Available online: <http://www.landis.org.uk/soilsapes/>

³⁷ UK Centre for Ecology & Hydrology (2022) *National River Flow Archive*. Available online: <https://nrfa.ceh.ac.uk/data/station/spatial/69003>

³⁸ Manchester City Council (2021) *Victoria North Infrastructure Works. Ground Investigation Interpretative Report*.

and 246.80 mAOD. The catchment land use is mostly classified at Urban Extent (57%) with area of Grassland (21.08%) and Woodland (17.07%). The 95% Exceedance (Q95) for the River Irk is reported as 0.916m³/s. The waterbody is a heavily modified channel with steep vertical artificial banks with brick sides, a weir and three bridges are located within the Proposed Development.

10.5 This watercourse is monitored under the Water Framework Directive (WFD) and the Proposed Development interacts with the monitored '*Irk (Wince to Irwell)*' Water Body, which lies within the Rock Irk Medlock Operational Catchment and the Irwell Management Catchment. In 2019, this surface water body was rated as achieving '*Moderate*' ecological status and '*Fail*' on chemical status. The River Irk failed on chemical status due to pollution from Mercury and its compounds, Perfluorooctane sulphonate (PFOS), Polybrominated diphenyl ethers and Cypermethrin (Priority hazardous). Review of Ordnance Survey (OS) mapping shows that the Proposed Development has no ordinary watercourses within the scheme boundary.

10.6 Other main rivers, ordinary watercourses, canals and ponds located within the Study Area include:

- **River Irwell** is a main river located over 520m downstream of the Proposed Development. The River Irk discharges into the Irwell. This waterbody, the '*Irwell / Manchester Ship Canal (Irk to confluence with Upper Mersey)*' is monitored under WFD and lies within the Croal Irwell Operational Catchment and the Irwell Management Catchment. This surface water body is achieving '*Moderate*' ecological status and '*Fail*' on chemical status in 2019.
- **Moss Brook** is an ordinary watercourse located over 340 m upstream of the Proposed Development. Moss Brook is not monitored under the WFD. Moss Brook has a catchment of around 0.88km² which includes the neighbourhood of Monsall.
- **Rochdale Canal** is a canal which is approximately 1km south of the Proposed Development. The Rochdale Canal is not monitored under WFD.

10.7 No data regarding surface water abstractions (including public and private [non-licenced]) was received in time for completion of this EIA Scoping Report. This will be provided in the ES chapter.

10.8 There are no protected areas or ponds located within the Study Area.

Hydrogeology

10.9 The main characteristics of the geology (superficial and bedrock) that underlies the Proposed Development are described in Chapter 9: Ground Conditions.

10.10 The bedrock geology underlying the majority of the Proposed Development is the Chester Formation – Sandstone which is a sedimentary bedrock. The eastern extent of the Proposed Development is underlain by the Manchester Marls Formation – Mudstone. Superficial geological deposits located within the Site are Till, Devensian – Diamicton.

10.11 Bedrock and Superficial aquifers are categorised into one of six categories;

- Principle – Rock or drift deposits with high intergranular and/or fracture permeability;
- Secondary A – Permeable layers capable of supporting water supplies at a local scale;
- Secondary B – Predominantly lower permeability layers which may store and yield limited amounts of groundwater due to localised fissures thin permeable horizons and weathering;
- Undifferentiated – When it is not possible to attribute either category A or B to a rock type; and
- Unproductive – Rock layers or drift deposits with low permeability that have negligible significance for water supply or river base flow.

- 10.12 The bedrock aquifer underlying the Proposed Development includes '*Secondary B*' and '*Principal*' aquifer designation. Secondary aquifers underlying the Proposed Development are categorised as '*Secondary (undifferentiated)*'.
- 10.13 Local British Geological Survey (BGS) historical borehole data is available within and surrounding the Study Area. BGS boreholes provide additional data on the groundwater conditions surrounding the Site. Borehole SJ89NW2901 (located within the Site between Hargreaves Street and Irk Street) recorded the standing water level as 2.74mbgl (below ground level). Borehole SJ89NW2900 (located within the Site east of Hargreaves Street) struck water at 2.67mbgl which rose to 1.39mbgl. Perched and discontinuous groundwater is expected due to the variability of the superficial deposits. Regional groundwater flow is likely to occur in the deep bedrock aquifer. Groundwater flow in the bedrock aquifer is not generally in continuity with shallow groundwater where shallow and deep groundwater levels are recorded.
- 10.14 The groundwater vulnerability map available on Magic Map³² shows the vulnerability to a pollutant discharge at ground level based on the hydrological, geological, and hydrogeological properties within a single square kilometre. The groundwater vulnerability underneath the Proposed Development is classified as *Medium – Low* which means that these units are between a medium to low risk of transmitting pollution to groundwater relatively easily. Low risk areas are likely to be characterised by low-leaching soils or the presence of low permeability superficial deposits.
- 10.15 Groundwater Source Protection Zones (SPZs) are defined around groundwater abstraction sites used for public water supply. The purpose of SPZs is to provide additional protection to safeguard drinking water quality and forms part of the initial screening process in assessing the impact to groundwater receptors. The Proposed Development does not lie within a groundwater Source Protection Zone (SPZ).
- 10.16 Under the Water Framework Directive (WFD), the Environment Agency has determined the Proposed Development lies within the '*Manchester and East Cheshire Permo-Triassic Sandstone Aquifers*' (GB41201G101100) WFD groundwater body. In 2019, this groundwater body was classified as having 'Poor' overall quality, comprising 'Poor' quantitative' and 'Poor' chemical classification, . The main pressure for not achieving 'Good' status is from saline intrusion. This groundwater body is linked to protected areas under the Nitrates Directive.

- 10.17 At this stage, no data on the presence of Groundwater Dependent Terrestrial Ecosystems (GWDTE) are available for the Study Area. This information will be made available at a later stage and will feed into the ES chapter. Further details on aquatic ecology is provided in **Section 7** of the EIA Scoping Report.
- 10.18 No data regarding groundwater abstractions (including public and private (non-licenced)) was received in time for completion of this EIA Scoping Report. This will be provided in the ES chapter. However, A Ground Investigation Interpretative Report³⁸ produced by Manchester City Council for the wider Victoria North development, of which the Proposed Development is part of, lists three groundwater abstractions within 500m of the Victoria North Boundary (listed in **Table 10.1**).

Table 10.1: Water Abstraction within 500m of the Victoria North Boundary

Abstraction Reference	Purpose
Packaging Products Ltd, Collyhurst	General cooling
Derby Brewery, Cheetham	General cooling
Derby Brewery Cheetham	Process water

- 10.19 A review of the soil types was undertaken using Soilscape³⁶ mapping. The Proposed Development is underlain by 'Slowly permeable seasonally wet acid loamy and clayey soils' which are defined by their 'Loamy and Clayey' texture with impeded drainage. However, it should be noted that the Proposed Development is located within a brownfield site and therefore the permeability of the surface is dominated by artificial ground cover.

Flood Risk

- 10.20 A review of the Environment Agency flood risk mapping shows the risk of flooding from rivers, surface water and reservoirs to the Proposed Development. The Environment Agency fluvial flood zones are described as:
- **Flood Zone 1** (low probability) – Land having a less than 0.1% annual probability of river flooding;
 - **Flood Zone 2** (Medium Probability) – Land having between a 1% and 0.1% annual probability of river flooding; and
 - **Flood Zone 3a** (High Probability) – Land having a 1% or greater annual probability of river flooding.
- 10.21 The Proposed Development is located within Flood Zones 1, 2 and 3 for fluvial flood risk. Within the Proposed Development, Flood Zone 1 is located within the north, northwest and west of the Site. Flood Zone 2 and 3 are located adjacent to the River Irk. The River Irk is not tidally influenced and so there is no flood risk from tidal or coastal sources.

- 10.22 The Environment Agency's Surface Water Flood Map²⁷ shows areas at risk from surface water flooding and the different risk areas are described as:
- **High risk** means that each year this area has a chance of flooding of greater than 3.3%;
 - **Medium risk** means that each year this area has a chance of flooding of between 1% and 3.3%;
 - **Low risk** means that each year this area has a chance of flooding of between 0.1% and 1%; and
 - **Very low risk** means that each year this area has a chance of flooding of less than 0.1%.
- 10.23 Surface water flood risk within the Proposed Development varies between 'Very Low' and 'High'. The majority of the Proposed Development is at 'Very Low' risk of surface water flooding (land assessed as having a likelihood of flooding from surface water of less than 0.1% any given year). 'Low' surface water flood risk is located to the south, in small areas to the north which are unmade tracks, and areas directly adjacent to the River Irk within the Proposed Development. 'Medium' surface water flood risk is located to the south of the Proposed Development. 'High' surface water flood risk is located directly within and adjacent to the River Irk.
- 10.24 The Environment Agency flood risk mapping shows the risk from reservoir flooding to the Proposed Development. A review of this mapping shows that the south of the Proposed Development, and areas close to Hargreaves Street, Aspin Lane, Dantzic Street and Collyhurst Road are at risk of reservoir flooding. Heaton Park Reservoir is located 5km from the Proposed Development. All large reservoirs must be inspected and supervised by reservoir panel engineers, and it is assumed that these reservoirs are regularly inspected and essential safety work is carried out. Therefore, the risk from reservoir flooding is considered to be very low.
- 10.25 The Manchester SFRA⁵² explores the groundwater flood risk for the Manchester Area. This SFRA reports that there are no known reports of groundwater flooding in the Manchester, Trafford and Salford.
- 10.26 The Manchester SFRA⁵² states that flooding from sewers has been identified during high rainfall events in Manchester city centre and south Manchester. United Utilities sewer flood risk data was not available.
- 10.27 Canals do not pose a direct flood risk as they are controlled waterbodies with regulated flows. However, there are residual risks associated with lower probability events such as breaches of embankments or overtopping. The mechanism of flooding from Rochdale canal is stated within Manchester SFRA⁵² as being caused by overtopping and / or breaching of the canal due to potentially high inflows to the canal. The canal would flow towards Manchester during flood conditions which exceed the canal capacity. Due to the canal being located 1km from the Proposed Development. It is unlikely canal flooding is a risk to the Proposed Development.
- 10.28 The Environment Agency is currently developing flood risk reduction schemes in the area. The design of these schemes is not yet completed and therefore, the future baseline of flood risk is not yet known. This will be explained further in the Flood Risk Assessment.

Planning Policy Context

10.29 Legislation relevant to the Proposed Development will be presented in the ES and will consist of the following aspects:

- National Policy;
- Local Planning Policy; and
- Other Relevant Policy, Standards and Guidance.

National Planning Policy

Land Drainage Act (1991)³⁹

10.30 Local Authorities and Internal Drainage Boards have additional duties and powers associated with the management of flood risk under the Land Drainage Act. As Land Drainage Authorities, consent must be given for any permanent or temporary works that could affect the flow within an ordinary watercourse under their jurisdiction in order to ensure that local flood risk is not increased.

Environment Act (1995)⁴⁰

10.31 The aim of the Act relates to a wide range of environmental issues, from the establishment of the Environment Agency to provisions for contaminated land and abandoned mines, National Parks, the control of pollution, conservation of the environment, obligations relating to products and materials, and fisheries.

10.32 Part 1 establishes the Environment Agency as a single body with the aim of achieving sustainable development and improving environmental protection.

The Water Resources Act (2003)⁴¹

10.33 This Act is an update to the Water Resources Act 1991 and aims to provide a modern, efficient and robust legislative framework to facilitate both sustainable water resources management and economic growth through the new provisions it contains.

Groundwater (England and Wales) Regulations (2009)⁴²

10.34 These Regulations implement legislation on pollution of groundwater. They provide rules for the granting by the EA of a permit under these Regulations, consent under section 91(8) of the Water Resources Act 1991 and (with exceptions) an environmental permit under the Environmental Permitting (England and Wales) Regulations. In

³⁹ HM Government. (1991). Land Drainage Act. Available at: <http://www.legislation.gov.uk/ukpga/1991/59/contents>

⁴⁰ HM Government (1995). Environment Act. Available at: <https://www.legislation.gov.uk/ukpga/1995/25/contents>

⁴¹ HM Government (2003). Water Act. Available at: <https://www.legislation.gov.uk/ukpga/2003/37/contents>

⁴² HM Government (2009) Groundwater (England and Wales) Regulations. Available at: <https://www.legislation.gov.uk/ukdsi/2009/9780111480816/contents>

addition, the Regulations create an offence of discharge of a hazardous substance or non-hazardous pollutant without a permit.

Flood and Water Management Act (2010)⁴³

- 10.35 The Flood and Water Management Act 2010 extends the role of the LLFA (in this case Manchester City Council), set out in the Flood Risk Regulations to take responsibility for leading the co-ordination of local flood risk management in their areas. In accordance with the Flood and Water Management Act, the Environment Agency is responsible for the management of risks associated with main rivers, the sea and reservoirs. LFFAs are responsible for the management of risks associated with local sources of flooding such as ordinary watercourses, surface water and groundwater.

National Planning Policy Framework (2012)⁴⁴ and associated Planning Practice Guidance⁴⁵

- 10.36 The National Planning Policy Framework (NPPF) states that planning authorities should adopt proactive strategies to mitigate and adapt to climate change, taking full account of flood risk. The NPPF and the NPPF Planning Practice Guidance specify that a sequential, risk-based approach should be taken to the location of development to avoid where possible, flood risk to people and property. It states that the planning system should contribute to and enhance the natural environment, by preventing both new and existing development from contributing to or being put at unacceptable risk from or being adversely affected by unacceptable levels of water. The NPPF promotes the use of risk-based sequential tests, recognising that risk is a function of probability and consequence, in which new development is preferentially steered towards the areas at lowest probability of flooding

The Water Act (2014)⁴⁶

- 10.37 The purpose of the act is to: reform the water industry to make it more innovative and responsive to customers and to increase the resilience of water supplies to natural hazards such as drought and floods.

Environmental Permitting (England and Wales) Regulations (2016)⁴⁷

- 10.38 This is the key legislation for water pollution in the UK. Under the Environmental Permitting Regulations, it is an offence to cause or knowingly permit a water discharge activity, including the discharge of polluting materials to freshwater, coastal waters, relevant territorial waters or groundwater, unless complying with an exemption or an environmental permit. An environmental permit is obtained from the Environment Agency.

⁴³ HM Government (2010) Flood and Water Management Act. Available at: <http://www.legislation.gov.uk/uksi/2017/407/contents/made>

⁴⁴ HM Government (2021) National Planning Policy Framework. Available at: <https://www.gov.uk/government/publications/national-planning-policy-framework--2>

⁴⁵ HM Government (2021) Planning Practice Guidance. Available at: <https://www.gov.uk/government/collections/planning-practice-guidance>

⁴⁶ HM Government (2014) Water Act. Available at: <https://www.legislation.gov.uk/ukpga/2014/21/contents/enacted>

⁴⁷ HM Government. (2016). The Environmental Permitting (England and Wales) Regulations. Available online: <http://www.legislation.gov.uk/uksi/2016/1154/contents/made>

The Water Environment (Water Framework Directive) (England and Wales) Regulations 2017⁴⁸, The Groundwater (Water Framework Directive) (England) Direction 2016⁴⁹.

- 10.39 The overall objective of the Water Framework Directive (WFD) is to bring about the effective co-ordination of water environment policy and regulation across Europe. The main aims of the legislation are to ensure that all surface water and groundwater reaches 'good' status (in terms of ecological and chemical quality and water quantity, as appropriate), promote sustainable water use, reduce pollution, and contribute to the mitigation of flood and droughts.

The Town and County Planning (Environmental Impact Assessment) Regulations 2017⁵⁰

- 10.40 The Town and County Planning (Environmental Impact Assessment) Regulations 2017 (the EIA Regulations) set out the requirements for EIA to provide an assessment of effects for certain public and private projects.

Environment Act (2021)⁵¹

- 10.41 The Environment Act is the UK's new framework of environmental protection. This update was issued following the departure of the UK from the EU. The Act includes the requirements for developments to consider and achieve biodiversity net gain targets.

Local Planning Policy

Manchester City, Salford City and Trafford Councils Level 1 (2010) and Level 2 (2011) Strategic Flood Risk Assessment ⁵²

- 10.42 The Strategic Flood Risk Assessment was published in 2010 and informs Manchester City Council's Local Development Plan and is carried out in accordance with Planning Policy Statement 25: Development and Flood Risk (PPS25)⁵³ and the PPS25 Practice Guide⁵⁴, which have both since been withdrawn. The main purpose of the assessment is to identify the key flood risks to communities in Manchester.

Manchester's Local Development Framework – Core Strategy Development Plan (2012)⁵⁵

- 10.43 The Core Strategy Development Plan was published in 2012 and is a key document which covers a 15-year period between 2012 and 2027. This document outlines the Council's vision for Manchester in 2027 and

⁴⁸ HM Government (2016) *The Water Environment (Water Framework Directive) (England and Wales)* Available online: <https://www.legislation.gov.uk/uksi/2017/407/contents/made>

⁴⁹ HM Government (2017) *The Groundwater (Water Framework Directive) (England and Wales)* Available online: <https://www.gov.uk/government/publications/the-groundwater-water-framework-directive-england-direction-2016>

⁵⁰ HM Government. (2017). *The Town and County Planning (Environment Impact Assessment) Regulations*. Available online: <https://www.legislation.gov.uk/uksi/2017/571/part/1/made>

⁵¹ HM Government. (2021). Environment Act. Available online: <https://www.legislation.gov.uk/ukpga/2021/30/contents/enacted>

⁵² Manchester City Council (2010) Manchester City, Salford City and Trafford Councils Level 2 Hybrid SFRA -Level 1 SFRA. Available online: https://www.manchester.gov.uk/downloads/download/3871/strategic_flood_risk_assessment_sfra

⁵³ Community and Local Government (2006) Planning Policy Statement 25: Development and Flood Risk.

⁵⁴ Community and Local Government (2009) Planning Policy Statement 25: Development and Flood Risk – Practise Guide Available online: <https://www.gov.uk/government/publications/development-and-flood-risk-practice-guide-planning-policy-statement-25>

⁵⁵ Manchester City Council (2012). Manchester's Local Development Framework. Core Strategy Development Plan Document. Available online: https://www.manchester.gov.uk/downloads/download/5672/core_strategy

provides strategic objectives which include a range of policies. These policies include: Adaption to Climate Change, Flood Risk, Water Quality and a range of policies related to development.

Manchester Local Flood Risk Management Strategy (2014)⁵⁶

- 10.44 As part of Section 9 of the Flood and Water Management Act 2010^{Error! Bookmark not defined.}, Manchester City Council produced a local flood risk management strategy. This strategy includes managing flooding from surface water, groundwater and ordinary watercourses.

Other Relevant Policy, Standards and Guidance

Non-Statutory Technical Standards for Sustainable Drainage Systems (2015)⁵⁷

- 10.45 This non-standard technical standard is to inform the design, maintenance and operation of sustainable drainage systems. This includes systems that drain surface water from housing, non-residential or missed use developments for the lifetime of the developments. These drainage systems look to mimic natural drainage through slowing the rate of run-off and improving infiltration.

Environment Agency Approach to Groundwater Protection (2018)⁵⁸

- 10.46 This document provides information on the Environment Agency's approach to managing and protecting groundwater. The approach documents how the Environment Agency's delivers government policy for groundwater and adopts a risk-based approach where legislation allows.

Pollution Prevention Guidance including: Discharge to surface water and groundwater: environmental permits⁵⁹ and Manage water on land: guidance for land managers⁶⁰

- 10.47 The discharge to surface and groundwater environmental permits guidance explains the environmental permits required for discharge of liquid effluent or wastewater. Manage water on land: guidance for land managers explains the legal requirements to avoid causing water pollution for land managers who use and discharge water.

⁵⁶ Manchester City Council (2014). Local Flood Risk Management Strategy. Available online: https://www.manchester.gov.uk/downloads/download/5603/lfrms_documents

⁵⁷ HM Government (2015). *Non-statutory technical standards for sustainable drainage systems*. Available online: <https://www.gov.uk/government/publications/sustainable-drainage-systems-non-statutory-technical-standards>

⁵⁸ Environment Agency (2018). *The Environment Agency's approach to groundwater protection*. Available online: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/692989/Environment-Agency-approach-to-groundwater-protection.pdf

⁵⁹ HM Government (2015) Discharge to surface water and groundwater: environmental permits. Available online: <https://www.gov.uk/guidance/discharges-to-surface-water-and-groundwater-environmental-permits>

⁶⁰ HM Government (2015) Manage water on land: guidance for land managers. Available online: <https://www.gov.uk/guidance/manage-water-on-land-guidance-for-land-managers>

Design Manual for Roads and Bridges (LA113)⁶¹

- 10.48 The DMRB LA 113 sets out the requirements for the assessment and management of the impacts that road projects can have on the water environment, including those related to flood risk. Although the Proposed Development is not a transport project, this document is the most prescriptive guidance available for assessing impacts to the water environment from infrastructure projects, therefore elements of the methodology have been based on this guidance.

Approach and Methodology

- 10.49 The assessment will focus on the potential effects of the Proposed Development on surface water features, groundwater resources, and flood risk.
- 10.50 Assessment of impacts to water quality of surface water features sourced from both construction and operation phases will be qualitative. A quantitative assessment of impacts to water quality associated with site drainage is not proposed as the traffic volumes predicted at the Proposed Development during the operation phase are considered to be below the threshold for use of the Highways England Water Risk Assessment Tool and sufficiently low for the risk of a spillage event to be negligible.
- 10.51 An assessment of the potential impacts of the Proposed Development on groundwater quality and quantity will be undertaken with respect to identified groundwater abstractions including licenced activities and private water supplies, and other groundwater-dependent receptors. The assessment of impacts will be qualitative.
- 10.52 An assessment of the potential impacts from localised excavations or other significant groundworks for the Proposed Development (i.e. below ground structures and intrusive works e.g. foundation piling) on groundwater resources and aquifers will be addressed accordingly in the ES. References will be made to the risks associated with such activities and measures that will be adopted to reduce/minimise the risk.
- 10.53 A standalone FRA will be prepared to support the ES in accordance with the NPPF and PPG. The FRA will assess the potential implications of the Proposed Development on flood risk (fluvial, surface water, groundwater, sewer, reservoir and canal flooding) to people and property, as well as assess the potential risk of flooding to the Proposed Development.
- 10.54 As the Proposed Development is located in Flood Zones 1, 2 and 3, a fluvial hydraulic modelling exercise is being proposed to determine fluvial flood risk both pre and post development. The FRA will include a qualitative assessment of impacts to surface water flood risk at the Proposed Development (informed by the EA's Map for Surface Water Flooding and the proposed drainage strategy). A qualitative assessment will also be undertaken of potential flood risks during the construction phase.

⁶¹ Highways England (2019). Design Manual for Roads and Bridges LA113. Available online: <https://www.standardsforhighways.co.uk/dmrbs/search/d6388f5f-2694-4986-ac46-b17b62c21727>

- 10.55 A Water Framework Directive (WFD) screening and scoping exercise will be completed to determine the necessity for a full WFD assessment. This review will also consider potential impacts associated with the construction phase. Consultation with the Environment Agency will be completed to agree the screening and scoping conclusions. A full WFD assessment will be completed and presented as an appendix to the ES if required.
- 10.56 A qualitative assessment using the approach outlined in DMRB LA113⁶² namely Method C will be used to assess the risk of pollution impacts on groundwater quality. The assessment is based on the Source-Pathway-Receptor (S-P-R) protocol used in the risk assessment procedures. This will be undertaken if soakaway drainage or unlined drainage channels or attenuation basins are proposed.

Determining Sensitivity of Receptors

- 10.57 **Table 10.2** details the assessment framework to be used to determine the sensitivity of water resources. These criteria are based on those provided in Table 3.70 of the DMRB LA 113.

⁶² Design Manual for Roads and Bridges Volume 11, Section 3 Part 10, Road Drainage and the Water Environment (2009)

Table 10.2: Determining Sensitivity of Receptors

Sensitivity of Receptor	Definition of Magnitude	Typical Examples
Very High	Nationally significant attribute of high importance	Watercourse having a WFD classification shown in a RBMP and with $Q95 > 1 \text{ m}^3/\text{s}$. Site protected / designated under EU or UK habitat legislation (SAC, SPA, SSSI, Ramsar site, salmonid water), or species protected by EC Legislation Ecology and Nature Conservation. Groundwater Source Protection Zone (SPZ) 1. Groundwater locally supports a GWDTE or any other very significant feature. Principal aquifer providing a regionally important resource or protected site. Essential infrastructure or highly vulnerable development.
High	Locally significant attribute of high importance	Watercourse having a WFD classification shown in a RBMP and with $Q95 < 1 \text{ m}^3/\text{s}$. Species protected under EC or UK Legislation Ecology and Nature Conservation. Groundwater SPZ 2. Groundwater supports a GWDTE or any other significant feature. Principal aquifer providing locally important resource or supporting a river ecosystem. More vulnerable development.

Sensitivity of Receptor	Definition of Magnitude	Typical Examples
Medium	Moderate quality and rarity	Watercourse not having a WFD classification shown in a RBMP and with $Q95 > 0.001\text{m}^3/\text{s}$. Aquifer providing water for agriculture or industrial use with limited connection to surface water. Groundwater SPZ 3. Less vulnerable development.
Low	Lower quality	Watercourse not having a WFD classification shown in a RBMP and with $Q95 < 0.001\text{m}^3/\text{s}$. Unproductive strata. Water compatible development

Determining the Magnitude of Impact

10.58 **Table 10.3** details the assessment framework to be used to determine the magnitude of impact upon water resources. These criteria are based on those provided in Table 3.71 of DMRB LA 113 and tailored to the proposed assessment methodology.

Table 10.3: *Determining Magnitude of Impact*

Sensitivity of Receptor	Definition of Magnitude	Typical Examples
Major Adverse	Results in loss of attribute and/or quality and integrity of the attribute.	High likelihood of pollution from solubles and sedimentation Risk of pollution from spillage >2% annually; Loss or extensive change to a fishery; Loss of regionally important public water supply; Loss or extensive change to a designated nature conservation site; Reduction in WFD classification; Loss of, or extensive change to, an aquifer; Potential high risk of pollution to groundwater from routine runoff; Loss of, or extensive change to GWDTE or baseflow contribution to protected surface water bodies; Loss or significant damage to major structures through subsidence or similar effects; Increase in peak flood level (>100mm).

Sensitivity of Receptor	Definition of Magnitude	Typical Examples
Moderate Adverse	Results in effect on integrity of attribute, or loss of part of attribute.	Moderate likelihood of pollution from solubles and sedimentation; Risk of pollution from spillage <2% annually; Partial loss in productivity of a fishery; Degradation of regionally important public water supply or loss of major commercial/industrial/agricultural supplies; Contribution to reduction in WFD classification; Partial loss or change to an aquifer; Potential medium risk of pollution to groundwater from routine runoff; Partial loss of the integrity of GWDTE; Damage to major structures through subsidence or similar effects or loss of minor structures; Increase in peak flood level (>50mm).
Minor Adverse	Results in some measurable change in attribute's quality or vulnerability	Moderate likelihood of pollution from either solubles or sedimentation; Risk of pollution from spillage <1% annually;

Sensitivity of Receptor	Definition of Magnitude	Typical Examples
		Minor effects on water supplies; Potential low risk of pollution to groundwater from routine runoff; Minor effects on an aquifer, GWDTEs, abstractions and structures; Increase in peak flood level (>10mm)
Minor Adverse	Results in some measurable change in attribute's quality or vulnerability	Moderate likelihood of pollution from either solubles or sedimentation; Risk of pollution from spillage <1% annually; Minor effects on water supplies; Potential high risk of pollution to groundwater from routine runoff; Minor effects on an aquifer, GWDTEs, abstractions and structures; Increase in peak flood level (>10mm).
Negligible	Results in effect on attribute, but of insufficient magnitude to affect the use or integrity	The proposed project is unlikely to affect the integrity of the water environment; No risk to water quality from solubles or sedimentation; Risk of pollution from spillage <0.5% annually;

Sensitivity of Receptor	Definition of Magnitude	Typical Examples
		No measurable impact upon an aquifer and/or groundwater receptors; Negligible change to peak flood levels (< +/- 10mm).
Minor Beneficial	Results in some beneficial effect on attribute or a reduced risk of negative effect occurring	Reduction in baseline pollution from either solubles or sedimentation; Reduction in existing spillage risk by 50% or more (when existing spillage risk is <1% annually); Reduction of groundwater hazards to existing structures; Reductions in waterlogging and groundwater flooding; Creation of flood storage and decrease in peak flood level (>10mm).
Moderate Beneficial	Results in moderate improvement of attribute quality	Reduction in baseline pollution from both solubles and sedimentation; Reduction in existing spillage risk by 50% or more (when existing spillage risk is >1% annually); Contribution to improvement in WFD classification; Improvement in water body catchment abstraction management strategy classification; Support to significant improvements in damaged GWDTE;

Sensitivity of Receptor	Definition of Magnitude	Typical Examples
		Creation of flood storage and decrease in peak flood level (>50mm).
Major Beneficial	Results in major improvement of attribute quality	Removal of existing pollution from solubles and sedimentations; Improvement in WFD classification; Recharge of an aquifer; Creation of flood storage and decrease in peak flood level (>100mm).

Determining the Significance of Effect

- 10.59 The combination of sensitivity of receptors and magnitude of impact will be used to determine the significance of each effect by using the matrix in **Table 10.4**. This matrix is based on that provided in Table 3.8.1 of the DMRB LA 104. Effects which are moderate or above will be considered to be significant.

Table 10.4: Significance Matrix

Importance of Receptor	Magnitude of Impact				
	Major	Moderate	Minor	Negligible	No Change
Very High	Very Large	Large	Moderate	Slight	Neutral
High	Large	Moderate	Slight	Slight	Neutral
Medium	Moderate	Moderate	Slight	Neutral	Neutral
Low	Slight	Slight	Neutral	Neutral	Neutral

Limitations and Assumptions

- 10.60 To ensure transparency within the EIA processes, the following limitations and assumptions have been identified:
- This EIA Scoping Report is based on currently available information and can be subject to change as the design progresses. This is of particular importance when considering potential impacts associated with the quality of surface water runoff, groundwater interactions and flood risk.
 - A site walkover has not been completed prior to the EIA Scoping Report being submitted. The baseline information may be updated once a site walkover has been carried out.
 - High level drainage information has been provided by third parties.
 - A response from the Environment Agency following a data request has not been received in time to support this EIA Scoping Report and therefore the ES may scope in or out additional features identified through the data request response.
 - A response from Manchester City Council following a data request has not been received in time to support this EIA Scoping Report and therefore the ES may scope in or out additional features identified through the data request response.

- Any gaps in information identified at this scoping stage including consulting with the Canals and River Trust and United Utilities will be considered and addressed along with specific mitigation measures as part of the assessments to produce the ES.

Potential Significant Effects

10.61 **Table 10.5** sets out the anticipated significant effects on flood risk and drainage. This includes an analysis on what aspects can be scoped-in or scoped-out of the assessment due to the likelihood for significant environmental effects.

Table 10.5: Initial Flood Risk and Drainage Scoping Review

Topic Component	Construction Effect	Operational Effect	Scope In / Out
River Irk	Impacts to water quality and hydromorphology from entrainment of loose material on site or spillage of contaminants.	Impacts to water quality from site drainage. Impacts to channel morphology from new structures within the channel / floodplain.	<u>Scoped-in</u> Due to proximity to the Proposed Development.
River Irwell	Impacts to water quality and hydromorphology from entrainment of loose material on site or spillage of contaminants.	Impacts to water quality from site drainage.	<u>Scoped-in</u> Due to close proximity directly downstream of the Proposed Development.
Moss Brook	N/A	N/A	<u>Scoped-out</u>

Topic Component	Construction Effect	Operational Effect	Scope In / Out
			As it is a sufficient distance upstream of the Proposed Development.
Groundwater abstractions	Direct impact or changes to groundwater aquifers associated with below ground structures i.e. foundations.	Direct impact or changes to groundwater aquifers associated with below ground structures i.e. foundations.	<u>Scoped-in</u> As presence of receptor not currently known within the Study Area.
Groundwater quality, levels and flow of Manchester and East Cheshire Permo-Triassic Sandstone Aquifers	Impact to water quality from spillage of pollutants infiltrating to groundwater. Direct impact or changes to groundwater levels and flow associated with below ground structures i.e. foundations.	Direct impact or changes to groundwater levels and flow associated with below ground structures i.e. foundations.	<u>Scoped-in</u> Due to the potential for direct physical impacts from below ground structures.
Groundwater dependent terrestrial ecosystems and any significant	Loss or change to GWDTE as a result of severance of habitat, or as a result of changes to groundwater	Loss or change to GWDTE as a result of severance of habitat, or as	<u>Scoped-in</u> As presence of receptor not currently known within the Study Area.

Topic Component	Construction Effect	Operational Effect	Scope In / Out
groundwater dependent features	level and flow associated with below ground structures i.e. foundations.	a result of changes to groundwater level and flow associated with below ground structures i.e. foundations.	
Water utilities infrastructure	Impacts to capacity and efficiency of existing infrastructure.	Impacts to capacity and efficiency of existing infrastructure. Increased potable water demand.	<u>Scoped-in</u> Due to Proposed Development being a brownfield site.
Flood Risk	Impact to construction workers and residents and users of surrounding land.	Impact to residents and users of the Proposed Development and surrounding land.	<u>Scoped-in</u> Potential for Proposed Development to increase surface water, fluvial and groundwater flood risk.

Cumulative Effects

10.62 A Cumulative Effects Assessment (CEA) will also be presented within the ES chapter. This will assess the cumulative effects of the Proposed Development in conjunction with any committed developments within the vicinity of the Proposed Development Sites identified through the scoping process, as well as the wider

development project (Applications 1, 2, 3, 4, and 5) and the wider SRF. The approach will be aligned with the assessment scenarios outlined in **Section 4** of this Scoping Report.

11. Transport and Access

- 11.1 This section of the ES will assess the likely significant effects of the development on the local road network in the surrounding area to the Site during both the construction and operational phases. The assessment of transport and access will be undertaken by WSP.
- 11.2 This chapter builds upon the contents of a Transport Scoping Note submitted to MCC highways department and TfGM dated 8 April 2022, and a scoping meeting held with MCC highways and TfGM on 21 July 2022. The Scoping Note and meeting notes are attached to this EIA Scoping Report.

Baseline Conditions

- 11.3 The development proposals and in particular the transport strategy put forward within the proposals builds upon the principles established within both the Strategic Regeneration Framework for the Northern Gateway area (Feb 2019) and more specifically upon the parameters within the Northern Gateway Initial Development Area Transport Strategy (Mar 2019).
- 11.4 Development in this area is supported and enabled by a package of infrastructure works funded by MCC's successful application to the Housing Infrastructure Fund. These works are currently being designed by a separate design team (led by Arup) on behalf of MCC as client. The design for these works has now reached RIBA Stage 3 and a planning application for the works has recently been submitted to MCC, ref 133143/VO/2022. These works are described as follows:

"Creation of development platforms, including remediation and earthworks, and change in site levels, to allow delivery of future residential-led development at the Red Bank Neighbourhood, together with the construction of a new road and priority junction from Red Bank, new drainage infrastructure, utility and services connections and diversions, preparatory tree and shrub clearance, and demolition of certain existing structures, along with the creation of new and improved green infrastructure and landscaping including the improvements of St Catherine's Wood to form part of a City River Park, and other associated works."

- 11.5 Specific to transport, the HIF works include for the construction of the new access road along the northern area of the Site (the 'plateau') and a new priority junction from Redbank. There is also a variety of landscaping works being brought forward within the HIF works which will enhance conditions for pedestrians and cyclists moving to and through the proposed site.
- 11.6 WSP and the wider FEC design team have worked closely with the HIF design team to ensure consistency between the infrastructure works and the development masterplan, and this work will continue as the FEC planning application is developed.

- 11.7 Baseline data is available from the HIF Transport Strategy, including a variety of traffic survey work undertaken in late 2018 which it has been agreed with MCC highways will be suitable for use in the planning application.

Planning Policy Context

- 11.8 The Transport Assessment and Travel Plan will include a full review of relevant local and national policies, and demonstration of how the proposals comply with such policies, as briefly set out below:

National Planning Policy

National Planning Policy Framework

- 11.9 The proposals will need to reflect the focus on sustainable development within the NPPF, in particular emphasising how active travel will be encouraged and the use of the private car will be discouraged.

Local Planning Policy

Northern Gateway Strategic Regeneration Framework (SRF) (Feb 2019)

- 11.10 Ensure that the transport aspects of the development proposals adhere to the wider principles of the SRF particularly in relation to encouraging active travel and walkable neighbourhoods.

Northern Gateway Initial Development Area Transport Strategy (Mar 2019)

- 11.11 Ensure that at a more detailed level the proposals conform with the principles within the Transport Strategy, for example parking provision, servicing strategy.

Greater Manchester Transport Strategy 2040 (updated in 2019)

- 11.12 Ensure that proposals align with the TfGM 2040 vision, which encourages sustainable development with active travel modes as a key component of design.

Made to Move (GMCA, 2018)

- 11.13 The Made to Move plan outlines the need for a detailed cycling and walking network across Greater Manchester, setting the need and providing guidance on delivery of active travel infrastructure. Proposals for active travel infrastructure within the Site will need to reflect this design guidance.

Bee Network (GMCA, 2018)

- 11.14 The proposals will need to complement the existing and proposed Bee Network infrastructure in the area, enabling walking and cycling to be the clear no. 1 choice of travel mode.

Other Relevant Policy, Standards and Guidance

Manual for Streets / Manual for Streets 2

- 11.15 Widely recognised street design guidance, reflecting the need to create streets as liveable places which encourage people to dwell and use streets rather than treating them as movement corridors. Street design within the Site both on the adopted highway and private streets will need to reflect the principles of these documents.

Local Transport Note 1/20

- 11.16 National cycling design guidance and best practice which will need to be reflected across the Site, in particular in relation to any proposals within the adopted highway.

Approach and Methodology

- 11.17 The proposed approach and methodology would be as set out below:

Transport Assessment

- 11.18 The Transport Assessment will be a thorough document produced in line with guidance included in the Government's *'Transport evidence bases in plan making and decision taking'* comprising the following proposed chapters:

- **Introduction:** Will set out the required background, scope and methodology information, as well as the document purpose.
- **Existing Conditions:** This will include existing conditions for active travel, public transport, highway network and traffic congestion issues. It will include a road safety section, which will review local accident records within the local area over the previous five years and identification of any trends, with a description of how the development will mitigate against any road safety impacts.

To establish the baseline traffic conditions, it is proposed to use the traffic surveys undertaken as part of the 2019 Transport Strategy produced by Arup on behalf of MCC. It is considered this remains relevant due to the data being only three years old, and the intervening period of Covid having potentially reduced traffic flows, therefore resulting in a worst-case robust assessment.

- **Proposed Development:** A description of the development, including on site highway design and layout, access and car parking. This will include relevant design principles including how active travel will be prioritised and encouraged.
- **Policy Review:** This section will consist of a review of all relevant policy and description of how the development complies with national, regional and local policies.
- **Trip Generation and Distribution:** A multi-modal trip generation exercise will be undertaken, based upon the parameters agreed in the Transport Scoping Note, taking into account factors such as the nature of

uses on the Site (e.g. primary school which will eliminate some off-site trips), the proximity to Manchester city centre, and the limited level of on-site parking.

- **Active Travel and Sustainable Transport Strategy:** This chapter will include a description and assessment of existing and proposed provision for pedestrians, cyclists and public transport. There will also be an assessment of opportunities for travel to the Site on foot, by cycle or public transport, and a description of how the development will enhance the provision for travel by these modes. We will produce annotated site context plans in recognition of the above.
- **Emergency Vehicle, Servicing and Refuse Strategy:** This chapter will include the quantum and types of emergency, servicing and refuse vehicles likely to access the Site and include swept path drawings showing how these vehicles will be able to access/egress the Site
- **Traffic Capacity Assessment:** It is noted that the Arup Transport Strategy tested the capacity impact of a total of 5,078 homes (5,557 total minus 479 for consented plot NT01), which is in excess of that proposed within the FEC masterplan. The Arup Transport Strategy concluded following capacity modelling that:

“Within both the AM and PM peak the trips generated by Northern Gateway Initial Development Area are not forecast to create additional capacity issues that are not currently observed within the base scenarios.”

- It has now been agreed through the scoping process with TfGM and MCC highways that the following junctions will be assessed for traffic capacity (as per our original Transport Scoping Note):
 - Redbank / Honey St;
 - Redbank / Roger St / Lord St;
 - Cheetham Hill Rd / Lord St; and
 - Angel St / Dantzic St.
- **Summary:** This final chapter will summarise the key points of the Transport Assessment.

Travel Plan

- 11.19 This would be a stand-alone document setting out measures to encourage sustainable (i.e. non-car) travel to the development by residents and visitors. It will form a framework of potential measures, covering both residential uses and the ancillary uses and will be controlled through a condition attached to the planning permission.
- 11.20 A Full Travel Plan would be produced at the time of occupation of each development plot, based upon the measures within this framework.

EIA Specific Guidance

- 11.21 In addition to the above, the ES chapter will draw upon the “Guidelines for the Environmental Assessment of Road Traffic” produced by the IEA, and in particular the assessment topics of severance, driver delay, pedestrian delay and fear and intimidation. An assessment of each of these topics will be included within the ES chapter.

Potential Significant Effects

- 11.22 **Table 11.1** sets out the anticipated significant effects on transport and access. This includes an analysis on what aspects can be scoped-in or scoped-out of the assessment due to the likelihood for significant environmental effects.

Table 11.1: Initial Transport and Access Scoping Review

Topic Component	Construction Effect	Operational Effect	Scope In / Out
Active Travel	Potential severance of existing routes, deterrent to active travel due to construction impacts such as narrowed pavements.	New active travel routes to and through site, new demand associated with additional residents and visitors to the area.	In
Public Transport	Potential disruption to existing public transport routes.	Creation of new demand through new residents and visitors. Potential for new bus routes e.g. along Dantzic Street.	In
Road safety	Safety implications of temporary highway network changes. Need to safely accommodate construction vehicle access to the road network.	Assess implications of additional movements (by all modes) to and through the Site. Ensure best practice design principles used, follow Road Safety Audit process.	In
Traffic Congestion	Assess any impact of any temporary highway network changes to facilitate construction.	Assess implications of the newly generated traffic on the local highway network to the scope agreed with TfGM and MCC highways.	In
Highway connectivity	Ensure that suitable alternative routes are provided if any movements are likely to be prohibited during construction.	Ensure the highway network offers the same or improved level of connectivity, or offers suitable alternatives.	In
Parking	Consider implications of any temporary loss of parking in the area due to construction activities.	Consider parking provision for new residents and visitors (standard, disabled, EV, cycle, car club). Consider implications of loss of existing parking.	In

Topic Component	Construction Effect	Operational Effect	Scope In / Out
Emergency vehicle access	Ensure emergency vehicle access to existing properties is retained during construction period.	Ensure any new development has appropriate emergency vehicle access arrangements.	In
Servicing and refuse vehicle access	Ensure any existing properties affected by construction restrictions retain suitable servicing and refuse vehicle access.	Provide suitable servicing and refuse vehicle routes and parking locations to adequately cater for new buildings within the development site.	In

Cumulative Effects

- 11.23 A Cumulative Effects Assessment (CEA) will also be presented within the chapter. This will assess the cumulative effects of the Proposed Development in conjunction with any committed developments within the vicinity of the Sites which have a significant transport impact, as identified through the scoping process, as well as the wider development project (Applications 1, 2, 3, 4 and 5) and the wider SRF. The approach will be aligned with the assessment scenarios outlined in **Section 4** of this EIA Scoping Report.

12. Air Quality and Dust

- 12.1 The air quality and dust assessment will assess the likely significant effects of the Proposed Development on receptors which are sensitive to air quality during the construction and operational phases. The planning process is a key means of managing and improving air quality, particularly in the long term, through the strategic location and design of new developments. Any air quality consideration that relates to land use and its development can be a material planning consideration in the determination of planning applications, dependent upon the details of the Proposed Development. The Air Quality and Dust assessment in relation to the construction and operational phases of the Proposed Development will be undertaken by WSP.

Baseline Conditions

Review and Assessment of Air Quality

- 12.2 Manchester City Council (MCC) has designated one Air Quality Management Area (AQMA) within their administrative area as a consequence of their local air quality review and assessment work. The Greater Manchester AQMA was declared in 2016 for exceedances of the annual mean objective for nitrogen dioxide (NO₂), primarily attributable to road transport. The AQMA covers the 10 districts of Greater Manchester including arterial routes, district centres and Manchester Airport.
- 12.3 The southern extent of the Site falls within the AQMA. Furthermore, several road links (e.g. A664 and A665) that are likely to be impacted by traffic generated by the Proposed Development and/or which are likely to influence air quality at the Site are located within the AQMA.

Local Emission Sources

Road Emissions

- 12.4 The Site is located in an area where air quality is mainly influenced by emissions from road transport using the local road network, including major roads such as the A664, A665 and minor roads such as Collyhurst Road, Red Bank and Dantzic Street.

Rail Emissions

- 12.5 Manchester Victoria Railway Station is located approximately 150 m southwest of the Proposed Development and the railway line runs adjacent to the southern boundary of the Site. Defra's 2022 Local Air Quality Management Technical Guidance (TG22)⁶³ states that:

⁶³ Department for Environment Food and Rural Affairs and Devolved Administrations (2022) Local Air Quality Management Technical Guidance (TG22). Department for Environment Food and Rural Affairs, London.

"Diesel or coal fired stationary locomotives can give rise to high short-term NO₂ and sulphur dioxide (SO₂) concentrations near railway stations or depots. Additionally, moving locomotives can contribute to elevated short-term NO₂ and SO₂ concentrations close to the track."

- 12.6 TG22 goes on to state that an assessment of rail emissions, particularly with regards to new exposure, should be considered in terms of the following criteria for stationary and moving locomotives:

"Stationary diesel or steam locomotives:

- *Identify locations where diesel or steam locomotives are regularly (i.e. at least 3 times a day) stationary for periods of 15 minutes or more; and*
- *Determine relevant exposure within 15m of the locomotives.*

Moving diesel locomotives:

- *Determine relevant exposure within 30m of the relevant railway tracks (Table 7.2 within TG22 provides information on which lines should be considered); and*
- *Identify whether the background annual mean NO₂ concentration is above 25µg/m³ in these areas."*

- 12.7 In terms of stationary diesel or steam locomotives, it is possible that diesel locomotives could be stationary and idling near Victoria Station for longer than 15 minutes. However, it is considered unlikely that trains would be stationary and idling at locations within 15m of the Site for this duration regularly because it is 150m from the station and delays will be infrequent.

- 12.8 In terms of moving diesel locomotives, the section of the Manchester Victoria railway line nearest the Site is identified as one of the relevant tracks (as per Table 7.2 of the LAQM.TG22 Guidance⁶³) in need of consideration for air quality impacts⁶⁴. However, with reference to Defra's national background maps (see Table 12.1), the current year (2022) annual mean NO₂ concentration relevant to the Application Site is 19.6 µg/m³, which is below the 25µg/m³ threshold mentioned above. Furthermore, background concentrations are expected to reduce over time. Therefore, moving diesel locomotives are unlikely to have a significant influence on pollutant concentrations within the Site and are scoped out.

Industrial Emissions and Potential Odour Sources

- 12.9 A review of the Environment Agency's online public register for permitted installations⁶⁵ and MCC's public register⁶⁶ indicates that there are no large scale (Part A or Part A2) industrial processes present within the immediate vicinity of the Site (1km radius). With regards to smaller Part B processes (regulated by MCC with releases to air only) there are two processes located in the vicinity of the Site. These are a bitumen coating

⁶⁴ The relevant sections include Manchester Victoria to Salford and Manchester Victoria to Manchester Deansgate.

⁶⁵ Environment Agency (2022) Environmental Permitting Regulations – Installations. Available at: <https://environment.data.gov.uk/public-register/view/search-industrial-installations>

⁶⁶ Manchester City Council (2022) Environmental Permit Register. Available at: https://www.manchester.gov.uk/info/500217/licence_-_public_registers/8272/environmental_permit_register

process operated by Packaging Products Limited and a manufacture of coating materials process operated by HMG Paints Limited. Both processes are located off Collyhurst Road, immediately north/northeast of the Site.

- 12.10 The prevailing wind direction for the area is likely to be from the south and southeast, although some notable contributions may arise from the west and northwest (based on a review of recent data from the meteorological station at Rostherne, Manchester). As these processes are located upwind of the Site, any associated emissions to air or releases of odour generated from HMG paints are likely be dispersed away from the Site. Receptors located to the north of HMG paints are most likely to be impacted by potential odours.

Background Air Quality Data

- 12.11 Background pollutant concentrations of NO₂ and particulate matter (PM₁₀ and PM_{2.5}) were obtained from Defra's national background maps⁶⁷ for the 1km x 1km grid square encompassing the Site. Data were obtained for the current year (2022) and an example future year (2025), as summarised in **Table 12.1**. All of the annual mean background concentrations are predicted to be well below the relevant air quality objectives. Furthermore, these concentrations are predicted to decrease by 2025, with the greatest improvement anticipated for NO₂.

Table 12.2: Annual Mean Pollutant Background Concentrations for the Site

Grid Square (centred on O.S. Grid Reference)	NO ₂ (µg/m ³)		PM ₁₀ (µg/m ³)		PM _{2.5} (µg/m ³)	
	2022	2025	2022	2025	2022	2025
384500, 399500	19.6	17.8	12.0	11.7	7.9	7.6
AQS Objective (µg/m ³)	40		40		25	

Local Authority Air Quality Monitoring Data

Continuous Monitoring

- 12.12 MCC operates 21 continuous monitoring stations throughout the city; however, only one of these (Man 3 – Manchester Piccadilly) is located within 1 km of the Site. Annual mean NO₂, PM₁₀ and PM_{2.5} concentrations from this monitor are summarised in **Table 12.2**.

⁶⁷ Defra (2018) Background Mapping Data. Available at: <https://uk-air.defra.gov.uk/data/laqm-background-maps?year=2018>

Table 12.3: MCC Nearby Continuous Air Quality Monitoring Data

Site Name	Site Type	Distance from Site (km)	Monitored Concentration (µg/m³) / Monitoring Result					Objective (µg/m³)
			2017	2018	2019	2020	2021	
MAN3	Urban Centre	0.9	NO ₂ Annual mean					
			36	35	36	27	30	40
			NO ₂ Hourly mean (no. Hours >200µg/m³)					
			1	0	0	0	0	200 (not to be exceeded > 18 times per year)
			PM ₁₀ Annual mean					
			20	21	20	15	15	40
			PM ₁₀ Daily mean (No. Days >50µg/m³)					
			3	2	7	1	2	50 (not to be exceeded > 35 times per year)
			PM _{2.5} Annual mean					
			8	11	12	8	9	25

12.13 Data from **Table 12.2** shows that between 2017 and 2021, there were no exceedances of the respective objectives at continuous monitor MAN3.

12.14 Conditions at monitor MAN3 are not considered to be wholly representative of conditions at the Site. The monitor is located approximately 0.9 km to the south of the Site, within Manchester City Centre and is within the Greater Manchester AQMA. However, the 'urban centre' classification of MAN3, being approximately 30 m from the nearest road, may partly represent baseline conditions at the Site, given that the nearest main (A) roads are located approximately 80 m from the Site boundaries and is therefore not directly influenced by adjacent road emission sources. As such, monitoring results at MAN3 are likely to represent a conservative baseline of air pollutant levels within the Site.

Passive Monitoring

12.15 In addition to continuous monitoring, MCC uses diffusion tubes to carry out passive NO₂ monitoring at various locations throughout the city. **Table 12.3** presents annual mean NO₂ concentrations measured within 1 km of the Site.

Table 12.4: MCC Nearby NO₂ Diffusion Tube Monitoring Data

Site Name	Site Type	Distance from Site (km)	Annual Mean NO ₂ Concentration (µg/m ³)				
			2017	2018	2019	2020	2021
MA36NO	Roadside	0.3	34.0	33.1	31.7	24.3	26.7
MA88NO	Roadside	0.3	57.9	46.8 (41.8*)	45.2 (40.7*)	30.1	36.8
MA26ANO	Urban Background	0.4	35.5	33.4	33.0	22.9	25.9
MA59NO/MA60NO/ MA61NO (triplicate)	Urban Background	0.9	35.7	31.6	33.1	22.3	22.3
MA9ANO	Kerbside	1.0	51.1	45.8 (42.8*)	44.9 (34.2*)	32.5	35.7
*Values in brackets represent concentrations went distance corrected to nearest relevant public exposure							

- 12.16 The data from **Table 12.3** shows that up to and including 2019, NO₂ concentrations frequently exceeded the annual mean objective (40µg/m³) at MA88NO and MA9ANO. For all remaining tubes within 1km of the Site, concentrations consistently met the objective. In 2020 and 2021 concentrations were significantly reduced at all locations. However, this will be due to the influence of the travel restrictions and national lockdown measures implemented in response to the COVID-19 pandemic. Therefore, the data for 2020 and 2021 cannot be considered representative of a long-term improvement in air quality. Without COVID-19, it is likely that monitored concentrations would have been higher.
- 12.17 Diffusion Tube MA88NO is a roadside monitor located within 300 m south of the Site adjacent to the A664 Angel Street. As it is located just 1 m from a major A road (Angel Street, A664) and is situated closer to the city centre, it is not considered to be representative of conditions at the Site, which is located further from the city centre and approximately 80m from the nearest A road (A664 Rochdale Road), meaning there is a relatively greater distance over which emissions from vehicles utilising a major A road can disperse before reaching the Site.
- 12.18 Diffusion tube MA36NO is the closest monitor to the Proposed Development and, of the monitors listed in **Table 12.3**, is considered the most representative of air quality conditions at the Site. It is located 3m from the nearest A road (A664 Rochdale Road) and away from the city centre. Concentrations measured at this tube are consistently more than 10% below the annual mean objective.
- 12.19 For all diffusion tubes within 1km of the Site, the annual mean NO₂ concentrations are less than 60µg/m³. Therefore, in accordance with TG22, it can be assumed that the hourly mean objective for NO₂ is being achieved at the Site and in the surrounding area.

Summary of Baseline Conditions

- 12.20 The Site is located in an area where the primary influence on air quality is likely to be emissions from road traffic. The southern section of the Site is located within the Greater Manchester AQMA, indicating there is the potential for elevated levels of air pollution due to road source emissions within and near to the Site. There are no industrial emissions within the immediate vicinity that are likely to have a significant influence on pollutant concentrations within the Site, although the potential for odours emissions from the adjacent bitumen and paint works to be detected within the Site cannot be ruled out at this time.
- 12.21 Defra's background maps (**Table 12.1**) show that estimated background pollutant concentrations relevant to the Site will be below the respective air quality objectives. Furthermore, a review of monitoring undertaken by MCC indicates that the majority of monitoring sites within 1km of the Site have recorded annual mean pollutant concentrations below the respective health-based air quality objectives in recent years. The monitoring sites at which exceedances of the annual mean NO₂ objective have been recorded are at kerbside locations, within 1 m of a major A road), and are not likely to be representative of conditions at the Site, given that it is located approximately 80 m from the nearest A road. Given the above, air quality concentrations within the Site are anticipated to be below the relevant objectives.

Planning Policy Context

National Planning Policy

- 12.22 The Government's overall planning policies for England are described in the National Planning Policy Framework (NPPF⁶⁸). The core underpinning principle of the Framework is the presumption in favour of sustainable development, defined as: '... meeting the needs of the present without compromising the ability of future generations to meet their own needs'.
- 12.23 One of the three overarching objectives of the NPPF is that the planning system should seek 'to protect and enhance our natural, built and historic environment; including making effective use of land, improving biodiversity, using natural resources prudently, minimising waste and pollution, and mitigating and adapting to climate change, including moving to a low carbon economy.'
- 12.24 In relation to air quality, the following paragraphs in the document are relevant:
- Paragraph 55, which states 'Local planning authorities should consider whether otherwise unacceptable development could be made acceptable through the use of conditions or planning obligations. Planning obligations should only be used where it is not possible to address unacceptable impacts through a planning condition.'
 - Paragraph 104, which relates to the need to consider transport related issues at the earliest stages of plan making and development proposals, so that '...(c) opportunities to promote walking, cycling and public

⁶⁸ Ministry of Housing, Communities and Local Government (July 2021) National Planning Policy Framework.

transport use are identified and pursued; d) the environmental impacts of traffic and transport infrastructure can be identified, assessed and taken into account – including appropriate opportunities for avoiding and mitigating any adverse effects, and for net environmental gains...’;

- Paragraph 105, which states ‘...Significant development should be focused on locations which are or can be made sustainable, through limiting the need to travel and offering a genuine choice of transport modes. This can help to reduce congestion and emissions and improve air quality and public health....’;
- Paragraph 174, which states ‘Planning policies and decisions should contribute to and enhance the natural and local environment by: ...e) preventing new and existing development from contributing to, being put at unacceptable risk from, or being adversely affected by, unacceptable levels of soil, air, water or noise pollution or land instability. Development should, wherever possible, help to improve local environmental conditions such as air and water quality, taking into account relevant information such as river basin management plans...’;
- Paragraph 185, which states ‘Planning policies and decisions should also ensure that new development is appropriate for its location taking into account the likely effects (including cumulative effects) of pollution on health, living conditions and the natural environment, as well as the potential sensitivity of the Site or the wider area to impacts that could arise from the development....’;
- Paragraph 186, which states ‘Planning policies and decisions should sustain and contribute towards compliance with relevant limit values or national objectives for pollutants, taking into account the presence of Air Quality Management Areas and Clean Air Zones, and the cumulative impacts from individual sites in local areas. Opportunities to improve air quality or mitigate impacts should be identified, such as through traffic and travel management, and green infrastructure provision and enhancement. So far as possible these opportunities should be considered at the plan-making stage, to ensure a strategic approach and limit the need for issues to be reconsidered when determining individual applications. Planning decisions should ensure that any new development in Air Quality Management Areas and Clean Air Zones is consistent with the local air quality action plan.’; and
- Paragraph 188, which states ‘The focus of planning policies and decisions should be on whether proposed development is an acceptable use of land, rather than the control of processes or emissions (where these are subject to separate pollution control regimes). Planning decisions should assume that these regimes will operate effectively. Equally, where a planning decision has been made on a particular development, the planning issues should not be revisited through the permitting regimes operated by pollution control authorities.’

Local Planning Policy

Core Strategy: Development Plan Document

12.25 The Core Strategy⁶⁹, adopted by MCC on 11th July 2012, includes the following policies in relevant to air quality and the Proposed Development:

12.26 Policy EN 7 Energy Infrastructure opportunities states related to Air Quality:

“There will be a general presumption in favour of low and zero carbon decentralised energy schemes, subject to the following considerations:

...The cumulative impact of energy schemes will be taken into account when considering applications, to include modelled impacts on air quality and landscape character, with reference to Policy EN16....”

12.27 Policy EN 16 Air Quality, which states:

“The Council will seek to improve the air quality within Manchester, and particularly within Air Quality Management Areas, located along Manchester’s principal traffic routes and at Manchester Airport. Developers will be expected to take measures to minimise and mitigate the local impact of emissions from traffic generated by the development, as well as emissions created by the use of the development itself, including from Combined Heat and Power and biomass plant.

When assessing the appropriateness of locations for new development the Council will consider the impacts on air quality, alongside other plan objectives. This includes cumulative impacts, particularly in Air Quality Management Areas.”

12.28 Policy DM 1 Development Management, which states:

“All development should have regard to the following specific issues for which more detailed guidance may be given within a supplementary planning document:-

...Effects on amenity, including privacy, light, noise, vibration, air quality, odours, litter, vermin, birds, road safety and traffic generation. This could also include proposals which would be sensitive to existing environmental conditions, such as noise....”

Other Relevant Policy, Standards and Guidance

12.29 The legislative framework for air quality in the UK is established through the following:

⁶⁹ https://www.manchester.gov.uk/download/downloads/id/18981/final_core_strategy.pdf

- The Air Quality Strategy (AQS) for England, Scotland, Wales and Northern Ireland (Volumes 1 and 2)^{70,71};
- The Air Quality (Miscellaneous Amendment and Revocation of Retained Direct EU Legislation) (EU Exit) Regulations 2020 (SI 2018/1407);
- The Air Quality (England) Regulations 2000 - Statutory Instrument 2000 No.928⁷²;
- The Air Quality (England) (Amendment) Regulations 2002- Statutory Instrument 2002 No.3043⁷³;
- The Air Quality Standards Regulations 2010 – Statutory Instrument 2010 No.1001⁷⁴;
- The Environmental (Miscellaneous Amendments) (EU Exit) Regulations 2020⁷⁵; and
- Defra (January, 2019). Clean Air Strategy 2019⁷⁶.

12.30 Standards and objectives for ambient air quality that are set out in the AQS and defined in the Regulations to protect human health and will be relevant to the air quality assessment are summarised in **Table 12.4**.

Table 12.4: *Relevant Air Quality Standards for the Protection of Human Health*

⁷⁰ Defra and the Devolved Administrations (2007). The Air Quality Strategy for England, Scotland, Wales and Northern Ireland (Volume 1). Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/69336/pb12654-air-quality-strategy-vol1-070712.pdf.

⁷¹ Defra and the Devolved Administrations (2007). The Air Quality Strategy for England, Scotland, Wales and Northern Ireland (Volume 2). Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/69337/pb12670-air-quality-strategy-vol2-070712.pdf.

⁷² The National Archives (2000). The Air Quality (England) Regulations 2000 – Statutory Instrument 2000 No.928. Available at: <https://www.legislation.gov.uk/uksi/2000/928/contents/made>.

⁷³ The National Archives (2002). The Air Quality (England) (Amendment) Regulations 2002 – Statutory Instrument 2002 No.3043. Available at: <https://www.legislation.gov.uk/uksi/2002/3043/contents/made>.

⁷⁴ The National Archives (2010). The Air Quality Standards Regulations 2010 – Statutory Instrument 2010 No.1001. Available at: <https://www.legislation.gov.uk/uksi/2010/1001/contents/made>.

⁷⁵ The National Archives (2020). The Environment (Miscellaneous Amendments) (EU Exit) Regulations 2020 – Statutory Instrument No.1313. Available at: <https://www.legislation.gov.uk/uksi/2020/1313/contents/made>.

⁷⁶ Defra (2019). Clean Air Strategy 2019. Available at:

https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/770715/clean-air-strategy-2019.pdf.

Pollutant	Concentration ($\mu\text{g}/\text{m}^3$)	Statistic	Objective
Nitrogen Dioxide (NO_2)	40	Annual Mean	Not to be exceeded
Particulate Matter <10micrometers in diameter (PM_{10})	200	1-Hour Mean	Not to be exceeded >18 times/year
	40	Annual Mean	Not to be exceeded
Particulate Matter <2.5 micrometres in diameter ($\text{PM}_{2.5}$)	50	24-Hour Mean	Not to be exceeded >35 times/year
	20	Annual Mean	Not to be exceeded

12.31 In addition to the above framework and the aforementioned national and local policy, the following guidance will be relevant to the assessment:

- **Local Air Quality Management Review and Assessment Technical Guidance** - published by the Department for Environment, Food and Rural Affairs (Defra) for use by local authorities in their review and assessment work⁷⁷.
- **Land-Use Planning & Development Control: Planning for Air Quality** - Guidance⁷⁸ published by Environmental Protection UK (EPUK) and the Institute of Air Quality Management (IAQM) offering comprehensive advice on: when an air quality assessment may be required; what should be included in an assessment; how to determine the significance of any air quality impacts associated with a development; and, the possible mitigation measures that may be implemented to minimise these impacts.
- **Guidance on the Assessment of Dust from Demolition and Construction** - This document⁷⁹ published by the IAQM provides guidance to developers, consultants and environmental health officers on how to assess the impacts arising from construction activities. The emphasis of the methodology is on classifying sites according to the risk of impacts (in terms of dust nuisance, PM_{10} impacts on public exposure and impact upon sensitive ecological receptors) and to identify mitigation measures appropriate to the level of risk identified.
- **National Planning Practice Guidance – Air Quality** - This guidance⁸⁰ provides a number of guiding principles on how the planning process can take into account the impact of new development on air quality

⁷⁷ Defra (2022) Part IV The Environment Act 1995 and Environment (Northern Ireland) Order 2002 Part III, Local Air Quality Management Technical Guidance (TG22)

⁷⁸ Environmental Protection UK and Institute of Air Quality Management (Version 1.2 Updated January 2017). Land Use Planning & Development Control: Planning for Air Quality

⁷⁹ Institute of Air Quality Management (Version 1.1 Updated June 2016). Guidance on the Assessment of Dust from Demolition and Construction

⁸⁰ Ministry of Housing, Communities & Local Government (March 2014). National Planning Practice Guidance

and explains how much detail air quality assessments need to include for proposed developments, and how impacts on air quality can be mitigated.

- **Air Quality & Planning Technical Guidance**⁸¹ - MCC has published Air Quality & Planning Technical Guidance⁸¹ which aims to provide help and advice in relation to air quality in a planning context to encourage good practice and mitigation of impacts. The approach set out within this document is based on that provided by EPUK and the IAQM⁸².
- **IAQM's Guidance on the Assessment of Odour for Planning**⁸³ - provides guidance on the qualitative assessment of odour impacts for planning purposes in relation to effects on amenity. It does not provide guidance for regulatory or permitting purposes or for impacts on human health.
- **Natural England's Approach to Advising Competent Authorities on the Assessment of Road Traffic Emissions under the Habitats Regulations (NEA001)**⁸⁴ - outlines their approach to advising competent authorities on the assessment of road traffic emissions under the Habitats Regulations, and in particular the approach for screening. It does not specifically cover nationally significant sites such as Sites of Special Scientific Interest (SSSIs), which are covered by a different regulatory framework. However, it does state that the general principles for air quality assessment outlined for Habitats Sites are likely to be equally relevant for this and other designations.
- **IAQM's Guide to the Assessment of Air Quality Impacts on Designated Nature Conservation Sites**⁸⁵ - this guidance provides targeted advice to air quality professionals on the assessment of air quality impacts associated with developments on designated sites. As for the Natural England guidance above, this document is focussed on assessments required in support of Habitats Regulations Assessments and therefore relates to sites of European importance. However, the guidance can also be used to inform assessment of sites designated for their national and/or local importance, although it focusses on the assessment process and not the overall judgement of effects/significance, which will fall within the remit of the project ecologist.

Approach and Methodology

12.32 The proposed methodology for the air quality assessment will include:

- Consultation with the Environmental Health Officer for MCC to discuss and agree the proposed methodology.
- Qualitative assessment of the potential effects of dust and particulate matter generated during the construction phase on nearby sensitive receptors following guidance published by the Institute of Air Quality Management (IAQM).

⁸¹ https://www.manchester.gov.uk/download/downloads/id/28256/air_quality_and_planning_guidance.pdf

⁸² <http://iaqm.co.uk/guidance>

⁸³ IAQM (July 2018) Guidance on the assessment of odour for planning (version 1.1)

⁸⁴ Natural England (June 2018). Natural England's approach to advising competent authorities on the assessment of road traffic emissions under the Habitats Regulations. Available at: <http://publications.naturalengland.org.uk/publication/4720542048845824>

⁸⁵ IAQM (May 2020). Guide to the Assessment of Air Quality Impacts on Designated Nature Conservation Sites Available at: <https://iaqm.co.uk/text/guidance/air-quality-impacts-on-nature-sites-2020.pdf>

- Qualitative assessment of the potential effect of exhaust emissions from construction traffic and plant on air quality within the context of baseline air quality levels, existing vehicle flows on the local road network, and presence of sensitive receptors. If appropriate detail is available regarding construction traffic movements, these will be reviewed in the context of the screening criteria presented within the EPUK/IAQM Planning for Air Quality guidance document.
- Quantitative assessment of the impact of exhaust emissions from operational phase road traffic on concentrations of relevant pollutants (i.e. NO₂, PM₁₀ and PM_{2.5}) at nearby sensitive human receptors, using a detailed dispersion model such as ADMS-Roads and one year of suitable meteorological data. This would include locations within the AQMA. The assessment will also consider potential emissions (including cold start emissions) from vehicle movements within the build car parks proposed at the Site (as appropriate). As part of the dispersion modelling, pollutant concentrations will be predicted across the Site to indicate the likely exposure of future users of the Proposed Development.
- The predicted pollutant concentrations will be compared to the relevant statutory air quality objectives and the significance of any predicted impacts will be determined using professional judgement and with reference to the impact significance criteria published by Environmental Protection (EPUK) & IAQM. The assessment will be completed in line with current best practice and technical guidance published by Defra (i.e. TG22). Model verification will be undertaken using 2019 monitoring data from MCC.
- Qualitative assessment of the potential odour impacts of HMG Paints and the adjacent bitumen process on future users of the Proposed Development will be undertaken based on a review of any odour complaint data held by MCC and with reference to the Source – Pathway – Receptor approach as outlined in the IAQM odour guidance.
- Recommendations for appropriate mitigation measures to be implemented during the construction and operational phases will be made as necessary.

12.33 There are some designated ecological sites present within the wider area that may be sensitive to changes in air quality (notably changes in annual mean NO_x concentrations and rates of nitrogen deposition) associated with an increase in road traffic emissions (for example, during the operational phase of the Proposed Development). At this stage it is assumed that assessment of impacts on designated ecological receptors is not likely to be required (See **Table 12.5**). However, this will be confirmed once appropriate traffic data is available for the local road network and with reference to guidance published by Natural England and the IAQM and in discussions with the Project Ecologist. The outcomes of the screening exercise, and any subsequent assessment, will be summarised within the ES.

Potential Significant Effects

12.34 **Table 12.5** sets out the anticipated significant effects on air quality and dust. This includes an analysis on what aspects can be scoped-in or scoped-out of the assessment due to the likelihood for significant environmental effects.

Table 12.5: Initial Air Quality and Dust Scoping Review

Topic Component	Construction Effect	Operational Effect	Scope In / Out
Dust and Particulate Matter generation	Construction activities undertaken at the Site will have the potential to generate releases of dust and particulate matter. Such releases may have an adverse effect on nearby sensitive receptors, either through nuisance effects associated with the deposition of dust on property and surfaces, or through health effects associated with an increase in ambient particulate matter concentrations.	-	In. There are existing sensitive human receptors present within 350m of Site that may be affected by construction activities. Although significant effects are unlikely given the mitigation proposed (i.e. CEMP), an assessment in line with the IAQM guidance will be required to identify the appropriate dust control measures that should be incorporated into the CEMP. However, the impact of construction activities on ecological receptors has been screened out due to there being no relevant designations present within the specified distances.
Traffic Emissions	Exhaust emissions from construction traffic (and plant) will contribute to local pollutant concentrations (including NO ₂ , PM ₁₀ and PM _{2.5}) which may have an adverse effect on air quality at nearby sensitive receptors, albeit the effects will be temporary for the duration of the construction phase.	Once operational, the Proposed Development is likely to generate new vehicle movements on the local road network. Exhaust emissions from these vehicles will have a long-term impact on air quality at sensitive receptors near to the Site and those roads used by development traffic.	<u>Human Receptors</u> In. Although, for the construction phase, significant effects are less likely (due to the mitigation proposed i.e. CEMP), albeit this will depend on the level of traffic generated during this phase.

Topic Component	Construction Effect	Operational Effect	Scope In / Out
		An increase in exhaust related emissions may also have detrimental effects on ecological designated sites if they are located within 200m of an 'affected' road link and include features sensitive to air pollution.	For the operational phase, traffic generation is likely to exceed the relevant EPUK/IAQM assessment screening criteria on a number of roads surrounding the Site. There are human receptors located within 200m of those roads most likely to be used by development traffic, that may be affected by an increase in pollutant concentrations. Traffic generated by the Proposed Development is also likely to travel into the Greater Manchester AQMA. <u>Ecological Receptors</u> There are no Special Protection Areas (SPAs) or Ramsar Sites within a 10km radius of the Site. There are no Ancient Woodlands within 5km of the Site. Effects on these designations are therefore scoped out of the assessment. There is one Special Area of Conservation (SAC) within 10km, this is the Rochdale Canal SAC, located approximately 4.2km northeast of the Site. This is also designated as a SSSI. No other SSSI's are present within a 5km radius. Given the distance and orientation from the Site, it is considered unlikely that these sites will be affected by the Proposed

Topic Component	Construction Effect	Operational Effect	Scope In / Out
			Development. However, this will be reviewed once traffic data is available for the local road network and in consultation with the Project Ecologist. In addition, there are a number of locally designated sites (including Local Nature Reserves) located within 5km of the Site (and within 200m of a road) which cannot be discounted at this stage and will be evaluated upon receipt of the traffic data.
New Exposure	-	The Proposed Development will introduce new sensitive receptors into the area. These receptors will therefore be exposed to local pollutant concentrations.	In. Although the baseline review indicates that pollutant concentrations within the Site are likely to be compliant with the relevant air quality objectives, this will need to be confirmed as part of the detailed assessment (which will take into account traffic growth on the network and development related traffic).
Odour	-	Odour associated with HMG Paints industry may be detected within the Site and result in an adverse effect on future site users, through annoyance or perceived loss of amenity.	In. The potential for odour to be experienced within the Proposed Development cannot be discounted at this time. Therefore, further analysis and a review of any available complaints data will be required.

Topic Component	Construction Effect	Operational Effect	Scope In / Out
Emissions from on-site energy generating (combustion) plant	-	Emissions to air arising from combustion plant (such as Combined Heat and Power (CHP) Plant) may have an adverse effect on local air quality, and specifically on NO ₂ concentrations.	Out. Whilst CHP plant was initially considered as part of the energy strategy this has since been discounted. The proposed energy strategy now includes solar, electric, and heat pump technologies, which will not give rise to on-site emissions to air.

Cumulative Effects

- 12.35 A Cumulative Effects Assessment (CEA) will also be presented within the chapter. This will assess the cumulative effects of the Proposed Development in conjunction with any committed developments within the vicinity of the Sites identified through the scoping process, as well as the wider development project (Applications 1, 2, 3, 4 and 5) and the wider SRF. The approach will be aligned with the assessment scenarios outlined in **Section 4** of this EIA Scoping Report.

13. Noise and Vibration

- 13.1 The noise and vibration assessment will assess the impacts of the Proposed Development on existing local noise and vibration sensitive receptors. The assessment will consider the potential impacts during both the construction and operational phases of the Proposed Development and where necessary, mitigation will be recommended to meet appropriate noise requirements for the scheme. The noise and vibration assessment will be undertaken by WSP.

Baseline Conditions

- 13.2 From a desktop review and site visits undertaken to date, the key sources which contribute to the prevailing sound levels across the Site include:
- Passenger and freight train movements on the rail line to the south of the Proposed Development;
 - Road traffic on local roads, including Dantzic Street, Collyhurst Road and Red Bank; and
 - Operational noise from commercial and industrial activities, including units on Red Bank, Honey Street and near Dantzic Street.
- 13.3 To inform the noise and vibration assessment, a baseline noise and vibration survey has been undertaken. The purpose of the survey was to:
- Establish the existing ambient and background sound levels at positions representative of the existing and proposed noise sensitive receptors;
 - Determine the noise levels generated by key sources contributing to the on-site noise environment and facilitate a detailed noise modelling exercise for the Site; and
 - Establish typical levels of vibration on the site resulting from passenger and freight train movements from the nearby railway lines.
- 13.4 Details of the baseline surveys, including the measurement locations and survey durations, will be discussed through consultation with Manchester City Council (MCC) to agree the appropriate scope and approach to the assessments required for the Noise and Vibration EIA Report chapter. Where appropriate, we will supplement the results using survey data measured for the Victoria North regeneration project.

Planning Policy Context

National Planning Policy

- 13.5 National planning policy relating to noise and vibration relevant to this project comprise the following.
- Noise Policy Statement for England (NPSE)⁸⁶;

⁸⁶ Department for Environment, Food and Rural Affairs (DEFRA) (2010). Noise Policy Statement for England.

- National Planning Policy Framework (NPPF)⁸⁷; and
- Planning Practice Guidance (PPG)⁸⁸.

Local Planning Policy

13.6 Local planning policy relating to noise and vibration relevant to this project includes the following:

- MCC Core Strategy (2012); and
- MCC Technical Guidance: *Planning and Noise* (2022).

Other Relevant Policy, Standards and Guidance

13.7 The following guidance relating to noise and vibration relevant to this project includes:

- BS 5228-1:2009+A1:2014: Code of practice for noise and vibration control on construction and open sites. Part 1: Noise (BS 5228-1)⁸⁹;
- BS 5228-2:2009+A1:2014: Code of practice for noise and vibration control on construction and open sites. Part 2: Vibration (BS 5228-2)⁹⁰;
- Calculation of road traffic noise memorandum 1988 (CRTN)⁹¹;
- Calculation of rail noise memorandum 1995 (CRN)⁹²;
- Design Manual for Roads and Bridges (DMRB) (2020), LA 111 – Revision 2 Noise and vibration (LA 111)⁹³;
- BS 4142:2014+A1:2019: Methods for rating and assessing industrial and commercial sound (BS 4142)⁹⁴;
- ProPG: Planning and noise - Professional practice guidance on planning and noise - New residential development 2017 (ProPG)⁹⁵;
- British Standard 8233:2014 Guidance on sound insulation and noise reduction for buildings (BS 8233)⁹⁶;
- World Health Organisation (WHO) (1999) Guidelines for community noise⁹⁷; and
- Acoustics Ventilation and Overheating (AVO) Residential Design Guide (2020)⁹⁸.

⁸⁷ Ministry of Housing, Communities & Local Government (2021). National Planning Policy Framework.

⁸⁸ Ministry of Housing, Communities & Local Government (2019). Planning Practice Guidance. Noise.

⁸⁹ Subcommittee B/564/1. (2009). BS 5228-1:2009+A1:2014: Code of practice for noise and vibration control on construction and open sites – Part 1: Noise. London: BSi.

⁹⁰ Subcommittee B/564/1. (2009). BS 5228-2:2009+A1:2014: Code of practice for noise and vibration control on construction and open sites – Part 2: Vibration. London: BSi.

⁹¹ Department of Transport and Welsh Office (1988). Calculation of Road Traffic Noise.

⁹² Department of Transport and Welsh Office (1995). Calculation of Rail Noise.

⁹³ Highways England, Design Manual for Roads and Bridges, LA 111, Revision 2, 2020, Noise and Vibration.

⁹⁴ Technical Committee EH/1 and subcommittee EH/1/3. (2019). BS 4142:2014+A1:2019: Method for Rating and Assessing Industrial and Commercial Sound. London: BSi.

⁹⁵ Association of Noise Consultants, Institute of Acoustics and the Chartered Institute of Environmental Health (2017). ProPG: Planning & Noise – Professional Practice Guidance on Planning and Noise – New Residential Development.

⁹⁶ Technical Committee B/564 and sub committee EH/16. (2014). BS 8233:2014 Guidance on Sound Insulation and Noise Reduction for Buildings. London: BSi.

⁹⁷ World Health Organisation (WHO) (1999) Guidelines for Community Noise.

⁹⁸ Association of Noise Consultants (2020). Acoustics, Ventilation and Overheating. Residential Design Guide.

Approach and Methodology

- 13.8 The proposed scope for the Noise and Vibration chapter of the EIA is outlined below:

Construction Phase

- 13.9 Construction noise will be assessed using the guidance in BS 5228-1. The results of the baseline noise survey will be used to determine appropriate construction noise level thresholds, and predictions of noise from the construction of the Proposed Development will be calculated and assessed against those thresholds. Appropriate mitigation measures will be presented, including best practicable means (BPM) and the good practice recommendations presented in BS 5228-1.
- 13.10 Construction vibration would be assessed using the guidance in BS 5228-2. For a sample of construction activities that have the potential to produce vibration (e.g. piling and earth compaction), vibration impact (i.e. human exposure) will be determined at a series of set-back distances. Appropriate mitigation measures will be presented, including BPM and the good practice recommendations presented in BS 5228-2.
- 13.11 At the start of the EIA process, available traffic flow data for the construction phase will be analysed to determine whether changes in road traffic noise need to be assessed. In accordance with LA 111, an assessment will be deemed necessary if there is potential for an increase in baseline noise level (BNL) of 1 dB(A) or more as a result of the addition of construction traffic to existing traffic levels. If the noise assessment is required, noise level calculations will be undertaken in accordance with the methodology contained within the Department of Transport (DfT) and the Welsh Office guidance document CRTN. The noise level changes due to construction traffic arising from the Proposed Development in the year of peak construction would be assessed using the magnitude of impact and guidance set out in LA 111.

Operational Phase

- 13.12 Commercial and fixed plant noise will be considered using the guidance in BS 4142. Noise limits for plant and equipment will be determined based on BS 4142, the MCC Technical Guidance and the results of the baseline noise survey. Appropriate limits will protect existing and future residents from noise impacts associated with plant and equipment. Predictions will be undertaken where details of fixed plant items and commercial operations have been confirmed by the time of submission of the ES. Where noise limits are predicted to be exceeded, appropriate mitigation measures will be presented, and residual effects determined.
- 13.13 Road traffic noise level calculations will be undertaken for both 'without' and 'with' scheme scenarios in accordance with the methodology contained within CRTN. The noise predictions would draw upon available traffic data. The noise level changes due to the operational traffic arising from the Proposed Development will be assessed using the magnitude of impact and guidance set out in LA 111 (albeit, adapting these for consistency of terminology across the ES).
- 13.14 The assessment of sound levels across the Site and any mitigation required for proposed noise sensitive uses will be undertaken in order to determine the mitigation required to demonstrate the principle that appropriate

noise criteria selected from BS 8233, BS 4142, AVO Residential Design Guide and other relevant guidance can be achieved.

Potential Significant Effects

- 13.15 **Table 13.1** sets out the anticipated significant effects on noise and vibration. This includes an analysis on what aspects can be scoped-in or scoped-out of the assessment due to the likelihood for significant environmental effects.

Table 13.1: Initial Noise and Vibration Scoping Review

Topic Component	Construction Effect	Operational Effect	Scope In / Out
Construction noise from the Proposed Development.	Disturbance as a result of noise generated by on-site construction activities of the Proposed Development on sensitive receptors surrounding the Site and, where necessary, sensitive receptors of the Proposed Development.	N/A	In
Construction vibration from the Proposed Development.	Disturbance as a result of vibration generated by on-site construction activities of the Proposed Development on sensitive receptors surrounding the Site and, where necessary, sensitive receptors of the Proposed Development.	N/A	In
Development generated traffic.	Changes in road traffic noise as a result of construction phase development generated traffic on the local road network.	Changes in road traffic noise as a result of operational phase development generated traffic on the local road network.	In
Commercial and fixed plant noise, e.g. mechanical/fixed plant	N/A	Disturbance to existing sensitive receptors and future proposed noise sensitive uses from noise generated by fixed plant associated with the Proposed Development.	In

Topic Component	Construction Effect	Operational Effect	Scope In / Out
Noise and vibration contributing to the prevailing environment across the Site.	N/A	Disturbance to future noise sensitive uses from the prevailing environment (e.g. existing rail movements, road traffic on the local road network and operational activities associated with the existing commercial and industrial units adjacent to the Site.	In
Operational vibration effects from the Proposed Development.	N/A	Given the residential led use of the Proposed Development, it is not expected to generate significant vibration levels following occupation.	Out

Cumulative Effects

- 13.16 A Cumulative Effects Assessment (CEA) will also be presented within the chapter. This will assess the cumulative effects of the Proposed Development in conjunction with any committed developments within the vicinity of the Sites identified through the scoping process, as well as the wider development project (Applications 1, 2, 4, and 5) and the wider SRF. The approach will be aligned with the assessment scenarios outlined in **Section 4** of this EIA Scoping Report.

14. Daylight, Sunlight and Overshadowing

- 14.1 The Daylight, Sunlight and Overshadowing assessment will assess the likely significant effects of the Proposed Development in the context of the proposed site and surrounding area during the operational phase. The purpose of the assessment will be to quantify the loss of natural light to existing and future neighbouring properties due to the Proposed Development, and within the Site, to quantify the availability of natural light to the facades of the proposed blocks to inform the design and advise on mitigation measures where required.
- 14.2 The Chapter will describe the methods and criteria to assess the effects arising from the Proposed Development; the mitigation measures required to prevent, reduce, or offset any significant adverse effects; and the likely residual effects after these measures have been adopted.

Baseline Conditions

- 14.3 To define the Baseline conditions, an assessment of the existing level of daylight and sunlight at the relevant existing properties will be undertaken, i.e., the level of daylight and sunlight without the Proposed Development in place.
- 14.4 The existing built environment of the Site and surrounding areas is a mix of industrial and residential buildings. For the purpose of the assessment of the existing surrounding properties, only receptors with high sensitivity will be considered, i.e., residential buildings. To the west and the southwest of the Site, the use is predominantly existing residential buildings, which are considered the most sensitive receptors from a daylight and sunlight perspective. The areas to the east and south of the Site also include residential buildings, and to the north of the Site, buildings are predominantly industrial which have low sensitivity to natural light and will not be included in the impact assessment.
- 14.5 The Site itself is predominately undeveloped land with only a few scattered industrial buildings, warehouses and a car park. As such, the Baseline conditions are expected to indicate minimal obstruction to natural light to the surrounding properties.

Sensitive Receptors

- 14.6 The receptors for the assessment will be selected based on their use, their sensitivity to natural light, and their location relative to the Site, focusing on the receptors whose level of daylight and sunlight are likely to change as a result of the Proposed Development. The criteria for identifying the sensitive receptors are outlined in **Table 14.1**.

Table 14.1: Identification and Sensitivity of Receptors

Receptor	Sensitivity
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Residential Buildings	High
Schools and Hospitals	Medium
Office Buildings	Medium
Non-domestic buildings where the occupants have a reasonable expectation of daylight, including hotels and hostels.	Medium
Retail Units	Low

Planning Policy Context

- 14.7 There is no specific national legislation dealing with daylight, sunlight and overshadowing. However, most Local Authorities in the UK recognise the guidelines set out in the BRE Guide 'Site Layout Planning for Daylight and Sunlight, A Guide to Good Practice' as the most appropriate method for Daylight, Sunlight and Overshadowing Assessments.
- 14.8 The planning policies relevant to these assessments are outlined below.

National Planning Policy

- National Planning Policy Framework (July 2021).

Local Planning Policy

- Manchester's Local Development Framework: Core Strategy Development Plan Document (July 2012).

Other Relevant Policy, Standards and Guidance

- Manchester Residential Quality Guidance (March 2017); and
- BRE 209 Site layout planning for daylight and sunlight (2022).

Approach and Methodology

- 14.9 The assessment will focus on identifying the extent to which the proposed masterplan affects the level of daylight, sunlight and overshadowing of existing and future surrounding properties. At the same time, the potential for daylight and sunlight within the proposed plots of the masterplan will be assessed.

- 14.10 The assessment will require the construction of a 3D computer model of the 2022 Masterplan and adjacent surroundings and an assessment with specialist daylight software Radiance, one of the industry's most recognised daylight simulation tools.
- 14.11 The Baseline and Future Baseline assessments will be used as a reference from which the magnitude of change will be measured once the Proposed Development is assessed, under equal conditions. This approach allows for identifying the likely impact of the Proposed Development on the surrounding properties in terms of daylight and sunlight.
- 14.12 The plots that are part of the outline application will be assessed externally by virtue of estimating the level of light reaching the external envelope of the blocks. The plots to be part of the detailed application (NT02-NT04) will be assessed fully including interior daylighting within the proposed units. This assessment will be reported separately as part of design support and not part of the EIA.

Assessment Configurations

Construction and Operational Phases

- 14.13 The daylight and sunlight assessments will comprise the following scenarios:
- **Red Bank Outline**
 - Construction Effects: To be assessed qualitatively.
 - Operational Effects
 - Existing Baseline: This includes the Site and surroundings in their currently existing form.
 - Impact Assessment: This includes the outline masterplan without the proposed detailed plots (NT02-04) within the existing surroundings.
 - Cumulative Effects
 - Future Baseline: This includes the existing Site and all relevant committed neighbouring schemes within the existing surroundings.
 - Cumulative Effects: This includes the proposed outline masterplan and all relevant committed neighbouring schemes within the existing surroundings.
 - **NT02-NT04 Full**
 - Construction Effects: To be assessed qualitatively.
 - Operational Effects
 - Existing Baseline: This includes the Site and surroundings in their currently existing form.
 - Impact Assessment: This includes the proposed detailed plots (NT02-04) without the outline masterplan within the existing surroundings.

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- Cumulative Effects
 - Future Baseline: This includes the existing Site and all relevant committed neighbouring schemes within the existing surroundings.
 - Cumulative Effects: This includes the proposed detailed plots (NT02-04) and all relevant committed neighbouring schemes within the existing surroundings.
 - **Red Bank Outline and NT02-NT04 Full in combination**
 - Construction Effects: To be assessed qualitatively.
 - Operational Effects
 - Existing Baseline: This includes the Site and surroundings in their currently existing form.
 - Impact Assessment: This will identify the effects of the outline scheme on the detailed scheme and vice versa as well as to the existing surroundings.
 - Cumulative Effects
 - Future Baseline: This includes the existing Site and all relevant committed neighbouring schemes within the existing surroundings.
 - Cumulative Effects: This includes the proposed outline masterplan, the proposed detailed plots (NT02-04) and all relevant committed neighbouring schemes within the existing surroundings.
 - **In-combination effects of Red Bank Outline and NT02-NT04 Full and SRF**

The SRF is assumed to consist of infrastructure elements only with no buildings and/or structures above ground level which could have an impact on Daylight or Sunlight.

- Construction Effects: To be assessed qualitatively.
- Operational Effects: To be assessed qualitatively.
- Cumulative Effects: To be assessed qualitatively.

Metrics and Criteria for Assessment

- 14.14 The BRE Guide gives criteria and methods for calculating daylight and sunlight both within new developments and the impact on existing surroundings. Based on the BRE Guide, the level of impact of the Proposed Development will be assessed using the performance indicators discussed below.

Daylight

- 14.15 The Vertical Sky Component (VSC) measures the amount of sky that can be viewed from the centre of a window accounting for all external obstructions (with 40% being the maximum value for an unobstructed window). The minimum recommended figure for VSC is 27% or greater to maintain good levels of daylight

within new developments. The VSC is plotted for existing surrounding properties windows in both the Baseline and Impact Assessment scenarios to determine its reduction.

- 14.16 For the assessment of the VSC within the Masterplan, as façade details and windows locations of the Proposed Development have not yet been defined, the VSC will be measured on a grid at each façade to inform the design.

Daylight Distribution

- 14.17 Daylight distribution test calculates the area at working plane level inside a room that will have a direct view of the sky. This is done by plotting the no-sky line, which is the line on the horizontal working plane beyond which no direct light from the sky will reach. The no-sky line is plotted for existing surrounding properties in both the Baseline and Impact Assessment scenarios to determine its reduction.
- 14.18 According to the guidelines, the no-sky line must be calculated for living rooms, dining rooms, kitchens and bedrooms and should only be assessed if the information on internal layouts is available, for example through planning drawings from the council planning portal.

Sunlight

- 14.19 For the existing surrounding properties of the Site, access to sunlight is measured from the windows of all living areas, facing within 90° of due south. The Probable Sunshine Hours (PSH) calculation method measures the proportion of the window assessed that is sunlit for a period of time. The BRE Guide recommends that the PSH is calculated for the whole year with the term 'Annual Probable Sunlight Hours' (APSH) which refers to the long-term average of the total of hours during a year in which direct sunlight reaches the unobstructed ground (when clouds are considered). The 'Winter Probable Sunlight Hours' (WPSH) is used to mean the same but only for the winter period (21 September – 21 March).
- 14.20 For new developments, the BRE Guide recommends that the sunlight hours on 21 March is assessed on all windows of the proposed units to account for the hours a space is sunlit.
- 14.21 As façade details and windows locations of the Proposed Development have not yet been defined, the sunlight hours on 21 March will be measured on a grid at each façade to inform the design.

Overshadowing of Outdoor Amenity Spaces

- 14.22 The BRE Guide recommends plotting an Equinox 2-hour sun contour to identify whether 50% of any garden or amenity space receives a minimum of two hours of direct sun-on-the-ground as recommended by the guidelines.

Daylight Provision

- 14.23 Daylight provision measures the overall amount of daylight in a space and its diffusion within a room. This can be done by the Illuminance method as set out in the BRE Guide which consists of a direct prediction of

illuminance levels at each point on an assessment plane for a typical year. This approach uses standardised climate data for the building's specific location simulating lighting changes at hourly or half-hourly intervals.

Assessment Criteria

14.24 **Table 14.2** summarises the criteria set out within the BRE 2022 guidelines, which will be used to determine the significance criteria of the likely significant effects derived from the Daylight, Sunlight and Overshadowing assessments.

Table 14.2: BRE Criteria 2022 for Daylight, Sunlight and Overshadowing

Metric	Criteria
<i>Effect of the Proposed on the Surrounding Properties</i>	
VSC	The loss of daylight to a window will be noticeable if the VSC will be reduced to less than 27% and less than 0.8 times its former value.
Daylight Distribution	The loss of daylight to a room will be noticeable if the area of the working plane which can receive direct skylight will be reduced to less than 0.8 times its former value. This will only be assessed for the rooms where the layouts are known.
APSH	A window should still receive enough sunlight if it receives at least 25% APSH for the whole year including 5% during the winter months. If the available sunlight hours are less than this, and/or less than 0.8 times their former value, either during the winter or over the whole year, and/or the actual alteration is greater than 4% APSH, then a window may be adversely affected.
Overshadowing of Outdoor Amenity Spaces	It is recommended that for it to appear adequately sunlit throughout the year, at least half of a garden or amenity area should receive at least two hours of direct sunlight on the 21 March. If as a result of new development an existing garden or amenity area does not meet the above, and the area which can receive two hours of sun on 21 March is less than 0.8 times its former value, then the loss of sunlight is likely to be noticeable.
<i>Effect of the Proposed Development on the Committed Developments</i>	
Daylight Provision	For UK dwellings, the illuminance recommendations are of 100 lux in bedrooms, 150 lux in living rooms and 200 lux in kitchens. These are the median illuminances

Metric	Criteria
	to be exceeded over at least 50% of the assessment points in the room for at least half of the daylight hours.
Sunlight Hours	For a dwelling to appear reasonably sunlit, it is recommended that at least one main window wall faces within 90° of due south and a habitable room, preferably a main living room, can receive a total of at least 1.5 hours of sunlight on 21 March.
Overshadowing of Outdoor Amenity Spaces	It is recommended that for it to appear adequately sunlit throughout the year, at least half of a garden or amenity area should receive at least two hours of direct sunlight on the 21 March.
<i>Daylight and Sunlight within the Masterplan</i>	
VSC	A VSC of $\geq 27\%$ means that a conventional window design will usually give reasonable daylight to a room.; between 15% and 27% special measures (larger windows, changes to room layout) are usually needed to provide adequate daylight; between 5% and 15% (θ is between 25° and 45°, obstruction angle between 45° and 65°) it is very difficult to provide adequate daylight unless very large windows are used; and, below 5% it is often impossible to achieve reasonable daylight, even if the whole window wall is glazed.
Sunlight Hours	For a dwelling to appear reasonably sunlit, it is recommended that at least one main window wall faces within 90° of due south and a habitable room, preferably a main living room, can receive a total of at least 1.5 hours of sunlight on 21 March.
Overshadowing of Outdoor Amenity Spaces	It is recommended that for it to appear adequately sunlit throughout the year, at least half of a garden or amenity area should receive at least two hours of direct sunlight on the 21 March.

Potential Significant Effects

14.25 **Table 14.3** sets out the anticipated significant effects on daylight, sunlight and overshadowing. This lists the elements that will be scoped-in and scoped-out from the assessment considering the likelihood of significant environmental effects.

Table 14.3: Daylight, Sunlight and Overshadowing Scoping Review

Topic Component	Construction Effects*	Operational Effects	Scope In / Out
Daylight on Surrounding Sensitive Receptors (Exiting and Future)	Incremental loss of daylight to windows and/or rooms	The loss of daylight to windows and/or rooms	Scoped in
Daylight at facades within Proposed Development	N/A	The availability of daylight to the facades of the Proposed Blocks within the Masterplan	Scoped in
Sunlight on Surrounding Sensitive Receptors (Exiting and Future)	Incremental loss of sunlight hours to windows/rooms	The loss of sunlight hours to windows/rooms	Scoped in
Sunlight at facades within Proposed Development	N/A	The availability of sunlight to the facades of the Proposed Blocks within the Masterplan	Scoped in
Overshadowing of Outdoor Amenity Spaces of Surrounding Sensitive Receptors (Exiting and Future)	Incremental loss of sunlight hours to the outdoor amenity areas	The loss of sunlight hours to the outdoor amenity areas	Scoped in
Overshadowing of Outdoor Amenity Spaces within the Proposed Development	N/A	The availability of sunlight to the outdoor proposed amenity areas within the Masterplan	Scoped in

Topic Component	Construction Effects*	Operational Effects	Scope In / Out
Non-Residential receptors	N/A	N/A	Scoped out
Daylight and Sunlight within NT02-NT04 Detailed Plots	N/A	The availability of daylight and sunlight to the rooms of Plots NT02-NT04	Scoped out of the EIA and to be reported in a stand-alone report.

*Given the varying nature of the potential effects on daylight, sunlight and overshadowing of the Site and its surrounding area during the demolition and construction works, these will be assessed qualitatively in the Chapter, based on professional experience.

- 14.26 For the affected existing and future receptors that do not meet the recommended BRE guidelines (as set out in **Table 14.2** above), the effect significance will be classified as '**Negligible**', '**Minor**', '**Moderate**' or '**Major**' to reflect the suggestions within Appendix H of the BRE guidelines, using professional judgment depending on the ratio of impact between the assessment with and without the Proposed Development on the Site.
- 14.27 All impacts other than those found to be '**negligible**' are considered to be '**significant**'. These will also be described as '**beneficial**' or '**adverse**' depending on whether there is a gain or loss of light to existing and/or future surrounding properties.
- 14.28 To assess the effect on daylight and sunlight to existing properties, the effect significance will be classified using professional judgment depending on the ratio of impact between the Baseline Conditions and the Impact Assessment scenarios. The criteria for determining the magnitude of change for the VSC, NSL, APSH and WPSH results have been detailed below (**Tables 14.4 to 14.6**).

Table 14.4: Significance Criteria Descriptors – Existing receptors – Daylight

Effect Significance	Vertical Sky Component - Magnitude of Change	Daylight Distribution - Magnitude of Change
<i>Effect of the Proposed on the Surrounding Properties</i>		
Negligible	Proposed VSC $\geq 27\%$ OR Proposed VSC $< 27\%$ and ≥ 0.8 times its former value	Proposed NSL $\geq 80\%$ OR Proposed NSL ≥ 0.8 times its former value

Minor	Proposed VSC <27% and between 0.7 and 0.79 times its former value	Proposed NSL <80% and Proposed NSL is between 0.7 and 0.79 times its former value
Moderate	Proposed VSC <27% and between 0.6 and 0.69 times its former value	Proposed NSL <80% and Proposed NSL is between 0.6 and 0.69 times its former value
Major	Proposed VSC <27% and <0.6 times its former value	Proposed NSL <80% and <0.6 times its former value

Table 14.5: Significance Criteria Descriptors – Existing receptors –Sunlight

Effect Significance	Annual Probable Sunshine Hours (APSH) – Magnitude of Change	Winter Probable Sunshine Hours (WPSH) – Magnitude of Change
<i>Effect of the Proposed on the Surrounding Properties</i>		
Negligible	Proposed APSH ≥25% OR Proposed APSH <25% but ≥0.8 times its former value, and an absolute reduction of >4%	Proposed WPSH ≥5%
Minor	Proposed APSH <25%, between 0.7 and 0.79 times its former value, and an absolute reduction of >4%	Proposed WPSH <5% and is between 0.7 and 0.79 times its former value
Moderate	Proposed APSH <25%, between 0.6 and 0.69 times its former value, and an absolute reduction of >4%	Proposed WPSH <5% and is between 0.6 and 0.69 times its former value
Major	Proposed APSH <25% and <0.6 times its former value and an absolute reduction of >4%	Proposed WPSH <5% and <0.6 times its former value

Table 14.6: Significance Criteria Descriptors – Existing receptors – Overshadowing of Outdoor Spaces

Effect Significance	Overshadowing of Outdoor Amenity Spaces
<i>Effect of the Proposed on the Surrounding Properties</i>	
Negligible	≥50% of the outdoor amenity space receives at least two hours of sunlight OR Proposed sunlit area is ≥0.8 times its former value
Minor	Between 40% to 49% of the outdoor amenity space receives at least two hours of sunlight OR Proposed sunlit area is between 0.7 and 0.79 times its former value
Moderate	Between 25% to 39% of the outdoor amenity space receives at least two hours of sunlight and sunlit area is between 0.6 and 0.69 times its former value
Major	<25% of the outdoor amenity space receives at least two hours of sunlight and sunlit area is <0.6 times former value

14.29 To assess the effect on daylight and sunlight to the committed schemes as part of the Cumulative Assessment, the effect significance will be classified using professional judgment depending on the ratio of impact between the Future Baseline and the Cumulative scenarios. The criteria for determining the magnitude of change of daylight and sunlight between the Future Baseline and Cumulative Scenarios have been detailed below (**Tables 14.7 to 14.9**).

Table 14.7: Significance Criteria Descriptors – Committed receptors – Daylight

Effect Significance	Illuminance - Magnitude of Change
<i>Effect of the Proposed on the Committed Developments</i>	
Negligible	The illuminance level of the committed scheme's room achieves the BRE criteria in the Cumulative Scenario OR the illuminance level of the committed scheme's room is ≥0.8 times its value in the Future Baseline
Minor	Illuminance level in the Cumulative Scenario is between 0.7 and 0.79 times its

	value in the Future Baseline
Moderate	Illuminance level in the Cumulative Scenario is between 0.6 and 0.69 times its value in the Future Baseline
Major	Illuminance level in the Cumulative Scenario is below the BRE Criteria and <0.6 times its value in the Future Baseline

Table 14.8: Significance Criteria Descriptors – Committed receptors –Sunlight

Effect Significance	Sunlight Hours - Magnitude of Change
<i>Effect of the Proposed on the Committed Developments</i>	
Negligible	The committed scheme's room achieves the BRE sunlight criteria in the Cumulative Scenario OR the sunlight hours of the committed scheme's room is ≥ 0.8 times its value in the Future Baseline
Minor	Sunlight hours in the Cumulative Scenario is between 0.7 and 0.79 times its value in the Future Baseline
Moderate	Sunlight hours in the Cumulative Scenario is between 0.6 and 0.69 times its value in the Future Baseline
Major	Sunlight hours in the Cumulative Scenario are below the BRE Criteria and <0.6 times its value in the Future Baseline

Table 14.9: Significance Criteria Descriptors – Committed receptors – Overshadowing of Outdoor Spaces

Effect Significance	Overshadowing of Outdoor Amenity Spaces
<i>Effect of the Proposed on the Committed Developments</i>	
Negligible	$\geq 50\%$ of the committed outdoor amenity space receives at least two hours of sunlight OR sunlit area is ≥ 0.8 times its value in the Future Baseline

Minor	Between 40% to 49% of the committed outdoor amenity space receives at least two hours of sunlight OR its sunlit area is between 0.7 and 0.79 times its value in the Future Baseline
Moderate	Between 25% to 39% of the committed outdoor amenity space receives at least two hours of sunlight OR sunlit area is between 0.6 and 0.69 times its value in the Future Baseline
Major	<25% of the committed outdoor amenity space receives at least two hours of sunlight OR sunlit area is <0.6 times its value in the Future Baseline

- 14.30 To assess the effect on daylight and sunlight within the facades of the proposed blocks of the Proposed Development, and Overshadowing of proposed outdoor amenity spaces, the criteria will be based on the recommended guidance (BRE). These are presented in **Tables 14.10** to **14.12** below.

Table 14.10: Criteria Descriptors – Proposed Development – Daylight within façade grid points

Absolute VSC Values (%)	Description
VSC$\geq$27%	A conventional window design will usually give reasonable results.
27%>VSC$\geq$15%	Special measures (larger windows, changes to room layout) are usually needed to provide adequate daylight.
15%>VSC$\geq$5%	It is very difficult to provide adequate daylight unless very large windows are used.
VSC<5%	It is often impossible to achieve reasonable daylight, even if the whole window wall is glazed.

Table 14.11: Criteria Descriptors – Proposed Development – Sunlight within façade grid points

Sunlight Hours	Description
Above BRE Criteria	A room will appear adequately sunlit if its windows receive at least 1.5 hours of

	sunlight on 21st March.
Below BRE Criteria	The room will fall below the recommended guidelines if its windows receive less than 1.5 hours of sunlight on Equinox.

Table 14.12: Criteria Descriptors – Proposed Development – Overshadowing

Overshadowing of Outdoor Amenity Spaces	Description
Above BRE Criteria	An outdoor amenity space will satisfy the criteria if at least half of its areas receives at least two hours of sunlight on 21 March.
Below BRE Criteria	The amenity space will fall below the recommended guidelines if it receives less than 2 hours of sunlight on 21 March on more than half of its area.

Cumulative Effects

- 14.31 A Cumulative Effects Assessment (CEA) will also be presented within the chapter. This will assess the cumulative effects of the Proposed Development in conjunction with any committed developments within the vicinity of the Cumulative Schemes identified through the scoping process, as well as the wider development project (Applications 1, 2, 4, and 5) and the wider SRF. The approach will be aligned with the assessment scenarios outlined in **Section 4** of this EIA Scoping Report.

15. Wind Microclimate

- 15.1 The wind assessment will assess the likely significant effects on nearby receptors that would be sensitive to changes in wind microclimate. The assessment will consider the potential impacts during the construction and operational phases of the Proposed Development and where necessary, mitigation will be recommended to meet appropriate requirements for the scheme. The wind assessment will be undertaken by WSP.

Baseline Conditions

- 15.2 To understand and quantify the baseline conditions at the Site for the Outline Application, CFD simulations will be conducted on a 3D model reflecting the existing built form of the Site and the surrounding area within a radius of at least 400m to allow the wind microclimate conditions to be quantified.
- 15.3 To understand and quantify the baseline conditions at the Site for the Detailed Application, a 1:400 scale model will be constructed, reflecting the existing built form of the Site and the surrounding area within a radius of at least 400m. This wind tunnel model will be tested in a boundary layer wind tunnel facility to allow the wind microclimate conditions to be quantified.
- 15.4 The results from the CFD simulations and wind tunnel tests respectively will be combined with the wind climate model for Manchester to understand the baseline conditions specific to the Site. The wind climate model will be based on long-term wind records obtained from Manchester Airport (MAN).

Planning Policy Context

National Planning Policy

- 15.5 The National Planning Policy Framework was re-issued in February 2019 by the Ministry of Housing, Communities and Local Government. The relevant paragraphs are as follow:
- 15.6 Paragraph 127 of the National Planning Policy Framework states that:

"Planning policies and decisions should ensure that developments:

- a) will function well and add to the overall quality of the area, not just for the short term but over the lifetime of the development;*
- b) are visually attractive as a result of good architecture, layout and appropriate and effective landscaping;*
- c) are sympathetic to local character and history, including the surrounding built environment and landscape setting, while not preventing or discouraging appropriate innovation or change (such as increased densities);*
- d) establish or maintain a strong sense of place, using the arrangement of streets, spaces, building types and materials to create attractive, welcoming and distinctive places to live, work and visit;*

- e) *optimise the potential of the site to accommodate and sustain an appropriate amount and mix of development (including green and other public space) and support local facilities and transport networks; and*
- f) *create places that are safe, inclusive and accessible and which promote health and well-being, with a high standard of amenity for existing and future users; and where crime and disorder, and the fear of crime, do not undermine the quality of life or community cohesion and resilience."*

Local Planning Policy

15.7 Manchester's Local Development Framework – Core Strategy Development Plan was adopted by Manchester City Council on 11th July 2012. It is the key document in Manchester's Local Development Framework and covers a period of 15 years from 2012 to 2027. It describes Manchester today and outlines the Council's vision for Manchester in 2027 along with the planning policies which will be used to deliver that vision.

15.8 Policy EN 2 on Tall Buildings states that:

"By their very size tall buildings can have a significant impact on the local environment and its micro-climate. It is therefore expected that this impact be modelled and that submissions for tall buildings also include appropriate measures to create an attractive, pedestrian friendly local environment."

15.9 Paragraph 12.14 of the Policy EN 2 on Tall Buildings states that:

"Tall buildings by their very nature can dominate the street scene and be highly visible over long distances. They can also have an impact on the local micro-climatic conditions, for example, by creating wind tunnels. It is for these reasons that it is considered particularly important that they are designed to the highest quality, both in terms of appearance and their impact on the functioning of surrounding space."

Other Relevant Policy, Standards and Guidance

15.10 The Supplementary Planning Document and Planning Guidance (SPD) Section 2: Design - Quality of the Public Realm – A place with attractive and successful public areas, paragraph 2.40, states that:

"Where the public realm includes hard landscaped areas, its design should reflect the level and nature of their use, and should consider issues such as overshadowing, prevailing winds and rain, and the potential to contribute to sustainable urban drainage. The opportunity will be taken to improve the quality of existing areas of public realm and to ensure that areas of public realm in new developments, are designed so that they can be enjoyed by residents and users, rather than being simply functional."

Approach and Methodology

- 15.11 The wind microclimate study for the Outline Application will combine data obtained from CFD simulations with site-specific wind statistics based on long-term wind records obtained from Manchester Airport (MAN).
- 15.12 The wind microclimate study for the Detailed Application will combine measurements taken in a boundary layer wind tunnel facility with site-specific wind statistics based on long-term wind records obtained from Manchester Airport (MAN).
- 15.13 Mean and gust wind speeds will be obtained at selected locations pertinent to the layout of the Outline Application and Detailed Application respectively. This will allow a direct comparison to be made between the baseline locations tested (with the existing intended use) and those locations of importance to the layout and end-uses of the Outline Application and Detailed Application. This will also allow for a comparison of off-site locations, to determine the impact of the Outline Application and Detailed Application on the surrounding area.
- 15.14 The locations to be tested will be assigned with relevant end-uses that are potentially sensitive to wind microclimate conditions, such as pedestrian footpaths or 'thoroughfares', potential entrance locations for buildings, and space with amenity use e.g. for outdoor seating.

Enabling and Construction

- 15.15 As enabling and construction works progress, the conditions within and around the Site would be expected to gradually transition between those of the baseline and the completed massing of the Outline Application and Detailed Application respectively. Therefore, any effects on pedestrians arising from changes in the local wind environment as a result of progressive changes to the massing of the built form on site during the enabling and construction works are expected to be temporary.
- 15.16 Generally, for wind microclimate assessments undertaken for schemes in the UK, the potential effects during enabling and construction are assessed based on the professional judgement of an experienced wind engineer, taking into account an assessment of the background wind microclimate at the Site and an understanding of the effects of wind in the built environment. A qualitative approach will be taken to the assessment of the enabling and construction works.

Completed Development

- 15.17 The wind microclimate assessment will assess the completed Outline Application and Detailed Application, where wind conditions at the various receptors' locations will be assessed against their intended uses.
- 15.18 The assessment of the wind microclimate conditions within and around the Site of the Outline Application (CFD simulations) will consider the following nine (9) scenarios:
- Configuration 1: Baseline.
 - Configuration 2: Masterplan (outline) + Existing Surrounds (without any existing / proposed landscaping / wind mitigation measures).

- Configuration 3: Masterplan (outline) + Existing & Cumulative Surrounds (without any existing / proposed landscaping / wind mitigation measures).
- Configuration 4: Masterplan (outline) + Plots NT02-NT04 + Existing Surrounds (without any existing / proposed landscaping / wind mitigation measures).
- Configuration 5: Masterplan (outline) + Plots NT02-NT04 + Existing & Cumulative Surrounds (without any existing / proposed landscaping / wind mitigation measures).
- Configuration 6: Masterplan (outline) + Existing Surrounds (with any existing / proposed landscaping and wind mitigation measures developed during the course of the wind tunnel workshop sessions above).
- Configuration 7: Masterplan (outline) + Existing & Cumulative Surrounds (with any existing / proposed landscaping and wind mitigation measures developed during the course of the wind tunnel workshop sessions above).
- Configuration 8: Masterplan (outline) + Plots NT02-NT04 + Existing Surrounds (with any existing / proposed landscaping and wind mitigation measures developed during the course of the wind tunnel workshop sessions above).
- Configuration 9: Masterplan (outline) + Plots NT02-NT04 + Existing & Cumulative Surrounds (with any existing / proposed landscaping and wind mitigation measures developed during the course of the wind tunnel workshop sessions above).

15.19 The assessment of the wind microclimate conditions within and around the Site of the Detailed Application (wind tunnel tests) will consider the following six (9) scenarios:

- Configuration 1: Baseline.
- Configuration 2: Plots NT02-NT04 (detailed) + Existing Surrounds (without any existing / proposed landscaping / wind mitigation measures).
- Configuration 3: Plots NT02-NT04 (detailed) + Existing & Cumulative Surrounds (without any existing / proposed landscaping / wind mitigation measures).
- Configuration 4: Plots NT02-NT04 (detailed) + Masterplan (outline) + Existing Surrounds (without any existing / proposed landscaping / wind mitigation measures).
- Configuration 5: Plots NT02-NT04 (detailed) + Masterplan (outline) + Existing & Cumulative Surrounds (without any existing / proposed landscaping / wind mitigation measures).
- Configuration 6: Plots NT02-NT04 (detailed) + Existing Surrounds (with any existing / proposed landscaping and wind mitigation measures developed during the course of the wind tunnel workshop sessions above).
- Configuration 7: Plots NT02-NT04 (detailed) + Existing & Cumulative Surrounds (with any existing / proposed landscaping and wind mitigation measures developed during the course of the wind tunnel workshop sessions above).

- Configuration 8: Plots NT02-NT04 (detailed) + Masterplan (outline) + Existing Surrounds (with any existing / proposed landscaping and wind mitigation measures developed during the course of the wind tunnel workshop sessions above).
 - Configuration 9: Plots NT02-NT04 (detailed) + Masterplan (outline) + Existing & Cumulative Surrounds (with any existing / proposed landscaping and wind mitigation measures developed during the course of the wind tunnel workshop sessions above).
- 15.20 It is understood that that there are two potential options for the massing of Plot RB5b, as it could be brought forward for either school or residential use. Any impact on the wind microclimate within the Site and surrounding area resulting from potential differences in massing of Plot RB5b will be addressed qualitatively.
- 15.21 The results from the CFD simulations and wind tunnel tests will be benchmarked against the LDDC version of the Lawson criteria to ascertain the safety risks to pedestrians at various locations.
- 15.22 The effects at on-site measurement locations are defined by comparing the level of wind comfort and safety against the intended pedestrian activity at each location.

Wind Mitigation

- 15.23 Should wind mitigation measures be required to ensure that wind conditions within certain areas are suitable and safe for their intended use, these will be developed in consultation with the Applicant and the wider Design Team. The wind mitigation measures will be developed and verified using CFD simulations (outline application) and experimental wind tunnel testing (detailed application). Following mitigation, the scale and nature of any residual effects will be classified using the same criteria discussed above.

Potential Significant Effects

- 15.24 The impact of the Outline Application and Detailed Application on the wind microclimate conditions, both in terms of comfort and safety, will be considered for both on-site and off-site receptors.
- 15.25 Undesirable wind speeds can make spaces uncomfortable or unsafe for pedestrian use. The potential effects associated with the interaction of the local wind microclimate conditions with the Outline Application and Detailed Application are as follows:
- During enabling and construction works, potential for undesirable wind speeds at:
 - Ground level in publicly accessible areas bordering the enabling and construction compound, specifically pedestrian thoroughfares and junctions and any areas of public open / amenity space; and
 - Buildings in proximity to the enabling and construction compounds, with specific reference to building entrances and pedestrian routes around buildings.
- 15.26 The assessment of the wind conditions in relation to on-site construction workers lies outside the scope of the Wind Microclimate chapter: the safety, health and welfare of workers within the construction site is in

fact a matter that will need to be managed through detailed CDM construction phase plan and site risk assessments.

15.27 Once the Outline Application and Detailed Application are respectively complete and operational, there is potential for undesirable wind speeds to occur at locations:

- Within the Site, specifically:
 - Ground level pedestrian thoroughfares and potential entrances;
 - Ground level amenity areas; and
 - Accessible elevated levels, i.e. balconies (if applicable).
- External to the Site, specifically:
 - Ground level pedestrian thoroughfares and potential entrances;
 - Public realm and amenity spaces at street / ground level; and
 - Bus stops and potential pick-up / drop-off points.

15.28 Table 15.1 sets out the anticipated significant effects on wind microclimate. This includes an analysis on what aspects can be scoped-in or scoped-out of the assessment due to the likelihood for significant environmental effects.

Table 15.1: Initial Wind Microclimate Scoping Review

Topic Component	Construction Effect	Operational Effect	Scope In / Out
Pedestrian safety and wind comfort for external spaces within the Site and the surrounding area	Temporary effects on pedestrians due to temporary changes in the local wind environment during the phased construction of the development	Long-terms effects on the relative pedestrian and user safety and comfort on completion of the Outline Application and Detailed Application respectively.	Scope In

Cumulative Effects

15.29 The Cumulative Effects Assessment (CEA) is undertaken to the same methodology as for the Development in the completed and operational phase. A list of Cumulative Schemes to be considered is shown in **Table 4.5** of this EIA Scoping Report. Those Cumulative Schemes where construction is sufficiently progressed will be included in the baseline, as the massing of these Schemes would already be influencing the wind conditions.

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- 15.30 Cumulative Schemes within a radius of at least 400m from the centre of the Site will be included assuming a 1:400 model. Cumulative Schemes beyond this radius are considered to be too far from the Site to result in any cumulative impacts and are therefore excluded from the CEA.
- 15.31 The cumulative effects of the wider SRF / 'Victoria North' will be qualitatively assessed in the ES Wind Microclimate Chapter.

16. Socioeconomics

- 16.1 The purpose of this chapter is to identify and assess the likely significant socio-economic effects of the Proposed Development. The assessment is concerned with the socioeconomic effects of the proposals relating specifically to job creation, labour supply, implications for the local demand for public services, and the effects of housing provision in respect of adopted policy. The assessment will assess Applications 4 and 5 individually and in combination. The socio-economic assessment will be carried out by WSP.

Baseline Conditions

- 16.2 Key existing baseline conditions relevant to the assessment of socio-economic impacts are as follows and will be outlined in further detail within the socio-economics ES chapter.
- 16.3 MCC's population in 2020 was estimated to be approximately 555,741 with around 3.7% (20,557 people) residing within the Cheetham ward. Out of the 25 wards within MCC, Cheetham's resident population is the fifth highest⁹⁹.
- 16.4 As of mid-2020 population estimates from ONS, the share of Cheetham ward's population who are of working age is 69% of the population- roughly in line with the City of Manchester's demographic profile. However, the share of Cheetham ward's population under the age of 15 is marginally higher than that of Manchester- 24.4% of all residents compared to 20.2% of Manchester's residents¹⁰⁰.
- 16.5 MCC's population is expected to increase by 9.2% from its 2018 population (547,627) to 598,149 in 2043¹⁰¹. This is marginally slower than the anticipated percentage change in the national population, which is anticipated to increase by 10.3% across the same time period.
- 16.6 As of July 2022, the number of working-age residents in the Cheetham ward claiming out-of-work benefits was 7.4% - higher than both the figures for Manchester (5.9%) and the England and Wales average (3.7%)¹⁰².

⁹⁹ ONS (2022). Mid-2020 Population Estimates for 2020 Wards in England and Wales by Single Year of Age and Sex - Experimental Statistics [Online] Available at:

<https://www.ons.gov.uk/peoplepopulationandcommunity/populationandmigration/populationestimates/datasets/wardlevelmidyearpopulationestimatesexperimental>

¹⁰⁰ ONS (2022). Mid-2020 Population Estimates for 2020 Wards in England and Wales by Single Year of Age and Sex - Experimental Statistics [Online] Available at:

<https://www.ons.gov.uk/peoplepopulationandcommunity/populationandmigration/populationestimates/datasets/wardlevelmidyearpopulationestimatesexperimental>

¹⁰¹ ONS (2022) Population projects for local authorities [Online] Available at:

<https://www.ons.gov.uk/peoplepopulationandcommunity/populationandmigration/populationprojections/datasets/localauthoritiesinenglandtable2>

¹⁰² NOMIS (2022) Labour Market Profile – Manchester [Online]. Available from:

<https://www.nomisweb.co.uk/reports/lmp/la/1946157077/report.aspx?town=carlisle>

- 16.7 Economic activity rates in Cheetham ward are significantly lower than equivalent rates for Manchester and England and Wales, with 63.8% of the working age population economically active, compared to 67.0% across Manchester and 76.8% across England and Wales.¹⁰³
- 16.8 Annual Survey of Hours and Earnings (ASHE) data from 2021 shows that full-time working residents in Manchester earn a lower gross weekly pay (£529.10) compared to the average across the North West (£578.0) and Great Britain (£613.10)¹⁰².
- 16.9 The rate of higher-level qualifications in Cheetham ward was marginally lower than figures at the local authority but in line with national levels as recorded in the 2011 Census, with 29.6% of Cheetham residents having Level 4 qualifications or higher, compared to 31.3% across Manchester and 29.7% across England and Wales^{Error! Bookmark not defined.}. Concomitantly, the share of residents with no qualifications as of the 2011 Census was higher in Cheetham than across Manchester or England and Wales¹⁰⁴.
- 16.10 The local economy (comprising the Manchester local authority area) is relatively wide-ranging, with skills-intensive and services-oriented sectors more dominant. As of 2020 a larger share of Manchester's resident population work in the Financial and Insurance Activities, Professional Scientific & Technical Activities, Education, Information & Communication and Administrative & Support Services sectors than is the case for the North West region or England and Wales as a whole. Likewise, a smaller share work in the Manufacturing, Construction and the Wholesale and Retail trade sectors¹⁰⁵.

Planning Policy Context

National Planning Policy

- 16.11 National planning policies relevant to this Chapter are as follows:
- National Planning Policy Framework (2012, amended 2021); and
 - Planning Practice Guidance (2014, amended 2022).

Local Planning Policy

- 16.12 Planning policies relevant to this Chapter are as follows:
- Manchester City Council, Core Strategy Framework 2012 to 2027.

Other Relevant Policy, Standards and Guidance

¹⁰³ NOMIS (2022) 2011 Ward Labour Market Profile E36001926 : Cheetham [Online]. Available from: <https://www.nomisweb.co.uk/reports/lmp/ward2011/1140852614/report.aspx?pc=ca64sd>

¹⁰⁴ NOMIS (2022) Labour Market Profile – Manchester [Online]. Available from: <https://www.nomisweb.co.uk/reports/lmp/la/1946157077/report.aspx?town=carlisle>

¹⁰⁵ NOMIS (2022) Labour Market Profile – Manchester [Online]. Available from: <https://www.nomisweb.co.uk/reports/lmp/la/1946157077/report.aspx?town=carlisle>

16.13 The following guidance documents will also be reviewed in the preparation of this chapter:

- NHS Healthy Urban Development Unit (HUDU), Rapid Health Impact Assessment Tool (2019);
- Homes and Communities Agency (HCA), Additionality Guide (4th edition) (2014);
- Homes and Communities Agency (HCA), Employment Density Guide (3rd edition) (2015).

Approach and Methodology

16.14 The socio-economic assessment will comprise the following:

- A high-level assessment of existing baseline socio-economic conditions at the Site and across LBI, including:
 - Population.
 - Deprivation.
 - Housing.
 - Employment.
 - Schools.
 - Primary healthcare facilities.
 - Open space.
 - Additional relevant social infrastructure.
- The high-level baseline assessment will be informed by established statistical sources such as the 2011 Census (and the 2021 Census where relevant), the English Indices of Deprivation 2019¹⁰⁶, the National Online Manpower Information Service (NOMIS), Public Health England, the London Data Store and relevant information from the Applicant, together with a consideration of existing land-uses on the Site.
- Identification and assessment of likely significant effects of the completed and operational Development (Applications 4 and 5) in isolation and in combination, using appropriate modelling techniques where necessary. This will include:
 - A numerical estimate of the Full Time Equivalent (FTE) jobs generated by the Works, based on the anticipated build cost for the Development and data from the Annual Business Survey¹⁰⁷.
 - A numerical estimate of the Gross Value Added (GVA) to the local economy by the workforce associated with the Works, based on information from the Annual Business Survey.
 - A numerical estimate of the additional short-term expenditure generated from the workforce associated with the Works.

¹⁰⁶ DCLG. English Indices of Deprivation (EID). 2019.

¹⁰⁷ ONS. Annual Business Survey 2017 Revised Results. 2019.

- A numerical estimate of the net FTE jobs created by the completed and operational Development, based on the proposed floorspace schedule for the Development, relevant information provided by the Applicant, the Employment Density Guide¹⁰⁸ and the Additionality Guide¹⁰⁹.
- A numerical estimate of the GVA to the local economy by the net additional long-term employment, using information from the ONS Sub-regional Productivity tables¹¹⁰.
- A numerical estimate of the additional expenditure generated from the permanent workforce of the completed and operational Development.
- A numerical estimate of the additional household expenditure created by the completed and operational Development, using the ONS report on Family Spending¹¹¹.
- A numerical estimate of the future population and child yield resulting from the completed and operational Development, using a bespoke approach to the population yield calculations developed and agreed by Manchester City Council and WSP, based on 2022 data.
- An assessment of the additional Council Tax receipts arising from the completed and operational Development. This will be calculated based on Manchester City Council Tax charges for the year 2022/2023 as set out on their website¹¹².
- An appraisal of the Development's contribution to local housing need, based on the LBI targets outlined in the Manchester City Council Core Strategy Framework 2012 to 2027 and any accompanying documents.
- An appraisal of the effects of the Development's additional population on existing GP facilities (based on the GP: patient ratio of 1:1,800 recommended by the NHS London Healthy Urban Development Unit¹¹³), schools and open space.
- Identification of appropriate mitigation measures should any significant adverse effects be identified in connection with applications 4 and 5 individually or in combination.

16.15 As previously noted, the likely significant socio-economic effects of the Development (and "Enhanced Scheme") together with relevant Approved Projects (should any be identified) will be assessed insofar as relevant information exists. Accordingly, the above methodologies will be applied to the assessment of likely significant cumulative socio-economic effects, where possible. Where a potential lack of information in relation to specific Approved Projects does not allow for this, the assessment (or components of the cumulative socio-economic assessment) will be based upon professional and expert judgement.

¹⁰⁸ Homes and Communities Agency. Employment Density Guide. Third Edition. 2015.

¹⁰⁹ Homes and Communities Agency. Additionality Guide. Fourth Edition. 2014.

¹¹⁰ ONS. Sub-regional Productivity: Labour Productivity (GVA per hour worked and GVA per filled job) indices by UK NUTS2 and NUTS3 sub-regions. 2018.

¹¹¹ ONS. Family Spending in the UK: Financial Year Ending 2017. 2018.

¹¹² Manchester City Council. Council Tax Bands and Charges 2022-23. 2022.

¹¹³ NHS London Healthy Urban Development Unit. 2009.

Potential Significant Effects

- 16.16 **Table 16.1** sets out the anticipated significant socioeconomic effects. This includes an analysis of what aspects can be scoped-in or scoped-out of the assessment due to the likelihood for significant environmental effects.

Table 16.1: Initial Socio-Economics Scoping Review

Topic Component	Construction Effect	Operational Effect	Scope In / Out
Temporary Construction Employment	Likely Significant Effect	N/A	Scope In
GVA from Construction Employment	Likely Significant Effect	N/A	Scope In
Local Spending from Temporary Construction Employment	Likely Significant Effect	N/A	Scope In
Employment from Additional Commercial Development	N/A	Likely Significant Effect	Scope In
GVA from Additional Permanent Employment	N/A	Likely Significant Effect	Scope In
Local Spending from Permanent Employment	N/A	Likely Significant Effect	Scope In
Local Spending from Residential Population	N/A	Likely Significant Effect	Scope In
Council Tax Revenue from Residential Population	N/A	Likely Significant Effect	Scope In
Impact of Additional Units on Local Housing Target	N/A	Likely Significant Effect	Scope In

Topic Component	Construction Effect	Operational Effect	Scope In / Out
Impact of new population on local Education, Health and Social Infrastructure	N/A	Likely Significant Effect	Scope In

Cumulative Effects

- 16.17 A Cumulative Effects Assessment (CEA) will also be presented within the chapter. This will assess the cumulative effects of the Proposed Development in conjunction with any committed developments within the vicinity of the Cumulative Schemes identified through the scoping process, as well as the wider development project (Applications 1, 2, 4, and 5) and the wider SRF. The approach will be aligned with the assessment scenarios outlined in **Section 4** of this EIA Scoping Report.

17. Health and Wellbeing

- 17.1 The purpose of this assessment will be to identify and assess the likely significant health and wellbeing effects. The assessment is concerned with the health and wellbeing effects of the proposals relating specifically to changes in health determinants (i.e. the social, economic and environmental factors that can influence the health and wellbeing of the population) and the subsequent changes in health outcomes that these may bring to the study population. The assessment will draw on conclusions from other EIA topic assessments, in particular air quality, noise, transport, and socio-economic chapters. The health and wellbeing assessment will be carried out by WSP.

Baseline Conditions

- 17.2 For the purposes of establishing a baseline of demographic and health data, where possible (and relevant), ward level data will be presented as the lowest geographical level of information, unless Lower Layer Super Output Area (LSOA) data is available. Datasets for larger geographical areas have been used where ward level data are not available, and for means of comparison against the ward and LSOA. The various area profiles are as follows:

- **Neighbourhood** – as defined by the LSOA covering the majority of the Site (Manchester 056C). This impact area will be used to assess the deprivation conditions.
- **Local** – as defined by the Cheetham ward boundary (the local ward in which the new proposed Site is located);
- **District** – as defined by the Manchester City Council (MCC) local authority administrative boundary;
- **Regional** – as defined as the wider North West Region; and
- **National** - Depending on the dataset used, national comparisons in the baseline assessment vary between England, England and Wales, Great Britain and the United Kingdom.

- 17.3 Data will be obtained through a desk-based baseline assessment exercise which will also include an audit of the provision of social infrastructure across the local area. This will include a review of the following data sources:

- Office for National Statistics (ONS) NOMIS Area Profiles¹¹⁴;
- English Indices of Deprivation 2019¹¹⁵;
- NHS Digital¹¹⁶;

¹¹⁴ ONS (2022) Local Area Report – Manchester [Online] available from: <https://www.nomisweb.co.uk/reports/localarea?compare=E08000003>

¹¹⁵ Ministry of Housing, communities and Local Government (2019) English Indices of Deprivation 2019 [Online] Available from: <https://www.gov.uk/government/statistics/english-indices-of-deprivation-2019>

¹¹⁶ NHS Digital (2022) General Practice Workforce [Online] Available from: <https://digital.nhs.uk/data-and-information/publications/statistical/general-and-personal-medical-services>

- Public Health England –Health Profiles^{117,118};
- Department for Education School Data¹¹⁹;
- ONS Population Estimates¹²⁰;
- ONS Wellbeing Subnational Indicators Explorer¹²¹; and
- ONS Not in Education, Employment or Training (NEET) and Participation Figures¹²².

17.4 An initial review of baseline data sources has identified the following positive trends:

- **Population** – The proportion of residents who are of working age at the ward level is broadly in line with that at the local authority level. In both instances they make up the vast majority of the resident population. The population across MCC is also anticipated to grow at a rate of 9.2% between the years 2018 and 2043. This is a slower rate of growth than that anticipated across the national population;
- **Unemployment** – Whilst data at the ward level is unable to be obtained until the release of the 2021 Census, the unemployment rate for MCC has almost halved in the years 2011 to 2021; and
- **Education** – The proportion of people in MCC who have Level 4 and above qualifications.

17.5 However, despite this, the following adverse trends were also identified:

- **Economic Activity** – In general, economic activity levels are lower at the ward level when compared to all other impact areas, with the Cheetham ward having the highest rate of unemployment when compared against MCC and England and Wales according to the 2011 Census.
- **Employment Structure** – the proportion of people employed in higher skilled occupations in Cheetham ward and MCC was notably lower than the comparative figures for England and Wales as a whole. This is reflected in the average wages earned across MCC, which are substantially lower than that earned across the wider region and nationally.
- **Education** – At the ward level, the proportion of people with no qualifications was higher than the rates at the local authority level and across the country as a whole. Concurrently, the proportion of residents within Cheetham ward with higher level qualifications was lower than the MCC average, however remained in line with the England and Wales average. As of data from 2021 however, MCC had a higher rate of people with higher qualifications than the North West region and Great Britain overall.

¹¹⁷ Public Health England (2022) Local Authority Health Profile - Manchester [Online] Available from: <https://fingertips.phe.org.uk/profile/health-profiles>

¹¹⁸ Public Health England (2022) Local Authority Health Profile - Manchester [Online] Available from: <https://fingertips.phe.org.uk/profile/health-profiles>

¹¹⁹ Department for Education (2022) Get Information About Schools [Online] Available from: <https://get-information-schools.service.gov.uk/>

¹²⁰ ONS (2021). Ward level population estimates mid-2020 [Online] Available from: <https://www.ons.gov.uk/peoplepopulationandcommunity/populationandmigration/populationestimates/datasets/wardlevelmidyearpopulationestimatesexperimental>

¹²¹ ONS (2022) Wellbeing - Subnational Indicators Explorer [Online] Available from: <https://www.ons.gov.uk/peoplepopulationandcommunity/wellbeing/articles/subnationalindicatorsexplorer/2022-01-06>

¹²² ONS (2022) NEET and participation: local authority figures [Online] Available from: <https://www.gov.uk/government/publications/neet-and-participation-local-authority-figures>

- **Young person participation** – The proportion of 16 and 17-year-olds who were considered to be NEET within MCC was higher in MCC than the national average, however this did remain below the regional rate across the North West.
 - **Health** - The health of people in MCC and the Cheetham ward specifically is generally worse than the England average.
 - **Deprivation** – The neighbourhood impact area (LSOA Manchester 056C) is ranked among the 17% most deprived areas in England. Overall, while the LSOA scores well across some domains (namely income and employment) this is offset by a poorer performance across others, with the neighbourhood found to be in the 2% most deprived communities for living environment in the country. Deprivation relevant to health, housing and crime were also evident.
 - **Subnational Indicator Explorer** – MCC performed in-line or worse than the median local authority across the UK, with the exception of indicators relating to broadband connectivity and access to jobs.
- 17.6 Taken together, these factors suggest that the local area is relatively deprived, although benefits from its close proximity to the business activities in central Manchester for employment opportunities and transport connections. Data over the last decade shows that the populations in MCC are now less likely to be unemployed, however recent data on young person participation shows that there are persistent issues relating to economic participation. On the whole, the health of residents in the Cheetham ward is worse than England overall and there are significant issues relating to living environment deprivation.

Planning Policy Context

National Planning Policy

- 17.7 National planning policies relevant to this Health and Wellbeing assessment are as follows:
- National Planning Policy Framework (2012, amended 2021)¹²³; and
 - Planning Practice Guidance (2014, amended 2022)¹²⁴.

Local Planning Policy

- 17.8 Planning policies relevant to this Health and Wellbeing assessment are as follows:
- Manchester City Council Core Strategy Framework 2012 to 2027¹²⁵.

¹²³ Ministry of Housing, Communities & Local Government, Revised National Planning Policy Framework (July 2021)

¹²⁴ Ministry of Housing, Communities & Local Government, Planning Practice Guidance – Healthy and Safe Communities [Online] Available from: <https://www.gov.uk/guidance/health-and-wellbeing>

¹²⁵ Manchester City Council (2012) Core Strategy 2012-2027 [Online] Available from: https://www.manchester.gov.uk/info/200074/planning/6573/core_strategy_2012-2027#:~:text=Manchester's%20Core%20Strategy%20was%20adopted,applications%20will%20be%20assessed%20against.

Other Relevant Policy, Standards and Guidance

17.9 The following guidance documents will also be reviewed in the preparation of this chapter:

- NHS Healthy Urban Development Unit (HUDU) Rapid Health Impact Assessment Tool (2019)¹²⁶;
- Fair Society, Health Lives, The Marmot Review 10 Years On (2020)¹²⁷; and
- Public Health Outcomes Framework¹²⁸.

Approach and Methodology

17.10 The HUDU Rapid Health Impact Assessment Tool identifies 11 broad health determinants and encourages assessors to consider the planning issues which are likely to influence health and wellbeing associated with these determinants. The determinants, as elaborated on in **Table 17.1** below will act as the framework for the assessment, with potential effects to be considered against the health determinants with regards to both the construction and operation of Applications 4 and 5 individually and in combination.

¹²⁶ NHS Healthy Urban Development Unit (HUDU) (2019) Planning for Health Rapid HIA Tool, Fourth Edition [Online] Available from: <https://www.healthyurbandevelopment.nhs.uk/wp-content/uploads/2019/10/HUDU-Rapid-HIA-Tool-October-2019.pdf>

¹²⁷ The Institute of Health and Equality (2020) Fair Society Healthy Lives (Marmot Review 10 Years On) [Online] Available from: <http://www.instituteofhealthequity.org/resources-reports/marmot-review-10-years-on>

¹²⁸ Office for Health Improvement and Disparities (2022) Public Health Outcomes Framework [Online] Available from: <https://www.gov.uk/government/collections/public-health-outcomes-framework>

Table 17.1: Health Determinants and Potential Impacts

Health Determinant	Potential Health Impact
Housing design and affordability	Ensuring access to good quality, well designed, and affordable homes to suit a variety of tenures and needs is important to ensure the health and wellbeing of the population. A lack of affordability and factors such as overcrowding can lead to adverse impacts on the health of the population.
Access to health and social care services and other social infrastructure	Access to essential services such as GP services, and other social infrastructure (including education and community centres) is important in ensuring good health. Social infrastructure and related services are key components of 'lifetime neighbourhoods', and the creation of sustainable, cohesive, and healthy communities. These types of infrastructure also have a direct positive influence on physical and mental health and wellbeing, with accessibility, transport, range and quality of services being influencing factors in their use.
Access to open space and nature	Access to open space and play space encourages physical activity, particularly if these spaces are readily accessible and of good quality. There is also evidence that outdoor recreation can improve mental health, offering opportunities for relaxation and social interaction as well as recreation. Enabling children to establish positive patterns of behaviour by using outdoor recreational facilities can also lead to similar patterns of behaviour in adulthood.
Air quality, noise and neighbourhood amenity	Environmental factors such as air quality and noise can be influenced by construction, background pollution, and vibration, and these can impact both physical and mental health. Health conditions such as asthma and bronchitis can be adversely impacted by poor air quality, whilst noise pollution can affect mental health, quality of life, and sleep. Effective management of construction and well-designed spaces are important to ensure neighbourhood amenity is not detrimentally affected.

Health Determinant	Potential Health Impact
Accessibility and active travel	Convenient access to a range of services and facilities minimises the need to travel, and this can be achieved by creating well designed spaces. Providing active travel options such as walking and cycling and discouraging car use can increase access to the local area and improve physical and mental health.
Crime reduction and community safety	Thoughtful planning and urban design can help to promote natural surveillance and social interaction; both of which can help to reduce crime and the 'fear of crime'. By addressing fear of crime, the mental wellbeing of residents can be improved, and this is particularly important for people who may suffer from isolation, have a disability, or are older or younger. Community engagement in the development process, ensuring the security of sites, and creating well-lit spaces can also help to reassure residents and encourage feelings of safety within the community.
Access to healthy food	Access to healthy food can improve the physical and mental health of residents and help to tackle chronic disease and obesity. Opportunities purchase healthy food locally and limiting concentrations of hot food takeaways can change eating behaviour and improve physical and mental health. Providing opportunities for people to grow their own food can also contribute positively to this and encourage education about access to healthy and sustainable food sources.
Access to work and training	Employment and income is a key determinant of health and wellbeing, leading to greater financial security, improved mental health, and benefits such as self-esteem and opportunities for social interaction. Unemployment has the potential to lead to poverty, illness and a reduction in personal and social esteem.
Social cohesion and inclusive design	Social cohesion and the opportunity for social interaction can help to improve wellbeing, create social networks, and reduce isolation, particularly for younger people and older people. Through careful design, neighbourhoods can be areas for interaction where people of all ages and abilities can access and feel safe within the community.

Health Determinant	Potential Health Impact
Minimising the use of resources	Reducing waste generation and encouraging the use of sustainable materials, as well as good practices such as recycling and accessing local goods and services, can improve health directly and indirectly while minimising environmental impacts.
Climate change	Poorly designed homes can lead to fuel poverty in winter and overheating in summer, contributing to excess winter and summer deaths. Developments that take advantage of sunlight, tree planting and accessible green/brown roofs also have the potential to contribute towards the mental wellbeing of residents.

- 17.11 The HUDU Rapid Health Impact Assessment Tool states: *"it may not be possible to quantify the impacts as many of the effects on an individual's or community's health are not easily measurable and many health effects are indirect and take many years to manifest themselves... Health impacts may be short-term or temporary, related to construction or longer-term, related to the operation and maintenance of a development and may particularly affect vulnerable or priority groups of the population. Where an impact is identified, actions should be recommended to mitigate a negative impact or enhance or secure a positive impact"*.
- 17.12 To this effect, the assessment of potential effects on Health and Wellbeing will consider the number of people affected, the duration of the change, its frequency and permanence. The vulnerability of the population experiencing the impact and their ability to absorb the impacts is considered. Where specific population groups are predicted to be particularly affected by a health impact, this will be identified.

Potential Significant Effects

- 17.13 **Table 17.2** below sets out the anticipated effects on Health and Wellbeing. This includes an analysis on what aspects can be scoped-in or scoped-out of the assessment due to the likelihood for significant environmental effects. This is a qualitative rather than quantitative assessment, due to the diverse nature of health determinants and health outcomes which are assessed.

Table 17.2: Initial Health and Wellbeing Scoping Review

Topic Component	Construction Effect	Operational Effect	Scope In / Out
Housing design and affordability	Given that the current site is brownfield and does not include any housing, it is unlikely that there will be any impacts during the construction phase in relation to housing design and affordability.	As residential units are proposed as part of the Proposed Development, the design of these and the proportion that are affordable will have a direct impact on this health determinant.	Construction: <i>Scoped out</i> Operation: <i>Scoped in</i>
Access to health and social care services and other social infrastructure	Given the existing nature of the Site which does not include any social infrastructure, it is not expected that the construction phase will have any impact upon the accessibility to social care services and social infrastructure.	The new residential populations at the Site will require adequate health and social care services, along with being able to access local schools. The designs for the scheme and subsequent operation will have a direct impact upon this health determinant.	Construction: <i>Scoped out</i> Operation: <i>Scoped in</i>
Access to open space and nature	Given the existing nature of the Site which does not include any accessible open space and nature, it is not expected that the construction phase will have any impact upon the accessibility of open space and nature.	The new residential populations at the Site will require access to open space and nature. The designs for the scheme and subsequent operation will have a direct impact upon this health determinant.	Construction: <i>Scoped out</i> Operation: <i>Scoped in</i>

Topic Component	Construction Effect	Operational Effect	Scope In / Out
Air quality, noise and neighbourhood amenity	The construction phase will likely involve activities which could have impacts upon air quality, noise and neighbourhood amenity.	It is unlikely that the Proposed Development will have any impacts to air quality and noise during operation. The Proposed Development will however likely improve neighbourhood amenity through the regeneration of the Site, although this has not been considered to be a significant effect.	Construction: <i>Scoped in</i> Operation: <i>Scoped out</i>
Accessibility and active travel	Given the existing nature of the Site which is not currently accessible by the public, it is not expected that the construction phase will have any impact upon accessibility and active travel.	The proposals for the Site will involve residential and commercial developments where residents, workers and visitors will be travelling to and within. As such, there will likely be direct impacts to the take up of active travel as a result of the Proposed Development.	Construction: <i>Scoped out</i> Operation: <i>Scoped in</i>
Crime reduction and community safety	As the site is not currently accessible to the public and will remain in this state throughout the construction phase, it is unlikely that there will be any effects relating to crime reduction and community safety.	The Proposed Development and the residential and commercial elements it proposes will have a direct impact upon this health determinant through the ways in which the buildings and public realm are designed and operated to reduce crime and enhance perceptions of community safety.	Construction: <i>Scoped out</i> Operation: <i>Scoped in</i>
Access to healthy food	Given the existing nature of the Site, there is no current provision for healthy food access and therefore this will not be impacted during the construction phase.	The types of businesses to be encouraged to be integrated within the Proposed Development will have a direct impact upon the availability of fresh food for future residents and workers at the Site.	Construction: <i>Scoped out</i>

Topic Component	Construction Effect	Operational Effect	Scope In / Out
			Operation: <i>Scoped in</i>
Access to work and training	The construction phase will involve significant investment which will result in employment opportunities along with opportunities for people to take up traineeships, apprenticeships and other upskilling activities.	The commercial floorspaces proposed as part of the Proposed Development will enable new employment opportunities to be created at the Site.	Construction: <i>Scoped in</i> Operation: <i>Scoped in</i>
Social cohesion and inclusive design	Given the existing nature of the Site, there are no current residential communities meaning that the construction phase will not impact upon social cohesion or inclusive design principles.	As residential units are proposed as part of the Proposed Development, the design of these will have a direct impact upon social cohesion and inclusivity across the development. This will therefore have a direct impact on this health determinant.	Construction: <i>Scoped out</i> Operation: <i>Scoped in</i>
Minimising the use of resources	The construction phase will include opportunities to minimise the use of resources and to incorporate recycled materials where possible.	The designs for the Proposed Development will have a direct impact on whether residents and businesses will be able to reduce their use of resources.	Construction: <i>Scoped in</i> Operation: <i>Scoped in</i>

Topic Component	Construction Effect	Operational Effect	Scope In / Out
Climate change	The ability to influence climate change throughout the construction phase will be limited, given that the aspects relating to resource usage will be covered in the assessment of 'minimising the use of resources' as listed above	The designs for the Proposed Development will have a direct impact upon the use of renewable energy sources, buildings which can adapt to different climatic conditions, sustainable drainage techniques and how the biodiversity of the Site can be enhanced.	Construction: <i>Scoped out</i> Operation: <i>Scoped in</i>

Cumulative Effects

- 17.14 A Cumulative Effects Assessment (CEA) will also be presented within the chapter. This will assess the cumulative effects of the Proposed Development in conjunction with any committed developments within the vicinity of the Cumulative Schemes identified through the scoping process, as well as the wider development project (Applications 1, 2, 4, and 5) and the wider SRF. The approach will be aligned with the assessment scenarios outlined in **Section 4** of this EIA Scoping Report.

18. Climate Change

- 18.1 The EIA Regulations 2017 have introduced the requirement to consider climate as part of the EIA process and require a consideration of “the impact of the project on climate” and “the vulnerability of the project to climate change” (Schedule 4, paragraph 5(f)).
- 18.2 The purpose of this chapter is to identify and assess the potential significant effects and assess the potential vulnerability of the Proposed Development in terms of climate change in the context of the Site and surrounding, and wider environment, recognising that climate change is a global issue.
- 18.3 The climate change assessment will identify and assess the likely significant effects of the Proposed Development on climate change mitigation (i.e. greenhouse gas / carbon emissions), and how to minimise these. The climate change resilience assessment will identify and assess the vulnerability of the Proposed Development to climate change. The assessment also considers how the Proposed Development adapts to a changing climate, how other EIA topics / receptors could be affected, and how resilience can be designed into this.
- 18.4 The climate change assessment will be carried out by WSP.

Baseline Conditions

Embodied Carbon

- 18.5 The Proposed Development will contain a significant level of new build development and as such will generate a high level of carbon emissions in the construction phase. Existing structures and buildings are found on site and provide an opportunity for reuse to reduce the embodied carbon exposure. There is no baseline for current operational emissions. Embodied carbon is less well understood, including the compelling reasons for considering it and the need to reduce it.
- 18.6 Detailed design information and quantities will be required at each phase of the development to develop an embodied carbon study which can be refined through ongoing RIBA stages.

Energy

- 18.7 It has been agreed that the whole development will be fully electrified with heating provided by heat pumps and all car parking spaces to provide electric vehicle (EV) charging facilities (20% active and 80% passive infrastructure for future connection).
- 18.8 It has been assumed that the initial plots of the development will be constructed in line with the draft Future Homes Standard (FHS) proposed by the UK government for all buildings constructed after 2025 as Phase 1 is currently set for 2024. Further to this, the following phases will aspire to target LETI 2030 standards over the development timeline. Additionally, most homes built after 2025 are expected to be built in line with the

RIBA 2030 Net Zero targets under development. These criteria are required to be confirmed as an output from the strategic master-plan stage.

- 18.9 A rectangular massing model was constructed to represent the typical apartment size with an area of 70m² around a central core to undertake a sensitivity analysis. The initial glazing ratio for the exercise was set to 60%, further analyses are included in **Figure 18.1**.
- 18.10 A list of assumptions is outlined below. Parameters that have been assumed to be constant as part of this analysis include unregulated loads, hot water loads within the apartments as the massing and passive design measures will not directly influence them and adiabatic party walls/floors as all adjacent apartments have been assumed to be occupied with the heating on.

Figure 18.1: Assumptions

	Sim 1	Sim 2	Sim 3	Sim 4	Sim 5	Sim 6	Sim 7	Sim 8	Sim 9	Sim 10	Sim 11
	Business as usual (Baseline) (Part L 2014)	Reduce Power Demand	Reduce Lighting Demand	Reduce Hot Water Demand	Improve Wall U-value	Improve Window U-value	Improve Air Tightness	Add Heat Recovery	Add Shading	Reduce Glazing Ratio (0.4)	Further Reduce Glazing Ratio (0.2)
Loads											
Occupancy Density	40/p					35					
Equipment Load	W	5.00						300			
Lighting Load	W/m ²	3						2.5			
Infiltration Rate	m ³ /h/m ² @50pa	4						1			
Background Ventilation Rate	l/s/m ²				0						
Occupancy Ventilation	l/s/p				0.0						
Recirculation Ventilation	l/s/m ²				0						
Controls											
Cooling SP	C				26						
Cooling SR	C				16.0						
Heating SP	C				19						
Heating SR	C				5						
Glazing Ratio											
Glazing Ratio (N)	0				60%					40%	20%
Glazing Ratio (W)	0				60%					40%	20%
Glazing Ratio (S)	0				60%					40%	20%
Glazing Ratio (E)	0				60%					40%	20%
Material Properties											
Glazing U-value	W/m ² .K				0.5			1.0			
Glazing G-value					0.4						
Wall U-value	W/m ² .K				0.18			0.15			
Floor U-value	W/m ² .K					0.10					
Roof U-value	W/m ² .K					0.19					
Material Properties											
Glazing U-value	W/m ² .K				0.24						
Glazing G-value					0.3						
Wall U-value	W/m ² .K				0.35	0.28			0.19		
Floor U-value	W/m ² .K				0.25	0.15			0.06		
Roof U-value	W/m ² .K				0.29	0.15			0.1		
Mechanical System											
MCHR Efficiency										80%	

- 18.11 The scenarios are broken down in **Figure 18.2** which shows how the Energy Use Intensity (EUI) changes against the Baseline EUI, as each optimisation measure is implemented.

Figure 18.2: Energy Use Intensity (EUI) changes against the Baseline EUI

- 18.12 The graph presented above shows that by introducing passive design measures and MEP system improvements, the development can be delivered in line with the Redbank 2025 EUI target of 45 kWh/m²/year. Further measures will need to be considered to start progressing towards the Redbank and LETI 2030 targets of 35 kWh/m²/year. The current analysis is limited by the parameters that have remained fixed as part of this exercise as they are not directly affected by changes and improvements to the building massing, passive design measures and the MEP systems analysed.

Climate Resilience

- 18.13 The Proposed Development is in the Met Office Regional climate profile of Northwest England¹²⁹. The range of topography and altitude in Northwest England provides a variety of different climates. Rochdale weather station is located approximately 15km northeast of the Proposed Development and therefore has been chosen as representative of the local climate. This has been assessed under the baseline period of 1981-2010 as this is the 30-year period that corresponds to the future climate projections.

Precipitation - Rainfall

- 18.14 Northwest England is exposed to westerly maritime air masses and the presence of extensive areas of high ground mean that the region has some of the wettest places in the UK; such as the Peak District eastwards of the Proposed Development.
- 18.15 Average seasonal rainfall at Rochdale Weather station, Northwest England, and the UK for the period 1981-2010 is presented in **Table 18.1**. It shows that the region and weather station is wetter than the UK average

¹²⁹ Met Office (2016) North West England: Climate. Available at: https://www.metoffice.gov.uk/binaries/content/assets/metofficegovuk/pdf/weather/learn-about/uk-past-events/regional-climates/north-west-england-isle-of-man_-climate---met-office.pdf [Accessed 13/09/22].

for Summer, though the rainfall in the area of the weather station is lower than the average of the region. However, the local area (the weather station) is drier than the UK average in Winter.

- 18.16 Long term average seasonal rainfall (mm) (1981–2010) for the Northwest England and Rochdale Weather Station, in comparison to the rest of the UK¹³⁰.

Table 18.1: Long Term Average Seasonal Rainfall (1981 – 2010s) (mm)

Season	Rochdale Weather Station	Northwest England	UK
Summer (June, July, August)	249 mm	205 mm	238 mm
Winter (January, February, December)	317 mm	256 mm	328 mm

- 18.17 Some notable extreme rainfall events for the region include:

- **February 2022:** Following Storm Eunice, heavy rainfall continued to affect Northwest England. The Met Office issued a yellow weather alert for the 20th and the 21st of February, warning of heavy rain¹³¹. Homes, businesses and travel routes across the country were flooded as a result¹³².
- **July 2021:** Urgent flood warnings were issued as torrential rainfall swept across Northern England. Heavy rain led to chaos across Greater Manchester, resulting in road closures across the network¹³³.
- **February 2020:** Arriving one week after storm Ciara, storm Dennis brought heavy and persistent rain across much of the UK – especially Wales and Northwest England, with an amber warning in place for Manchester¹³⁴. The flooding also caused major travel disruption with roads blocked, damaged railway lines and hundreds of flights cancelled¹³⁵.

¹³⁰ Met Office (2010) UK Climate Averages Available at: <https://www.metoffice.gov.uk/research/climate/maps-and-data/uk-climate-averages/gcw2ymd6s> [Accessed 13/09/22].

¹³¹ Rochdale online (19th Feb 2022) Heavy rain after storm Eunice. Available at: [Rochdale News | News Headlines | Heavy rain after Storm Eunice - Rochdale Online](#). [Accessed 13/09/22].

¹³² The Guardian (2022) Storm Franklin Flooding and Property Damage – in pictures. Available at: <https://www.theguardian.com/uk-news/gallery/2022/feb/21/storm-franklin-flooding-and-property-damage-in-pictures-uk-weather>. [Accessed 13/09/22].

¹³³ Manchester Evening News (2021) Heavy rain causes flooding on roads and motorways across Greater Manchester. Available at: [Heavy rain causes flooding on roads and motorways across Greater Manchester - Manchester Evening News](#) [Accessed 13/09/22].

¹³⁴ ITV News (2020) Storm Dennis: Northwest Prepares as Amber Warning Issued. Available at: <https://www.itv.com/news/granada/2020-02-14/storm-dennis-north-west-prepares-as-amber-warnings-issued> [Accessed 13/09/22]

¹³⁵ Met Office (2020) Storm Denis. Available at: [2020_03_storm_dennis.pdf \(metoffice.gov.uk\)](#) [Accessed 13/09/22].

Precipitation - Snow and Ice

18.18 Snowfall is closely linked with temperature, with falls rarely occurring if the temperature is higher than 4°C. In Northwest England, snowfall is normally confined to the months from November to April. The region most recently experienced a snow event in:

- **February 2021:** The UK experienced a week of severe winter weather from 7th to 13th February, with easterly winds drawing a bitterly cold airflow from eastern Europe¹³⁶. Resulting in widespread travel disruption. An amber weather warning for snow came into force for Greater Manchester, with 3cm-8cm snow across Northwest England, with 10cm to 15cm possible in areas above 200 metres¹³⁷.
- **February to March 2018:** the most significant spell of snow and low temperatures for the UK overall since December 2010. The snow and ice resulted in road closures, people becoming stranded, trains and flights cancelled, school closures, and power cuts¹³⁸. The spell also led to many instances of broken heating or frozen pipes, which led to an uptick in buildings flooding.¹³⁹

Temperature

18.19 **Table 18.2** shows the long-term average seasonal mean temperature for Northwest England and Rochdale Weather Station between 1981 and 2010. It shows that the Proposed Development area is slightly warmer than the region and UK average.

18.20 Long-term average mean seasonal temperature for the North West England and Rochdale Weather Station, in comparison to the rest of the UK¹⁴⁰.

¹³⁶ Met Office, Press Office (Feb 2021) Snow moving in for many – February 2021. Available at: <https://www.metoffice.gov.uk/binaries/content/assets/metofficegovuk/pdf/weather/learn-about/uk-past-events/interesting/2018/snow-and-low-temperatures-february-to-march-2018---met-office.pdf>.

¹³⁷ ITV (2021) Travel disruption as heavy snow hits parts of northern England. Available at: Travel disruption as heavy snow hits parts of northern England | ITV News [Accessed 13/09/22].

¹³⁸ Met Office (2018) Snow and low temperatures February to March 2018. Available at: [snow-and-low-temperatures-february-to-march-2018---met-office.pdf](https://www.metoffice.gov.uk/binaries/content/assets/metofficegovuk/pdf/weather/learn-about/uk-past-events/interesting/2018/snow-and-low-temperatures-february-to-march-2018---met-office.pdf) (metoffice.gov.uk) [Accessed 13/09/22].

¹³⁹ The Independent (2018) Storm Emma as it happened. Available at: https://www.independent.co.uk/news/uk/home-news/uk-weather-live-updates-storm-emma-snow-ice-forecast-flights-airports-roads-traffic-freezing-met-office-a8236006.html?page=3&jw_start=%7Bseek_to_second_number%7D [Accessed 13/09/22].

¹⁴⁰ Met Office (2010) UK climate averages. Available at: <https://www.metoffice.gov.uk/research/climate/maps-and-data/uk-climate-averages/gcw2ymd6s> [Accessed 13/09/22].

Table 18.2: Long Term Average Seasonal Temperature (1981 – 2010s) (°C)

Season	Rochdale Weather Station	Northwest England	UK
Summer (June, July, August)	15 °C	14.4 °C	14.4 °C
Winter (January, February, December)	3.9 °C	3.85 °C	3.7 °C

18.21 Average maximum temperature for 1981-2010 measured 19 °C in summer and 6.7 °C in winter. For the 30-year period of 1991-2020 average maximum temperatures measured 20 °C in summer and 7 °C in winter. With single years exceeding these averages. Some noteworthy extreme temperature event was:

- **July 2022:** The UK experienced a brief but unprecedented extreme heatwave from 16 to 19 July 2022, as hot air moved north from the near continent, with extreme temperatures recorded on both 18th and 19th. This heatwave marked a milestone in UK climate history, with 40°C being recorded for the first time in the UK, with a large part of England exceeding 37°C¹⁴¹.
- **March to April 2021:** The UK experienced a brief spell of unusual warmth at the end of March with temperatures across England and Wales widely reaching 20 to 22°C. Many long-running stations recorded their warmest March Day on record. The warmth of late March was followed by a cold plunge in early April as a brisk northerly airstream brought a cold Arctic Maritime air mass across the UK, accompanied by wintry showers¹⁴².
- **Summer 2018:** The weather was warm, dry, and sunny with the UK under the influence of high pressure, particularly during June and July. This was the UK's warmest summer since 2006, the driest since 2003 and the sunniest since 1995¹⁴³. Higher temperatures posed a health risk to some people, and there were record A&E numbers over the summer¹⁴⁴.

Humidity

18.22 The relative annual average humidity in the Proposed Development location is 76 to 78% and slightly higher in the surrounding areas (78 to 80%)¹⁴⁵. This is because the Proposed Development is in Manchester City Centre, and cities often have lower humidity due to reduced evapotranspiration from vegetation and increased run-off of precipitation¹⁴⁶.

¹⁴¹ Met Office (2022) Unprecedented extreme heatwave, July 2022. Available at: https://www.metoffice.gov.uk/binaries/content/assets/metofficegovuk/pdf/weather/learn-about/uk-past-events/interesting/2022/2022_03_july_heatwave.pdf [Accessed 13/09/22].

¹⁴² Met Office (2021) Extremes of temperature, March and April 2021. Available at: https://www.metoffice.gov.uk/binaries/content/assets/metofficegovuk/pdf/weather/learn-about/uk-past-events/interesting/2021/2021_03_high_temperatures.pdf [Accessed 13/09/2022]

¹⁴³ Met Office (2020) Summer 2018. Available at: <https://www.metoffice.gov.uk/binaries/content/assets/metofficegovuk/pdf/weather/learn-about/uk-past-events/interesting/2018/summer-2018---met-office.pdf> [Accessed 13/09/22].

¹⁴⁴ BBC News (2018) Heatwave blamed for record A&E attendances in England. Available at: <https://www.bbc.co.uk/news/health-45118513> [Accessed 13/09/2022]

¹⁴⁵ Met Office (2020) UK climate averages, Average maps. Available at <https://www.metoffice.gov.uk/research/climate/maps-and-data/uk-climate-averages/gcjujye83> [Accessed 13/09/22].

¹⁴⁶ Britannica (N.D.) Urban Climate. Available at: <https://www.britannica.com/science/urban-climate> [Accessed 13/09/2022]

Wind

18.23 Northwest England is amongst the more exposed parts of the UK, being relatively close to the Atlantic and containing large upland areas. The strongest winds are associated with the passage of deep areas of low pressure close to or across the UK. The frequency and strength of these depressions is greatest in the winter half of the year, especially from December to February, and this is when mean speeds and gusts (short duration peak values) are strongest. Noteworthy wind events include:

- **February 2022:** The most recent notable gale affecting the region was in February 2022, Storm Eunice. Wind speeds reached around 50mph in the area of the Proposed Development with transport disrupted due to fallen lorries and trees¹⁴⁷. Fallen trees also damaged buildings, and the storm caused damage to roofs on buildings such as homes and religious buildings, including a fallen tower on a mosque in Manchester¹⁴⁸.
- **December 2021:** Storm Barra brought strong winds and heavy rain across the UK from 7 to 8 December 2021¹⁴⁹. A section of the roof of the 'Chill Factor' building on the outskirts of Manchester City Centre blew off during this storm¹⁵⁰.
- **November 2021:** Storm Arwen brought severe winds across the UK overnight for the 26 to 17 November, with the Met Office issuing a red weather warning¹⁵¹. The storm brought high winds and chaos on roads and motorways, with tree falls and house toppling being reported¹⁵².

Sea Level

18.24 The Proposed Development is located approximately 30 miles east from the Irish Sea. As the Proposed Development is a considerable distance from the major UK water bodies, variables associated with sea level and sea temperature are not considered relevant and have been scoped out of this assessment. However, some of the Proposed Development is located in Flood Zones 2 and 3, due to the River Irk running through the Site. This is not expected to be impacted by sea level rise.

¹⁴⁷ Met Office (2022) Storms Dudley, Eunice and Franklin, February 2022. Available at: Microsoft Word - 2022_02_storms_dudley_eunice_franklin.docx (metoffice.gov.uk) [Accessed 13/09/22].

¹⁴⁸ Manchester Evening News (2022) Trains suspended, roads blocked and buildings battered - Storm Eunice brings day of chaos to Greater Manchester. Available at: <https://www.manchestereveningnews.co.uk/news/greater-manchester-news/trains-suspended-roads-blocked-buildings-23152208> [Accessed 13/09/2022]

¹⁴⁹ Met Office (2022) Storm Barra. Available at: https://www.metoffice.gov.uk/binaries/content/assets/metofficegovuk/pdf/weather/learn-about/uk-past-events/interesting/2021/2021_08_storm_barra.pdf [Accessed 13/09/2022]

¹⁵⁰ Manchester Evening News (2021) Storm Barra LIVE: Latest weather and travel updates in Greater Manchester as wind batters our region - and 'roof goes' on Chill Factor. Available at: <https://www.manchestereveningnews.co.uk/news/greater-manchester-news/storm-barra-live-latest-weather-22384054> [Accessed 13/09/2022]

¹⁵¹ Met Office (2021) Storm Arwen, 26 to 27 November 2021. Available at: Microsoft Word - 2021_07_storm_arwen.docx (metoffice.gov.uk) [Accessed 13/09/22].

¹⁵² Manchester Evening news (2021) Storm Arwen hits Greater Manchester covering back gardens, roads and beauty spots in snow. Available at: [Storm Arwen hits Greater Manchester covering back gardens, roads and beauty spots in snow - Manchester Evening News](#) [Accessed 13/09/22].

Future Baseline

- 18.25 The UKCP18¹⁵³ provide data on projected change in climate variables for the UK. The UKCP18 are the most up-to-date projections of climate change for the UK, providing projections until the end of the twenty-first century. The Climate Risk Indicators (CRI)¹⁵⁴ developed by Nigel Arnell et al., as part of the UK Climate Resilience Programme has been used to infer this assessment. The CRI utilises the UKCP18 projections and allows for a range of climate related indicators (including but not limited to, Met Office Heatwaves and heat stress) to be assessed for Manchester City Council.
- 18.26 UKCP18 includes probabilistic projections of a range of climate variables for different emissions scenarios, termed representative concentration pathways (RCPs) and for a range of time slices to the end of the century. To address the full range of climate model uncertainty the results are provided as 50th (10th to 90th) percentiles and estimate projections are presented against baseline levels of 1981-2010s (based on model data).
- 18.27 The RCP8.5 scenario has been used to infer this assessment. RCP8.5 is a high emissions' scenario which combines assumptions about high population and relatively slow income growth with modest rates of technological change and energy intensity improvements.
- 18.28 The future baseline has been presented for the 2030s (2020-2049), the 2050s (2040-2069) and 2080s (2070-2099) to identify the anticipated climate conditions over the construction period and design life of the Proposed Development's key components (refer to the scope of assessment below).

Precipitation - Rainfall

- 18.29 Climate change is projected to lead to wetter winters and drier summers although natural variation, including extreme events such as storms, heavy downpours and heatwaves, will continue to punctuate these trends. The projected changes to average summer and winter rainfall for the 2030s, 2050s and 2080s are summarised in **Table 18.3**.

¹⁵³ Met Office (2019) UK Climate Projections. Available at: <https://www.metoffice.gov.uk/research/approach/collaboration/ukcp/index>. [Accessed 13/09/22].

¹⁵⁴ Nigel Arnell (2021) The Climate Risk Indicators. Available at: <https://uk-cri.org/> [Accessed 13/09/22].

Table 18.3: Projected change in average summer and winter precipitation (%) for the 2030s, 2050s and 2080s, RCP8.5. The results are shown as 50th (10th-90th)

Season	2030s	2050s	2080s
Summer (June, July, August)	-9.8 (-24.2 to +5.7)	-19 (-36.8 to +1.3)	-29.4 (-48.7 to -6)
Winter (January, February, December)	+2.2 (-4.5 to +9)	+6.7 (-1.8 to +15.5)	+12.7 (+0.6 to +26.12)

Precipitation - Snow and ice

- 18.30 With regards to future changes, rising winter temperatures are likely to reduce the amount of precipitation that falls as snow in winter. Snowfall data is unavailable for the probabilistic projections (25km), however both the regional (12km) and the local (2.2km) show a decrease in both falling and lying snow across the UK for the period of 2061-2080 relative to the 1981-2000 baseline¹⁵⁵.

Temperature

- 18.31 In general, UKCP18 projects that climate change is projected to lead to hotter summers and warmer winters. **Table 18.4** summarises the UKCP18 projections for changes in mean temperature for the Proposed Development location in the 2030s, 2050s and 2080s under RCP 8.5. For example, an increase in +1.2°C Summer temperatures in the 2030s at Rochdale Weather Station would equate to an average summer temperature increase from 15°C to 16.2°C. This would equate to an average summer temperature increase from 15°C to 19.4°C in the 2080s.

Table 18.4: Projected change in mean summer and winter temperature (°C) for the 2030s, 2050s and 2080s RCP8.5.

Season	2030s	2050s	2080s
Summer (June, July, August)	+1.2 (+0.5 to +1.9)	+2.2 (+0.9 to +3.5)	+4.4 (+2 to +6.8)
Winter (January, February, December)	+0.9 (+0.1 to +1.8)	+1.6 (+0.6 to +2.8)	+3.0 (+1.3 to +4.9)

- 18.32 A heatwave is an extended period of hot weather relative to the expected conditions of the area at that time of year. A UK heatwave is defined as the maximum temperature above a region-specific threshold for at least three days. The present-day heatwave threshold for area of the Proposed Development is 25°C¹⁵⁶. The intensity, frequency and duration of heatwaves are projected to increase under future warming.

¹⁵⁵ Met Office (2019) UKCP18 Factsheet: Snow. Available at: ukcp18-factsheet-snow.pdf (metoffice.gov.uk) [Accessed 13/09/22].

¹⁵⁶ Met Office (2021) What is a heatwave, Available at: <https://www.metoffice.gov.uk/weather/learn-about/weather/types-of-weather/temperature/heatwave> [Accessed: Accessed 13/09/22]

- 18.33 The projected number of present-day heatwave events per year for the Proposed Development is 1.7 (1.3 to 2.4) in the 2030s, 2.6 (1.5 to 4.3) in the 2050s and 4.6 (2.5 to 6) in the 2080s. Long periods of hot weather can pose threats to both people and infrastructure. The public realm space is made up of pedestrianised areas and a car park which can overheat and melt during heatwave events. In the UK, road melt occurs where temperatures exceed 25°C. The risk of road melt in days per year for the area of the Proposed Development is 14.3 (10.7 to 19.6) in the 2030s, 21.3 (12.5 to 37) in the 2050s and 45.9 (20.5 to 76.9) in the 2080s.
- 18.34 Hot weather can lead to serious health consequences such as heat stress. Heat stress is defined as the amount of evaporation (or perspiration) required as related to the maximum ability of the average person to perspire (or evaporate fluids from the body to cool themselves). As temperatures are projected to increase, the risk of heat stress in outdoor workplaces are projected to increase¹⁵⁷. In this case, wet bulb global temperature (combining temperature and humidity) exceeding threshold of 25°C is used as a proxy for heat stress¹⁵⁸. For the area of the Proposed Development, the projected heat stress in days per year are 0.2 (0.1 to 0.3) in the 2030s, 0.5 (0.1 to 2) in the 2050s and 3.7 (0.5 to 11.7) in the 2080s.

Humidity

- 18.35 Projections for relative humidity anticipate an average decrease of approximately 2.8% (-4.5% to -1.5%) in the 2030s, and a decrease of 5.4% in the 2060s (-7.5% to -3.8%).

Wind

- 18.36 UKCP18 depicts a wide spread of future changes in mean surface wind speed, however, there is large uncertainty in projected changes in circulation over the UK and natural climate variability contributes much of this uncertainty¹⁵⁹. It is therefore difficult to represent regional extreme winds and gusts within regional climate models¹⁶⁰.
- 18.37 Central estimates of change in mean wind speed for the 2050s are small in all ensembles runs (<0.2ms-1). A wind speed of 0.2ms-1 (approximately 0.4 knots) is small compared with the typical magnitude of summer mean wind speed of about 3.6–5.1ms-1 (7 – 10 knots) over much of England¹⁶¹. Seasonal changes at individual locations across the UK lie within the range of –15% to +10%.

¹⁵⁷ Nassiri, P., Monazzam, M. R., Golbabaie, F., Farhang Dehghan, S., Shamsipour, A., Ghanadzadeh, M. J., & Asghari, M. (2020). Modelling heat stress changes based on wet-bulb globe temperature in respect to global warming. *Journal of environmental health science & engineering*, 18(2), 441–450. Available at: <https://doi.org/10.1007/s40201-020-00472-1> [Accessed 13/09/22]

¹⁵⁸ Arnell, N. W., Freeman, A., Kay, A. L., Rudd, A. C., & Lowe, J. A. (2021). Indicators of climate risk in the UK at different levels of warming. *Environmental Research Communications*, 3(9), 095005

¹⁵⁹ Brown, S., Boorman, P., McDonald, R., and Murphy, J. (2012) Interpretation for use of surface wind speed projections from the 11-member Met Office Regional Climate Model ensemble. Post-launch technical documentation for UKCP09. Met Office Hadley Centre, Exeter, UK. Crown copyright.

¹⁶⁰ Bengtsson, L., K. Hodges, and E. Roeckner, 2006: Storm tracks and climate change. *Journal of Climate*, 19, 3518-3543.

¹⁶¹ Jenkins, G.J., Perry, M.C., and Prior, M.J. (2008). The climate of the United Kingdom and recent trends. Met Office Hadley Centre, Exeter, UK.

- 18.38 In terms of storms, the analysis presented here is a summary of expected changes in storm patterns under a changing climate. A storm is defined by the Met Office as a wind event measuring 10 or higher on the Beaufort scale (equivalent to a wind speed of 24.5m/s or 55mph).
- 18.39 Studies¹⁶² relating to future projections of storms suggest that climate driven storm changes are less distinct in the northern than southern hemisphere. However, such is the wide range of inter-model variation, robust projections of changes in storm track are not yet possible and there is low confidence in the direction of future changes in the frequency, duration or intensity of storms affecting the UK.

Sea Level

- 18.40 Sea level rise has been scoped out of the assessment due to the distance of the Proposed Development from the coast.

Planning Policy Context

National Planning Policy

- 18.41 The National Planning Policy Framework (NPPF) document (revised in July 2021)¹⁶³ sets out the Government's national planning policies for England and how these are to be applied. At the heart of the NPPF is a presumption in favour of sustainable development (paragraph 2), with economic, social and environmental objectives to be met through planning policy.
- 18.42 Sustainability is a common theme in many sections of the NPPF including most notably the sections titled "Promoting healthy and safe communities", "Promoting sustainable transport", "Meeting the challenge of climate change, flooding and coastal change", "Conserving and enhancing the natural environment" and "Facilitating the sustainable use of minerals".

Local Planning Policy

Manchester Strategic Regeneration Framework (SRF)

- 18.43 The Northern Gateway Strategic Regeneration Framework (SRF) has been prepared by Manchester City Council (MCC) to guide the future development of the SRF area. This covers approximately 155 ha to the north of Manchester city centre between Victoria Station, NOMA and the Northern Quarter in the south-west, and Queens Park and the intermediate Ring Road (Queens Road) to the northeast.
- 18.44 The SRF complies with the requirements of MCC's adopted planning and regeneration policy, and outlines opportunities. The SRF presents a Vision, Core Objectives, and a SRF Development Framework to guide the future regeneration of the Northern Gateway over the next 15-20 years

¹⁶² Belcher, S., Slingo, J., Scaife, A., McCarthy, M., Saulter, A., McBeath, K., . . . Parry, S. (2014). The recent storms and floods in the UK. *Met Office*, 29

¹⁶³ Ministry of Housing Communities & Local Government, (2021). National Planning Policy Framework, London, UK.

18.45 Policy EN 4 Reducing CO₂ Emissions by Enabling Low and Zero Carbon Development; the Council will seek to reduce fuel poverty and decouple growth in the economy, growth in CO₂ emissions, and rising fossil fuel prices, through the following actions: All development must follow the principle of the Energy Hierarchy, being designed:

- To reduce the need for energy through design features that provide passive heating, natural lighting, and cooling;
- To reduce the need for energy through energy efficient features such as improved insulation and glazing; and
- To meet residual energy requirements through the use of low or zero carbon energy generating technologies.

18.46 Policy EN 8 Adaptation to Climate Change; all new development will be expected to be adaptable to climate change in terms of the design, layout, siting and function of both buildings and associated external spaces. In achieving developments which are adaptable to climate change developers should have regard to the following, although this is not an exhaustive list:

- Minimisation of flood risk by appropriate siting, drainage, and treatment of surface areas to ensure rainwater permeability.
- Reduction in urban heat island effect using Green Infrastructure such as green roofs, green walls, increased tree cover and waterways.
- The need to control overheating of buildings through passive design.
- The opportunity to provide linked and diverse green space to enhance natural habitats which will assist species adaptation.

Other Relevant Policy, Standards and Guidance

Climate Change Act

18.47 The Climate Change Act 2008 (2050 Target Amendment) sets legally binding targets to reduce carbon dioxide emissions in the UK by 100% by 2050 from 1990 levels. It also established an independent body, the Committee on Climate Change, to advise the Government on the level of each carbon budget. The Committee also reports to Parliament on progress made on reducing emissions.

18.48 The Act introduced carbon budgets which put legally binding limits on the amount of greenhouse gases the UK can emit over a five-year period. To date, six carbon budgets have been put into law that run up to 2037 and which require a 78% reduction in carbon emissions by 2035.

Building Regulations Part L: Conservation of Fuel & Power

18.49 The Building Regulations Part L governs the conservation of fuel and power in both new construction and refurbishment of the UK building stock. Compliance with Building Regulations is a regulatory requirement

for all new developments, and carbon emissions of a development comparative to compliance with Part L is the key performance indicator for many carbon targets.

- 18.50 The current version of the Approved Document Part L2A for new buildings other than dwellings which is applicable for the Proposed Scheme, was published in 2016 with 2022 amendments.

Manchester City Council Climate Change Action Plan

- 18.51 The Climate Change Action Plan (CCAP) of the Manchester City Council has a target to reduce direct emissions of CO₂ by 50% over the five-year period up to 2025. To achieve this, the Council aims to reduce its emissions by 13% every year, for five years. The CCAP also sets a carbon budget of 119,917 tonnes of CO₂ for the five-year period of 2020-25, calculated using science-based targets. Within this, the carbon budget for 2020-21 is 31,080 tonnes and that for 2021-22 is 27,056 tonnes.

Approach and Methodology

Embodied Carbon

- 18.52 To facilitate meaningful embodied carbon assessment at these stages, WSP has developed a 'top-down' approach that can inform the significance of potential carbon reduction scenarios. The top-down approach uses two key factors to determine a baseline total carbon emissions value:

- The anticipated gross internal floor area (m² GIA) of the building
- The relevant benchmark average / typical embodied carbon per m² GIA rate (kg CO₂e/m² GIA).

- 18.53 Multiplying these two factors gives the total embodied carbon emissions for an average/typical building of a similar use type and size. For example:

- Average / typical carbon emissions for a 1000 m² GIA residential building = 1000 m² GIA x 1,200 kg CO₂e/m² GIA (LETI 'Embodied Carbon' 'E' rating) = 1,200,000 kg CO₂e

- 18.54 This provides an average / typical embodied carbon emissions total value baseline for the building assessment at early project stages.

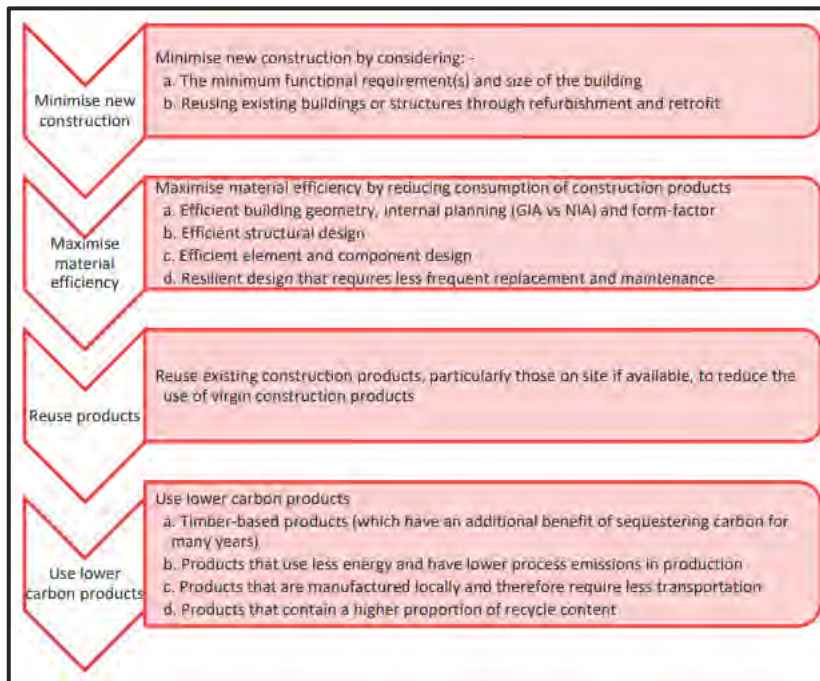
- 18.55 The baseline can be used to indicate the improvement to the building's overall carbon emissions from the individual or cumulative early-stage carbon reduction scenarios that are. In addition, improvement comparisons with an average/typical benchmark can also be made. However, it is important to stress that individual improvements may result in apparently minor improvements compared with the benchmark which covers emissions from a whole building. Where the benchmark source provides enough information to determine a breakdown of the building's total carbon emissions this can provide greater insight. For example, totals for each building element category:

- Substructure;
- Superstructure;

- Facades;
- Internal Finishes; and
- MEP.

18.56 The following hierarchy (see **Figure 18.3**) is recommended when selecting carbon reduction options. To increase the chances of options being successful and adopted, it is important that relevant members of the project team agree a range of options in advance of modelling them.

Figure 18.3: Carbon Reduction Hierarchy



18.57 Standardisation of building life cycle assessment (LCA) is important to ensure that the results are sufficiently reliable, clear, and comparable with other assessments. WSP bases building LCA on the following standards:

- EN 15804:2011 'Sustainability of construction works - Assessment of environmental performance of buildings - Calculation method'¹⁶⁴
- This standard provides the calculation method for assessing the environmental performance of buildings. It is the most widely used standard for this purpose in Europe and beyond.
- 'Whole Life Carbon Assessment for the Built Environment, 1st edition' methodology by RICS14 (the RICS PS)

18.58 Although this document does not have the status of a standard by a national or international standards body (like BSI, CEN, or ISO), it is widely used in the UK to provide guidance in interpreting EN 15978. To achieve greater comparability between assessments, where EN 15978 is silent or flexible on certain details, this document requires more specific approaches are followed and provides key default assumptions.

¹⁶⁴ BS EN 15804:2012+A1:2013 Sustainability of construction works. Environmental product declarations. Core rules for the product category of construction products

Energy

18.59 The aim of the energy assessment is to assess the annual energy demand of both residential and non-residential elements of the Scheme. High level calculations will be undertaken to estimate annual energy demand and feed back into the Energy strategy, Climate change strategy and sustainability Strategy. Calculations will be based on benchmark data and floor area assumptions where individual building design teams are unable to provide full dynamic thermal calculations of individual building energy use. The scope of the energy demand assessment will cover peak power demand analysis and energy demand analysis.

18.60 For peak power demand analysis:

- It will be assumed that the initial plots of the development will be constructed in line with the draft Future Homes Standard (FHS) proposed by the UK government for all buildings constructed after 2025, and the following phases will aspire to target LETI 2030 standards over the development timeline
- WSP will estimate maximum demand for the application to the local Distribution Network Operator (DNO) for connection.
- Demand side management measures will be suggested with the impact of energy elements (e.g., EVs, heat pumps) considered.

18.61 For energy demand analysis:

- A preliminary parametric design analysis will be carried out to demonstrate potential opportunities to optimise the façade and systems within the residential sections of the Development.
- This analysis aims to provide an approximate pathway in working towards the Energy Use Intensity (EUI) targets set out by Victoria North (previously Manchester Gateway).
- The energy demand analysis will consider a 'typical' apartment in the Development and will not consider base build or amenity areas energy use.
- A sensitivity assessment of various common interventions and the impact of future fabric standards will be undertaken to determine what aspects could be focussed on to reduce the EUI of the development towards the set targets. These include: Performance to current Part L. Future Homes Standard and LETI improvements, Passive design measures, (e.g., Orientation, Window to Wall Ratio, Openable windows, Reduction of internal gains, External Shading), MEP Systems (e.g., MVHR, Heat Pumps).

18.62 A low carbon technology review will be carried out. The review will cover heat pumps, energy storage and phasing, photovoltaic panels, smart grids, electric vehicles and building performance benchmarking. There are several Low Carbon Technologies (LCTs) that were originally considered for the wider Northern Gateway scheme such as: District heating, Combined Heat and Power (CHP) engine, heat pump, small wind turbine, PV panels, Electric vehicles (EVs), Battery energy storage system (BESS) and solar thermal. The proposed technologies for the Red Bank area include (PV, EVs) and heat pump technologies. With CHP discounted due to the higher carbon emissions associated with combustion of natural gas and cost viability implications.

Renewable generation combined with battery energy storage is expected to play an increasing role over time in reducing the overall power demand on the Site anticipated for later plots.

18.63 A Site-wide energy options study will be carried out with three energy options assessed for performance and cost:

- Option 1 - fully decentralised
- Option 2 – hybrid
- Option 3a – centralised ASHPs
- Option 3b - centralised ASHPs with electric boiler backup
- Option 3c - centralised ASHPs with electric boiler backup

18.64 The Site constraints and opportunities will be reviewed to understand how the Site will influence the building design and thus its energy performance.

18.65 The impact and potential to utilise the River Irk will be assessed. The River Irk runs through the Site.

Climate Resilience

18.66 The scope of the assessment includes the construction period and design life of the Proposed key components as follows:

- **Construction** (active for an approximate period of 10 years, commencing 2025):
 - The construction site (including access road and temporary buildings such as offices);
 - Workers;
 - Materials; and
 - Plant and equipment (including fencing, drainage and lighting).
- **Operation** (approx. 60-100 years), consisting of:
 - Buildings: including residential development up to 4500 new homes, education facilities primary school and nursery, healthcare facilities health centre, food and beverage stores, a supermarket, and high street stores and retail facilities; and
 - Public Realm which includes pedestrianised areas, emergency vehicle access, cycling and walking routes, open green space/park and vegetation;
 - Infrastructure including electric car charging, roads and utilities infrastructure; and
 - End users of the Proposed Development.

18.67 The EIA Guide to Climate Change Resilience and Adaptation¹⁶⁵ outlines that the scoping stage should identify the key climatic variables relevant to the project and likely effects however is not prescriptive in how this is

¹⁶⁵ IEMA (2020) EIA Guide to Climate Change Resilience and Adaptation. Available at: <https://www.iema.net/resources/reading-room/2020/06/26/iema-eia-guide-to-climate-change-resilience-and-adaptation-2020> [Accessed 13/09/2022]

undertaken. LA114 outlines that scoping will focus on identification of any likely significant climate changes and likely project exposure to these changes to identify vulnerable elements of a project that require further assessment.

18.68 Furthermore, climate change in-combination with other environmental effects of the Proposed Development Scheme includes the potential for climate change to exacerbate or ameliorate the potential effects identified within each of the environmental topics. The in-combination climate impacts will be assessed at ES stage.

18.69 The following steps were taken to identify the overall vulnerability of the Site:

- **Identifying vulnerable scheme elements** - Climate variables for the construction and operation phases to consider in further detail at the ES have been identified using a vulnerability assessment. The vulnerability of a project to climate change is a function of:
 - **The typical sensitivity of receptors to climate variables** – based on literature review and expert judgement and rated as high, medium or low; and
 - **The exposure of receptors to projected change in climate variables** – based on the baseline information presented above and rated as high, medium or low.
 - The vulnerability of receptors to climate variables is determined from the combination of the sensitivity and exposure ratings. At this point, climate variables in the construction and operation phase to which the Proposed Development is likely to have a Low vulnerability to are scoped out of further assessment. Climate variables in the construction and operation phase to which the Proposed Development is likely to have a medium or high vulnerability to are taken forward for further assessment at the next stage. This is a qualitative assessment informed by expert opinion and supporting literature.
- **Sensitivity analysis** - The sensitivity assessment takes into account the climate risk mitigating measures identified for inclusion in the CEMP. However, climate risk mitigating measures identified during operation will need to be confirmed in further detail at the design stage and hence have not been included in the sensitivity assessment at this stage.
- **Exposure analysis** - Exposure is the nature and degree to which the Proposed Development will be exposed to significant climate variations.
- **Vulnerability assessment** - The sensitivity and exposure analyses are combined to provide an overall assessment of 'vulnerability' of the Proposed Development. In this context vulnerability is the degree to which the Proposed Development is susceptible to, and unable to cope with, the adverse effects of climate change. High and Medium vulnerabilities are the residual effects which we will be assessed in more detail at the next stage of the assessment.

18.70 The vulnerability assessment is based on the exposure and sensitivity of the Proposed Development to climate change. Exposure considers the current climate and the future projections identified in the Baseline Sections (Current Baseline and Future Baseline). The sensitivity in this case considers the impact of the

climate on the specific receptors considering any preliminary design measures (where available). Receptors deemed to be of 'medium' and 'high' vulnerability would be scoped into further assessment.

Limitations and Assumptions

18.71 To ensure transparency within the EIA process, the following limitations and assumptions have been identified:

- There is currently no agreed industry methodology that should be applied for assessing the vulnerability under the EIA Regulations. Therefore, an approach has been developed and applied in this assessment based on existing best practice and WSP's extensive project experience.
- The Climate Risk Indicators, developed as part of the UK Climate Resilience Programme, has been used to infer this assessment. As such there are inherited limitations and uncertainties within the data. Further information on the methodology used to produce this data can be found in [Arnell, et al., \(2021\)¹⁶⁶](#). The Climate Risk Indicators utilise UKCP18 projections. At the time of writing, these represent the most up-to-date representation of future climate in the UK.
- There are inherent uncertainties associated with climate projections and they are not predictions of the future. It is possible that future climate will differ from the future baseline climate against which the resilience of the Proposed Development has been assessed, depending on global emissions over the next century. A 'high' emissions scenario (RCP 8.5) using the 2080s time slice (2070–2099, the longest temporal scale available through UKCP18) has been used to develop the baseline against which vulnerability has been assessed. This is consistent with the precautionary principle (i.e., 'worst case' scenario).
- Any further research, analysis or decision-making should take account of the accuracies and uncertainties associated with climate projections. It is also important to note that the analysis is based on selected observational data, the results of climate model ensembles and a selected range of existing climate change research and literature available at the time of assessment. Any future decision-making based on this analysis should consider the range of literature, evidence and research available at that time and any changes to this.

¹⁶⁶ Arnell, et al., (2021) Changing climate risk in the UK: a multi-sectoral analysis using policy-relevant indicators. *Climate Risk Management* 31, 100265 10.1016/j.crm.2020.100265

Table 18.5: Climate Resilience Vulnerability Assessment

Receptor	Variable		Sensitivity	Exposure	Vulnerability
Construction phase	Precipitation	Change in annual average rainfall	Low	Low	Low vulnerability
		Drought	Low	Low	Low vulnerability
		Extreme rainfall events	Low	Low	Low vulnerability
		Snow and Ice	Low	Low	Low vulnerability
	Temperature	Change in annual average	Low	Low	Low vulnerability
		Extreme temperature events (including heatwaves and cold snaps)	Low	Low	Low vulnerability
	Wind	Gales and extreme wind events	Low	Low	Low vulnerability
		Storms (snow, lightning, hail)	Low	Low	Low vulnerability
	Relative humidity	Changes in annual average	Low	Low	Low vulnerability
		Evaporation	Low	Low	Low vulnerability
Infrastructure	Precipitation	Change in annual average rainfall	Moderate	Medium	Medium vulnerability
		Drought	Moderate	Medium	Medium vulnerability
		Extreme rainfall events	High	High	High vulnerability

Receptor	Variable		Sensitivity	Exposure	Vulnerability
	Temperature	Snow and Ice	Moderate	Low	Low vulnerability
		Change in annual average	Low	Medium	Low vulnerability
		Extreme temperature events (including heatwaves and cold snaps)	High	High	High vulnerability
	Wind	Gales and extreme wind events	High	Medium	Medium vulnerability
		Storms (lightning)	Moderate	High	Medium vulnerability
	Relative humidity	Changes in annual average	Moderate	Low	Low vulnerability
		Evaporation	Moderate	Low	Low vulnerability
Buildings	Precipitation	Change in annual average rainfall	Moderate	Medium	Medium vulnerability
		Drought	Low	Medium	Low vulnerability
		Extreme rainfall events	High	High	High vulnerability
		Snow and Ice	Low	Low	Low vulnerability
	Temperature	Change in annual average	Moderate	Medium	Medium vulnerability
		Extreme temperature events (including heatwaves and cold snaps)	High	High	High vulnerability
	Wind	Gales and high winds	High	Medium	Medium vulnerability
		Storms (lightning)	Moderate	High	Medium vulnerability
	Relative humidity	Changes in annual average	Moderate	Low	Medium vulnerability
		Evaporation	Moderate	Low	Medium vulnerability
Public Realm	Precipitation	Change in annual average rainfall	Moderate	Medium	Medium vulnerability
		Drought	High	Medium	Medium vulnerability
		Extreme rainfall events	High	High	High vulnerability
		Snow and Ice	Moderate	Low	Low vulnerability

Receptor	Variable		Sensitivity	Exposure	Vulnerability
	Temperature	Change in annual average	Moderate	Medium	Medium vulnerability
		Extreme temperature events (including heatwaves and cold snaps)	High	High	High vulnerability
	Wind	Gales and extreme wind events	High	Medium	Medium vulnerability
		Storms (lightning)	Moderate	High	Medium vulnerability
	Relative humidity	Changes in annual average	Low	Low	Low vulnerability
		Evaporation	Low	Low	Low vulnerability
End users	Precipitation	Change in annual average rainfall	Low	Medium	Low vulnerability
		Drought	Moderate	Medium	Medium vulnerability
		Extreme rainfall events	High	High	High vulnerability
		Snow and Ice	Moderate	Low	Low vulnerability
	Temperature	Change in annual average	Low	Medium	Low vulnerability
		Extreme temperature events (including heatwaves and cold snaps)	High	High	High vulnerability
	Wind	Gales and extreme wind events	High	Medium	Medium vulnerability
		Storms (lightning)	Moderate	High	Medium vulnerability
	Relative humidity	Changes in annual average	Low	Low	Medium vulnerability
		Evaporation	Low	Low	Medium vulnerability

Potential Significant Effects

- 18.72 **Table 18.6** sets out the anticipated significant effects on climate change. This includes an analysis on what aspects can be scoped-in or scoped-out of the assessment due to the likelihood for significant environmental effects.

Table 18.6: Initial Climate Change Scoping Review

Topic Component	Construction Effect	Operational Effect	Scope In / Out
Embodied Carbon			
Construction Phase	Sourcing of alternative materials to reduce embodied carbon exposure	Lifetime replacement of components influences selection at construction phase	Scoped in due to the identification of lower carbon alternatives during embodied carbon calculations
Infrastructure	Higher levels of recycled content may be sourced and constructed Potential for reuse of any existing buildings/infrastructure on site	Longer life components and different replacement strategies may need to be considered	Scoped in as part of any embodied carbon assessment
Buildings	Alternative methods/modern methods of construction could be considered to reduce carbon impact during construction phase Potential for reuse of any existing buildings/infrastructure on site	Longer life components and different replacement strategies may need to be considered Alternative methods of replacement may need to be considered	Scoped in as part of any embodied carbon assessment

Topic Component	Construction Effect	Operational Effect	Scope In / Out
Public Realm	Re-use of existing components on site (eg paving)	Embodied and whole life impact of PR components should be considered when they reach end of life. Circularity of end-of-life components should be considered to close the waste loop, prevent diversion to landfill and	Scoped out due to not being part of embodied carbon methodology
End users	N/A	N/A	Scoped out due to no significant impact identified
Energy			
Construction Phase	Energy used in construction, particularly from generators can be from fossil fuel reliant sources. Potential for renewable energy sourcing	N/A	Scoped out due to some elements included within the embodied carbon study
Infrastructure	Some infrastructure development could be energy intensive	Increased electrification of the grid will enable diversified sourcing opportunities	Scoped out due to some elements included in embodied carbon and whole life study

Topic Component	Construction Effect	Operational Effect	Scope In / Out
Buildings	Energy use during construction phases	- Lower carbon energy sources such as heat pumps will bring down the operational carbon emissions over the lifetime of the building. - Increased electrification of the grid will enable increased low carbon sourcing opportunities - High levels of insulation will be required to maximise the efficiency of low heat systems such as heat pumps	Scoped in as part of embodied carbon and GHG assessments used to determine impact
Public Realm	N/A	Public realm elements with energy demand (lighting) could specify lower carbon options reducing	Scoped out due to lower significance
End users	N/A	Energy efficiency will enable end users to realise lower energy use and cost	Scoped out due to lower significance
Climate Resilience			

Topic Component	Construction Effect	Operational Effect	Scope In / Out
Construction Phase	Heavy rainfall and / or flooding on the Site would prevent work from continuing. Construction is impacted and delayed by flooding and damage to materials and equipment on site. Site drainage may be overwhelmed, and access to the Site can be disrupted from flooding. Construction workers may be unable to work in high temperatures due to heatstroke risk In extreme temperatures, machinery may overheat if used.	N/A	Scoped out due to low vulnerability identified in the vulnerability assessment.

Topic Component	Construction Effect	Operational Effect	Scope In / Out
Infrastructure	N/A	Flooding (pluvial or fluvial) may lead to deterioration of materials and increased maintenance requirements. Extreme rainfall events may also lead to destabilisation of soils and earthworks, potentially leading to disruption of buildings. Prolonged dry periods may lead to drying out and cracking of earthworks and soils. High winds and storms can affect the stability of above-ground infrastructure and hasten material degradation due to wind-driven rain infiltration.	The following climate variables for this topic component have been scoped in for further assessment due to their medium or high vulnerability identified in the vulnerability assessment: Precipitation, Temperature, Wind and Storms. Humidity has been scoped out due to its low vulnerability.

Topic Component	Construction Effect	Operational Effect	Scope In / Out
Buildings	N/A	Flooding (pluvial or fluvial) may lead to inundation of buildings, potentially leading to deterioration of materials and increased maintenance requirements. Extreme rainfall events may also lead to destabilisation of soils and earthworks, potentially leading to disruption of buildings. Buildings are sensitive to extreme temperatures. This may physically impact buildings and their structural integrity. Soil stability can be reduced as a result of extreme temperatures and drought which can causes soils to dry out and crack and lose integrity. Increases in humidity can affect the moisture content of materials in buildings leading to deterioration and increase maintenance requirements.	The following climate variables for this topic component have been scoped in for further assessment due to their medium or high vulnerability identified in the vulnerability assessment: Precipitation, Temperature, Wind and Storms, and humidity.

Topic Component	Construction Effect	Operational Effect	Scope In / Out
Public Realm	N/A	Flooding of open space provision and playgrounds make those areas unsafe for users. Flooding of pedestrian and cycle ways will either make these areas inaccessible, and/or lead to splashback from puddling. Prolonged dry periods may lead to drying out and cracking of earthworks and soils. Drought and flooding would both cause damage to vegetation and green infrastructure, particularly within the first 5 years as roots are too short to be flood- or drought-tolerant. High temperatures may cause damage to paved surfaces, including potential melting and deformation of surface asphalt as well as more rapid deterioration of materials and associated ancillary components, such as signage. High temperatures can cause damage to vegetation and green infrastructure in the public realm.	The following climate variables for this topic component have been scoped in for further assessment due to their medium or high vulnerability identified in the vulnerability assessment: Precipitation, Temperature, Wind and Storms, and Humidity.

Topic Component	Construction Effect	Operational Effect	Scope In / Out
		High temperatures can lead to overheating of playgrounds, posing a risk for users. Increases in humidity can affect the moisture content of materials in public realm spaces leading to deterioration and increase maintenance requirements. High winds and storms can affect the stability of vegetation and trees, requiring greater maintenance. Pedestrians and cyclists may be sensitive to high winds.	

Topic Component	Construction Effect	Operational Effect	Scope In / Out
End Users	N/A	Flooding of dwellings, employment space, and educational and healthcare facilities would cause disruption, have a financial impact on users, and could cause physical and mental health issues Damp buildings can lead to mould growth resulting in health issues for end users. High temperatures can impact end users through a reduction in thermal comfort, lack of concentration and reduction in productivity. High winds and storms can affect the stability of vegetation and trees, posing a risk to end users.	

Cumulative Effects

- 18.73 A Cumulative Effects Assessment (CEA) will also be presented within the chapter. This will assess the cumulative effects of the Proposed Development in conjunction with any committed developments within the vicinity of the Cumulative Schemes identified through the scoping process, as well as the wider development project (Applications 1, 2, 4, and 5) and the wider SRF. The approach will be aligned with the assessment scenarios outlined in **Section 4** of this EIA Scoping Report.
- 18.74 No cumulative effects have been identified at this stage.

19. Non-Significant Issues

- 19.1 This section sets out those environmental issues deemed to be insignificant for the purposes of EIA, and as such have been 'scoped out' of the EIA process.

Waste

- 19.2 Given the nature of the proposed development, materials required for the construction of the proposed development are unlikely to be particularly scarce or environmentally sensitive, nor is the proposed development likely to result in materials becoming scarce. Consideration will be given throughout the design process to the specification of suitable materials, including their sustainability and environmental implications, to support an environmentally sensitive and high-quality development. As a result, the proposed development is not likely to have any significant effects in relation to materials.
- 19.3 Waste will be generated during the construction phase, as a result of the construction of the new buildings. Waste management will be considered carefully throughout the design and construction of the proposed development, to ensure compliance with legislation, and to minimise costs associated with waste disposal. The volume of construction waste likely to be generated by the development would be in line with what would be expected from a development of this size and will not significantly affect the capacity of local waste infrastructure.
- 19.4 During the operation of the development, waste (including recyclables) generated by dwellings will be managed by the local waste authority, while waste from the commercial uses will be managed by commercial operators. None of the proposed users are anticipated to be major generators of waste and the wastes generated by the proposed development should not significantly affect the capacity of local waste infrastructure.
- 19.5 Following the implementation of standard mitigation measures including the adoption of a Site Waste Management Plan ('SWMP'), construction waste arisings can be reduced to a minimum such that it is not significant.

Materials

- 19.6 The assessment of Materials has been undertaken in accordance with the assessment methodologies described within the IEMA guide to: Materials and Waste in Environmental Impact Assessment (EIA) (hereafter referred to as the 'IEMA Guidance')**Error! Bookmark not defined..**
- 19.7 As outlined in the IEMA guidance, materials should be scoped into an EIA if there is insufficient evidence to verify that the potential for significant adverse environmental effects related to materials consumption, will be precluded.

- 19.8 In the case of the proposed Victoria North HIF Infrastructure Works, it is considered that according to the assessment methodology prescribed in the IEMA guidance, the potential for significant effects can be ascertained to be negligible. The Site does not occupy a safeguarded minerals site allocation in the Local Minerals Plan¹⁶⁷.
- 19.9 Two Study Areas are defined for materials:
- **The Development Study Area** – Defined as the red-line boundary of the Proposed Development; and
 - **The Expansive Study Area** – Defined as the availability of construction materials, within a defined region. The expansive Study Area for materials is the national and international supply of construction resources.
- 19.10 The types of works anticipated for the Proposed Development include demolition of other existing structures, remediation and earthworks across site, construction of internal access roads and junctions, utility and services connections and diversion, provision of green infrastructure. Therefore, the types of materials expected to be consumed include aggregate, cement, steel and asphalt. It is not anticipated that meaningful quantities of materials on the European Commission, Critical Raw Materials list to be used.
- 19.11 Baseline information on national and global availability for material resources has been collected for the key raw materials likely to be used in the proposed works, these include: aggregates, asphalt, cement, and steel. National availability has been used as the baseline for aggregate, asphalt and cement, rather than regional, as although demand is satisfied by UK supply, resources are not always distributed evenly and some inter-regional movement is necessary¹⁶⁸. Global steel availability has been used as the baseline for Steel as the UK imports more than it produces¹⁶⁹. These key materials are nationally and globally traded commodities with no known issue regarding UK supply and stock. Therefore, the sensitivity of these receptors i.e. material availability, is defined as 'Low'.
- 19.12 As such, material effects are proposed to be scoped-out of the ES.

Lighting

- 19.13 Artificial lighting is provided to encourage a safe environment for a range of activities including driving, cycling and walking. It is also used to enhance the environment by means of decorative and flood lighting of areas, features and buildings. Any new lighting proposed as part of the Proposed Development will be in accordance with British Standards, The Institution of Lighting Professionals (ILP) and The Chartered Institution of Building Services Engineers (CIBSE) which prescribes required lighting levels. This would be referenced in 'Chapter 5: Description of Development', within the ES. The proposed lighting will be selected with reference to the following design standards and codes of practice:

¹⁶⁷ AGMA (2013) Minerals Plan Map 22 Available online at:

https://secure.manchester.gov.uk/downloads/download/5550/greater_manchester_joint_minerals_development_plan_documents

¹⁶⁸ Mineral Products Association (2020) Profile of the UK Mineral Products Industry. Available online at:

https://www.mineralproducts.org/MPA/media/root/Publications/2021/Profile_of_the_UK_Mineral_Products_Industry_2020_Spread.pdf

¹⁶⁹House of Commons (2021). UK Steel Industry: Statistics. Available online at: and policy

<https://researchbriefings.files.parliament.uk/documents/CBP-7317/CBP-7317.pdf>

- BS EN 5489-1: 2003 +A2 (2008) Code of Practice for the design of road lighting: Part 1 Lighting of roads and public amenity areas;
- BS EN 13201-2: 2003 Road lighting – Part 2: Performance requirements;
- ILE GN01: Guidance notes for the reduction of obtrusive light;
- ILE TR12: Lighting of pedestrian crossings (2007); and
- ILE TR25: Lighting for traffic calming features.

19.14 Lighting will be designed in conjunction with the design team and landscape consultant to ensure that lighting is appropriate in terms of the potential effects on public realm and surroundings of the Site. As this mitigation can be 'designed-in' to the proposals and secured through appropriate planning controls, it is considered that a detailed assessment of lighting is not required as part of the EIA.

19.15 Due to the city centre location of the Site, as well as light spill from surrounding properties, artificial light immediately onto and surrounding the Site is considered to be on-par with the rest of the premises located on Alderley Park.

Major Accidents and Disasters

19.16 The EIA Regulations 2017 Schedule 4 Section 5 requires the developer to assess *"the expected significant effects (on the environment) arising from the vulnerability of the Proposed Development to "major accidents or disasters" that are relevant to that development"*.

19.17 At the time of undertaking this EIA Scoping Report, there is no universally adopted definition of the term 'major accident and / or disaster'. For the purpose of this EIA Scoping Report, the following definitions from the Institute of Environmental Management and Assessment (IEMA) Major Accidents and Disasters in EIA: A Primer¹⁷⁰ (hereafter referred to as the 'IEMA Primer') have been adopted:

- **Accident** – something that happens by chance or without expectation.
- **Disaster** – *"a natural hazard (e.g. earthquake) or a man-made/external hazard (e.g. act of terrorism) with the potential to cause an event or situation that meets the definition of a major accident."*
- **Major accident** – *"events that threaten immediate or delayed serious environmental effects to human health, welfare and/or the environment and require the use of resources beyond those of the client or its appointed representatives to manage."*
- **Risk** – *"the likelihood of an impact occurring, combined with the effect or consequence(s) of the impact on a receptor if it does occur."*

¹⁷⁰ IEMA, (2020) Major Accidents and Disasters in EIA: A Primer. Online. Available from: <https://www.iema.net/resources/reading-room/2020/09/28/major-accidents-and-disasters-in-eia-an-iema-primer>.

- **Risk event** – *“an identified, unplanned event, which is considered relevant to the Proposed Development and has the potential to result in a major accident and/or disaster, subject to its potential to result in a significant adverse effect on an environmental receptor.”*
- **Vulnerability** – *“describes the potential for harm as a result of an event, for example due to sensitivity or value of receptors. In the context of the” EIA Regulations, vulnerability “refers to “exposure and resilience” of the Proposed Development to the risk of a major accident and/or disaster. Vulnerability is influenced by sensitivity, adaptive capacity and magnitude of impact.”*
- **Significant environmental effect (in relation to a major accident and / or disaster assessment)** – *“includes the loss of life, permanent injury and temporary or permanent destruction of an environmental receptor which cannot be restored through minor clean-up and restoration.”*

19.18 The aim of the scoping stage, as described by the IEMA Primer, is *“to determine in more detail whether there is potential for significant effects as a result of major accidents and/or disasters associated with a development, and the resulting scope of and approach to the assessment if required.”*

Baseline Conditions

- 19.19 The Site is located in Manchester, to the north-east of Manchester Victoria Station. It has a history of 150 years of industrial use which has left a legacy of ground contamination, modified waterways, potential coal mine workings and some utilities infrastructure. It is surrounded by modern industrial and commercial facilities.
- 19.20 There are no ecological designations within the Site. Rochdale Canal SAC and SSSI is located approximately 4.3km north east of the Site and four local non-statutory designated Sites of Biological Importance (SBI) are within 2km of the Site. The Site is in Flood Zone 1, meaning it has a 0.1% chance of flooding in any given year, though there are localised areas of low, medium and high risk of surface water flooding. The River Irk is located within the Site boundary. The closest AQMA is the Greater Manchester Combined Authority AQMA which is approximately 150m west of the Site.
- 19.21 There are two Control of Major Accident Hazards (COMAH) sites within 4.8km of the Site: Evonik Chemicals Ltd. and Tennants Distribution Ltd.

Planning Policy Context

- 19.22 A summary of the legislation which is relevant to this chapter is summarised below:

Health and Safety at Work etc. Act 1974 (the HSW Act)

- 19.23 The HSW Act places general duties on e.g. employers, people concerned with premises, manufacturers and employees. Health and safety regulations made under this Act contain more detailed provisions. The HSW Act provides the framework for the regulation of industrial health and safety in the UK. The overriding principle is that foreseeable risks to persons in workplaces shall be reduced so far as is reasonably practicable and that adequate evidence shall be produced to demonstrate that this has been done.

Construction (Design and Management) Regulations 2015 (the CDM Regulations)

- 19.24 The CDM Regulations place specific duties on clients, designers and contractors so that health and safety is taken into account throughout the life of a construction project from its inception to its subsequent final demolition and removal. Under the CDM Regulations, designers are required to take account of the general principles of prevention and any pre-construction information. This is to eliminate, so far as is reasonably practicable, foreseeable risks to the health or safety of any person carrying out or liable to be affected by construction work; maintaining or cleaning a structure; or using a structure designed as a workplace.

The Management of Health and Safety at Work Regulations 1999 (the MHSW Regulations)

- 19.25 The MHSW Regulations add further to the HSW Act in order to detail what employers are required to do to manage health and safety. This includes carrying out risk assessments and appropriate training for employees.

The Workplace (Health, Safety and Welfare) Regulations 1992 (the WHSW Regulations)

- 19.26 The WHSW Regulations cover a wide range of basic health, safety and welfare issues and they apply to most workplaces (except those involving construction work on construction sites, those in or on a ship, or those below ground at a mine). It includes provisions on workplace elements such as ventilation, lighting, cleanliness, floor conditions and traffic routes.

The Electricity at Work Regulations 1989 (the EW Regulations)

- 19.27 The EW Regulations sets out precautions to be taken by employers, self-employers and employees against the risk of death or personal injury from electricity in work activities.

Control of Major Accidents and Hazards Regulations 2015 (the COMAH Regulations)

- 19.28 The COMAH Regulations aim “to prevent and mitigate the effects of major accidents involving dangerous substances which can cause serious damage/harm to people and/or the environment” (which are treated equally seriously). The COMAH Regulations ensure that businesses “take all necessary measures to prevent major accidents involving dangerous substances [and] limit the consequences to people and the environment of any major accidents which do occur.” The COMAH Regulations are administered jointly by the Health and Safety Executive (HSE) and the Environment Agency (EA) and implement the majority of the Seveso III Directive (Council Directive 2012/18/EU)¹⁷¹.

Approach

- 19.29 At present, there is no recognised standard methodology for the assessment of major accidents and disasters within EIA. In September 2020, the Institute of Environmental Management and Assessment (IEMA), in partnership with Arup, published ‘Major Accidents and Disasters in EIA: A Primer’ which is a risk assessment (using a source-

¹⁷¹ European Union. Annex VI of the Seveso III Directive. Online. Available from: Annex VI to Consolidated Version of Directive 67/548/EEC (europa.eu).

pathway-receptor) based approach. Therefore, the assessment of Major Accidents and Disasters in relation to the Proposed Development has been based on a combination of the IEMA Primer and professional judgement.

- 19.30 The Cabinet Office National Risk Register (NRR) (2020 Edition)¹⁷² (the NRR 2020) has been used to inform the identification of potential major accidents and natural disasters. The NRR 2020 details the Government's assessment of the *"likelihood and potential impact of a range of different civil emergency risks (including naturally and accidentally occurring hazards and malicious threats) that may directly affect the UK over the next 5 years."* These events include topics like terrorist attacks, flooding, earthquakes and fires and are accompanied by suggestions for how to prepare responses for them, such as emergency plans.
- 19.31 The Study Area has been determined on the basis of a worst-case impact area, in the event of a major accident or disaster, informed by the maximum extent of all other topic assessments Study Areas, and includes the full extents of the Proposed Development.
- 19.32 The IEMA Primer states that the major accidents and disasters topic can be scoped out of the EIA if it can be demonstrated that:
- There is no source-pathway-receptor linkage of a hazard that could trigger a major accident and/or disaster or potential for the Proposed Development to lead to a significant environmental effect.
 - All possible major accidents and/or disasters are adequately covered elsewhere in the assessment or covered by existing design measures or compliance with legislation and best practice.
- 19.33 If the above cannot be demonstrated the topic must be scoped in for further assessment.
- 19.34 In order to demonstrate the above, a risk identification exercise has been undertaken. The risk identification considers the current risk profile identified in the NRR 2020 with respect to natural disasters, transport incidents, construction incidents, disease, system failures and security and to what extent these risks, if present, are addressed by embedded mitigation. The risk identification also includes a review of any nearby sites listed by the HSE under COMAH.
- 19.35 The risk identification considers the source-pathway-receptor model in terms of risks to environmental receptors such as designated environmental sites, residents local to the Proposed Development, users of the Proposed Development and workers on and in close proximity to the Site, during construction and operation of the Proposed Development.

Sensitivity

- 19.36 The measure of sensitivity of a receptor in relation to Major Accidents and Disasters is defined by the IEMA Primer as *"a function of its value, and capacity to accommodate change reflecting its ability to recover if it is affected. It is typically defined by the following factors:*

¹⁷² Cabinet Office, (2020). National Risk Register. Online. Available from: <https://www.gov.uk/government/publications/national-risk-register-2020>.

- *Adaptability – the degree to which a receptor can avoid, adapt to or recover from an effect.*
- *Tolerance – the ability of a receptor to accommodate temporary or permanent change.*
- *Recoverability – the temporal scale over and extent to which a receptor will recover following an effect.”*

Significance Criteria

- 19.37 To determine the risk of a significant effect the likelihood of an event is taken into consideration, followed by the potential consequence should the event occur. In examining the consequence, the following is considered:
- The geographic extent of the effects of the risks. Effects beyond the boundary of the Proposed Development are more likely to be considered significant.
 - The duration of the effects from the risks. Effects which are permanent (i.e., irreversible) or long-lasting are more likely to be considered significant.
 - The severity of the effects in terms of number, degree of harm to those impacted and the response effort required. Effects which trigger the mobilisation of substantial civil emergency response effort are more likely to be considered significant.
 - The sensitivity of the identified receptors.
 - The effort required to restore the environment. Effects requiring substantial clean-up or restoration efforts are more likely to be considered significant.
- 19.38 In addition, any embedded mitigation measures within the Proposed Development will be taken into consideration to determine if, through them, the risk is adequately mitigated.
- 19.39 The IEMA Primer also identifies significance, based on criteria adopted from Annex VI of the Seveso III Directive, which details the general classifications and labelling requirements of dangerous substances and preparations.
- 19.40 Using this reference, the significance threshold for the Proposed Development is set at anything which causes loss of life or permanent injury and / or long-lasting damage to an environmental receptor.
- 19.41 The following assumptions have been made when undertaking this scoping exercise:
- Those risks which are identified as to be assessed by various chapters in the Environmental Statement (ES) have been assumed to be adequately covered and therefore scoped out of further Major Accidents and Disasters assessment.
 - A Construction Environment Management Plan (CEMP) will be produced and will be adhered to by the Contractor. This will detail best practice measures, including for pollution prevention.
 - Any mitigation recommended to prevent ground contamination issues will also cover hydrological linkages with nearby watercourses, thereby also preventing surface and groundwater pollution.
 - Damage to property has been excluded as a receptor and/or potential consequence as it is assumed that this would be covered under other risk assessments and health and safety risk registers.

- Emergency plans will be written by the Contractor, covering, as a minimum: fire, gas leaks, damage to electricity cables and security during construction. These will be agreed with Local Authorities, utilities and blue light authorities and applied during a relevant event.
- The Contractor will be responsible for all security measures during construction, including the securing of the construction compound and the Site.
- Any potential issues with local power supply failing to meet the demand required for the construction phase of the development will be explored during design development and engagement with the local network operator. On-site generator use will be explored where necessary to meet high power loads that would not be supported from the local electricity network.
- A Construction Traffic Management Plan (CTMP) will be produced and will be adhered to by the Contractor.
- A Materials Management Plan (MMP) will be produced and will be adhered to by the Contractor. This will include guidance on how to test materials to check they are suitable for reuse.
- SuDS will be sufficient to mitigate the risk of flooding during operation of the Site.
- Emergency Plans will be written by the Site Operator and cover, as a minimum, fire and attacks during operation of the Site. These will be agreed with Local Authorities, utilities and blue light authorities and applied during a relevant event.
- Following construction of the Site, security fencing and guards will be present in those areas of the Site to be developed as part of future applications. The Site Operator will be responsible for the security of the operational site.

19.42 Baseline information for the assessment has been taken from the following EIA Scoping Report sections and reports as relevant:

- Ecology and Trees.
- Ground Conditions.
- Drainage and Flood Risk.
- Transport and Access.
- Climate Change.
- Flood Risk Assessment (FRA).
- Preliminary Unexploded Ordnance (UXO) Threat Assessment.
- UXO Desk Study and Risk Assessment.

19.43 A summary of the construction and operational risks are outlined in **Table 19.1** and **Table 19.2** respectively.

19.44 The outcome of this process provides justification to support the proposal that the topic of Major Accidents and Disasters can be scoped out of further assessment and is not proposed to be scoped into the ES.

Table 19.1: Summary of Construction Risks

Risk Event	Source	Pathway	Receptor	Reasonable worst consequence if event did occur	Could this lead to a major accident and / or natural disaster with standard, embedded mitigation in place?
Flooding	Extreme weather event Flash flooding	Pollution event in hydrologically connected watercourse caused by flooding Failure/inundation of drainage structure	Environmental designations Local community	Damage to habitats and injury/fatality of species individuals Injury to public	No
Severe weather	Localised flooding Heatwaves Drought Storms Low temperatures and heavy snow	Pollution event in hydrologically connected watercourse caused by flooding Wildfire caused by drought, heatwave or lightning strike and spreading to construction machinery, fuel storage and the surrounding environment	Environmental designations Local community	Fatality/injury to public Damage to infrastructure Damage to habitats and injury/fatality of species individuals	No

Risk Event	Source	Pathway	Receptor	Reasonable worst consequence if event did occur	Could this lead to a major accident and / or natural disaster with standard, embedded mitigation in place?
Earthquakes and Ground Instability	Earthquake tremors Landslips	Earthquake tremors and/or ground instability leading to damage to construction equipment and infrastructure causing a pollution event and/or direct damage to species on site	Environmental designations Local community	Fatality/Injury to public Damage to infrastructure Damage to habitats and injury/fatality of species individuals	No
Fire	Wildfire Fire caused by construction machinery incident or arson	Wildfire caused by drought, heatwave or lightning strike and spread to construction machinery and fuel storage Fire from construction machinery spreading to other buildings and machinery and the surrounding environment	Environmental designations Local community	Fatality/Injury to public Damage to infrastructure Damage to habitats and injury/fatality of species individuals	No

Risk Event	Source	Pathway	Receptor	Reasonable worst consequence if event did occur	Could this lead to a major accident and / or natural disaster with standard, embedded mitigation in place?
System failures	Connection with live service connection by construction machinery	Pollution event caused by damage to sewerage or gas mains Fire risk due to gas leak Electrocution	Local community Environmental designations	Fatality/Injury to public Damage to infrastructure Damage to habitats and injury/fatality of species individuals	No
Widespread electricity failure	Construction work damaging electricity cables Electricity failure causing construction machinery to fail Network outage	Disruption or prevention of supply to site and surrounding area Exposure and damage of live wires	Local community and businesses	Injury to public	No

Risk Event	Source	Pathway	Receptor	Reasonable worst consequence if event did occur	Could this lead to a major accident and / or natural disaster with standard, embedded mitigation in place?
Industrial accidents	Construction incident leading to knock-on effect on nearby COMAH sites	Construction machinery fire spreading to nearby COMAH sites and causing an explosion and release of chemicals	Environmental designations Local community Other industrial sites, infrastructure and property	Damage to designated sites Damage to habitats and injury/fatality of species individuals Injury/fatality to public Damage to industrial sites, infrastructure and property	No
Pollution Incidents	Ground contamination Water pollution Release of ground gases/vapours	Pollution of a watercourse, groundwater and surface water receptors from construction fuel spillage or disturbance of existing contaminated land on site	Environmental designations Local community	Damage to designated sites	No

Risk Event	Source	Pathway	Receptor	Reasonable worst consequence if event did occur	Could this lead to a major accident and / or natural disaster with standard, embedded mitigation in place?
		Breathing issues from ground gas release		Damage to habitats and injury/fatality of species individuals Injury to the public	
Unexploded Ordnance (UXO)	Explosions	Explosion of UXO caused by disturbance during construction works	Environmental designations Local community Infrastructure and property	Injury/fatality to public Damage to infrastructure and property Damage to habitats and injury/fatality of species individuals	No

Risk Event	Source	Pathway	Receptor	Reasonable worst consequence if event did occur	Could this lead to a major accident and / or natural disaster with standard, embedded mitigation in place?
Terrorism, vandalism or other attacks	Attacks on infrastructure and property	Explosion at or around the Site	Environmental designations Local community Infrastructure and property	Fatality/Injury to public Damage to infrastructure and property Damage to habitats and injury/fatality of species individuals	No

Table 19.2: Summary of Operational Risks

Risk Event	Source	Pathway	Receptor	Reasonable worst consequence if event did occur	Could this lead to a major accident and / or natural disaster with existing mitigation in place?
Flooding	Extreme weather event Flash flooding	Increased flooding risk for surrounding area due to increase in impermeable surfaces within site	Environmental designations Local community	Injury/fatality to public Damage to infrastructure and property Damage to habitats and injury/fatality of species individuals	No
Severe weather	Localised flooding Heatwaves Drought Storms Low temperatures and heavy snow	Pollution event in hydrologically connected watercourse caused by flooding Wildfire caused by drought, heatwave or lightning strike and spreading to site and the surrounding environment	Environmental designations Local Community Local community	Injury/fatality to public Damage to infrastructure and property Damage to habitats and injury/fatality of species individuals	No

Risk Event	Source	Pathway	Receptor	Reasonable worst consequence if event did occur	Could this lead to a major accident and / or natural disaster with existing mitigation in place?
Terrorism, vandalism or other attacks	Attacks on infrastructure and property	Explosion at or around the Site	Environmental designations Local community Infrastructure and property	Fatality/Injury to public Damage to infrastructure and property Damage to habitats and injury/fatality of species individuals Damage to habitats and injury/fatality of species individuals	No

20. Structure of Environmental Statement

Volume 1: The Non-Technical Summary

- 20.1 A Non-Technical Summary (NTS) is required under the 2017 EIA Regulations and presents the findings of the ES in a manner suitable for use by non-experts.

Volume 2: Environmental Statement

- 20.2 This Volume will contain the main text of the ES. The proposed topics for consideration and their respective chapter headings are set out below:

- 1) Introduction
- 2) Approach
- 3) Site Description
- 4) Alternatives
- 5) The Proposed Development
- 6) Townscape and Visual
- 7) Ecology and Nature Conservation
- 8) Archaeology and Heritage
- 9) Ground Conditions
- 10) Flood Risk and Drainage
- 11) Transport and Access
- 12) Air Quality and Dust
- 13) Noise and Vibration
- 14) Daylight, Sunlight and Overshadowing
- 15) Wind Microclimate
- 16) Socio-economic

17) Health and Wellbeing

18) Climate Change

19) Summary of Mitigation and Residual Effects

Volume 2a: Main Text Figures

20.3 This volume will contain supporting information and a collection of figures upon which the conclusions of the ES are based.

Volume 3: Appendices

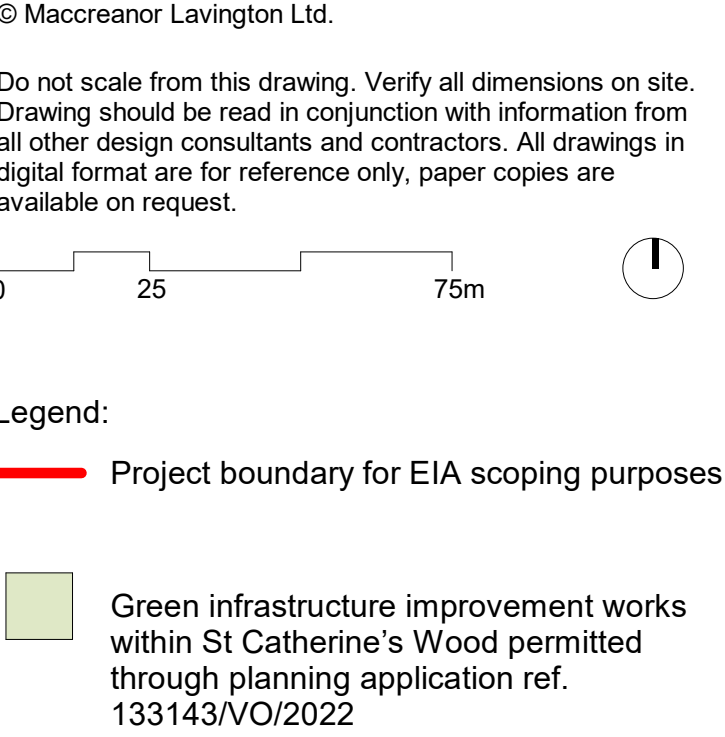
20.4 This volume will contain supporting information and a collection of technical reports upon which the conclusions of the ES are based.

21. Summary and Conclusion

- 21.1 The EIA Scoping Report has been prepared to support a formal request to MCC for a Scoping Opinion under the 2017 EIA Regulations regarding the scope of the EIA and the likely content of the ES which will accompany the Planning Applications for both the Red Bank Outline Application and the NT02-NT04 Detailed Application.
- 21.2 The EIA Scoping Report provides:
- An overview of the baseline environmental conditions;
 - Details of the Proposed Development;
 - An overview of the likely environmental issues associated with the Development; and
 - Methodologies proposed to undertake the specialist assessments.
- 21.3 We would welcome feedback on the proposed approach to the EIA and would be grateful if MCC would respond by way of a formal Scoping Opinion within the requisite 5 weeks in accordance with Regulation 15(4) of the 2017 EIA Regulations. If the Local Planning Authority require any additional information in order to make a decision, please do not hesitate to contact Avison Young.

Appendix I

Site Location Plan



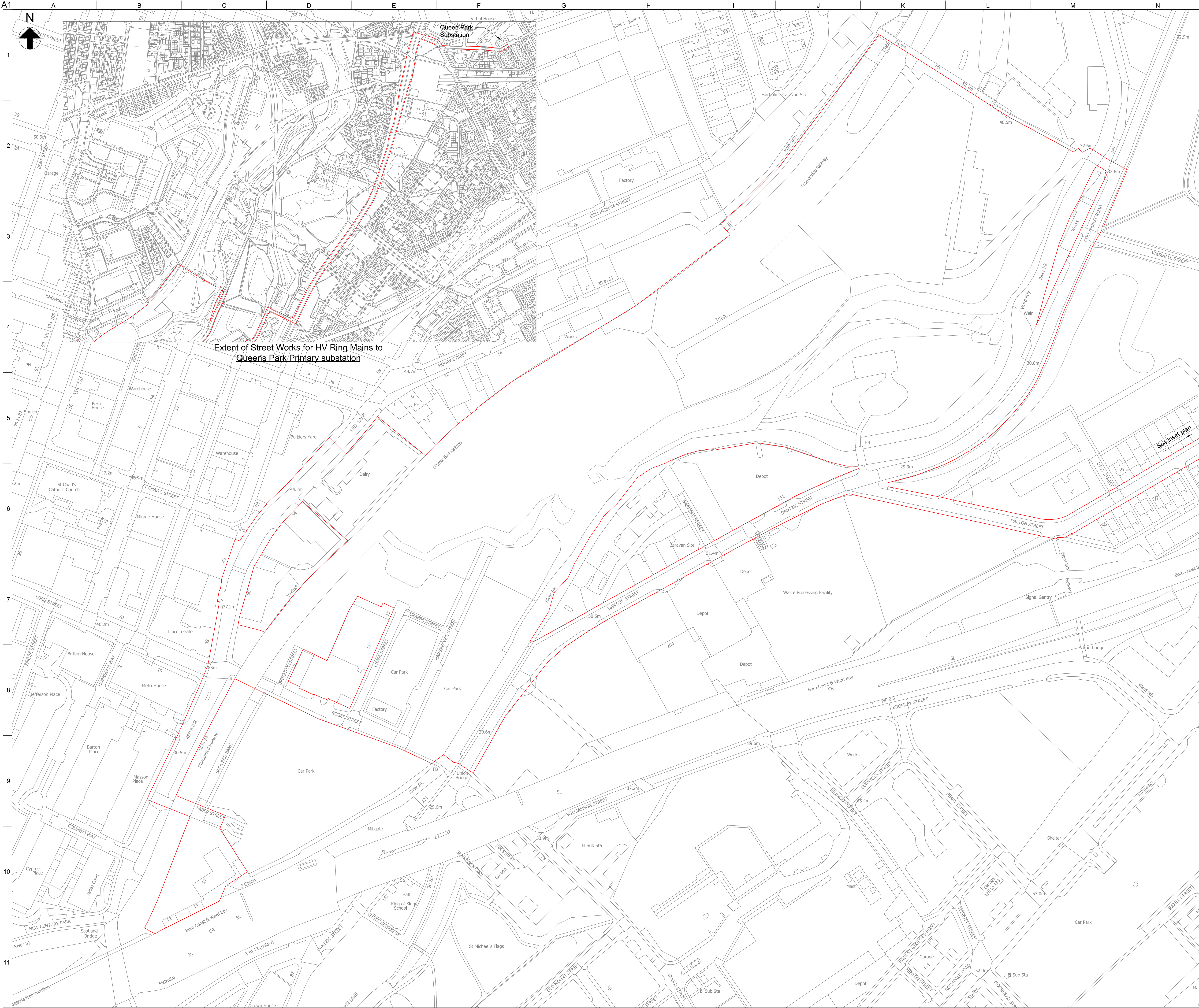
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P12.06	S0-Initial Status	14/12/2020
Rev	Details	Drwn Chkd Date
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Proj. No.	Project	Status
524	Red Bank Manchester	S0-Initial Status
Sheet Name	Client	
FEIA Scoping Boundary	FEC	
Scale	Size	Rev.
CADD ID		P12.07
RDB-MLM-DR-AR-009001a		

Appendix II

Enabling Works Site Location Plan (Application 1)

Appendix III

Infrastructure Works Site Location Plan (Application 2)



- Notes
1. All dimensions are in mm, all levels in mAOD, unless specified otherwise.
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Key

Extent of Infrastructure Works

P01	09/11/21					EC	EC	ME	---
P02	09/11/21	For Enabling Works Application				EC	EC	ME	---
P03	16/11/21	Updated redline boundary				EC	EC	ME	---
P04	10/12/21					RG	RG	RG	---
P05	04/02/22	For Information				RG	RG	RG	---
Rev	Date	Description				By	Chkd	Appd	Auth

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Client



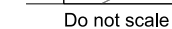
Project Title
Victoria North HIF Infrastructure & Enabling Works

Drawing Title
HIF Infrastructure Study Area

Scale at A1		1:1250		Anup Job No		282022-00	
Role		GIS & Land Surveyors					
Suitability		S3 - Issued for Review and Comment					
Rev	By	RG	Chkd	RG	Appd		
P05	Date	04/02/22	Date	04/02/22	Date		
Name							
VNIF - ARP - 00 - YYY - DR - G - 0009							
Project	Originator	Volume	Location	Type	Role	Number	

Appendix IV

HIF Utility Works Site Location Plan (Application 3)



	Notes
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3. Layout is based on:
 - Topographical Survey drawing PS-2158-TS by Paragon Surveys dated September 2021.

Key

— Planning Boundary

P01.01	21/09/22						
Rev	Date	Description	By	Chkd	Appd	Auth	



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Project Title
Victoria North HIF Infrastructure & Enabling Works

Drawing Title
**Dantzic Street Utilities
Planning Boundary**

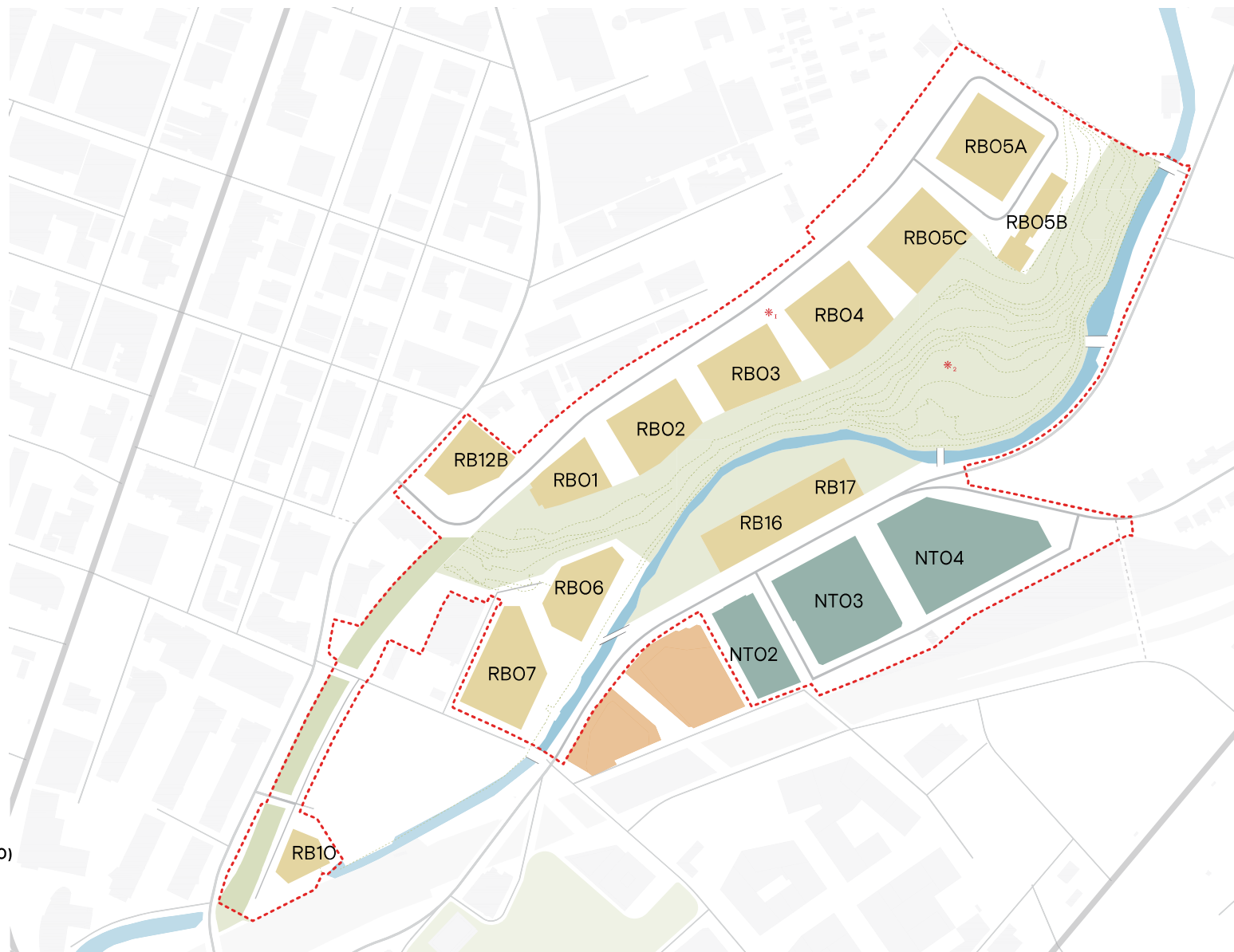
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	Date	Date	Date	---		
	---	---	---	---		
Name						
UNIF	- ARP-	00	- YYY-	DR	- G	- 5001
Project	Originator	Volume	Location	Type	Role	Number

Appendix V

Planning Strategy Plan

PLANNING STRATEGY

Two planning applications



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