

Upper Brook Street Masterplan Williams / Alliance UBS Limited Volume 2: Environmental Statement and Appendices

Consultant
Egniol Consulting
Ltd

Volume 2 – Environmental Statement and Appendices

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1. The Introduction

- 1.1 Property Alliance Group Ltd, Moda Living and Williams Motor Co (Holdings), hereby referred to as Williams Motor Co (Holdings) and Alliance UBS Limited ('the Applicant') are seeking to obtain full planning permission for a life-sciences and Purpose Built Student Accommodation (PBSA) development on Phase Two of the Upper Brook Street (UBS) Masterplan (hereafter referred to as the 'site'). The site is located within the administrative authority of Manchester City Council (MCC).
- 1.2 The proposal would bring forward development on a site which is earmarked for commercial and PBSA uses in the Oxford Road Corridor Strategic Regeneration Framework Guidance (ORC SRFG) endorsed by MCC in 2019.
- 1.3 The site location plan is shown on **Figure 1.1**. The site is described in detail in Chapter 3: Site Description. A description of the development is provided in Chapter 5: The Proposed Development, which is supported by a number of plans and drawings.
- 1.4 Egniol have been appointed by the Applicant to coordinate the Environmental Impact Assessment (EIA) process and produce the Environmental Statement (ES) for the Proposed Development.

The Site

- 1.5 The Site extends to 2.13 hectares and is bounded by UBS, Grosvenor Street and Kincardine Road with Inchley Road running through the centre. The site comprises the various former Williams Garage buildings and their associated car parking forecourts. These buildings are now vacant and are formed around the Grade II* listed 'Former Unitarian Chapel' (located outside of the site boundary) which now operates as student accommodation.
- 1.6 The Site is identified for redevelopment within the Oxford Road Corridor SRFG with mixed commercial uses, purpose built student accommodation, and high-density development identified as being a priority for the UBS site.
- 1.7 The Proposed Development forms one element of the wider Upper Brook Street Illustrative Masterplan. The wider illustrative masterplan proposals are being brought forward collaboratively by Property Alliance Group, Moda Living, McLaren Property and Kadans Science Partner. The illustrative masterplan intends to transform the currently vacant sites, re-establishing their important role in the area by re-introducing permeability, public realm, and active community-facing uses at ground floor. The emerging masterplan includes almost 3 acres of new public realm and green spaces, two new public squares, as well as a series of high-quality new buildings of varying heights to provide for c.700,000ft² of sci-tech/life sciences uses, over 1,800 purpose-built student accommodation beds, and c. 25,000ft² of active ground floor uses.

Development Proposals

- 1.8 The planning application seeks full planning permission for a mixed-use development, to provide PBSA with 1,100 student bedrooms (55% studio and 45% clusters in buildings A1 and A2 and 100% clusters in building A3 - 20% affordable clusters), student amenities, management suite, commercial/community spaces and supporting ancillary areas. The proposed PBSA scheme is arranged in three building blocks with buildings A1 and A2 linked on the ground floor to form spaces for student amenities. Building A3 is separated by the proposed public square. The buildings step down in height in a north-south direction comprising ground floor A1 +41 storeys, A2 +14 Storeys and A3 +12 storeys.
- 1.9 The second part of the development consists of Life Sciences (buildings B1, B2 and B3) which will provide approximately 46,643 sq m of combined laboratory and office space along with a ground floor publicly accessible café and medical facility. The buildings will house conference space alongside secure cycle store and cycle changing. The massing is split into three buildings, comprising ground floor B1 + 5 storeys, B2 + 7 Storeys and B3 + 9 Storeys. The Life Sciences buildings will encase the proposed public square and Grade II* listed 'Former unitarian Chapel'.
- 1.10 The full description of development on the planning application form is:
- "Full planning permission for the demolition of existing buildings and erection of three ground floor + 12/14/41 storey buildings to be used for Purpose Built Student Accommodation (Use Sui Generis), comprising 1,100 bedrooms in total and 506sqm of ground floor ancillary uses (café/ commercial and convenience store - Use Classes E (a)/(b)/(c)), three buildings comprising ground floor + 5/7/9 storeys for Science and Innovation uses (Use Class E (g)(i) & (ii)) and 834sq.m ground floor community uses (retail/café and medical facility (Use Classes E (a/b) and (e) and the provision of new public realm, two new public squares, new access and parking, and associated works to be on Phase Two of the Upper Brook Street Masterplan."*
- 1.11 Environmental constraints and potential significant effects have been identified throughout the EIA process and, as a result, mitigation measures have been incorporated into the proposals through design (known as embedded mitigation). Where environmental mitigation measures have not been integrated into the proposals through design, it is expected that the requisite mitigation measures will be secured by appropriate planning conditions where relevant (known as further mitigation). Further detail relating to the approach to mitigation is presented in Chapter 2: Approach. Mitigation has been identified, where appropriate, in each technical chapter of this ES (Chapters 6-12) and summarised in Chapter 13: Summary of Mitigation and Residual Effects.
- 1.12 A detailed description of the Proposed Development can be found in Chapter 5: Proposed Development of this ES.

The Planning Application and Environmental Impact Assessment

EIA Context

- 1.13 EIA is a systematic process by which information about the scope and likely environmental effects of a proposed development are assessed and presented to the Local Planning Authority (LPA), relevant stakeholders and the public to inform the decision on whether the development should be granted planning permission.
- 1.14 The Proposed Development constitutes 'EIA development' under the Town and Country Planning (Environmental Impact Assessment) (England) Regulations 2017 (SI 2017/571) as amended (hereafter referred to as the 'EIA Regulations'). Criteria for establishing the need for an EIA are set out in Schedules 1 and 2 of the EIA Regulations. The Proposed Development falls under Schedule 2, Category 10 'Infrastructure Projects', Subsection (b) 'Urban Development Projects'.
- 1.15 This document is the ES which reports the findings of the EIA and supports the planning application for the proposed development. It has been prepared by Egniol Consulting Ltd with technical contributions from a range of specialist consultants experienced in EIA (see Chapter 2). This ES provides sufficient environmental information to enable MCC to make an informed decision on whether to grant planning permission.
- 1.16 This ES relates to the planning application which is defined by the description of the development and the detailed plans for development that accompany the application.

The Environmental Statement

- 1.17 This ES comprises of three volumes:
- Volume 1: Non-Technical Summary – a document providing a synopsis of the ES without utilising technical language. The summary includes a description of the proposed development, the potential environmental effects associated with the proposed development and the measures proposed to mitigate these effects.
 - Volume 2: Main Text - this volume contains the main body of text of the ES, split into chapters. it provides an introduction, the approach to assessment, the assessment of alternatives, a description of the proposed development, a series of technical assessments relating to specific environmental topics including cumulative and combined effects and a summary of residual effects.
 - Volume 2a: Main Text Figures – this volume contains the figures associated with the chapters in volume 2: main text.
 - Volume 3: Appendices – this volume contains supporting information and a collection of technical reports upon which the conclusions of the ES are based.

- 1.18 All volumes of this ES are available to view on the MCC's planning portal. Further copies of this ES are available electronically at a cost of £25, and hard copies subject to a fee sourced from printing companies. If hard copies of the ES are required, please contact Egniol Consulting at:

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2. Approach

- 2.1 This chapter describes the methodology used to undertake the EIA in accordance with the Town and Country Planning (Environmental Impact Assessment) Regulations 2017 (SI 2017/571) as amended and National Planning Practice Guidance ('NPPG').
- 2.2 The chapter begins with a description of the general approach to assessment and EIA regulatory compliance, including how the planning application and EIA are linked. EIA procedure and methodology is presented before the spatial and temporal scope of the assessment is discussed.
- 2.3 Following this, the criteria used for impact prediction, assessing significance and implementing and securing mitigation measures are explained, along with any limitations and assumptions. With regard to the methodologies and assumptions for the technical assessments, each chapter has its own specific assessment methodology and assumptions, which are explained within the relevant sections.
- 2.4 A wide range of experience, resources and skills have been coordinated in order to bring together this application and the project team, along with their professional roles, is presented at the end of this chapter.

EIA Procedure and Methodology

- 2.5 The EIA Regulations, supported by precedents in UK case law, have established the legal framework for the process of EIA and contents of Environmental Statements. The application is to be submitted as a full planning application. The description of development and plans provides sufficient detail to identify, predict and assess the significance of any potential environmental effects.

Basis of Assessment

- 2.6 The EIA is based on the written description of the Proposed Development and is accompanied by a suite of detailed plans and information consisting of, the site red line application boundary (**Figure 1.1**) the quantum of development, including height and use and the construction programme (see Chapter 5: The Proposed Development). The description of development, along with detailed plans submitted for approval as part of the application, allow the likely significant effects of the proposals to be fully assessed and appropriate mitigation measures secured.
- 2.7 The Design and Access Statement (DAS) (Hawkins Brown and Simpson Haugh, June 2023) which accompanies the planning application, presents further information about the Proposed Development.

Screening

- 2.8 The EIA Regulations require that for certain planning applications, an 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 could give rise to significant environmental impacts.

- 2.9 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 if a development is classed as a Schedule 2 development. This decision is based on the likelihood of significant environmental effects arising in relation to the development proposals. Due to the scale and location of the Proposed Development, it has been assumed for the purposes of the application that a statutory EIA will be required and therefore the Applicant has undertaken an EIA in respect of the proposals without seeking a Screening Opinion from the Local Authority.

Scoping

- 2.10 Scoping is a process that, through research and consultation, identifies the environmental issues that require assessment as part of the EIA. This essentially refines the focus of the EIA on the environmental aspects which are likely to result in significant environmental impacts whilst also ensuring that no potentially significant areas are overlooked.

- 2.11 Through informal discussions with MCC, the scoping process concluded that there were potentially significant environmental effects in relation to the below topics and that these should be included in the EIA:

- Townscape and Visual;
- Built Heritage;
- Transport and Access;
- Socio-economics;
- Daylight, Sunlight & Overshadowing;
- Wind Microclimate; and
- Climate Change.

- 2.12 A number of other topics were scoped out of the EIA as they were not considered to give rise to significant environmental impacts. These topics included:

- Air Quality;
- Noise and Vibration;
- Ecology;
- Ground Conditions;
- Water Resources and Flood Risk Management;
- Archaeology;
- Waste Management;
- Water Resources;
- Human Health; and

- Accidents and Disasters.

Consultation

- 2.13 An integral part of the EIA process is consultation with a range of statutory and non-statutory consultees. Consultation was undertaken at an early stage in the project to identify any initial environmental concerns associated with the Proposed Development that required examination in greater detail in the EIA. The EIA has been prepared based on pre-application discussions with MCC and advice from the technical experts advising the Applicant to prepare the planning application.
- 2.14 Consultation has been undertaken as part of the technical assessments as a means of establishing the environmental baseline and assessment methodologies. Details of further consultation undertaken as part of each technical assessment is described further within each technical chapter as relevant.
- 2.15 Extensive pre-application meetings were held with MCC Planning Regeneration and Highways Officers in 2022 and 2023. Consultation with other Stakeholders including Historic England, Manchester Metropolitan University, and the NHS has also been undertaken.
- 2.16 Two local leaflet drops inviting residents to attend the consultation event or visit the dedicated consultation website and provide feedback comments were carried out on 13th March 2023, and 22nd May 2023. In total almost 6,000 leaflets and 1,800 text messages were sent out to the local community to advertise the consultation.
- 2.17 Two in-person public consultation events were held in nearby community centres on 23rd March 2023 and 26th May 2023 with over 130 attendees in total. A dedicated online consultation website which included details of the scheme and invited feedback on the scheme proposals. The consultation website was live from 13th - 31st March 2023, and again from 24th May - 5th June 2023.
- 2.18 Further details regarding consultation and feedback are reported through the accompanying Statement of Community Involvement, with comments covering a range of issues and concerns.

EIA Methodology

- 2.19 In addition to observing the formal requirements of the EIA Regulations, further formal guidance has been drawn from National Planning Practice Guidance (NPPG). Specific technical guidance is referenced in the individual technical chapters as appropriate.

Consistency

- 2.20 To assist the reader in understanding the technical assessments a consistent approach has been adopted throughout the EIA to ensure that likely significant effects are identified and evaluated in a transparent manner.

Spatial and Temporal Scope of Assessment

- 2.21 The spatial extent of the EIA is described by the geographical area potentially affected by the proposed scheme and will need to take into account:
- The physical extent of the proposed scheme defined by the limits of land to be used in operation (temporary and permanent);
 - The position of sensitive receptors within or outside of the Site boundaries; and
 - The nature of the baseline environment and the way in which the impacts are likely to be propagated.
- 2.22 The effects for each of the disciplines are likely to extend to different spatial extents. The spatial scope for each discipline will be described within each of the topic chapters as required.
- 2.23 The environmental baseline studies undertaken as part of the EIA consider the current conditions of the Site. Therefore, each technical chapter will contain a description of the relevant study area that may be affected by the scheme.
- 2.24 With reference to the baseline conditions, the impact assessment will be made against existing baseline conditions. The assessment will address effects arising from the operation of the proposed scheme as follows:
- Construction effects may arise directly from construction activities but also from the temporary use of land (e.g., construction sites) or from associated changes in traffic movements; and
 - Operational effects may arise from the permanent operational activities and ongoing use of the Proposed Development, including but not limited to day light & sunlight and wind.
- 2.25 The significance of the effects that will arise is based on any changes compared to the baseline conditions (i.e., those conditions which would exist if the proposed scheme did not go ahead).

Impact Prediction

- 2.26 The 2017 EIA Regulations state that an ES should include:

“A description of the likely significant effects of the development on the environment resulting from inter alia:

- *The construction and existence of the development, including, where relevant, demolition works;*
- *The use of natural resources, in particular land, soil, water and biodiversity, considering as far as possible the sustainable availability of these resources;*

- *The emission of pollutants, noise, vibration, light, heat and radiation the creation of nuisances, and the disposal and recovery of waste;*
- *The risk to human health, cultural heritage or environment (for example accidents and disasters);*
- *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;*
- *The impact of the project on climate (for example nature and magnitude of greenhouse gas emissions) and the vulnerability of the project to climate change;*
- *The technologies and substances used."*

2.27 Predictions of environmental impacts are carried out using quantitative methods, or in some cases, qualitative terms using expert opinion. All assumptions used and any areas of uncertainty are defined in the relevant chapters.

2.28 The following types of effect are considered:

- Direct impacts that arise from activities that form an integral part of the proposed scheme (e.g., new infrastructure/land take);
- Indirect impacts that arise from activities not explicitly forming part of the proposed scheme (e.g., noise changes due to changes in road traffic flows on existing roads resulting from the operation of the scheme);
- Secondary impacts that arise as a result of an initial effect of the proposed scheme;
- Permanent impacts that result from an irreversible change to the baseline environment (e.g., land take) or impacts which persist for the foreseeable future (e.g. visual impact);
- Temporary impacts that persist for a limited period only;
- Beneficial impacts that have a positive influence; and
- Adverse impacts that have a negative influence.

Significance Criteria

2.29 The significance of effect is assessed by looking at what the changes will be against the existing or predicted baseline as a result of the operation of the scheme. It is a product of the sensitivity of the receptor, and the magnitude of the impact upon it. The criteria used to define the sensitivity of a receptor and magnitude of impact is provided in **Table 2.1** and **Table 2.2** below. These criteria are used as a guide only

and the specific criteria for each technical assessment will be presented within each chapter.

Table 2.1: Description of the Sensitivity of an Environmental Receptor

Sensitivity	Typical descriptors
Very High	Very high importance and rarity, international scale and very limited potential for substitution.
High	High importance and rarity, national scale, and limited potential for substitution.
Medium	High or medium importance and rarity, regional scale, limited potential for substitution.
Low	Low or medium importance and rarity, local scale.
Negligible	Very low importance and rarity, local scale.

2.30 Descriptions of the magnitude of impact are provided in **Table 2.2** below.

Table 2.2: Description of the Magnitude of an Impact

Magnitude of Impact	Impact Type	Typical criteria descriptors
Very Large	Adverse	Loss of resource and/or quality and integrity of resource; severe damage to key characteristics, features or elements
	Beneficial	Large scale or major improvement of resource quality; extensive restoration or enhancement; major improvement of attribute quality
Large	Adverse	Loss of resource, but not adversely affecting the integrity; partial loss of/damage to key characteristics, features or elements
	Beneficial	Benefit to, or addition of, key characteristics, features or elements; improvement of attribute quality
Medium	Adverse	Some measurable change in attributes, quality or vulnerability; minor loss of, or alteration to, one (maybe more) key characteristics, features or elements
	Beneficial	Minor benefit to, or addition of, one (maybe more) key characteristics, features or elements; some beneficial impact on attribute or a reduced risk of negative impact occurring

Magnitude of Impact	Impact Type	Typical criteria descriptors
Small	Adverse	Very minor loss or detrimental alteration to one or more characteristics, features or elements
	Beneficial	Very minor benefit to or positive addition of one or more characteristics, features or elements
No change	n/a	No loss or alteration of characteristics, features or elements; no observable in either direction.

Identification of Significant Effects

2.31 Based on the sensitivity and magnitude criteria set out above, specific significance criteria have been used in each technical assessment and these are explained in the methodology sections within each technical chapter. Often, these are based on clearly defined criteria from published best practice guidance. However, wherever possible, the following terminology has been utilised:

- Major Beneficial;
- Moderate Beneficial;
- Minor Beneficial;
- Negligible;
- Minor Adverse;
- Moderate Adverse; and
- Major Adverse.

2.32 Where potential environmental impacts have been found, further to assessment which are of no significance, they are said to have no effect.

2.33 The assessment of likely significant effects has been undertaken for all potential effects to determine their relative importance. This has taken into account the following considerations:

- Magnitude (size of impact);
- Sensitivity of the surrounding environment and receptors;
- Spatial extent (size of the area affected);
- Duration (short, medium or long term);
- Nature of the effect (direct or indirect, reversible or irreversible);

- Inter-relationships and combination effects;
- International, national or local standards; and
- Relevant policy guidance.

Mitigation

2.34 The development of measures designed to avoid, reduce or offset significant adverse environmental effects associated with a proposal is one of the key elements of EIA. Measures to mitigate environmental effects of the Proposed Development can take two forms;

- Embedded mitigation - is the consideration of mitigation embedded into the fixed scheme with the aim where possible, of avoiding, reducing or offsetting significant adverse effects, determined during the course of the assessment; and
- Further mitigation – is the mitigation that is not embedded into the proposals and which requires further action than already proposed.

2.35 Where environmental mitigation measures have not been integrated into the proposals through design, it is expected that all other requisite measures or 'further mitigation' will be secured by appropriate planning conditions or obligations. Each technical chapter of the EIA will describe the relevant mitigation measures.

Cumulative Effects

2.36 In line with Schedule 4 Paragraph 5(e) of the EIA Regulations, an ES must provide a description of the likely significant effects of a project on the environment resulting from:

2.37 Such effects are known as 'cumulative effects'.

2.38 Given that existing development will be considered in the environmental baseline conditions relevant to the Site and the development, and a consideration of the likelihood of significant environmental effects of the development are judged against the relevant environmental baseline conditions, the potential for cumulative effects focuses as a minimum on those developments with:

- A resolution to grant planning permission.
- A valid planning permission and yet to start on-site.
- A valid planning permission and under construction.

2.39 These are referred hereafter as 'committed developments'.

2.40 The assessment of cumulative effects is set out in two forms. The first relate to the impacts of the Proposed Development in conjunction with committed developments in the area. These committed developments should be located within a realistic geographical scope where environmental effects could combine to create a more

significant effect on a particular sensitive receptor. The second type of cumulative effect is that of the combination of the various types of impacts from the Proposed Development. These are referred to as synergistic effects.

- 2.41 Committed developments for consideration in the cumulative effects assessment were identified through a planning application search of the MCC planning portal and through the EIA scoping process. **Table 2.3** below identifies the Cumulative Sites which have the potential to interact with the Proposed Development.

Table 2.3 Cumulative Sites

Site No.	Planning Reference	Description of Development	Status	Distance and Direction from the Site
1	101664/FO/2013/N2	Brunswick Neighbourhood Selective demolition and clearance (including a number of residential, retail and other non-residential buildings) to allow the phased redevelopment and refurbishment of the Brunswick Neighbourhood, including the erection of 444 new residential dwellings (C3); the refurbishment of 839 existing homes [including low rise reversals and the refurbishment of Artillery Court, Silkin Court, Lockton Court, Lamport Court, and existing maisonettes and low rise houses]; a new boulevard and new access roads, new car parking and service areas; a new mixed use building comprising of 4 retail units (A1 or launderette or A5), and a neighbourhood housing office (B1a) with 18 apartments (C3) above; a mixed use residential extra care home with 60 residential units, and a day care centre on part of the ground floor (C2/D1); the upgrading of Gartside Gardens [with new multi use games area, a new playground, realigned pathways, new entrances and new landscaping]; a new orchard; 25 new allotments; new boundary treatments; new open spaces; with associated infrastructure, landscaping and tree planting	Application validated: 18 February 2013 Application approved: 30 May 2013	Adjacent to the Site's eastern boundary

2	124472/FO/2019	Kincardine Court Extension Erection of a part 4, part 5, part 6 storey extension to existing student accommodation building to form 25 additional student flats (comprising 100 bedrooms) (Use Class Sui Generis) to form 86 student flats in total (329 bedrooms) following removal, modification and reconfiguration of existing car parking, landscaping and boundary treatment together with the erection of a single storey water tank	Application validated: 14 August 2019 Application approved: 06 December 2019	15m east
3	134288/FO/2022	Number 3 Circle Square Erection of 15 storey building comprising office space (Use Class E(g)(i)) and ancillary flexible commercial uses (Use Class E), rooftop terrace, highway works, landscaping, and other associated works	Application validated: 19 July 2022 Application approved: 04 November 2022 Groundworks started: 06 December 2022	200m north-west
4	125799/FO/2019	MMU Science and Engineering Building Demolition of existing John Dalton West Building and associated structures, and erection of a new 7 storey education building (Use Class D1) for the Faculty of Science and Engineering (comprising teaching and research spaces, academic offices, social learning areas, catering/kitchen facilities and an energy centre), physical connections to and external refurbishment of the John Dalton Tower, hard and soft landscaping works, car and cycle parking and associated works.	Application validated: 20 December 2019 Application approved: 12 March 2020 Construction started: 14 April 2021	420m north-west

5	125573/FO/2019	First Street South Construction of four buildings of heights varying from 10 storeys to 45 storeys together comprising Co-living bedspaces (use class sui generis) and associated amenity facilities, with ground floor commercial units (Use classes A3 (Café / Restaurant and D2 (Gym)), private amenity space and public realm comprising hard and soft landscaping, car parking and cycle facilities and other associated works.	Application validated: 22 January 2020 Application approved: 09 March 2021 Construction started: 21 March 2022	675m north-west
6	124972/FO/2019	Mayfield Plot O - Baring Street Office Number of storeys: 9 Office space: 97,316	Application Approved 13 December 2020	570m northeast
7	125248/FO/2019	The Republic Number of storeys: 13 Office space: 315,544 sqft Ground floor commercial space: 16,813 sqft (A1-4, D1, 2)	Under Construction as of Jan 2022	550m northeast
8	N/A	Upper Brook Street Redevelopment Demolition of existing structures on site and the erection of two blocks of varying height comprising student accommodation and life sciences use.	Application not yet submitted	Adjacent to the Site's southern boundary

Limitations and Assumptions

- 2.42 The EIA has been undertaken based on the planning application drawings and description of the development submitted with the planning application. The technical assessments have been based on the current land uses and the existing baseline conditions at the Site. Any assumptions made or limitations relating to individual technical assessments are presented, where applicable, in the relevant technical chapters.

The Project Team

- 2.43 The ES has been compiled using a wide range of sources and with inputs from competent, technical specialists. The 2017 EIA Regulations require that an ES is prepared by competent experts and include a statement of the relevant expertise of the technical experts inputting into an EIA. The project team which has prepared and inputted into this ES is presented in **Table 2.4**.

Table 2.4 Technical Team

Discipline	Company	Personnel Profile
Townscape and Visual	Reform Landscape Architecture	Mark Shilton (Associate Landscape Architect) CMLI, PG Dip Landscape Architecture, BA (Hons) Landscape Architecture Mark has over 14 years experience in professional practice. He has significant experience in delivering Townscape and Visual Assessments, Landscape and Visual Assessments, Landscape Capacity Studies and Green Belt appraisals for developments ranging in scale, including residential and mixed use schemes. Mark is responsible for coordinating assessment work across both offices and is involved in the development of the practice's approach to assessment work .
Built Heritage	Turley Heritage	Katy Lightbody (Senior Director) MA (Hons) Town Planning, PGDip Conservation of the Historic Environment, MRTPI, IHBC Affiliate Katy is a heritage specialist and town planner, with over 20 years' experience. She represents a range of public and private sector clients and specialises in the provision of strategic and detailed advice on managing change within the historic environment. Katy is experienced in dealing with the challenges presented by the reuse, adaptation and alteration of listed buildings, heritage-led regeneration and the integration of new development into a historic context. She has contributed to over 30 Built Heritage ES Chapters involving assessing the impact of new development on the significance and setting of heritage assets, utilising best practice and recognised Historic England guidance and methodology.
Transport and Access	Focus Transport	Andrew Bell BA, MSc, CIHT CILT Andrew is a founding Director of Focus Transport Planning and has almost 30 years' experience of working in the transportation planning sector. Andrew has been responsible for the preparation of Environmental Statement chapters and formal Transport Assessment reports to support a range

Discipline	Company	Personnel Profile
		of public and private sector projects, including commercial development, residential development, education & leisure projects and employment schemes.
Socioeconomics	Brookdale Consulting	Donald Webb (Director) BSc Hons, MBA, MIC (Member of the Institute of Consulting) Donald is Director of Brookdale Consulting. He is an economist with nearly 30 years consultancy experience. He has undertaken numerous EIAs for a wide range of clients. He was formerly a Director of DTZ (now Cushman Wakefield) heading up DTZ's economics team based in Manchester. Donald has extensive experience of the economics of real estate covering residential, office and commercial. He has undertaken socio-economic impact assessments of a wide range of developments across the UK including city centre, out of town, science parks and developments in the greenbelt.
Daylight, Sunlight & Overshadowing	Proximity	Proximity is a firm of Chartered Surveyors specialising in the assessment, management, and mitigation of the "Proximity Risk" associated with rights of light, daylight and sunlight amenity / solar glare amenity impacts, access to land / airspace, and the administration of the Party Wall etc Act 1996. The personnel involved in this project are as follows: Mike Scanlan Mike is a Director at Proximity. An RICS Chartered Surveyor since 2000. He has specialised in all aspects of Proximity Risk for much of his professional career and is acknowledged as a leading practitioner. Mike will be responsible for overseeing the delivery of this project. Jerome Muir Jerome is a Senior Surveyor at Proximity. An RICS Chartered Surveyor since 2013. Jerome specialises in rights of light matters and assessment of daylight and sunlight impacts for planning purposes. He has worked as part of Mike Scanlan's Team since 2017.
Wind Microclimate	GIA Surveyors	Jon Winchester (Wind Technical Director) BSc, MSc, PhD

Discipline	Company	Personnel Profile
		Jon is the Technical Director for wind analysis at GIA, and holds a BSc in Mathematics, MSc in Mechanical Engineering and PhD in Mechanical Engineering. Jon has 11 years of experience of wind analysis for the built environment, developing methods for pedestrian comfort analysis, wind loading and natural ventilation. Jon has been lead wind consultant on numerous large scale and high profile developments across the UK, with experience in multiple London boroughs, Manchester, Salford, Leeds, Liverpool, Birmingham, Bristol and Glasgow.
Climate Change	BWB Consulting	Matthew Wilby (Associate Director) PIEMA, MSc, BSc Matt is an Associate Director at BWB Consulting and has over 11 years of experience in the built environment sector. Matt specialises in the environmental appraisal of construction and operational effects on large scale projects both nationally and internationally, including the effects of climate change over the last six years. Matt is a Practitioner Member of the Institute of Environmental Management and Assessment.
EIA Coordinators	Egniol	Josh Thomas BSc MSc AIEMA Josh is a Principal Environmental Planner with seven years' experience as an EIA coordinator. He has experience in all aspects of the EIA process, including preparation of screening opinion requests, carrying out scoping exercises and preparing detailed scoping reports, coordinating EIA specialists including in-house and external specialists and subconsultants, reviewing technical reports, advising clients on environmental planning risks, report writing and providing post-planning advice. Josh has worked on a wide range of projects across a variety of sectors including residential, commercial and infrastructure.

3. Site Description

- 3.1 This chapter provides a description of the Proposed Development Site, including a brief site history and a description of its surrounding area. It also summarises the potential environmental considerations to the proposed development of the Site.
- 3.2 The Site extends to 2.13 hectares and is bounded by Upper Brook Street (UBS), Grosvenor Street and Kincardine Road with Inchley Road running through the centre. The site comprises the various former Williams Garage buildings and their associated car parking forecourts. These buildings are now vacant and are formed around the Grade II* listed 'Former Unitarian Chapel' (located outside of the site boundary) which now operates as student accommodation.
- 3.3 The existing land uses surrounding the site are as follows:
- To the north lays a car park sited adjacent to the Mancunian Way Ring Road. Beyond this, the Ring Road overlooks Princess Street which comprises buildings forming part of the University of Manchester (the John Garside Building and the George Begg Building) which range from 3-15 storeys in height.
 - To the east of the Site is Kincardine Road; beyond which the predominant use is 2-storey residential dwellings that form a part of the wider Brunswick Estate. The Brunswick Estate is an area currently undergoing extensive urban regeneration. This direction also comprises a Salvation Army building, the Sheung Lok Wellbeing Centre and Gartside Gardens.
 - To the south of the Site lays a temporary paid car park (formerly in use as a Citroën car dealership) alongside the former Elizabeth Yarwood Court residential complex. This land is also identified for redevelopment in the Oxford Road Corridor SRFG and forms Phase One of the Upper Brook Street Masterplan.
 - To the west of the Site is UBS, on the opposite side of which is the University of Manchester's Main Campus, which includes the National Graphene Institute, the Manchester Engineering Campus and the Sir Henry Royce Institute, with buildings ranging from 4-storeys to 10-storeys in height.
- 3.4 The site is situated to the immediate south of Manchester City Centre boasting a range of public and private transport links. Services include trains, various free and paid for bus services, the Metrolink and pedestrian and cycle routes.
- 3.5 The site is situated within immediate proximity to Oxford Road, one of the main routes into the City Centre where a number of Bus Services are available to travel around the city and further. The city has a number of Bus stations available with the closest being Manchester Central Coach Station located 0.8km north of the site. Additional bus stations include Level Street Bus Station 1.2km north and Shudehill Bus Station 1.6km north.
- 3.6 The site is located within close proximity to Manchester Piccadilly train station which is 0.7km northeast of the site. Other train stations available across the city include

Manchester Oxford Road train station 800m northwest, Deansgate Castlefield 1.1km northwest, Salford Central 1.9km northwest and Manchester Victoria 1.9km north.

- 3.7 The site is located within the Greater Manchester Combined Authority (GMCA) Air Quality Management Area (AQMA). This AQMA was declared by the GMCA for exceedances of the annual mean Nitrogen Dioxide NO₂.
- 3.8 The site does not contain any statutory or non-statutory ecologically designated sites. The closest designated site is Ashton Canal (West) Site of Biological Importance (SBI), located 1km north east of the site boundary.
- 3.9 According to the Environment Agency's Flood Risk Map for Planning the Site comprises a mix of Flood Zone 1, where a low risk of flooding is anticipated (indicating an annual probability of less than 0.1%) and Flood Zone 2 (affecting parts of the southern area of the site, south of Inchley Road), where a medium probability of flooding is anticipated (indicating an annual probability between 1% and 0.1%).

Site History

- 3.10 The area began to develop in the late 18th century, as part of the expansion of Manchester as a growing industrial centre. The Site and surrounding area were developed into terraced residential streets in the early 19th century.
- 3.11 A Unitarian Chapel, a Congregational Chapel with attached Sunday School, and a Free Library were constructed within the Site in the mid-19th century, with the rest of the Site occupied by terraced housing. Following the Second World War, the terraced housing within the Site and surrounding area began to be cleared. The Congregational Chapel and Sunday School and the Free Library formerly located within the Site were also cleared during this period. The Unitarian Chapel remained within an otherwise cleared area.
- 3.12 The cleared areas of the Site were subject to gradual development over the later part of the 20th century and were occupied by a series of large commercial buildings, including car showrooms. These buildings are now vacant and deteriorating.
- 3.13 The Site has not been subject to any planning applications within the past 5 years, and all previous applications at the Site have been in relation to the Site's former uses as car dealerships, showrooms and workshops.

Environmental Context

TVIA

- 3.14 The Proposed Development is located within the built-up area of Ardwick. The urban grain varies across the study area. However, it can be characterised into 3 main typologies: the Site, Brunswick (to the immediate northeast, east and southeast of the Site) and the university corridor/city centre (to the northwest of the Site, beyond Mancunian Way, and west of the Site).

- 3.15 The urban grain of the Site contains medium sized blocks, which are predominantly light industrial units, interspersed with surface car parks and incidental areas of open space.
- 3.16 There is significant variation in the scale and massing of the built form within the study area. Within the Site itself, the buildings are all below 5 storeys but have a medium sized footprint. To the east of the Site, the buildings are predominantly below 5 storeys in height and small in footprint, with some light industrial units between 5 and 10 storeys. The built form to the west of the Site is varied. The buildings are generally larger in terms of footprint compared to the surrounding area, but they are between 3 and 19 storeys in height. The 19 storey building is the Hyatt Regency hotel on Booth Street West. To the north of the Site (in the City Centre), the built form is generally much taller than the surrounding areas.
- 3.17 The Site is located on Upper Brook Street which is a key arterial route into and out of Manchester City Centre. The streetscape here consists of a wide, heavily trafficked 4-5 lane carriageway, with pavements on both sides of the road and some pedestrian crossings.
- 3.18 Six Townscape character areas were designated, including
- Corridor Manchester
 - The Village
 - North Campus
 - Mayfield
 - Upper Brook Street
 - New Brunswick
- 3.19 15 Viewpoints have been identified these include;
- Upper Brook Street
 - All Saints Park
 - Brook Street
 - Hanworth Close
 - Gartside Gardens
 - Whitworth Hall
 - Booth Street West
 - Junction of Princess Street and Charles Street
 - Vimto Park
 - Mayfield Park
 - Ardwick Green
 - Sylvia Pankhurst Way
 - Junction of Upper Brook Street and Plymouth Grove

- Grosvenor Street
- Junction of Oxford Road and Ackers Street

3.20 An assessment of the effects of the Proposed Development on TVIA is presented in **Chapter 6: TVIA**.

Built Heritage

3.21 There are no designated Scheduled Monuments, Conservation Areas, Registered Parks and Gardens, Registered Battlefields or Listed Buildings within the site boundary.

3.22 Within the 500m study area, there are a number of heritage assets, including:

- Former Unitarian Chapel Grade II* Listed Building;
- The Mawson Hotel Grade II Listed Building;
- Oddfellows Hall Grade II Listed Building;
- 94-98 Grosvenor Street Grade II Listed Building;
- Adult Deaf and Dumb Institute (Former) Grade II Listed Building;
- Former Grosvenor Picture Palace Grade II Listed Building; and
- Whitworth Street Conservation Area.

3.23 An assessment of the effects of the Proposed Development on Built Heritage is presented in **Chapter 7: Built Heritage**.

Transport and Access

3.24 The proposed development site land parcels lie adjacent to the following local road corridors:

- *A34 Upper Brook Street* – multi-lane distributor road, characterised by traffic intermediate signal junction connections and traffic signal-controlled pedestrian / cycle crossing points. The route acts as one of the key access routes to / from Manchester city centre, linking to southern suburbs.
- *Kincardine Road* – local single carriageway access road, providing frontage development access and local access road connections to the adjacent Brunswick estate. The route is generally lightly trafficked and is a signed local 'quiet street' cycle route, operating under a 20mph speed limit. The northern section of the route currently experiences some rat-run traffic levels between Grosvenor Street / Booth Street East, using the connecting route of Inchley Road.
- *Grosvenor Street* - a one-way (westbound) local distributor road connection, linking between the A6 London Road and A34 Upper Brook Street. The route is of single carriageway one-way layout but includes for 1.2m advisory cycle

lanes both in the westbound and eastbound (contra-flow) directions. The route operates as part of the Brunswick 20mph zone.

- 3.25 In addition, the ES study area also considers the western section of Brunswick Street between A34 Upper Brook Street and Kincardine Road. This route operates as a local distributor route between the A6 and A34 corridors and is of circa 9.5m single carriageway, incorporating advisory cycle lane markings in both travel directions and wide footways to both sides. The route operates under a 20mph speed limit as part of the Brunswick 20mph zone.
- 3.26 An assessment of the effects of the Proposed Development on Transport and Access is presented in **Chapter 8: Transport and Access**.

Socioeconomics

- 3.27 According to the ONS, based on latest 2021 data, Manchester has a total population of 549,900. Within this, the Ardwick ward accounts for 3.9% of the population at 21,906. A breakdown of the population by broad age category shows that Ardwick has a very high proportion of working age people at 77%. A total of 34% of its population are in the 18-24 age reflecting the predominance of students. The North West has nearly four times the level of retired people as Ardwick ward.
- 3.28 ONS data show that economic activity in the Ardwick ward is 50.2%, well below Manchester at 67%, which is also below the level for the North West at 76.8%¹. The low economic activity rate is due to the number of students which is 34.8% of the working age population compared to 32.8% at the Manchester level and 26.4% for the North West. Full time employment rates are 50.0%, well below the 69.1% rate across Manchester. Only 26.6% of Ardwick residents have Level 4 qualifications (degree) or above, well below the level in the rest of Manchester at 45.1% (38.6% for the North West).
- 3.29 Unemployment accounts for 6.2% of the working age population in the Ardwick ward, which is just above the rate for the rest of Manchester of 6% and well above the 4.2% level for the whole of the North West².
- 3.30 Ardwick has the second highest number of households in Manchester at 8,473³ and the highest proportion of housing benefit claimants of the city centre wards at 35.2% (2,979 households). PBSA in this location provides an opportunity to improve housing stock, release traditional student lets back into the mainstream market, improve student experience, support regeneration and improve MCC funding streams by release of Council tax.
- 3.31 There are 7 General Practitioner (GP) surgeries located within 1.2 miles walking distance of the development. These surgeries have a combined number of registered patients of over 96,000. All surgeries are currently accepting new patient

¹ Nomis Ward Profile using 2011 Census data and Area Profile from Labour Force Survey

² Data from Manchester Intelligence Hub for Feb 2023 plus NOMIS Area Profile using Labour Force Survey.

³ Manchester City Council Intelligence Hub

registrations and with 69 GPs⁴ across the 7 practices, suggests adequate capacity at 1,391 patients per GP, well below the English average of 1,700⁵.

- 3.32 An assessment of the effects of the Proposed Development on Socioeconomics is presented in **Chapter 9: Socioeconomics**.

Daylight, Sunlight & Overshadowing

- 3.33 The Site comprises surface carparking at its northern end. The central and southern portions of the Site are currently occupied by commercial buildings of between one and two storeys in height, with small areas of associated surface carparking.

- 3.34 Following an inspection of the Site and the buildings in the vicinity, the following neighbouring buildings and external amenity spaces have been identified as relevant receptors that merit impact appraisal:

- Lamport Court, Groom Street
- Nos. 1-7 Litcham Close (odd nos. only)
- 38-46 Hanworth Close (even nos. only)
- 2-8 Wadesmill Walk (even nos. only)
- 2-8 Stockland Close (even nos. only)
- 1-23 Mawson Road (odd nos. only)
- The Chapel Student Accommodation, Upper Brook Street
- Kincardine Court, Kincardine Road
- Elizabeth Yarwood Court, 101 Kincardine Road.
- Gartside Gardens

- 3.35 An assessment of the effects of the Proposed Development on Daylight Sunlight & Overshadowing is presented in **Chapter 10: Daylight, Sunlight & Overshadowing**.

Wind Microclimate

- 3.36 General thoroughfares and roadways range between suitable for sitting, standing and leisure walking in winter and for sitting and standing in summer. This is suitable for the intended use.

- 3.37 The bus stops on Upper Brook Street are suitable for sitting in all seasons. This is suitable for the intended use.

- 3.38 The principal off-site entrances range between suitable for sitting or standing in all seasons. This is suitable for the intended use.

- 3.39 The Gartside Gardens amenity space are suitable for standing in winter and a mixture of sitting and standing in summer. This is suitable for the intended use.

- 3.40 The off-site amenity by Engineering Buildings A and B are suitable for a mixture of sitting and standing in all seasons. This is suitable for the intended use.

⁴ <https://digital.nhs.uk/data-and-information/publications/statistical/general-and-personal-medical-services/28-february-2023#resources> (Practice-level CSVs February 2023)

⁵ ONS Census Trends in patient-to-staff numbers at GP practices in England: 2022

- 3.41 There are no regions of strong winds (exceeding 15m/s for more than 0.025% annually) within the study area for the baseline scenario.
- 3.42 An assessment of the effects of the Proposed Development on Wind Microclimate is presented in **Chapter 11: Wind Microclimate**.

Climate Change

- 3.43 Information relating to climatic conditions in the North-West, the geographic region in which the Site is located, was obtained from the Met Office. The North-West of England has several distinct geographical areas. Much of the land west of the Pennines, which includes the area the Site is located, is relatively flat and generally below 150 m, with westward draining rivers.
- 3.44 In terms of local climatic conditions, average maximum and minimum temperatures have been lowest between December and February, whilst average maximum and minimum temperatures have been highest between May and September. Most rainfall has occurred between October - January, whilst the least has occurred between March - June. The monthly mean wind speed has been highest between January and April, whilst it has been weakest between July and October.
- 3.45 An assessment of the effects of the Proposed Development on Climate Change is presented in **Chapter 12: Climate Change**.

Summary

- 3.46 The chapter has presented a description of the Site including a description of the location, a brief site history and a description of its surrounding area. Based on the information presented in this chapter, the main environmental characteristics of the Site have been identified as follows:
- The Site has been vacant since the departure of BMW Williams in September 2019;
 - The site is located within the university corridor with good transfer links;
 - The site will be integrated with the Proposed Development to the immediate south of the site and the former Unitarian Chapel adjacent to the site boundary;
 - The site is accessible by a range of transport modes;
 - The site is located within Flood Zone 1 and 2; and
 - The site is located within the Greater Manchester AQMA.
- 3.47 These identified constraints have been taken into account in the development of the proposals to ensure a thorough iterative design process and through the identification of appropriate mitigation measures as presented in **Chapter 5: The Proposed Development**.

4. Alternatives

- 4.1 A statutory requirement for inclusion in an EIA is the reporting of the consideration of alternatives in the development of a proposal. Schedule 4 of the EIA Regulations states that an EIA is required to 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.”

- 4.2 This chapter describes the alternatives that were studied by the Applicant for the Proposed Development and the process of design evolution in response to the EIA process.
- 4.3 Firstly, the chapter considers the ‘no development’ option, which describes the likely conditions at the Site in the absence of implementing the Proposed Development.
- 4.4 Secondly, the constraints and opportunities identified in relation to the Site have been considered and have influenced the design of the Proposed Development. The Applicant and the design team have undertaken a continuous review process to improve the design, taking into account the views of key consultees, stakeholders and the public. This design evolution process is described and the reasons for the selection of the preferred option stated.
- 4.5 No alternative sites were considered by the Applicant, as the site is earmarked for development in the ORC SRFG. In the absence of the Proposed Development i.e., ‘no development scenario’ the site would remain as it is currently.

No Development Scenario

- 4.6 A no development option evaluates the likely environmental conditions at the site in the absence of implementing the Proposed Development. Schedule 4 of the EIA Regulations states that the assessment must provide *“an outline of the likely evolution thereof without implementation of the development as far as natural changes from the baseline scenario can be assessed”*. A brief description of the baseline scenario has been presented in **Chapter 3: Site Description** and further details have been provided within the technical chapters.
- 4.7 In the absence of the Proposed Development, it is not expected that there would be any significant changes to the baseline conditions within the short term. Under the ‘no development’ scenario therefore, the site would remain vacant. As part of the strategic objectives of Ardwick and the wider Oxford Road Corridor, MCC identified

the site within the masterplan as a key area for redevelopment as part of the Oxford Road Corridor Strategic Regeneration Framework Guidance (ORC SRFG) prepared in 2019. As a result, it can be assumed that some form of development is likely to come forward on site in the medium to long-term.

4.8 The masterplan identified the SRFG as representing a transformational opportunity to accommodate the larger, flexible floorplate commercial buildings (including life-sciences) alongside other supporting uses such as PBSA where needed to provide and sustain economic growth and communities of the Oxford Road Corridor and wider City Region. Within the wider masterplan for Ardwick, it has been identified future developments are required to provide;

- Improved permeability;
- Create and enhance connections between existing communities;
- Opportunity for new uses;
- Opportunities for community uses and active ground floor uses;
- Accommodate new commercial buildings to support economic growth in the city;
- Location for taller buildings;
- Create new public open space and landscaping; and
- High quality design of new buildings and public realm.

4.9 The proposed development meets the criteria provided by MCC's masterplan and various community uses and local needs identified by the Public Consultation process.

4.10 Although construction activities have the potential to increase the dust and noise in the local area, these will be controlled by best practice measures set out within a Construction Management Plan ('CMP') and will only be temporary effects on local receptors. In the absence of the Proposed Development there will be no temporary disruption caused during the construction period.

4.11 The Proposed Development offers socioeconomic benefits through direct and indirect construction jobs. Once operational, the PBSA and life science uses have the potential to increase annual spending and provide direct and indirect jobs within the relevant sectors. The Proposed Development will also result in increased revenue to MCC through business rates and council tax revenue. It should be noted that in the case of a no development scenario, the site has the potential to be returned to existing use as a car sales land. Though this would permit socio-economic benefits, this would not achieve the potential benefits associated with the Proposed Development nor achieve the criteria of MCC's Masterplan or the community needs.

4.12 As a result, under the no development scenario the benefits associated with the Proposed Development would not be realised. As such, the perceived negative

effects of the proposed development should be weighed against the benefits of the scheme including the provision of new Life Sciences Buildings and Student Accommodation. The Proposed Development also offers a new public square and public realm with improved pedestrian and cycle access throughout. In the absence of the Proposed Development, these effects would not occur, and the site would remain vacant.

Design Evolution

- 4.13 The Applicant and the design team for the application have regularly liaised with MCC during a series of pre-application meetings in order to ensure that the design evolves to meet the aspirations for the site. The Applicant has also engaged with statutory consultees and the public as outlined in the Statement of Community Involvement ("SCI") which is submitted as part of the planning application.
- 4.14 The design has evolved through the public engagement as it was made evident the local community would benefit from;
- New flexible community facility;
 - New local convenience store;
 - New medical facility;
 - New cafes and coffee shops;
 - ~3 acres of public realm;
 - Landscape with informal play and exercise spaces;
 - Financial contributions for improvements to Gartside Gardens;
 - Upgrading of Kincardine Road including pedestrian and cycle crossing; and
 - Enhanced pedestrian crossing to Kincardine Road and Upper Brook Street.
- 4.15 The massing of the proposals responds to its identification within the ORC SRFG as a development opportunity where higher density development would be appropriate including opportunities for landmark buildings. As the part of the design development, and in response to comments raised in the first consultation, the Architects explored different massing options for the Student Accommodation to assess how to accommodate the quantum of development and student beds identified for this site by the City Council which are needed to support the wider regeneration, and also how best to make this quantum work with the existing context.
- 4.16 A single point tall building was assessed as being the right approach for the site and is in line with the SRFG that encourages height step up to the north where it will have less impact on overshadowing, and where it identifies an opportunity for a prominent accent building closest to the city centre. Located on the northern end of the site it has a better relationship with the city and minimises overshadowing on

- Gartside Gardens. A single taller building allows the other two PBSA buildings to be reduced in height.
- 4.17 The height and mass are increased to the north and west of the masterplan, in response to the relative scale of the buildings within the adjacent University campus and the recognition within the ORC SRFG that the most northerly plot is a landmark location that could support a taller building.
- 4.18 The proposed development will mark the start of a significant upgrade in the streetscape of both Upper Brook Street and Kincardine Road and will be the first step in redefining and repairing this streetscape by creating a permeable and pedestrian focused streetscape, designed around the public realm. Spaces between buildings have been designed to maximise opportunities for publicly accessible facilities while forging new connections through the previously impenetrable Site.
- 4.19 Priorities of the design include the provision of Plot A to the north of the site and Plot B to the south of the site, comprised of 3 buildings per plot. The buildings specific design and location will mediate between the Proposed Development and the emerging adjacent McLaren and Kadan's site, while ensuring community spaces with connectivity as well as access to ground floor uses are met. The Proposed Development will comprise 6 buildings in total which will deliver high quality facilities throughout. The Life Science buildings have been designed with full flexibility for a future tenant to fit out as required to ensure the development can suit future needs.
- 4.20 The Proposed Development has been designed to be considerate of established buildings such as the Grade II* Listed 'Former Unitarian Chapel' which will be sensitively framed by the surrounding buildings. The materiality has evolved across the Proposed Development and will adopt different materials with some buildings utilising red resembling the architecture in Ardwick which is predominantly red brick buildings. However, the building to the rear of the Former Unitarian Chapel will adopt a modernised silver to act as a neutral backdrop to the chapel. In addition to the proposed colour scheme the development will adopt textured facades which reflect the local heritage and architecture. The design has also been made to ensure flexibility for the future and servicing of the building.
- 4.21 Overall, the site design and layout has evolved following feedback from key consultees, members of the public and the outcomes of technical assessments which have been undertaken as part of the ES.

Conclusion

- 4.22 Overall, the Proposed Development incorporates new life sciences buildings, student accommodation and associated ground floor uses, a new public square and public realm with the provision of pedestrian and cyclist access. The appearance and materiality has been through a detailed and iterative design process with both the

design team and MCC Planning Officers to ensure a high-quality finish that respects the local character and materials, including both historical references and consented future development in the vicinity.

- 4.23 The consideration of alternatives has included the evaluation of a “no development” option, whereby it is likely the site would remain as it is currently in the short to medium term. The design of the scheme has evolved through consultation with MCC, key stakeholders and the public and the findings of the series of studies that make up the EIA. A detailed description of the development proposals is presented in **Chapter 5: The Proposed Development.**

5. Proposed Development

Introduction

- 5.1 Schedule 4, Part 1 of the 2017 EIA Regulations outlines the information that should be provided within an ES. This chapter includes a 'Description of the Development', including in particular:
- (a) *"A description of the location of the development;*
 - (b) *A description of the physical characteristics of the whole development, including, where relevant, requisite demolition works, and the land use requirements during the construction and operational phases;*
 - (c) *A description of the main characteristics of the operational phase of the development (in particular any production process), for instance, energy demand and energy used, nature and quantity of the materials and natural resources (including water, land, soil and biodiversity) used;*
 - (d) *An estimate, by type and quantity, of expected residues and emissions (such as water, air, soil and subsoil pollution, noise, vibration, light, heat, radiation and quantities and types of waste produced during the construction and operation phases)."*
- 5.2 This chapter and the accompanying figures define the study area, the maximum quantum of development proposed, the means of access and describes the proposed development in line with Schedule 4 of the EIA Regulations.
- 5.3 The information presented in this chapter alongside the plans submitted for approval form the basis of the EIA and provides the level of detail required to enable the assessment of environmental effects for an application of this nature in line with the 2017 EIA Regulations.

Description of Development

- 5.4 The planning application seeks full planning permission for the construction of life sciences and student accommodation buildings, ground floor uses, public realm and new public square.
- 5.5 The proposed development is defined on the planning application forms as:
- "Full planning permission for the demolition of existing buildings and erection of three ground floor + 12/14/41 storey buildings to be used for Purpose Built Student Accommodation (Use Sui Generis), comprising 1,100 bedrooms in total and 506sqm of ground floor ancillary uses (café/ commercial and convenience store - Use Classes E (a)/(b)/(c)), three buildings comprising ground floor + 5/7/9 storeys for Science and Innovation uses (Use Class E (g)(i) & (ii)) and 834sq.m ground floor community uses (retail/café and medical facility (Use Classes E (a/b) and (e)) and the provision of new public realm, two new public squares, new access and parking, and associated works to be on Phase Two of the Upper Brook Street Masterplan."*

- 5.6 Details of the proposed developments are described in the following sections. Further supporting information is provided in the accompanying Design and Access Statement (DAS) prepared by Hawkins Brown and Simpson Haugh and submitted with the planning application.

Assessment Plans

- 5.7 As detailed in Chapter 2: Approach, the assessment parameters including the detailed plans submitted for approval, along with the written description of the Proposed Development, allow the likely significant effects of the proposals to be fully assessed and appropriate mitigation measures secured. **Table 5.1** at the back of this chapter includes the list of plans that have been prepared and are submitted for approval with the planning application and have been used as a basis for the assessment of environmental effects. The full suite of plans can be viewed at **ES Volume 2a Main Text Figures**.

Use and Quantum of Development

- 5.8 The key elements of the Proposed Development sought for approval as part of the planning application is described below. **Figure 5.1** shows the proposed site layout.

- i) **Demolition of existing buildings and structures.**
- ii) **Erection of Science and Innovation Buildings (B1, B2, B3)** – The science and innovation buildings will comprise three separate buildings of ground floor +5/7/9 storeys in height with a combined GEA of 51,031m² comprising a mix of office and laboratory space (Use Class E).
- iii) **Erection of PBSA Buildings (A1, A2, A3)** – The PBSA development will provide 1,100no. beds (Use Class Sui Generis) across the three buildings, as a primary use. The total quantum of PBSA development stands at 46,169m² GEA. Including 20% affordable PBSA. Erection of three ground floor + 12 (/14/41 storey buildings
- iv) **New Community Uses-** Within the science and innovation buildings there will be a community medical facility, and a space which could be occupied by retail/ a café. Within the PBSA buildings there will be a retail offering, and another space for a café.
- v) Delivery of a high quality **landscaping and public realm provision** including the new public realm areas at Hanworth Square and Gaskell Green.

Figure 5.1- Proposed Site Layout**Plot A - PBSA**

- 5.9 The proposed PBSA buildings will provide 1,100 student bedrooms (55% studios and 45% clusters in buildings A1 and A2 and 100% clusters in building A3 with circa 20% affordable), student amenities, commercial/ community spaces and supporting ancillary areas. The proposed PBSA scheme will include 1,610m² Gross Internal Area (GIA) amenity space and 506m² GIA of flexible Use Class E floorspace which is anticipated to be occupied by retailers or cafes.
- 5.10 Buildings A1 and A2, which are linked by ground floor uses, contain 880no. beds combined. Building A3, which exists as a standalone building, contains 220no. beds.
- 5.11 In Building A1/A2, the accommodation is provided as a mix of studio apartments and 3-4 person cluster flats with shared kitchen facilities. Included within the studio mix, there are standard studios, large studios and accessible studios; alongside duplex studios. Within the cluster flats, enlarged accessible cluster bedrooms are provided.
- 5.12 In Building A3, the accommodation is provided in the form of 6 and 8 person cluster flats with shared kitchen facilities. These flats also provide enlarged accessible cluster bedrooms.

Plot B – Life Science

- 5.13 The life science element of the proposal comprises three separate buildings of ground floor + 5, 7, and 9 storeys. The buildings are referred to within the Design and Access Statement as B1, B2 and B3 (from north to south). The GIA of each building is included below:

B1 GIA:

- Basement, Ground Floor and Mezzanine: 2,935 m²
- 9 Storeys Occupied Floors: 17,557 m²

- 2 Storeys Roof Plant: 440 m2

B2 GIA:

- Basement, Ground Floor and Mezzanine: 2,743 m2
- 7 Storeys Occupied Floors: 10,834 m2
- 2 Storeys Roof Plant: 420 m2

B3 GIA:

- Basement, Ground Floor and Mezzanine: 2,256 m2
- 5 Storeys Occupied Floors: 8,890 m2
- 2 Storeys Roof Plant: 485 m2

- 5.14 The proposed Life Science buildings will include 834m2 community and commercial space. The buildings will be located behind the Grade II* Former Unitarian Chapel which will be integrated into the development following completion.

Community Spaces

- 5.15 The proposed development includes the following community spaces at ground floor level across the PBSA and life sciences buildings:

- Community medical facility (566m2);
- Retail space (385m2);
- Cafes/ coffee shops (121m2 and 278m2).

- 5.16 The proposed medical facility will meet an identified need for additional medical services in the Ardwick area of the city. The space will be 566m2. The provision of space for this facility has arisen as a result of the public consultation with the local community, discussions with the NHS, as well as other stakeholders. While the final use and layout of the medical facility is yet to be determined. It could offer one or more of the following:

- General Practice;
- Wider Primary Care;
- Dentist;
- Pharmacy.

Layout, Scale and Appearance

Plot A - PBSA

- 5.17 The heights of the PBSA buildings are from the south ground floor + 12 storeys (Building A3); 14 storeys (Building A2); and 41 storeys (Building A1), with intermediate steps at levels 16 and 28. The height in AOD is as follows.
- A1 +166.4m
 - A2 +87.55m
 - A3 +80.15m
- 5.18 Buildings A1 & A2, are located to the most northern part of the Proposed Development, the buildings are linked via the ground floor plane to form a singular building. The building is shaped to the site boundary with a bow-shaped plan form.
- 5.19 Building A1 is symmetrically arranged to provide clusters with an easterly or westerly view and studios to face north towards the city centre. Level 40 of the A1 building will house another amenity floor, located at the tallest point of the building featuring views across Manchester and surrounding areas.
- 5.20 Building A2 is located to the south of the A1 building, symmetrically arranged to provide clusters with easterly or westerly views and studios located around the core and to the rear of the building providing eastern, western or southern views. Level 14 of Building A2 will feature an external terrace with views towards Gartside Gardens and the university.
- 5.21 Building A3 is to the south of Buildings A1 and A2 and to the north of the life sciences buildings. The building is symmetrically arranged to provide views from all four elevations with cluster kitchens located on the two eastern corners and the north-west corner. The typical level consists of a two-stair core with combined firefighting function and lift core function.
- 5.22 The façade for Plot A will include early precast concrete and an early unitised façade. The main PBSA buildings will feature set back entrances with concrete columns located at proposed entrances. The body of the building will display a dark grey louvre band which will separate the main building from the ground plane. The grey band will match the colour clear glazing when viewed obliquely.
- 5.23 With regard to colour and materiality; the blue-grey proposed façade provides a point of difference and identity. Anodised aluminium and glass are continued from above alongside the addition of backpainted glass. A dark grey colour is proposed on the basis that this reads as equal to clear glass and the spaces behind them when daylighted and read obliquely, emphasising glass reflections and providing a lightness.
- 5.24 Buildings A1 & A2 are to feature staggered windows to breakdown the mass and remove emphasis of verticality. In order to give Building A1/A2 a visual difference to

Building A3, it is proposed that the kit of parts to Building A3 are stacked vertically. This provides a rigour and simplicity that befits the form; on Building A1/A2 the staggered approach emphasises the horizontal planes, breaking down the much larger facades and removing large expanses of monotonous vertical stacking elements.

- 5.25 The proposed façade will include patterned ventilation panels which provide access to fresh air via the opening vents and performs an important role within the ventilation strategy, whilst enabling opening window sizes to be increased. The patterning of this feature has been purposefully used to create a contextual link between the new and the old as it matches features on the doorway of the adjacent Grade II* Listed Unitarian Chapel.

Plot B – Life Science

- 5.26 Plot B comprises of the 3 life sciences buildings B1, B2 and B3, which are directed north to south. These buildings are lower in massing but require a larger footprint and so need to be located on the wider gauge of the Site. The three life science buildings are ground floor + 5 storeys (B3), 7 storeys (B2), and 9 (B1) storeys in height. The height in AOD is as follows:

- B1 +90.8m
- B2 +82.3m
- B3 +72.4m

- 5.27 The ground floors will have a series of commercial areas and large entrance lobbies supporting the function of the building. They will also accommodate the ancillary requirements for waste and cycle storage. There is also an allowance for a series of ground floor labs where particularly vibration sensitive equipment can be used. The typical level of the building will be a lab, broken up by a communal terrace where the buildings step. This terrace is an important part of the communal offer as access to outdoor space is good for tenants' well-being. Life Science buildings are especially plant heavy, and the strategy is to split this between basement, ground floor and a two storey roof plant zone.
- 5.28 Where possible the buildings have been designed with a central core to allow full flexibility of the floor plate. They have the potential to be let as whole buildings, single floor plates or smaller units to support small businesses. There is opportunity for direct access into the labs from the core, this is for means of escape and to support the functions of the lab, for example disposing of hazardous substance.
- 5.29 In terms of appearance, for the science and innovation buildings, two tonnes of anodised aluminium will be used for the façades of the upper levels. Building B1 & B3 are proposed to be red, referencing Ardwick. Building 2 will be silver, to form a backdrop to the chapel and Gartside Gardens. The aspiration for these anodised materials is to be of high durable quality. The nature of the anodised finish means it will give different tones depending on the time day and light conditions.

- 5.30 The buildings are designed to be fully flexible for future tenants. By their nature they are heavily serviced buildings, with higher requirements for elements such as air changes than typical workspace buildings. To incorporate this in a considered manner, the scheme incorporates elements of perforated screening. Whilst functional, it is also expressed in a manner which creates a visual identity for the buildings within the masterplan.
- 5.31 The base of the buildings will have a brick facade, to help ground the buildings. There will be lots of daily activity and having a durable material like brick is important for the building's longevity and maintenance. The intention of the proposed material will keep the public realm, entrances and service areas feeling light and airy.

Landscaping

- 5.32 The Proposed Development intends to incorporate green infrastructure to improve the existing site and the surrounding area. A key priority for the redevelopment of the Site is to deliver high quality, inclusive new public realm, calm the vehicular dominated environment, and increase permeability and integrate new public realm with the existing offer such as an upgraded Gartside Gardens.
- 5.33 The proposed development will provide almost 2 acres of new public realm and comprises of four key landscape areas. Each of these will have distinct characteristics, whilst all working as part of a cohesive Site plan. The four landscape Character Areas comprise Kincardine Road, The Walks, Community Squares and Upper Brook Street.

Kincardine Road Landscape Character Area

- 5.34 Kincardine Road will form a new community oriented and active edge to the Ardwick area. Tree, shrub and herbaceous planting will give the street a revived green character, interwoven with areas for seating and informal play.
- 5.35 A primary pedestrian path will be complemented by secondary routes meandering through areas of planting. Natural play and outdoor exercise elements will be incorporated throughout, encouraging residents to explore and play. Kincardine Road will also include 9 disabled parking spaces.

The Walks Landscape Character Area

- 5.36 The Walks will create new routes connecting Kincardine Road and Upper Brook Street. The creation of a sequence of small garden spaces, with, ornamental planting, open lawns and a variety of seating elements, will facilitate a range of community activities, including gathering, meeting and dwelling. These are arranged to respond to the active edges of the buildings on the Site, encouraging a synergy between building and landscape. Broader routes along building edges will allow for occasional emergency access.

- 5.37 Avenue planting, mixed material surfacing and a variety of paths help create a sense of journey, encouraging people to slow down and connect with their surroundings. Areas of herbaceous planting will give the street a vibrant and restorative character.

Upper Brook Street Landscape Character Area

- 5.38 Along Upper Brook Street, a more formal character with new areas of planting and will refocus this edge as part of a pedestrian streetscape. Avenue tree and ground level planting will create a strong sense of rhythm and journey, whilst also forming a buffer from the busy road edge, creating a more pleasant and pedestrian focussed route.
- 5.39 A pre-existing level change in the southern section of the Site will be addressed through small, stepped areas and gentle accessible slopes. These will also help define a small spill out area outside the lettable unit in B3 building.

The Community Squares (Hanworth Square and Gaskell Green)

- 5.40 The Hanworth Square is proposed between two PBSA buildings (A2 and A3) and will be fronted by lettable units that will help to activate the space. This space will offer a flexible community space that is able to host a variety of small, organised events or provide a spill out space for adjacent lettable units.
- 5.41 The Gaskell Green will be a key public space at the heart of the development. The green character of the space will offer an extension to Gartside Gardens and a much better setting for the Chapel. A large existing tree will be retained as a focal point within a park-like setting. The central paved area will provide a flexible space for community events and organised activities while the open lawns will provide additional informal recreational space for students, local residents and staff.

Roof Terrace

- 5.42 The proposed roof terraces to Life Sciences buildings will provide a relaxing and green environment acting as a breakout space for staff and visitors to enjoy. The roof terraces will feature the following elements: – Large, free-form planters that will provide additional habitat for local wildlife – Central covered seating area and shelter – A range of seating areas with space for groups or individuals – Points of respite offering views onto adjacent public realm and chapel building.
- 5.43 Full details of the landscaping proposals, including the proposed hard and soft landscaping and street furniture and lighting proposals can be found within Section 4 of the Design and Access Statement.

Lighting

- 5.44 The Proposed Development will feature well-lit routes around the development with pedestrian scale amenity lighting. Lighting on Upper Brook Street and Kincardine Road will adopt typical street lighting with focal lighting to community squares and

building entrances. Servicing areas will be lit by functional lighting and uplighters within plating area.

Access

- 5.45 The Proposed Development has been designed to promote 'green' choices. The development has therefore designed to include limited parking, provided solely for accessibility parking uses, loading bays and refuse and drop off spaces.

Pedestrian Access

- 5.46 Both the science and innovation and the PBSA buildings have been designed to allow for good site accessibility to / from surrounding routes, with buildings providing active frontage access to Upper Brook Street, Kincardine Road and the proposed new public square. The masterplan scheme also includes for new public realm running through the Site, which alongside the closure of Inchley Road, will deliver good site permeability and enhanced east – west pedestrian and cycle movements through the Site, helping to link the Brunswick residential area to the Oxford Road corridor and University zones.

Cycling

- 5.47 For the science and innovation buildings, cycle parking is primarily on the ground floor. Visitor cycle parking is available within the external landscape as Sheffield stands/ similar. Showers, lockers and drying spaces are on mezzanine levels. The provision of cycles follows a ratio of one cycle per 150m² NIA, which goes beyond MCC guidelines (MCC Core Strategy 2012-2027) which suggest one cycle per 200m² NIA.
- Building B1: 110 cycle spaces (ground floor), 11 cycles (external landscape)
 - Building B2 cycle store: 90 cycle spaces (ground floor), 5 cycles (external landscape)
 - Building B3 cycle store: 70 cycle spaces (ground floor), 11 cycles (external landscape)
- 5.48 For the PBSA elements, a secure cycle store room is provided in the basement of Building A1/A2 with cycle storage racks totalling 25% of the number of bedrooms (220 bike spaces). Access to the cycle store is by lift, via a secure fob access door at ground floor, on Upper Brook Street. In Building A3, a secure cycle store room is provided at ground floor with cycle storage racks totalling 25% of the number of bedrooms (55 bike spaces). Access to the cycle store is via a secure fob access door on Upper Brook Street.
- 5.49 A segregated contraflow cycle lane is also proposed on Kincardine Road, providing improved cycle infrastructure in and around the local area.

Public Transport

- 5.50 The Transport Assessment (**Appendix 8.1**) finds that overall, the Site is in a highly sustainable location. The Site is located within a short walk of excellent high frequency public transport connections to and from the city centre and other university buildings. The Site is adjacent to existing bus stops and located circa 800m from Oxford Road Train Station.

Private Car

- 5.51 The Proposed Development will not encourage the use of private cars to access the Site and therefore no general car parking will be provided as part of the development. However, a number of accessible parking bays will be provided along the boundary with Kincardine Road to ensure that the buildings are accessible to all.

Construction

- 5.52 Precise construction methodologies will only be finalised once a contractor is appointed. It is expected that the appointed contractor and its sub-contractors will at all times apply the principle of Best Practicable Means. A Construction Management Plan (CMP) (Appendix 5.1) has been submitted with the planning application and will be agreed with MCC prior to construction. This document outlines the methods which will be employed by contractors to manage and where practical minimise the impact of the development's construction activities upon the site and surrounding area. The CMP demonstrates a commitment to achieving high environmental standards and compliance with considerate contractor scheme procedures. The CMP includes best practice measures and those mitigation measures identified through the EIA process, including:

- Program and Working Hours
- Logistics Overview
- Deliveries
- Site Plant
- Personnel Site Access
- Site Accommodation
- Construction and Demolition Methodology
- Control of Noise, Dust and Vibration
- Site Hoarding
- Traffic Management
- Logistics Manager
- Road Marshalls and Banksman
- Vehicle Types
- Vehicle Management, Timescales and Vehicle Types

- Lorry Holding Areas and Vehicle Routes
- Parking
- Waste Management Plan
- Management, Training and Awareness
- Waste Management Considerations
- Site Waste Management Operations
- Waste Stream Management Methodologies
- Neighbourly Issues

Construction Programme and Phasing

5.53 The anticipated construction programme is as follows:

- Anticipated Commencement Date: Q2 2024
- Duration: Approximately 7.5 years

5.54 Normal site working hours for all construction work, and ancillary operations, including deliveries to and dispatch from the site shall be confined to the following periods:

- Between 07:30 and 18:00 Monday to Friday
- Between 08:30 and 14:00 on Saturdays
- No planned works on Sundays and Public Holidays.

5.55 The operation of plant/machinery/power tools and any noisy operations will be limited to the core hours stated above. Note that quiet works associated with office work may continue outside these hours.

5.56 It is recognised that there may be exceptional circumstances where the restriction on hours of work cannot be adhered to, in which case all reasonably practicable mitigation management procedures will be implemented, such as the Principal Contractor will provide advance notification and justification for any extension to the working hours to the Planning Authority and notify any affected neighbours before works start outside normal hours.

5.57 The Proposed Development is planned across 3 phases. Following enabling and demolition works, phase 1 is to create the 1,100 purpose built student accommodation across building's A1, A2, A3, (with building's A1 and A2 split by a podium with roof terrace) and an 11 storey life science building B1. Phase 1 will also include a public realm adjacent to the existing Chapel and the pedestrianisation of Inchley Road. Phase 2 is for the proposed 9 storey life science building B2 along with

associated landscaping and highway works, phase 3 is the final life science building proposed as 7 storeys.

5.58 It is envisaged that the commencement of the phases will be consecutive as follows; phase 1 to commence in March 2024; phase 2 to commence in January 2025; and phase 3 to commence in January 2026. Durations of each phase is proposed to be as follows;

- Phase 1: 36 months
- Phase 2: 24 – 30 months
- Phase 3: 24 – 30 months

5.59 With regards to construction works, it has been assumed at this stage that standard practices will be employed and that the development of the site will be carried in a series of phases as outlined above based over a 7.5 year build out. However, due to lack of further information, the overall effect recorded within assessments assumes simultaneous build out to represent a potential 'worse case' scenario for the assessment.

Site Access Strategy

5.60 The construction methodology relies on closing one lane along Kincardine and forming a new one-way system heading North towards the city centre. Inchley Road will also be stopped up initially through obtaining the necessary Traffic Regulation Order. An initial hoarding line will be formed along the entire length Kincardine Road boarding the site with strategically placed pit lanes for vehicle deliveries, offloading and material movement to supply the construction works and site compound. The existing bus stop on Upper Brook Street adjacent to Grosvenor Street will also be closed to form a logistics pit lane, the bus stop will be relocated to the existing bus stop to the South of the Chapel, this will be agreed with TfGM.

5.61 In addition to the lane closure, the public parking bays along Kincardine Road will also be temporarily suspended in order to facilitate the new site hoarding line and one-way provision, however this will likely to only be during the initial phase, it is anticipated the one-way carriage way will then be circa 3.5m wide. Any hoarding adjustments will be undertaken accordingly prior to the commencement of each phase. During phase 1 the main pit lanes will be incorporated along the Northerly end of Kincardine Road adjacent to Grosvenor Street as well as on the opposite side fronting Upper Brook Street, in the existing bus stop to facilitate access for the phase 1 excavation works. All of the above is subject to necessary permissions being sought from Manchester City Council. Existing street furniture, lighting and shrub shall be removed/relocated as part of enabling works subject to obtaining necessary provisions with a temporary street lighting design.

- 5.62 The primary route for site vehicles shall be off Upper Brook Street or Brunswick Street turning into the site compound where Kincardine Road currently sits. Once any loading / off-loading has been concluded, vehicles can then leave the site by turning left or North onto Kincardine Road and then turning onto Grosvenor Street. Ongoing vehicle routes to and from site will need to be reviewed and managed in accordance with MCC requirements and to accommodate any other temporary traffic orders as required.
- 5.63 To facilitate efficient vehicle manoeuvring, installation of lane separating hoarding and associated works, it is proposed to remove traffic islands located on the edge of Grosvenor Street and Upper Brook Street up to the traffic lights. The traffic lights and controls will remain unchanged and the former traffic islands will be replaced with white lining.
- 5.64 Advance planning and liaison on hoarding and vehicle movement will be entered into in order to manage the constraints of the site to best facilitate the construction of the project with minimal disruption to the local environment. Critically, the site boundary has been developed to create full site enclosure to reduce the interface with the public on all elevations.
- 5.65 Due to the proximity of the site works to the existing Kincardine Road, the road will be changed to a one way operation. There is sufficient space and locations leading up the site to safely divert pedestrians away from the site, and to use the opposite sides of all three major roads for continued safe pedestrian movement as shown above. At the beginning and the end of term, drop off parking will be maintained for the adjacent Chapel with the site hoardings.
- 5.66 Site vehicles delivering or removing materials from site shall use the hoarded off logistics area provisions located off Kincardine Road adjacent to the site compound. All vehicles arriving at the site shall be pre-informed about the access routes and vehicle management system on site and shall comply with the Delivery Management System that will be implemented by the Principal Contractor. It is anticipated that approximately 50-60 vehicles will arrive/depart site on any given day, during phase 1 at any time and it is anticipated this will drop to 25-30 during phases 2 and 3. 15-20 tippers are anticipated during the demolition and excavation works for each phase.
- 5.67 These movements will be across the three phases as follows; phase 1 to have 120 movements; phase 2 to have 60 movements; and phase 3 also having 60 movements. It is suggested that due to site constraints deliveries will need to be operated on a strict booking system, which would effectively spread deliveries across the day and avoid the potential for "surges". No vehicles will be permitted to park / wait on the immediate access roads and vehicle holding points will be identified by the Principal Contractor in the wider area from site to allow just-in-time arrival to enable vehicles to be escorted directly to the designated area for delivery/collection.

- 5.68 Site access signage will be placed in clear visible positions warning both vehicles and pedestrians alike of the location of the site entrance. It should be reiterated that an alternative site compound may be implemented prior to commencement of subsequent phases.
- 5.69 Site personnel will be encouraged to travel to site using public transport as much as possible. Piccadilly train and tram station is a 13 minute walk from the site. Piccadilly Gardens bus interchange is a circa 19 minute walk from the site. Should this not be possible, there are 4 public car parks within a half a mile radius of the site with 2,446 spaces available. Site operatives will be instructed not to park in the residential areas surrounding the site.
- 5.70 Pedestrians shall be diverted from the site perimeter using the Traffic Management and agreed routing as implemented during the demolition phase of the project, and throughout the project thereafter. In addition, the new public square on and adjacent to Inchley Road will be operational following phase 1 and therefore can be utilised as a throughfare by public pedestrians.

Demolition

- 5.71 Once the site hoarding and gates have been installed, the buildings towards the northern end of the site and to the rear of the Unitarian Chapel will be demolished in the first phase. The buildings at the southern end of the site will then be demolished in phase 2. This building will be used to form the site offices and welfare facilities for the first phase, it will then be demolished, and site cabins will be triple stacked to form the same facilities for phase 3. The car parking area will also be used for management staff of the site.
- 5.72 Further details regarding demolition can be found on **Drawing UBS-HBA-SW-XX-DR-A-080050** in **ES Volume 2a Main Text Figures**.

Summary

- 5.73 In summary, this chapter has presented a description of the Proposed Development for the site at Upper Brook Street, Manchester. This is supported by a set of detailed drawings. The description of development and plans set out the basis for the assessments described in this ES.
- 5.74 The potential environmental impacts of the construction phase of the proposed development have been considered and all controls or measures to mitigate these effects are in line with current environmental standards and legislative requirements. Further detail of construction impacts has been presented in each technical chapter, where applicable.
- 5.75 The Applicant has developed a CMP for the Site which will be agreed with MCC prior to construction, thereby ensuring that any potential environmental effects are within

suitable standards or mitigated in accordance with measures identified through the EIA process, where no standards exist.

Table 5.1 Assessment Plan

Plan	Purpose	Drawing Reference
Life sciences		
Masterplan		
Proposed Masterplan – Site Location Plan	Details of the Proposed Masterplans for the Proposed Development	UBS-HBA-SW-00-DR-A-081000
Proposed Masterplan – Site Location Plan		UBS-HBA-SW-00-DR-A-081005
Proposed Masterplan – Ground Floor Plan		UBS-HBA-SW-00-DR-A-081100
Proposed Masterplan – Roof Plan		UBS-HBA-SW-RF-DR-A-081102
Proposed Masterplan Section AA		UBS-HBA-SW-XX-DR-A-081300
Proposed Masterplan Typical Floor Plan		UBS-HBA-SW-ZZ-DR-A-081101
Bay Studies		
Proposed B1 + Bay Study + Ground Floor	Details of the proposed bay study and floors of the Proposed Development	UBS-HBA-B1-XX-DR-A-080411
Proposed B1 + Bay Study + Upper Floors		UBS-HBA-B1-XX-DR-A-080412
Proposed B1 + Bay Study + Plant Screen		UBS-HBA-B1-XX-DR-A-080413
Proposed B2 + Bay Study + Ground Floor	Details of the proposed bay study and floors of the Proposed Development	UBS-HBA-B2-XX-DR-A-080421
Proposed B2 + Bay Study + Upper Floors		UBS-HBA-B2-XX-DR-A-080422
Proposed B2 + Bay Study + Plant Screen		UBS-HBA-B2-XX-DR-A-080423
Proposed B3 + Bay Study + Ground Floor	Details of the proposed bay study and floors of	UBS-HBA-B3-XX-DR-A-080431

Plan	Purpose	Drawing Reference
Proposed B3 + Bay Study + Upper Floors	the Proposed Development	UBS-HBA-B3-XX-DR-A-080432
Proposed B3 + Bay Study + Plant Screen		UBS-HBA-B3-XX-DR-A-080433
Existing Drawings		
Elevations		
Existing North Elevation	Details of the Existing Elevation of the Proposed Development	UBS-HBA-SW-XX-DR-A-080020
Existing East Elevation		UBS-HBA-SW-XX-DR-A-080021
Existing South Elevation		UBS-HBA-SW-XX-DR-A-080022
Existing West Elevation		UBS-HBA-SW-XX-DR-A-080023
Proposed Elevations		
Proposed Masterplan - North Elevation	Details of the Proposed Elevation of the Proposed Development	UBS-HBA-SW-XX-DR-A-081200
Proposed Masterplan - East Elevation		UBS-HBA-SW-XX-DR-A-081201
Proposed Masterplan - South Elevation		UBS-HBA-SW-XX-DR-A-081202
Proposed Masterplan - West Elevation		UBS-HBA-SW-XX-DR-A-081203
Existing Plans		
Existing Site Location Plan	Defines the extent of the existing site to which the planning application relates	UBS-HBA-SW-XX-DR-A-080001
Existing Site Plan		UBS-HBA-SW-XX-DR-A-080005
Demolition Drawings		
Elevations		
Demolition North Elevation	Details of the proposed demolition elevation plans of the Proposed Development	UBS-HBA-SW-XX-DR-A-080051
Demolition East Elevation		UBS-HBA-SW-XX-DR-A-080052
Demolition South Elevation		UBS-HBA-SW-XX-DR-A-080053

Plan	Purpose	Drawing Reference
Demolition West Elevation		UBS-HBA-SW-XX-DR-A-080054
Demolition Site Plan	Details of the proposed demolition plans of the Proposed Development	UBS-HBA-SW-XX-DR-A-080050
PBSA		
General Arrangements		
PBSA Site Plan Ground Level	Details of the general arrangements of the Proposed Development	10450-SHP-Z0-A-B5D8-G100-PL-00-001
PBSA Site Plan Roof		10450-SHP-Z0-A-B5D8-G100-PL-RF-001
PBSA Site Plan Typical (Level 02 Shown)		10450-SHP-Z0-A-B5D8-G100-PL-TY-001
Accommodation Schedule		
Accommodation Schedule	Details of the proposed accommodation schedule of the Proposed Development	10450-SHP-Z0-A-B5D8-F900-SC-XX-001
Planning Drawing Register		
Planning Drawing Register	Details of the proposed drawing register of the Proposed Development	10450-SHP-Z0-A-B5D8-Z330-SC-XX-001
Elevations		
East Elevation Kincardine Road	Details of the proposed elevation of the Proposed Development	10450-SHP-ZZ-A-B5D8-G200-EL-EE-001
West Elevation Upper Brook Street		10450-SHP-ZZ-A-B5D8-G200-EL-EW-001
Elevation Grosvenor Road and South Elevation		10450-SHP-ZZ-A-B5D8-G200-EL-XX-001
General Arrangement Elevation A3 North & South Elevation		10450-SHP-A3-A-B5D8-G200-EL-XX-001
General Arrangement Buildings A1, A2 and A3		
A1/A2 – General Arrangement Plan Ground Floor	Details of the proposed general arrangements of the Proposed Development	10450-SHP-ZZ-A-B5D8-G200-PL-00-001
A1/A2 – General Arrangement Plan Level 01		10450-SHP-ZZ-A-B5D8-G200-PL-01-001

Plan	Purpose	Drawing Reference
A1/A2 – General Arrangement Plan Level 14		10450-SHP-ZZ-A-B5D8-G200-PL-14-001
A1/A2 – General Arrangement Plan Level 15		10450-SHP-ZZ-A-B5D8-G200-PL-15-001
A1/A2 – General Arrangement Plan Level 16		10450-SHP-ZZ-A-B5D8-G200-PL-16-001
A1/A2 – General Arrangement Plan Level 26		10450-SHP-ZZ-A-B5D8-G200-PL-26-001
A1/A2 – General Arrangement Plan Level 27		10450-SHP-ZZ-A-B5D8-G200-PL-27-001
A1/A2 – General Arrangement Plan Level 28		10450-SHP-ZZ-A-B5D8-G200-PL-28-001
A1/A2 – General Arrangement Plan Level 36		10450-SHP-ZZ-A-B5D8-G200-PL-36-001
A1/A2 – General Arrangement Plan Level 37		10450-SHP-ZZ-A-B5D8-G200-PL-37-001
A1/A2 – General Arrangement Plan Level 38		10450-SHP-ZZ-A-B5D8-G200-PL-38-001
A1/A2 – General Arrangement Plan Level 39		10450-SHP-ZZ-A-B5D8-G200-PL-39-001
A1/A2 – General Arrangement Plan Level 40		10450-SHP-ZZ-A-B5D8-G200-PL-40-001
A1/A2 – General Arrangement Plan Basement		10450-SHP-ZZ-A-B5D8-G200-PL-B1-001
A1/A2 – General Arrangement Plan Roof		10450-SHP-ZZ-A-B5D8-G200-PL-RF-001
A1/A2 – General Arrangement Plan Typical Levels 02-13 (02 shown)		10450-SHP-ZZ-A-B5D8-G200-PL-TY-001

Plan	Purpose	Drawing Reference
A1/A2 – General Arrangement Plan Typical Levels 17-19 (17 Shown)		10450-SHP-ZZ-A-B5D8-G200-PL-TY-002
A1/A2 – General Arrangement Plan Typical Levels 21-22 (21 Shown)		10450-SHP-ZZ-A-B5D8-G200-PL-TY-003
A1/A2 – General Arrangement Plan Typical Levels 23-25 (23 Shown)		10450-SHP-ZZ-A-B5D8-G200-PL-TY-004
General Arrangement Site Section AA		10450-SHP-ZZ-A-B5D8-G200-SE-AA-001
General Arrangement Site Section BB, CC and DD		10450-SHP-ZZ-A-B5D8-G200-SE-XX-001
A1/A2 Façade Detail Typical	Details of the proposed façade details of the Proposed Development	10450-SHP-ZZ-A-B5D8-G251-DE-XX-001
A1/A2 Façade Detail Gable Typical		10450-SHP-ZZ-A-B5D8-G251-DE-XX-002
A1/A2 Façade Detail Ground Floor		10450-SHP-ZZ-A-B5D8-G251-DE-XX-003
A1/A2 Façade Detail Main Entrance		10450-SHP-ZZ-A-B5D8-G251-DE-XX-004
A1/A2 Façade Detail A1 Parapet		10450-SHP-ZZ-A-B5D8-G251-DE-XX-005
A1/A2 Façade Detail A2 Parapet		10450-SHP-ZZ-A-B5D8-G251-DE-XX-006
A3 Façade Detail Typical	Details of the proposed external walls of the Proposed Development	10450-SHP-A3-A-B5D8-G251-DE-XX-001
A3 Façade Detail Ground Floor		10450-SHP-A3-A-B5D8-G251-DE-XX-002
A3 Façade Detail Main Entrance		10450-SHP-A3-A-B5D8-G251-DE-XX-003
A3 Façade Detail Parapet		10450-SHP-A3-A-B5D8-G251-DE-XX-004
A3 General Arrangement – Ground Floor Plan	Details of the proposed general arrangement	10450-SHP-A3-A-B5D8-G200-PL-00-001

Plan	Purpose	Drawing Reference
A3 General Arrangement Plan Level 01	details of the Proposed Development	10450-SHP-A3-A-B5D8-G200-PL-01-001
A3 General Arrangement Plan Roof Level		10450-SHP-A3-A-B5D8-G200-PL-RF-001
A3 General Arrangement Plan Typical Levels 02 - 11		10450-SHP-A3-A-B5D8-G200-PL-TY-001
Life Sciences		
Building B1		
Proposed B1 + Ground Floor Plan	Details of the proposed Life Sciences buildings (B1) of the Proposed Development	UBS-HBA-B1-00-DR-A-080100
Proposed B1 + Mezzanine Floor Plan		UBS-HBA-B1-00-DR-A-080112
Proposed B1 + First Floor Plan		UBS-HBA-B1-01-DR-A-080101
Proposed B1 + Second Floor Plan		UBS-HBA-B1-02-DR-A-080102
Proposed B1 + Third Floor Plan		UBS-HBA-B1-03-DR-A-080103
Proposed B1 + Fourth Floor Plan		UBS-HBA-B1-04-DR-A-080104
Proposed B1 + Fifth Floor Plan		UBS-HBA-B1-05-DR-A-080105
Proposed B1 + Sixth Floor Plan		UBS-HBA-B1-06-DR-A-080106
Proposed B1 + Seventh Floor Plan		UBS-HBA-B1-07-DR-A-080107
Proposed B1 + Eighth Floor Plan		UBS-HBA-B1-08-DR-A-080108
Proposed B1 + Ninth Floor Plan		UBS-HBA-B1-09-DR-A-080109
Proposed B1 + Plant Level Plan		UBS-HBA-B1-10-DR-A-080110
Proposed B1 + Roof Plan		UBS-HBA-B1-12-DR-A-080111
Proposed B1 + Basement Floor Plan		UBS-HBA-B1-B1-DR-A-080099
Building Elevation		

Plan	Purpose	Drawing Reference
Proposed B1 + North Elevation	Details of the proposed Buildings Elevations (B1) of the Proposed Development	UBS-HBA-B1-XX-DR-A-080210
Proposed B1 + East Elevation		UBS-HBA-B1-XX-DR-A-080211
Proposed B1 + East Elevation		UBS-HBA-B1-XX-DR-A-080212
Proposed B1 + West Elevation		UBS-HBA-B1-XX-DR-A-080213
Proposed B1 – Section AA		UBS-HBA-B1-XX-DR-A-080300
Proposed B1 – Section BB		UBS-HBA-B1-ZZ-DR-A-080301
Building B2		
Proposed B2 + Ground Floor Plan	Details of the proposed Life Sciences buildings (B2) of the Proposed Development	UBS-HBA-B2-00-DR-A-080120
Proposed B2 + Mezzanine Floor Plan		UBS-HBA-B2-00-DR-A-080130
Proposed B2 + First Floor Plan		UBS-HBA-B2-01-DR-A-080121
Proposed B2 + Second Floor Plan		UBS-HBA-B2-02-DR-A-080122
Proposed B2 + Third Floor Plan		UBS-HBA-B2-02-DR-A-080123
Proposed B2 + Fourth Floor Plan		UBS-HBA-B2-04-DR-A-080124
Proposed B2 + Fifth Floor Plan		UBS-HBA-B2-05-DR-A-080125
Proposed B2 + Sixth Floor Plan		UBS-HBA-B2-06-DR-A-080126
Proposed B2 + Seventh Floor Plan		UBS-HBA-B2-07-DR-A-080127
Proposed B2 + Plant Floor Plan		UBS-HBA-B2-08-DR-A-080128
Proposed B2 + Roof Plan		UBS-HBA-B2-10-DR-A-080129
Proposed B2 + Basement Floor Plan		UBS-HBA-B2-B1-DR-A-080119
Building Elevation		
Proposed B2 + North Elevation	Details of the proposed Buildings Elevations (B2)	UBS-HBA-B2-XX-DR-A-080220

Plan	Purpose	Drawing Reference
Proposed B2 + East Elevation	of the Proposed Development	UBS-HBA-B2-XX-DR-A-080221
Proposed B2 + South Elevation		UBS-HBA-B2-XX-DR-A-080222
Proposed B2 + West Elevation		UBS-HBA-B2-XX-DR-A-080223
Proposed B2 – Section AA		UBS-HBA-B2-XX-DR-A-080320
Proposed B2 – Section BB		UBS-HBA-B2-ZZ-DR-A-080321
Building B3		
Proposed B3 + Ground Floor Plan	Details of the proposed Life Sciences buildings (B3) of the Proposed Development	UBS-HBA-B3-00-DR-A-080140
Proposed B3 + Mezzanine Floor Plan		UBS-HBA-B3-00-DR-A-080148
Proposed B3 + First Floor Plan		UBS-HBA-B3-01-DR-A-080141
Proposed B3 + Second Floor Plan		UBS-HBA-B3-02-DR-A-080142
Proposed B3 + Third Floor Plan		UBS-HBA-B3-03-DR-A-080143
Proposed B3 + Fourth Floor Plan		UBS-HBA-B3-04-DR-A-080144
Proposed B3 + Fifth Floor Plan		UBS-HBA-B3-05-DR-A-080145
Proposed B3 + Plant Floor Plan		UBS-HBA-B3-06-DR-A-080146
Proposed B3 + Roof Plan		UBS-HBA-B3-08-DR-A-080147
Building Elevation		
Proposed B3 + North Elevation	Details of the proposed Buildings Elevations (B3) of the Proposed Development	UBS-HBA-B3-XX-DR-A-080230
Proposed B3 + East Elevation		UBS-HBA-B3-XX-DR-A-080231
Proposed B3 + South Elevation		UBS-HBA-B3-XX-DR-A-080232
Proposed B3 + West Elevation		UBS-HBA-B3-XX-DR-A-080233
Proposed B3 – Section AA		UBS-HBA-B3-XX-DR-A-080340
Proposed B3 – Section BB		UBS-HBA-B3-ZZ-DR-A-080341

Plan	Purpose	Drawing Reference
Landscape Drawings		
Landscape Illustrative Plan	Details of the proposed landscaping of the Proposed Development	0983-RFM-XX-00-DR-L-0001-S2-P03
Landscape General Arrangement		0983-RFM-XX-00-DR-L-0002-S2-P03
Landscape General Arrangement		0983-RFM-XX-00-DR-L-0003-S2-P03
Landscape Sections		0983-RFM-XX-00-DR-L-0005-S2-P03
Landscape Sections		0983-RFM-XX-00-DR-L-0006-S2-P03
Landscape Sections		0983-RFM-XX-00-DR-L-0010-S2-P02
Landscape Sections		0983-RFM-XX-00-DR-L-0011-S2-P02
Illustrative Roof Terraces		0983-RFM-XX-RF-DR-L-0004-S2-P03
Planting Strategy Sheet 1 of 3		0983-RFM-XX-XX-DR-L-0007-S2-P03
Planting Strategy Sheet 2 of 3		0983-RFM-XX-XX-DR-L-0008-S2-P03
Planting Strategy Sheet 3 of 3		0983-RFM-XX-XX-DR-L-0009-S2-P03

6. Townscape and Visual

Introduction

- 6.1 This report has been prepared by re-form landscape architecture on behalf of Alliance UBS Limited, to support a full planning application for a life sciences and purpose-built student accommodation (PBSA) development (hereafter referred to as the 'Proposed Development') on Phase Two of the Upper Brook Street Masterplan (hereafter referred to as the 'Site'). The proposal would bring forward development on a previously developed site which is earmarked for commercial and PBSA uses in the Oxford Road Corridor Strategic Regeneration Framework Guidance (SRFG) endorsed by MCC in 2019. This application is accompanied by a comprehensive suite of technical documents, reports and plans.
- 6.2 This chapter assesses the effects of the Proposed Development on townscape character and visual amenity. In particular, it identifies and assesses the anticipated effects of change resulting from the Proposed Development on the character and features of the townscape, and on people's views and visual amenity within the townscape and visual impact assessment study area.
- 6.3 This Chapter is supported by the following appendices:
- **Appendix 6.1** – TVA Figures and Viewpoints
 - **Appendix 6.2** – Relevant Planning Policy
 - **Appendix 6.3** – TVA Assessment Methodology
- 6.4 This chapter will refer to the relevant national guidance for:
- The assessment of townscape character.
 - Making judgements about the visual qualities of the townscape and its capacity for accommodating development.
 - Methodology for the assessment of townscape and visual effects which is in accordance with the 'Guidelines for Landscape & Visual Impact Assessment', Third Edition.¹
- 6.5 Drawing on this guidance, and an appraisal of the key townscape and visual issues associated with the Proposed Development, this report will consider:
- The character and sensitivity of the townscape within the vicinity of the Proposed Development.

¹ Landscape Institute, Institute of Environmental Management & Assessment, *Guidelines for Landscape & Visual Impact Assessment*, 3rd ed. (London: Routledge, 2013)

- The visual amenity of the receiving townscape.
- 6.6 This chapter will demonstrate that the Site and the local townscape within the vicinity of the Site and the study area vary in sensitivity, but have the capacity to receive development.
- 6.7 The report is structured as follows:
- Description of the Site and its immediate context in general terms, identifying the location and main characteristics.
 - Identification of the relevant planning policy context at national and local level that is pertinent to townscape character and visual issues.
 - Identification of baseline criteria of the Site which is to be used to inform the assessment of townscape and visual effects is established.
 - Description of the methodology for establishing the townscape and visual effects; this determines the assessment of the townscape and visual effects of the existing Site and the Proposed Development.
 - An assessment of the townscape and visual effects of the Proposed Development in relation to the baseline conditions, and with mitigation.
 - An assessment of the townscape and visual effects of the Proposed Development in the context of identified cumulative sites.

The Site

Refer to: **Figure 6.1** – Site Location

Figure 6.5 – Topography

Figure 6.6 – Heritage Destinations

- 6.8 The Site extends to 2.13 hectares and is bounded by Upper Brook Street (UBS), Grosvenor Street and Kincardine Road with Inchley Road running through the centre. The site comprises the various former Williams Garage buildings and their associated car parking forecourts. These buildings are now vacant and are formed around the Grade II* listed 'Former Unitarian Chapel' (sits outside of the site boundary) which now operates as student accommodation.
- 6.9 The Site is identified for redevelopment within the Oxford Road Corridor Strategic Regeneration Framework Guidance (SRFG) with mixed commercial uses, purpose built student accommodation, and high-density development identified as being a priority for the UBS site.
- 6.10 The Proposed Development forms one element of the wider Upper Brook Street Illustrative Masterplan which can be seen within the submitted Supporting Planning Statement.

- 6.11 The wider illustrative masterplan proposals are being brought forward collaboratively by Property Alliance Group, Moda Living, McLaren Property and Kadans Science Partner. The illustrative masterplan intends to transform the currently vacant sites, re-establishing their important role in the area by re-introducing permeability, public realm, and active community-facing uses at ground floor. The emerging masterplan includes almost 3 acres of new public realm and green spaces, two new public squares, as well as a series of high-quality new buildings of varying heights to provide for c.700,000ft² of sci-tech/life sciences uses, over 1,800 purpose-built student accommodation beds, and c.25,000ft² of active ground floor uses.
- 6.12 The existing land uses surrounding the site are as follows:
- To the north lays a car park sited adjacent to the Mancunian Way Ring Road. Beyond this, the Ring Road overlooks Princess Street which comprises buildings forming part of the University of Manchester (the John Garside Building and the George Begg Building) which range from 3-15 storeys in height.
 - To the east of the Site is Kincardine Road; beyond which the predominant use is 2-storey residential dwellings that form a part of the wider Brunswick Estate. The Brunswick Estate is an area currently undergoing extensive urban regeneration. This direction also comprises a Salvation Army building, the Sheung Lok Wellbeing Centre and Gartside Gardens.
 - To the south of the Site lays a temporary paid car park (formerly in use as a Citroën car dealership) alongside the former Elizabeth Yarwood Court residential complex. This land is also identified for redevelopment in the Oxford Road Corridor SRFG and forms Phase One of the Upper Brook Street Masterplan.
 - To the west of the Site is UBS, on the opposite side of which is the University of Manchester's Main Campus, which includes the National Graphene Institute, the Manchester Engineering Campus and the Sir Henry Royce Institute, with buildings ranging from 4-storeys to 10-storeys in height.
- 6.13 The topographical variation across the site is very minor. The highest point of the site is located on the western side of the Site, between Inchley Road and Kincardine Road, where an existing building is located. The lowest points of the Site are located in the centre and the southwest corner of the Site.
- 6.14 The Site is currently not accessible by the public and there are no Public Rights of Way through the Site. It is secured by security fencing along the western edge and access is deterred by a series of low metal railings along the eastern edge. The existing student accommodation in the Former Unitarian Chapel is secured by a security fence and residents are able to access the accommodation and car park from Upper Brook Street.

- 6.15 An arboricultural survey has been undertaken for the Site. This identified the presence of 7 trees, 3 tree groups and 2 hedges. Of the trees identified, only one Sycamore tree was identified as category A. One Common Ash tree has been identified as category U. The remaining trees, tree groups and hedges have been identified as category B or C. Tree Preservation Order (TPO 1998 Order 'B') is applied to the northern end of the Site, on the land between Grosvenor Street and Kincardine Road. This encompasses five trees including a Hybrid Black Poplar, a Tree of Heaven, and a group of 3 Common Limes.
- 6.16 An ecological appraisal has been undertaken for the Site. This identified that the habitats and plant species recorded within the site are widespread and common throughout Greater Manchester and the UK. None of the plant species recorded within the site were identified as either Nationally Scarce or Nationally Rare or of any other conservation significance. One invasive non-native species Schedule 9 plant was found to be present within the site. One building was assessed to have Moderate potential to support roosting bats, whilst another was assessed to have Low potential to support roosting bats (all others negligible). The scattered trees and introduced shrub on site may hold some suitable habitat for nesting birds and the introduced shrub habitat on site may provide some refuge for hedgehog.

Relevant Planning Policy

Refer to: **Figure 6.6** – Heritage Destinations

Figure 6.7 – Townscape Character Areas

Figure 6.8 – Strategic Regeneration Frameworks

- 6.17 The relevant planning policies in respect of townscape and visual issues are set out in **Appendix 6.2**.

Development Proposals

- 6.18 The Proposed Development proposes a new integrated masterplan for Upper Brook Street, which has been driven by the Upper Brook Street SRF. This masterplan includes purpose-built student accommodation (PBSA) to the north and life science buildings to the south, accompanied by a new public square and areas of public realm.

Purpose-Built Student Accommodation

- 6.19 The proposed buildings will provide 1,100 student bedrooms (55% studios and 45% clusters in buildings A1 and A2 and 100% clusters in building A3 (c.20% affordable clusters), student amenities, management suite, commercial/ community spaces and supporting ancillary areas. The proposed PBSA scheme is arranged in three building blocks with buildings A1 and A2 linked on the ground floor to form spaces for student amenities and building A3 is separated by the proposed public square. The buildings step down in height in a north-south direction comprising ground +41/14/12.

- 6.20 The same façade treatment is proposed for blocks A1, A2 and A3. This will consist of horizontal spandrel expression with vertical pleated elements. The ground floor will consist of blue-grey anodised panels with large expanses of glass. The remaining floors will have the same blue-grey anodised panels and glass windows but with a smaller unit size. Detailing on some of the panels on floor 01 and above, will consist of Borromean ring patterning.

Life Science

- 6.21 The proposed buildings will provide approximately 46,643sq.m of combined laboratory and office space along with a ground floor publicly accessible café and doctors surgery. The buildings will also house conference space alongside secure cycle store and cycle changing. The massing is split into three buildings (B1, B2 and B3) surrounding the proposed public square and retaining Grade II* listed 'Former Unitarian Chapel' and the buildings will range from 4 to 9 storeys in height.
- 6.22 The same façade treatment is proposed for blocks B1 and B3. This will consist of a light grey brick plinth at the base of the building with orange-red anodised metal perforates and fins and large expanses of glass. The body and the crown of the buildings will consist of the orange-red anodised metal perforates and fins with windows.
- 6.23 The façade treatment for block B2 follows the same principles as the treatment for blocks B1 and B3. It will consist of a light grey brick plinth at the base of the building with grey-silver anodised metal perforates and fins and large expanses of glass. The body and the crown of the buildings will consist of the grey-silver anodised metal perforates and fins with windows.

Public Realm

- 6.24 As part of the Proposed Development, there are extensive areas of public realm proposed across both the PBSA and life science plots.
- 6.25 A new public square is proposed in the centre of the Site, immediately north of the Grade II* Listed Unitarian Chapel. To facilitate this, Inchley Road will be stopped up. Additionally, there are several linear areas of public realm proposed between the buildings, running in a north-east to south-west alignment. Alongside their use as an amenity space, the new areas of public realm will also serve as pedestrian and cyclist thoroughfares and will connect Upper Brook Street with Kincardine Road.
- 6.26 The new areas of public realm will include:
- Amenity grass
 - Ornamental and shrub planting areas
 - A variety of tree planting
 - A variety of seating opportunities (benches, individual seating cubes/boulders)
 - Informal/natural play
 - Associated furniture (street lighting, cycle storage, litter bins)

6.27 As part of the proposals, Kincardine Road will be converted to one-way (south-north) operation. Additionally, to enhance the east-west linkages between the Brunswick residential area and the Oxford Road corridor, there will be comprehensive environmental improvements including:

- New landscaping
- Wider footpaths
- A segregated contra-flow cycle lane
- Integrated traffic calming and pedestrian/ cycle priority measures
- Enhanced pedestrian crossings

Assessment Methodology and Significance Criteria

- 6.28 The methodology adopted within this Townscape and Visual Assessment to assess the townscape and visual effects of the proposed intervention has been informed by guidance contained within the following:
- Guidelines for Landscape and Visual Impact Assessment² often referred to as 'GLVIA 3'. Note: Terminology within GLVIA 3 (e.g. susceptibility) that is referred to within this methodology is recognised as being interchangeable between 'landscape' and 'townscape' assessment.
 - Townscape Character Assessment Technical Information Note 05/2017 (Revised April 2018).³
- 6.29 As defined within GLVIA 3, 'Townscape' refers to areas where the built environment is dominant and includes buildings, the relationship between them, different types of urban spaces and relationship between buildings and space. Townscape also reflects the relationship between people and place.
- 6.30 Townscape and visual matters are separate, although closely related and interlinked issues, and are dealt with as such throughout the TVA.
- 6.31 A brief description of the assessment methodology is described below. For a more detailed description, please refer to Appendix 6.1: TVA Assessment Methodology.

Baseline Study

- 6.32 The initial step of the TVA is to review the existing townscape and visual resource in the vicinity of the proposed intervention, known as the 'baseline' townscape and visual conditions. This is a process of gathering information, as part of a desk study and subsequent field survey work, to understand features and characteristics of the townscape, the way it is experienced, its quality and value or importance of the visual resources in the vicinity of the proposed intervention. The data collected forms the basis from which the townscape and visual effects of the intervention are identified and assessed.
- 6.33 This baseline study informs a concise description of the existing character of the intervention site and its surrounding townscape context and enables the classification of the townscape into distinct character areas or types, which share common features and characteristics.

Assessment of Effects

- 6.34 The townscape assessment considers the potential effects of the proposed intervention on the components of the townscape (as identified within the Baseline

² Landscape Institute, Institute of Environmental Management & Assessment, *Guidelines for Landscape & Visual Impact Assessment*, 3rd ed. (London: Routledge, 2013)

³ Landscape Institute, *Townscape Character Assessment, Technical Information Note, Revised April 2018*. (Landscape Institute, 2018) <<https://landscapewpstorage01.blob.core.windows.net/www-landscapeinstitute-org/2018/04/tin-05-2017-townscape.pdf>> [accessed 11 May 2023]

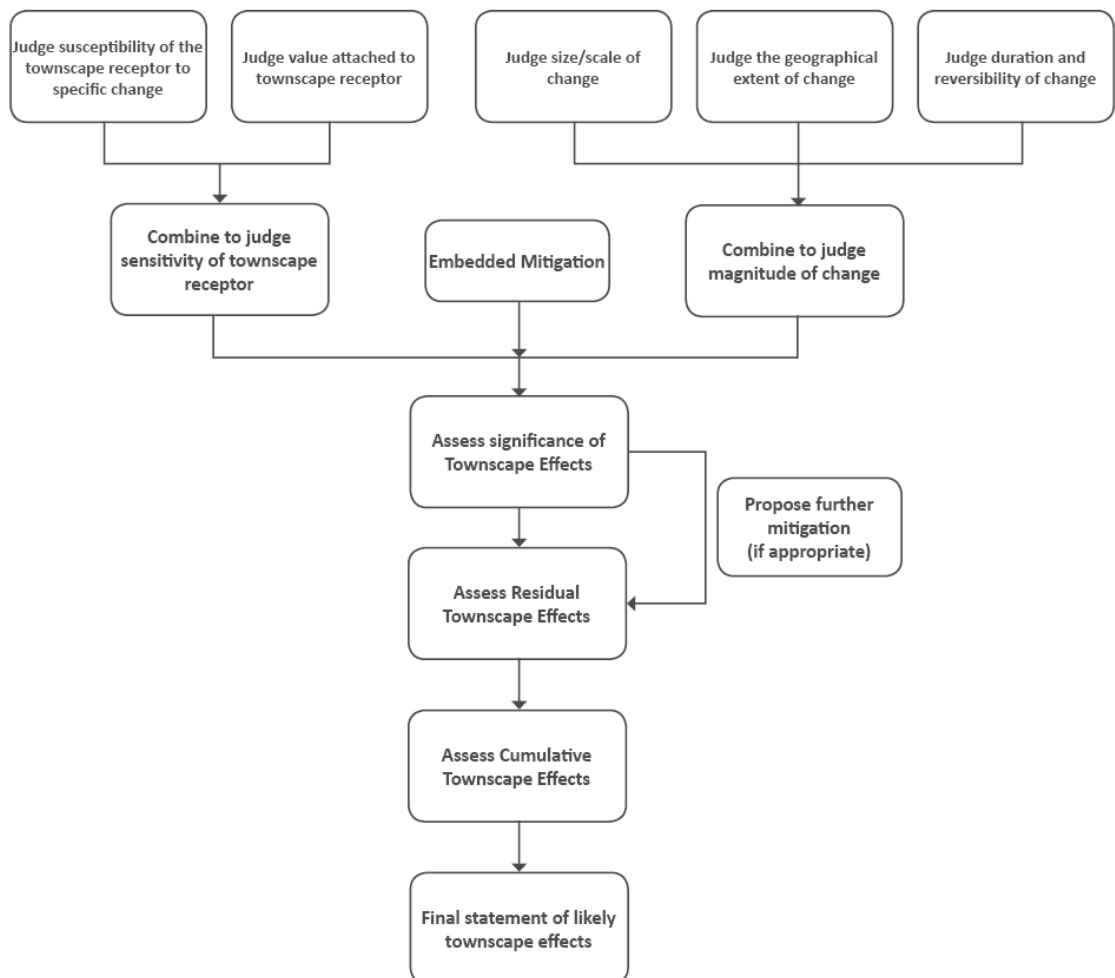
Study). Physical change to the intervention site may result in changes to the distinctive character of the townscape and it's context and how it is perceived.

6.35 The townscape assessment considers the potential effects of the proposed intervention on the components of the townscape (as identified within the Baseline Study). Physical change to the intervention site may result in changes to the distinctive character of the townscape and it's context and how it is perceived.

6.36 Townscape receptors which could be affected by a proposed intervention may include:

- Individual constituent elements and features;
- Specific aesthetic and perceptual qualities; and
- The overall character and key characteristics as experienced in different areas (e.g. townscape character areas or types).

6.37 The flow chart below describes the townscape assessment process.

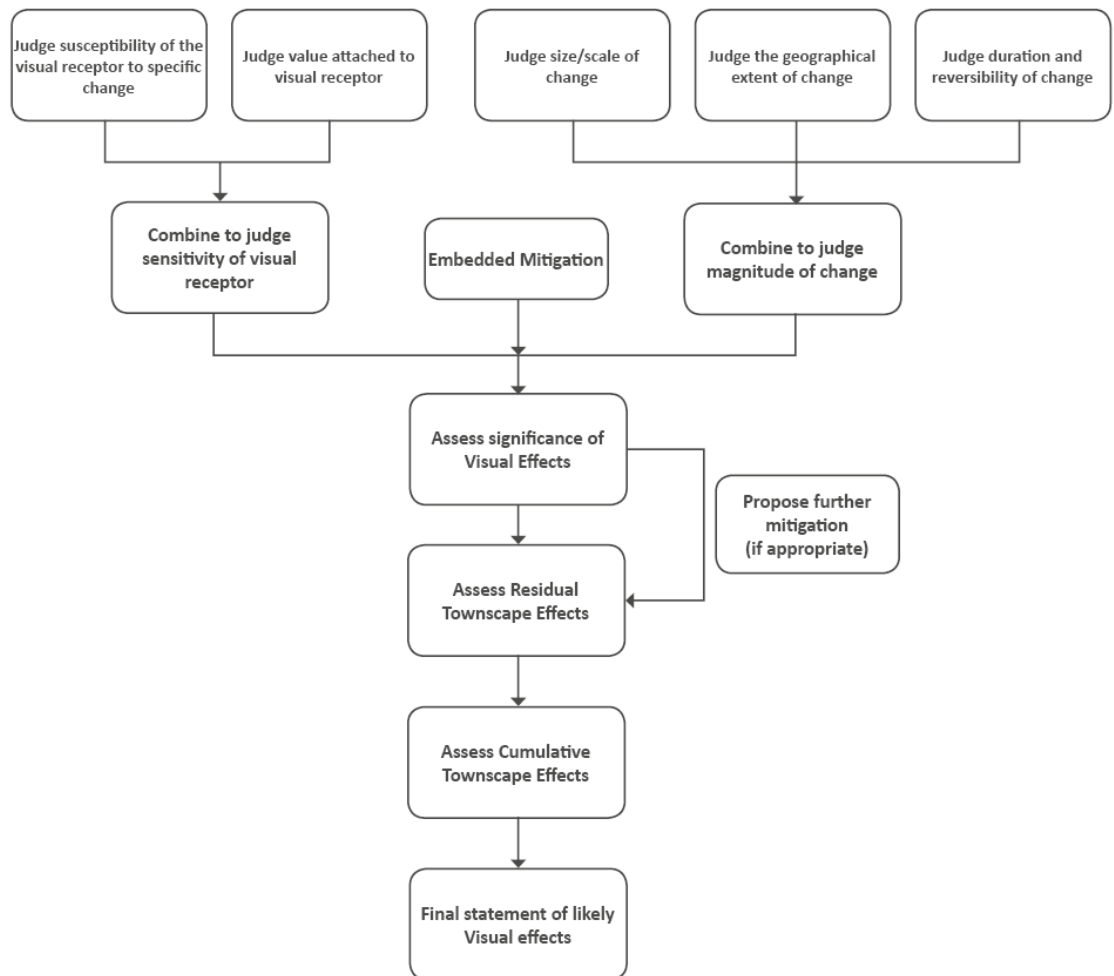


6.38 When assessing the visual effect of the proposed intervention, the area from which the proposed intervention is theoretically visible is established on plan through desktop surveys (or using digital software if available). Once this Zone of Theoretical Visibility (ZTV) is established, then the true visibility of the intervention site is checked

on site in order to understand the screening effect of existing buildings, vegetation and other features and the effect of distance on a receptor's perception of the site. A number of key views are then selected within these areas which are most representative of the available views of the site.

6.39 Viewpoints are selected in order to demonstrate representative scenarios. It is not required that the assessment describe every effect of the proposed intervention, but only the main or likely level visual effects which are required to inform the decision-making authority. If possible, the viewpoints are agreed in advance with the local authority.

6.40 The flow chart below describes the visual assessment process.



6.41 The significance of the townscape and visual effects identified is determined by a consideration of the **Sensitivity** of the townscape/visual receptor and the **Magnitude of Change** to the townscape receptor or view;

- The **Sensitivity** of a townscape receptor or view combines judgements of their **Susceptibility** to the type of intervention proposed and the **Value** attached to the townscape receptor or view.

Sensitivity = Susceptibility + Value.

- The **Magnitude of Change** to the townscape receptor or view depends upon the size or scale of the intervention, the geographical extent of the area experiencing change and its duration and reversibility.

Magnitude of Change = Size/scale of intervention + geographical extent of change + duration / reversibility of change.

Table 6.1 below describes the significance of effects matrix.

Significance of effects				
		Sensitivity		
		Low	Medium	High
Magnitude of Change	High	Moderate	Moderate - Major	Major
	Medium	Minor - Moderate	Moderate	Moderate - Major
	Low	Minor	Minor - Moderate	Moderate
	Negligible	Negligible	Negligible	Negligible

6.2.2 In accordance with the methodology suggested by the GLVIA 3⁴, the nature of the townscape effects in this assessment are classified as follows:

Major Adverse Effect: Where the proposed intervention would result in a complete variance from the scale, pattern and character of the townscape, and cause a very high quality townscape to be permanently changed and its quality diminished.

Moderate Adverse Effect: Where the proposed intervention would be out of scale with the townscape, or conflict with the local pattern and character, and cause an adverse effect on a townscape of recognised quality.

Minor Adverse Effect: Where the proposed intervention would not quite fit into the local scale and pattern of the townscape, and affect an area of recognised character.

Minor Beneficial Effect: Where the proposed intervention would fit in well with the scale, character and pattern of the area, and has the potential to improve the existing townscape quality.

Moderate Beneficial Effect: Where the proposed intervention would fit in well with the townscape character of the area, and improve the quality of the townscape.

Major Beneficial Effect: Where the proposed intervention would fit in very well with the townscape character of the area, and greatly improve the quality of the townscape.

⁴ Landscape Institute, Institute of Environmental Management & Assessment, *Guidelines for Landscape & Visual Impact Assessment*

- 6.42 In accordance with the methodology suggested by the GLVIA 3⁵, the nature of the visual effects in this assessment are classified as follows:

Major Adverse Effect: Where the proposed intervention would cause a significant deterioration in the existing view.

Moderate Adverse Effect: Where the proposed intervention would cause a noticeable deterioration in the existing view.

Minor Adverse Effect: Where the proposed intervention would cause a slight deterioration in the existing view.

Minor Beneficial Effect: Where the proposed intervention would cause a slight improvement in the existing view.

Moderate Beneficial Effect: Where the proposed intervention would cause a noticeable improvement in the existing view.

Major Beneficial Effect: Where the proposed intervention would cause a significant improvement in the existing view.

- 6.43 The above levels of significance (**Minor, Moderate, Major** etc.) may, in some circumstances, result in neither 'beneficial' or 'adverse' nature of change. This will result in a **Neutral** outcome (e.g. **Moderate Neutral** Effect). This is determined where the proposed intervention results in a balanced combination of beneficial and adverse change, or where no distinctly discernible beneficial or adverse change is apparent.

- 6.44 Effects that are **Moderate** and above (i.e. **Moderate, Moderate - Major** and **Major**) are considered to be 'significant'. All other effects are considered to be 'not significant'.

Assessment of Cumulative Effects

- 6.2.3 The purpose of cumulative townscape and visual effects is to identify additional changes caused by the proposed intervention in addition to other similar developments, or as the combined effect of a set of developments taken together.
- 6.2.4 The approach to assessing cumulative effects is guided by the same principles as to the approach to the initial project assessment and considers a combination of susceptibility and value (sensitivity) and magnitude of change to determine the combined effects.

⁵ Landscape Institute, Institute of Environmental Management & Assessment, *Guidelines for Landscape & Visual Impact Assessment*

Baseline Conditions

6.45 This section describes the principal spatial and built form components which give the Site and surrounding area its particular characteristics. The relevance of these components is identified and described below.

- National Character Area Map⁶
- Greater Manchester Landscape Character and Sensitivity Assessment⁷
- Strategic level city-wide urban characterisation study⁸
- City Centre Strategic Plan⁹

6.46 The following are key issues in respect of townscape and visual effect relating to the Site:

- Location and character of townscape elements and components which contribute to the townscape character.
- Identification of key receptors and their sensitivity.
- Determination of the existing townscape character and visual quality of the Site.
- The ability of the existing townscape to accommodate change.
- The likely effects of development within the townscape (whether negative or positive), including:
 - Potential townscape effects on the existing townscape character of the Site and its context.
 - Potential visual effects on views into, out of and across the Site.

6.47 For the purposes of this assessment the following elements are considered relevant in determining the character of the study area: existing urban form, open space and vegetation; topography; and existing land use.

Refer to: **Figure 6.2 – Urban Grain**

Figure 6.3 – Existing Building Heights

Figure 6.4 – Movement Typologies

Figure 6.5 – Topography

⁶ Natural England, *National Character Area profile: 55: Manchester Conurbation*, (Natural England, 2013) <<https://publications.naturalengland.org.uk/publication/5989113924681728?category=587130>> [accessed 11 May 2023].

⁷ Land Use Consultants, *Greater Manchester Landscape Character and Sensitivity Assessment*, (Manchester: Land Use Consultants, 2018) <<https://www.greatermanchester-ca.gov.uk/media/1727/greater-manchester-landscape-character-and-sensitivity-report.pdf>> accessed 11 May 2023].

⁸ Whyard, J, *Strategic level city-wide urban characterisation study*, (Manchester: Manchester City Council, 2010) <https://www.manchester.gov.uk/downloads/500002/council_policies_and_strategies> accessed 11 May 2023].

⁹ Manchester City Council, *City Centre Strategic Plan 2015-2018*, (Manchester: Manchester City Council, 2016) <https://secure.manchester.gov.uk/downloads/file/24745/city_centre_strategic_plan> accessed 11 May 2023].

Figure 6.6 – Heritage Designations**Figure 6.7 – Townscape Character Areas****Urban Grain**

- 6.48 'Urban grain' is used as a shorthand term for the pattern and inter-relationship of buildings and open space. A study of this pattern can contribute to an understanding of townscape and character to highlight the ratio of built form as a precursor to defining townscape character.
- 6.49 The urban grain varies across the study area. However, it can be characterised into 3 main typologies: the Site, Brunswick (to the immediate north east, east and south east of the Site) and the university corridor/city centre (to the north west of the Site, beyond Mancunian Way, and west of the Site).
- 6.50 The urban grain of the Site contains medium sized blocks, which are predominantly light industrial units, interspersed with surface car parks and incidental areas of open space.
- 6.51 Within Brunswick, the urban grain is predominantly small scale residential blocks, linear in formation, interspersed with areas of open space. Further east from these residential areas, the blocks become larger and are predominantly light industrial units. The urban grain here is looser and contains large areas of surface car parking and railway infrastructure.
- 6.52 Within and the university corridor/city centre, the urban grain is densely built up and in a distinct grid formation. The blocks are medium to large scale, interspersed with small to medium sized areas of open space. At the western edge of the study area, the urban grain contains smaller scale, predominantly residential buildings, arranged in a tight linear formation.

Built Form

- 6.53 There is significant variation in the scale and massing of the built form within the study area. Within the Site itself, the buildings are all below 5 storeys but have a medium sized footprint. To the east of the Site, the buildings are predominantly below 5 storeys in height and small in footprint, with some light industrial units between 5 and 10 storeys. The built form to the west of the Site is varied. The buildings are generally larger in terms of footprint compared to the surrounding area, but they are between 3 and 19 storeys in height. The 19 storey building is the Hyatt Regency hotel on Booth Street West. To the north of the Site (in the City Centre), the built form is generally much taller than the surrounding areas. There are a number of buildings that are taller than 16 storeys and relatively few that are below 5 storeys. There are 3 buildings within the City Centre and the study area that are above 21 storeys in height: Vita Living apartment block at Circle Square, Unite Students Artisan Heights on New Wakefield Street and Unite Students Bridgewater Heights on Great Marlborough Street.
- 6.54 Surrounding the site, the small scale residential built form generally consists of red brick with grey roof tiles. Older built form, particularly listed and heritage buildings,

are generally red or buff brick with a variety of architectural detailing. Newer built form is of a mixed architectural aesthetic with a variety of cladding types and colours. Generally, the newer built form is rectangular in formation and massing, with linear window and cladding features.

- 6.55 There are 48 listed buildings within the 750m study area radius from the Site. The closest of these is the Grade II* listed 'Former Unitarian Chapel' which is adjacent to the Site. The Site is located within proximity of the Whitworth Street and Princess Street Conservation Area, which is located 400m to the north.

Streetscape

- 6.56 The Site is located on Upper Brook Street which is a key arterial route into and out of Manchester City Centre. The streetscape here consists of a wide, heavily trafficked 4-5 lane carriageway, with pavements on both sides of the road and some pedestrian crossings. Along Upper Brook Street, there are several junctions with smaller roads (some controlled by traffic lights), which lead either into the University of Manchester or Manchester Metropolitan University campuses, the Manchester Royal Infirmary campus, or neighbouring residential areas. The Site is also located in close proximity to the A57 Mancunian Way, which crosses Upper Brook Street to the north of the Site at an elevated level.
- 6.57 The streetscapes within the university campuses consist of relatively heavily trafficked roads, most of which are between 2 and 4 lanes wide. There are pavements on both sides of the majority of roads with various highway infrastructure, as to be expected in an urban highway environment.
- 6.58 The streetscapes within the residential area of Brunswick are of a smaller and tighter scale compared to Upper Brook Street and the university campuses. These consist of narrow residential roads, which are 2 lanes wide maximum with pavements on both sides. Either side of the pavements are low boundary walls and fences, some of which are low rise and allow views of residential front gardens and driveways. Additionally, there are areas of on-street car parking in dedicated bays and some small parking courts.

Significant Vegetation

- 6.59 Existing vegetation is identified and assessed at two levels. Firstly, the contribution it makes to the area as a whole and secondly, specific vegetation which may be physically affected by the Proposed Development. The existing vegetation has been mapped using aerial photography with supporting fieldwork.
- 6.60 Significant vegetation surrounding the Site is mostly associated with public greenspaces including Gartside Gardens, Ardwick Green Park, Brunswick Park, University Green and All Saints Park. These contain a mixture of semi-mature to mature tree planting, amenity grass and some ornamental planting. They are all surrounded by built form, either residential or associated with the university campuses. Also surrounding the Site are several incidental greenspaces that contain mostly mown grass with tree planting (of varying maturity). These are mostly associated with building edges and road verges, the most notable being the area

immediately north of the site where the Mancunian Way underpass entrance/exit is located.

- 6.2.1 The existing vegetation within the Site is not a defining townscape or visual characteristic, although the existing trees at the very north of the Site provide some visual amenity. As identified by Manchester City Council¹⁰, there is a Tree Preservation Order (TPO 1998 Order 'B') applied to the northern end of the Site, on the land between Grosvenor Street and Kincardine Road. This encompasses five trees including a Hybrid Black Poplar, a Tree of Heaven, and a group of 3 Common Limes.
- 6.61 An Arboricultural Impact Assessment has been undertaken for the Site. This identified the presence of 7 trees, 3 tree groups and 2 hedges. Of the trees identified, only one was identified as category A (trees of high quality with an estimated remaining life expectancy of at least 40 years). This Sycamore tree is located in the centre of the Site, close to the junction of Upper Brook Street and Inchley Road. One Common Ash tree has been identified as category U (cannot realistically be retained as living trees in the context of the current land use for longer than 10 years). The remaining trees, tree groups and hedges have been identified as category B (moderate quality or value) or C (low quality or value).
- 6.62 The Arboricultural Impact Assessment undertaken has demonstrated that construction of the development as proposed will require the removal of all existing trees on Site. As described in the Arboricultural Impact Assessment, the proposed layout will accommodate a number of newly planted trees within the outdoor amenity areas. It is projected that adequate compensation can be achieved for the tree losses required to construct the development.
- 6.63 An Ecological Appraisal has been undertaken for the Site. This identified that the Site is dominated by hardstanding and open areas of concrete. There are small patches of poor semi-improved grassland scattered across the Site, with ephemeral/short perennial grass present at gaps in the concrete or kerbs. Introduced shrub is concentrated largely at the north-eastern and eastern site boundaries, whilst five disused buildings are also present on Site. A small number of scattered trees can be found largely at the Site boundaries. The habitats and plant species recorded within the site are widespread and common throughout Greater Manchester and the UK. None of the plant species recorded within the Site are either Nationally Scarce or Nationally Rare or of any other conservation significance. One invasive non-native species Schedule 9 plant is present within the Site (a stand of wall cotoneaster was present in a small section at the south-eastern Site boundary). Specific measures will be required where works pass through, or close to, stands of the species, which may include professional removal and disposal.
- 6.64 The Ecological Appraisal also assessed seven buildings for bat roost suitability; one was assessed to have Moderate potential to support roosting bats, whilst one was assessed to have Low potential to support roosting bats (all others negligible).

¹⁰ Manchester City Council, *Tree Preservation Orders*, (Manchester: Manchester City Council, 2019) < <https://open-data-mcr-council.hub.arcgis.com/maps/234d49a3783b47e49d7016747654e988/about> > [accessed 19 June 2023].

Further bat activity surveys of these two structures are recommended. Scattered trees and introduced shrub on site may hold some suitable habitat for nesting birds. These habitats should be inspected by an Ecologist prior to removal if being removed within the nesting season (March to August inclusive). The introduced shrub habitat on Site may provide some refuge for hedgehog. This habitat should be inspected by an ecologist prior to removal.

Topography

- 6.65 The topography is an important part of the character of the area. Visually, it is relevant in defining the character of views around the Site. Surrounding the Site within the wider context, the topography generally falls from east to west. High points in the north east are located at Piccadilly East (approximately 48mAOD), Pin Mill Brow (approximately 48.5mAOD) and Ardwick train station (approximately 52mAOD). Low points in the area surrounding the Site are mostly associated with the river and canal network.
- 6.66 The topographical variation across the site is very minor. The highest point of the site (39.30mAOD) is located on the western side of the Site, between Inchley Road and Kincardine Road, where an existing building is located. The lowest points of the Site (38.51mAOD) are located in the south west corner of the site and on the eastern side of the existing building in the central portion of the Site.

Existing Townscape Character

- 6.67 Townscape assessment encompasses an appraisal of physical, aesthetic and intangible attributes including sense of place, rarity or representativeness, and unspoilt appearance. The combination of townscape elements (trees, hedgerows, woodlands, settlement and buildings, their architecture and fabric) and their arrangement give the different areas a unique sense of place, or 'character'. These aspects, together with scale and character of surrounding landscapes, patterns and scale of landform, land cover and built development, need to be taken into account when assessing townscape effect.
- 6.68 Natural England have produced a series of National Character Area (NCA) profiles that identify broad, strategic character areas for England and the key opportunities for local decision making. The development Site is located within the National Character Area 55: Manchester Conurbation¹¹ which summarises this area as follows:

"A number of settlements have grown and come together to form the Manchester Conurbation [...] This area is characterised by dense urban and industrial development, commercial, financial, retail and administrative centres, commuter suburbs and housing, interspersed with a network of green infrastructure.

The conurbation is centred on low hills, crossed by several river valleys that thread through the urban fabric. The geology is dominated by sandstones, overlain by thick deposits of glacial till. [...]

¹¹ Natural England, *National Character Area profile: 55: Manchester Conurbation*, (Natural England, 2013)

Canals that weave through the conurbation not only offer opportunities for access and recreation, but also form a network of wetland habitats. Sections of the Rochdale Canal, in particular, have been designated as being of international importance as a Special Area of Conservation (SAC). [...]

In the late 18th century, the areas became rapidly industrialised, with dramatic growth in the cotton industry and expansion in ancillary trades. The population increased, fuelled by a need for labour, with rows of terraced housing built for the workers as well as mills and industrial buildings. Red brick and sandstone buildings are prominent in the city and town centres, alongside buildings using a mix of modern materials, high-rise buildings and landmark 19th-, 20th- and 21st- century buildings.”¹²

- 6.69 The classification covers a wide area extending from Urmston in the west to Denton in the east, and as far as Cheadle Hulme and Bramhall to the south and Prestwich in the north. NCAs are primarily used for understanding broad landscape context, rather than townscape and are therefore of limited use for the purpose of this assessment.
- 6.70 Although relevant, the level of detail is considered insufficient in providing an accurate depiction of the Site and locally specific issues. However, it is noted that several of the above characteristics are discernible in relation to the wider townscape surrounding the Site. Specifically, the presence of large settlements characterised by dense urban and industrial development, commercial, financial, retail, and administrative centres, commuter suburbs and housing. Additionally, the presence of canals, the River Irwell and the significant road networks, in particular the A57 Mancunian Way. For the purposes of this TVA a more local scale character assessment is appropriate.
- 6.71 The Greater Manchester Landscape Character and Sensitivity Assessment¹³ focuses on regional townscape character areas. The Site is not located in a particular landscape character type but is described as urban.
- 6.72 A Strategic Level City-Wide Urban Characterisation¹⁴ was undertaken in 2010 as an evidence base for the Core Strategy. The purpose of the study was to understand how the local character of different areas varies across Manchester as a means of identifying how local needs may be addressed by proposals for new development. The study identifies the Strategic Character Areas within the city. The ‘City Centre’, ‘Higher Education Precinct (HEP)’ and the ‘Central Area of Change’ are the three Character Areas which may be affected by the Proposed Development.
- 6.73 City Centre:
- “The urban form is one of contrasts [...]*
- The scale of built form also varies, sometimes dramatically, but the core area is mainly one of higher, larger scale buildings [...]*

¹² Natural England, *National Character Area profile: 55: Manchester Conurbation*, (Natural England, 2013)

¹³ Land Use Consultants, *Greater Manchester Landscape Character and Sensitivity Assessment*, (Manchester: Land Use Consultants, 2018)

¹⁴ Whyard, J, *Strategic level city-wide urban characterisation study*, (Manchester: Manchester City Council, 2010)

The core has a relatively modest amount of open space (when compared to built floorspace) [...]

The Conservation Area status of much of the centre and the concentration of listed buildings reflects the urban history and quality of the urban environment [...]

It contains a mix of building ages, types, and quality [...]

Outside the core, the intensity of activity falls and, within larger areas, uses are less mixed with fewer uses of particular regional significance but that can include uses not generally found in the core area including elements of industrial use. [...]

The non-core area includes significant areas of cleared land (often used for surface car parking) and a growing component of contemporary residential use as the core area pushes outwards.”¹⁵

6.74 Higher Education Project:

“The main Oxford Road highway runs centrally through the length of this area [...]

The character of the area today is very much linked to Oxford Road as the focus of the city's major education and medical facilities in a significant number of often large, institutional buildings. These clearly relate to and define the Oxford Road frontage and give the wider area a particular sense of scale and gravitas. [...]

The HEP, particularly during university term-time, is a highly active and vibrant extension to the city centre including into the night-time. The Oxford Road frontage is particularly busy with a host of student facilities, performance venues, museums, shops and bars [...]

Other than for a limited number of east-west roads it is pedestrians that predominantly permeate the area between (but without often reaching) the Cambridge Street and heavily trafficked Upper Brook Street routes that broadly define the HEP to the west and east respectively.”¹⁶

6.75 Central Area of Change :

“The majority of the area is engulfed by the industrialised expansion of the city [...]

The area remains the focus of the city's industrial and other out-of-centre commercial activity mostly in low-rise industrial shed-style buildings [...]

Change is once again underway with regeneration programmes that have, and continue, to transform the urban form of significant parts of the area [...]

There are, however, localities which exhibit increased levels of overall activity: Those close to the city centre and the Higher Education Precinct and areas that have recently experienced regeneration to higher densities that can now sustain a greater range of associated facilities.”¹⁷

¹⁵ ibid

¹⁶ Whyard, J, *Strategic level city-wide urban characterisation study*, (Manchester: Manchester City Council, 2010)

¹⁷ ibid

- 6.76 As part of the TVA, an additional local level townscape character assessment has been undertaken based on fieldwork. The Manchester City Centre Strategic Plan¹⁸ identifies local level Townscape Character Areas (TCAs), as shown in **Figure 6.7**. Only TCAs located within 750m of the Site have been assessed as part of this TVA. It is considered that there will be no likely perceivable change to other TCAs located fully outside of the study area because of the Proposed Development on Site. This is due to the heavily urbanised nature of the city environment, the resulting screening effects of buildings and the orientation of nearby public spaces and streets, all which limit visual connectivity.
- 6.77 The Manchester City Centre Strategic Plan extent does not cover the eastern part of the study area. Therefore there are no published townscape character areas for this area. In order to assess the impact of the Proposed Development on this area, it has been separated into two townscape character areas, defined by the authors of this assessment through fieldwork and supported by photographs and aerial mapping.
- 6.78 The quality of the townscape character areas has been assessed in terms of their condition, value and sensitivity and is summarised as follows:

Character Area 1: Corridor Manchester

- 6.79 The Corridor Manchester TCA is adjacent to the Site's western edge (Upper Brook Street) and extends from here across the study area to the northern, western and southern study area extents. This TCA is broadly characterised by large scale educational and commercial buildings, interspersed with areas of greenspace and public realm.
- 6.80 The eastern side of the TCA contains a number of institutional buildings and facilities including Manchester City Council, Manchester Metropolitan University, The University of Manchester, Central Manchester University Hospitals NHS Foundation Trust (CMFT) and Manchester Science Partnerships (MSP). Generally, these buildings are large in footprint and massing and of a modern architectural style. In contrast, there are several listed buildings, including the Manchester Museum, Oddfellows Hall and the Former Deaf and Dumb Institute, that creates pockets of historic prevalence and sense of place.
- 6.81 The western side of the TCA contains post-war, red brick, low density housing resulting in a concentrated residential population. This housing is interspersed with some taller, high density university accommodation, which is of a mixture of age and quality. This part of the TCA has a relatively distinguishable urban structure, with an urban grain and architectural qualities that are imbalanced or considered uncharacteristic in places.
- 6.82 There are some significant areas of greenspace within the study area: All Saints Park, University Green, Brunswick Park and Alan Gilbert Square. There are also some new areas of public realm associated with university development, particularly around the University of Manchester Engineering buildings and the Alliance Manchester

¹⁸ Manchester City Council, *City Centre Strategic Plan 2015-2018*, (Manchester: Manchester City Council, 2016)

Business School. These areas are generally well maintained and contain trees, seating and paved footpaths.

Table 6.2: Townscape Character Area 1 – Corridor Manchester

Townscape Character Area 1 – Corridor Manchester		
Susceptibility	Low	The presence of several recent developments and the varying age and quality of the existing architecture means that the Proposed Development would not be considered uncharacteristic when set within the attributes of the TCA. It can therefore accommodate the Proposed Development without considerable consequences for the retention of the existing townscape baseline.
Value	Moderate	There is a relatively distinguishable urban structure however the combination of the recent development and existing older buildings means there is a mix of architectural quality and character. There are some areas of well-maintained green infrastructure and several features worthy of conservation, which contribute positively to the townscape.
Sensitivity	Medium Low	

Character Area 2: The Village

- 6.83 The Village TCA is located north of the Site, separated from the Site by the North Campus TCA. It contains a relatively tight and formal urban grain, interspersed with historic buildings and architecture. This urban grain is broken up by the occasional surface car park, the canal and river network, and Sackville Garden.
- 6.84 The built form in the TCA is characterised by early 20th century, red brick, Edwardian Baroque style buildings, many of which are listed. These are typically 4-8 storeys in height and are predominantly now used for offices or residential apartments. Additionally, the TCA contains two Conservation Areas: Whitworth Street and Princess Street, and George Street. As a result the TCA has a distinguishable urban structure, sense of place and historic prevalence, with areas worthy of conservation.
- 6.85 There have been some notable modern architectural additions to the TCA, mainly the Brooklyn and Clayton hotels on Portland Street and the Manchester New Square apartment buildings on Whitworth Street/Princess Street. These are of a notably different architectural style and much taller (between 11 and 20 storeys) than the characteristic buildings within the TCA.
- 6.86 Sackville Garden is the only significant area of greenspace within the TCA, which contains well maintained amenity grass, tree planting, some ornamental planting and street furniture. Canal Street is a cobbled, tree lined street with views of the Rochdale Canal, only accessible by vehicles by demountable bollards, that is often

used by adjacent restaurants and bars as a large spill out zone. Although this is not a formal area of public realm, it is a key public space within the TCA.

Table 6.3: Townscape Character Area 2 – The Village

Townscape Character Area 2 – The Village		
Susceptibility	Medium	The presence of some recent modern developments that contrast with more historic features means that the Proposed Development may not necessarily be considered to be substantially uncharacteristic. The TCA therefore has some ability to accommodate the Proposed Development without considerable consequences for the retention of the existing townscape baseline.
Value	High	The townscape broadly contains a strong and characteristic urban grain with architectural qualities that create a notable sense of place. There are instances of well-maintained greenspace and public realm that contribute positively to the townscape.
Sensitivity	High Medium	

Character Area 3: North Campus

- 6.87 The North Campus TCA is located north of the Site, separated from the Site by the New Brunswick TCA. It contains a relatively tight and formal urban grain with historic prevalence in parts, however is predominantly characterised by large scale, mixed quality university buildings.
- 6.88 The area north of the railway line contains several early 20th century, red brick, Edwardian Baroque style buildings, one of which is listed. These are typically 5-10 storeys in height and are predominantly now used for offices or residential apartments. Additionally, this area of TCA contains the Whitworth Street and Princess Street Conservation Area. There have been some more recent architectural additions to this area in form of purpose built student accommodation. Vimto Park is also located in this part of the TCA, which is a large, well-maintained greenspace. As a result, this part of the TCA has a relatively distinguishable urban structure, with some characteristic urban grain and architectural qualities.
- 6.89 South of the railway line, the TCA includes several buildings associated with The University of Manchester including purpose built student accommodation, laboratories and lecture halls. The built form here is of a mixture of ages and architectural styles. There are some incidental greenspaces, but a lack of managed public space. There is a weak urban structure with a mixed urban grain and no notably distinguishable architectural qualities.

Table 6.4: Townscape Character Area 3 – North Campus

Townscape Character Area 3 – North Campus		
Susceptibility	Low	The majority of the TCA contains large scale architecture, with few distinguishable qualities. Although there is an area of historic prevalence that is worthy of conservation, this makes up a relatively small portion of the TCA. It can therefore accommodate the Proposed Development without considerable consequences for the retention of the existing townscape baseline.
Value	Low	Although there is a relatively distinguishable urban structure in the northern part of the TCA, the rest of the TCA has a weak urban structure with few notably distinguishable qualities. There is a single area of well-maintained green infrastructure and one listed building, however most of the TCA contains limited features worthy of conservation.
Sensitivity	Low	

Character Area 4: Mayfield

- 6.90 The Mayfield TCA is located north east of the Site, separated from the Site by the New Brunswick TCA. The defining feature of the TCA is Mayfield Park, which is a recently completed 6.5 acre greenspace. This is a new and well maintained and managed area of green infrastructure that contributes positively to the townscape. Adjoining Mayfield Park is Depot Mayfield which is a former railway station that has been redeveloped into an arts and music centre with food and beverage offers. The development has introduced modern architectural features but has retained much of the existing railway infrastructure, which has some features worthy of conservation alongside areas that require improvement.
- 6.91 To the north and east of the park, most of the built form is associated with light industry. Aside from the railway arches, the townscape here has a weak urban structure with no notably distinguishable architectural qualities. Some areas, particularly those adjacent to the railway arches are in poor condition with frequent detracting features. At the very northern edge of the TCA is the Grade II listed Star and Garter Public House.
- 6.92 To the west of the TCA, there are several large scale buildings between 8 and 18 storeys high. These are a combination of hotel and purpose built student accommodation. These buildings introduce a different architectural style compared to the railway arches and industrial buildings present elsewhere in the TCA. This area of the TCA contains several surface car parks and incidental greenspaces, resulting in a weak urban structure with no notably distinguishable architectural qualities.
- 6.93 The River Medlock meanders through the TCA, although this is only perceivable in Mayfield Park as elsewhere it is culverted or contained within engineered walls.

Table 6.5: Townscape Character Area 4 – Mayfield

Townscape Character Area 4 – Mayfield		
Susceptibility	Low	The presence of large scale modern architecture alongside areas that have scope for improvement mean that the Proposed Development would not be considered uncharacteristic when set within the attributes of the TCA. It can therefore accommodate the Proposed Development without considerable consequences for the retention of the existing townscape baseline.
Value	Moderate	Although Mayfield Park and the Depot presents locally distinctive and good quality, well maintained elements amenity components, more broadly the remaining townscape contains a combination of several detracting and damaged townscape features.
Sensitivity	Medium Low	

Character Area 5: Upper Brook Street

- 6.94 The Upper Brook Street TCA is located between the Corridor Manchester and the New Brunswick TCAs. The Site boundary encompasses the northern part of the TCA, whereas the southern part of the TCA extends beyond the Site boundary to Brunswick Street.
- 6.95 The TCA is characterised by commercial and light industrial properties (many of which are now vacant) which have a large footprint but are relatively low-rise. The built form typically consists of a brick façade with a corrugated metal roof. There are several large surface car parks distributed across the TCA which are somewhat degraded with frequent detracting features. The TCA has a weak urban structure, with mixed urban grain and few distinguishable architectural qualities.
- 6.96 The Grade II* Listed Unitarian Chapel is located in the centre of the TCA and is the only element worthy of conservation – there are no other listed buildings and no conservation areas within the TCA. The only area of well-maintained greenspace is a private garden associated with Elizabeth Yarwood Court. All other areas of greenspace are incidental, generally associated with road verges and property boundaries and require improvement.

Table 6.6: Townscape Character Area 5 – Upper Brook Street

Townscape Character Area 5 – Upper Brook Street		
Susceptibility	Low	The prominent lack of distinguishable architectural qualities, open space and weak urban structure means the area can accommodate the Proposed Development without considerable consequences for the retention of the existing townscape baseline.
Value	Low	The townscape contains poor quality architecture with several detracting features and limited features worthy of conservation. There are very isolated elements of greenery and a lack of public space.
Sensitivity	Low	

Character Area 6: New Brunswick

- 6.97 The New Brunswick TCA is adjacent to the Site's eastern edge. It covers the eastern part of the study area, from the North Campus and Mayfield TCAs in the north to the study extent in the south.
- 6.98 The TCA is characterised by small scale, low rise residential development, with interspersed areas of light industry and areas of greenspace. The houses are predominantly red or buff brick (some also have areas of white cladding) with grey tiled roofs. There are a 3 residential tower blocks located at the very north of the TCA and 1 in the centre of the TCA, all between 11 and 14 storeys. Most of the residential housing is from the late 1960s and early 1970s, however there has been recent development and regeneration (Brunswick PFI) to parts of the TCA, resulting in more modern architectural qualities. There are a number of listed buildings within the TCA which are generally located towards the east. In general, the TCA has a relatively distinguishable urban structure with a characteristic urban grain and architectural qualities.
- 6.99 The TCA contains two large areas of well managed and maintained greenspace – Gartside Gardens and Ardwick Green Park. These contain a series of footpaths with amenity grass and mature tree planting and contribute positively to the townscape. There is also a presence of less formal, more incidental greenspaces. These are mostly associated with road verges and property boundaries, however they contribute to the green character of the TCA. As part of the recent development, there are several new areas of community-based greenspace including allotments and an orchard.

Table 6.7: Townscape Character Area 6 – New Brunswick

Townscape Character Area 6 – New Brunswick		
Susceptibility	Medium	Although the TCA is characterised by low-rise housing resulting in a concentrated residential population, the modern architectural interventions and presence of some tall buildings means that the area has some ability to accommodate the Proposed Development without considerable consequences for the retention of the existing townscape baseline.
Value	Moderate	There is a distinguishable urban structure with some characteristic urban grain and architectural qualities. There are areas of well-maintained green infrastructure, which contribute positively to the townscape.
Sensitivity	Medium	

Table 6.8: Summary of Townscape Character Areas

Character Area	Susceptibility	Value	Sensitivity
1 - Corridor Manchester	Low	Moderate	Medium Low
2 - The Village	Medium	High	High Medium
3 – North Campus	Low	Low	Low
3 – Mayfield	Low	Moderate	Medium Low
5 – Upper Brook Street	Low	Low	Low
6 – New Brunswick	Medium	Moderate	Medium

Views, Visibility and Visual Character

- 6.100 A comprehensive visual assessment has been undertaken to determine the degree of visual effect the Proposed Development would have upon the surrounding landscape. Viewpoints were initially identified through the baseline assessment, and in the field each viewpoint was visited and recorded. All views assessed have been verified and have been confirmed with Manchester City Council prior to the assessment.
- 6.101 The Site and Proposed Development may not be visible in all assessed viewpoints. However, the modelling exercise is undertaken in these instances to determine visual effects from this representative location. A total of 15 representative views within the established ZTV (**Figure 6.9**) have been selected for the analysis of visual effects.
- 6.102 The ZTV has been provided by Simpson Haugh Architects and has formed the basis of the visual assessment within this document. This extent of the ZTV covers the study area as a minimum.
- 6.103 Where the Proposed Development is not visible, or the view is long-distance, a wireframe outline is shown for location purposes. Close range views include a rendered model in order to provide an indication of the Proposed Development's appearance.
- 6.104 Key views have been selected at strategic locations around the Site. It is considered 'best practice' to categorise views into 3 ranges depending on the proximity of the viewpoint. The categorisation is based on the scale and nature of the landscape, and is as follows:
- Close: less than 250m
 - Medium: between 250m – 1km
 - Long: More than 1km

Sensitivity of visual receptors

- 6.105 The views shown on **Figure 6.12** to **Figure 6.26** have been selected in order to be representative of a range of locations and distances from which the Site is visible, and for the type of occupancies (e.g. residential properties), activities (e.g. footpath users) and the expectations of potential receptors (e.g. visitors to the locality). The sensitivity of the receptor has been recorded against each view considered, based upon judgements of their susceptibility to the type of intervention proposed and the value attached to the view.

Table 6.9: Baseline visual conditions for viewpoint 01

Viewpoint 01 – Upper Brook Street	
Figure reference	Figure 6.12
Distance	Close – 100m from Site
Direction	North
Season and condition	Spring, overcast.
Type of receptor	Road users, pedestrians, workers, university students and staff.
Reason for view selection	Key pedestrian and vehicular route into and out of the city centre. Key pedestrian route adjacent to university campus. The Grade II* listed Former Unitarian Chapel is in view.
Description of existing view	The foreground of the view is dominated by the carriageway and pavements of Upper Brook Street and the associated highways infrastructure including lighting, signage, railings and road markings. The left side of the view contains the Alan Turing building which is of a modern architectural style, which is comparable in scale and character to other neighbouring buildings. The remainder of the left side of the view is obscured by the canopies of a series of mature trees. The right side of the view comprises two disused buildings. Their brick façades and corrugated metal roofs are typical of the commercial buildings in this locality and their low rise nature allow open views of the sky. Adjacent to these buildings is a grass verge which contains one mature tree and several self-seeded and overgrown shrubs. Towards the rear of the view is the Grade II* listed 'Former Unitarian Chapel' which contains distinctive features. Beyond this is sight of several tree canopies and glimpses of the towers in the city centre skyline. Although there is glimpsed visibility of the chapel, within the wider context of the view it is not considered a high quality vista.
Visual susceptibility	Low
Value attached to view	Low
Visual sensitivity	Low

Table 6.10: Baseline visual conditions for viewpoint 02

Viewpoint 02 – All Saints Park	
Figure reference	Figure 6.13
Distance	Medium – 350m from Site
Direction	East
Season and condition	Spring, overcast.
Type of receptor	Pedestrians, park users, university students and staff.
Reason for view selection	Well-used city centre park. Centre of the Manchester Metropolitan University campus. The Grade II listed 'Former Town Hall Façade to Mable Tylecote Building' is in view.
Description of existing view	The foreground of the view contains a large expanse of well-maintained amenity grass with a wide tarmac footpath. In the centre of the view there are several mature trees. The proximity of these trees obscure the view and as such there are limited clear long distance views beyond the park boundary and limited open views to the sky. Beneath the trees are several areas of well-maintained planting and shrubs along with park infrastructure including litter bins, benches, lighting columns and boundary walls and fences. Towards the rear of the right side of the view is sight of the Grosvenor East building, although it is mostly obscured by tree canopy. The building is of a modern architectural style and articulation but also encompasses the Grade II listed 'Former Town Hall Façade to Mable Tylecote Building', which contains some distinctive features. In the rear centre and left of the view are glimpses of the streetscape along Oxford Road. This is typically mixed use buildings, with commercial shops and restaurants on the ground floor and residential apartments above.
Visual susceptibility	Medium
Value attached to view	Moderate
Visual sensitivity	Medium

Table 6.11: Baseline visual conditions for viewpoint 03

Viewpoint 03 – Brook Street	
Figure reference	Figure 6.14
Distance	Close – 100m from Site
Direction	Southeast
Season and condition	Spring, overcast.
Type of receptor	Highway users.
Reason for view selection	Key vehicular route into and out of the city centre. Three listed buildings in view.
Description of existing view	The foreground of the view is dominated by the extent of Upper Brook Street. This is a 5 lane carriageway with a large central reservation and pavements on either side (pedestrian access to these pavements is deterred) with associated highway infrastructure including road markings, large scale streetlights, railings and signage. The left side of the view contains several mature trees, interrupted by a slip road which leads to Mancunian Way. The canopy of these trees contributes to the green character of the left side of the view, and obstruct much of the view of the buildings beyond. Underneath the trees is a large grass verge and a series of footpaths that lead to and from the subways beneath Mancunian Way. The right side of the view contains several buildings of a variety of architectural style and quality, although their low to medium-rise nature allows open views of the sky. The black façade of the Engineering Building to the far right of the view is a prominent feature and projects above other buildings in view. Although there is sight of the Grade II listed Oddfellows Hall which has some distinctive features, it is partially obscured by the rear of the properties on Grosvenor Street (which are Grade II listed). The rear of the view contains sight of the Royce Hub Building, which is an 11 storey university building with grey-silver cladding, although the bottom storeys are obscured by a series of mature trees. Also in the rear of the view is a glimpse of the Grade II* listed 'Former Unitarian Chapel' which contains distinctive features and is of a recognisable character. However, this is partially obscured by disused buildings and highway infrastructure.
Visual susceptibility	Low
Value attached to view	Low
Visual sensitivity	Low

Table 6.12: Baseline visual conditions for viewpoint 04

Viewpoint 04 – Hanworth Close	
Figure reference	Figure 6.15
Distance	Close – 200m from Site
Direction	Southwest
Season and condition	Spring, clear skies, some thin cloud cover.
Type of receptor	Pedestrians, residents at home, road users.
Reason for view selection	Residential neighbourhood adjacent to the Site (New Brunswick).
Description of existing view	The foreground of the view contains the carriageway of Hanworth Close and adjacent pavements. This is a narrow, 2 lane residential street which contains street lights and road markings. On both the left and right sides of the view are 2 storey residential houses which are red/buff brick with some small areas of white cladding on the more recently developed properties. Fronting on to both sides of the road are well maintained boundary walls, fences and railings associated with the residential properties. There is sight of some small trees within the gardens of the properties on the right hand side of the view, along with glimpsed views of cars parked on driveways. In the far right of the view is a glimpse of a 9 storey residential tower block. At the rear of the view are the engineering buildings associated with the University of Manchester. The massing of these much larger than the residential properties in view. Additionally, the façade of parts of these buildings is black cladding, which is a distinctly different aesthetic to the residential properties in the rest of the view. Also at the rear of the view are glimpses of mature trees located within Gartside Gardens. The low-rise nature and/or proximity of the buildings results in open views of the sky.
Visual susceptibility	High
Value attached to view	Moderate
Visual sensitivity	High Medium

Table 6.13: Baseline visual conditions for viewpoint 05

Viewpoint 05 – Gartside Gardens	
Figure reference	Figure 6.16
Distance	Close – 150m from Site
Direction	West
Season and condition	Spring, overcast.
Type of receptor	Pedestrians and park users.
Reason for view selection	Well used greenspace adjacent to the Site (Gartside Gardens).
Description of existing view	The foreground of the view contains a large area of maintained amenity grass, with a shared pedestrian and cycle track through the centre of it. Alongside this track are a series of benches, litter bins and streetlights. In the middle of the view is a band of mature trees, which are of a variety of species. All the trees in the view are in leaf and therefore obscure much of the rear of the view and only allow some open views of the sky. These trees create a strong green character and contribute positively to the view. Underneath the tree canopies in the left of the view, sports pitches and associated boundary fencing can be seen. In the centre of the view, glimpses of properties along Kincardine Road and Upper Brook Street can be seen, although these are mostly obscured by the tree canopy. To the right of the view is the park's boundary fencing and sight of Mawson Road which contains some parked cars. In the far right background, the Premier Inn and Circle Square towers in the city centre can be seen. These introduce high-rise modern architecture into the view.
Visual susceptibility	High
Value attached to view	Moderate
Visual sensitivity	High Medium

Table 6.14: Baseline visual conditions for viewpoint 06

Viewpoint 06 – Whitworth Hall	
Figure reference	Figure 6.17
Distance	Medium – 500m from Site
Direction	North
Season and condition	Spring, overcast.
Type of receptor	Highway users, pedestrians, workers, university students and staff.
Reason for view selection	Key pedestrian route and greenspace within university campus. In the context of the Grade II listed Manchester Museum building.
Description of existing view	The foreground of the view is dominated by the carriageway of Oxford Road, which is comprised of two vehicular lanes and dedicated cycle lanes either side. To the right of the view is the entrance to Brunswick Park, which contains a large decked seating area and a wide pedestrian and cycle path that leads through the university campus. Behind this is the Williamson Building which has a brown brick façade with areas of mint green cladding. In the centre of the view is a group of mature trees with amenity grass underneath. These trees are in leaf and therefore obscure much of the centre of the view. These trees create a strong green character and contribute positively to the view. The left side of the view contains sight of a number of different buildings of a variety of architectural style, articulation and façade type. At the rear of the view is sight of two tower blocks at Circle Square, one of which projects much higher than the surrounding buildings. The low-rise nature and/or the proximity to building in view permit open views to the sky, although these views are partially obscured in the centre of the view by the mature tree canopy.
Visual susceptibility	Low
Value attached to view	Moderate
Visual sensitivity	Medium Low

Table 6.15: Baseline visual conditions for viewpoint 07

Viewpoint 07 – Booth Street West	
Figure reference	Figure 6.18
Distance	Medium – 450m from Site
Direction	Northeast
Season and condition	Spring, overcast.
Type of receptor	Highway users, pedestrians, workers, university students and staff.
Reason for view selection	Where key pedestrian route within university campus joins Booth Street West. Key sightline of Proposed Development from university campus.
Description of existing view	The foreground of the view is dominated by the carriageway of Booth Street West, which is comprised of four vehicular lanes and a central reservation. The right side of the view contains a wide pavement with a series of bollards and cycle stands. Adjacent to this is the Alliance Manchester Business School building, which has a red brick façade with areas of dark grey cladding. At the end of the view, there is sight of the elevated pedestrian footbridge that connects Crawford House with the Manchester Business School East building. Beyond this are a series of mature fastigate trees located within Gartside Gardens, which are a positive end to the vista. Along the left side of the view within the pavement and central reservation, are four distinct groups of street trees, which contribute positively to the streetscape. However, this part of the view is dominated by the Royal Northern College of Music building which is predominantly concrete and buff brick. Beyond this is sight of the upper floors of Manchester University's Engineering Building which is predominantly black cladding and glass windows. Generally, the buildings in view are typical of this locality and their low-medium rise nature permit some open views to the sky.
Visual susceptibility	Low
Value attached to view	Low
Visual sensitivity	Low

Table 6.16: Baseline visual conditions for viewpoint 08

Viewpoint 08 – Junction of Princess Street and Charles Street	
Figure reference	Figure 6.19
Distance	Medium – 400m from Site
Direction	South
Season and condition	Spring, overcast.
Type of receptor	Highway users, pedestrians, workers, hotel users.
Reason for view selection	View from the city centre. Pedestrian and vehicular junction.
Description of existing view	The foreground of the view contains the two lane carriageway of Princess Street. To the right of the view is the Factory Manchester building, which has some distinctive features. Behind this is the Princess House hotel which is of a more modern architectural style with a mixture of orange brick and grey cladding façade. This building contains some detracting features including scaffolding and fall protection measures on the roofscape. There is also a crane arm present in the right side of the view, which projects higher than all surrounding buildings. The left of the view is dominated by the Ibis Hotel building, which is orange brick with grey cladding. This is of a similar architectural style to the Princess House hotel in the right of the view. There are a series of semi mature and mature trees along the left side of the view which partially obscure sight of the John Garside building associated with Manchester University. These trees contribute positively to the streetscape. In the rear of the view, there is a glimpsed view of Mancunian Way (which is elevated above street level) and buildings along Upper Brook Street beyond.
Visual susceptibility	Low
Value attached to view	Low
Visual sensitivity	Low

Table 6.17: Baseline visual conditions for viewpoint 09

Viewpoint 09 – Vimto Park	
Figure reference	Figure 6.20
Distance	Medium – 550m from Site
Direction	Southeast
Season and condition	Spring, overcast.
Type of receptor	Pedestrians and park users.
Reason for view selection	Key city centre greenspace.
Description of existing view	There is large area of well-maintained amenity grass within Vimto Gardens in the centre of the view, with the boundary wall and railings at the rear. At either side of the view are several mature trees which are all in leaf. These trees frame both sides of the view and prevent open views of the sky here. The amenity grass and mature trees present a strong green character in the foreground which contributes positively to the view. Immediately behind the trees and running across the width of the view is the railway viaduct which has a series of distinctive arches. Two of the arches have infill buildings associated with Network Rail which are comprised of glass and grey cladding. This style of architecture is distinctly different from the railway viaduct. Through the remaining arches, there are glimpses of buildings located on Sackville Street. These are of a variety of architectural style, quality, articulation and cladding type. Projecting higher than the railway viaduct and acting as a focal point in the centre of the view is the University of Manchester's Faraday Tower. This building is now disused and in a partially degraded condition.
Visual susceptibility	Medium
Value attached to view	Moderate
Visual sensitivity	Medium

Table 6.18: Baseline visual conditions for viewpoint 10

Viewpoint 10 – Mayfield Park	
Figure reference	Figure 6.21
Distance	Medium – 650m from Site
Direction	Southwest
Season and condition	Spring, overcast.
Type of receptor	Pedestrians and park users.
Reason for view selection	Newly completed city centre greenspace.
Description of existing view	The foreground of the view is predominantly comprised of the various elements of Mayfield Park. In the centre and right of the view is a large concrete footpath, with areas of concrete seating and herbaceous planting beds behind. Beyond this in the left of the view is a large area of well-maintained amenity grass. Surrounding this are several areas of herbaceous planting with newly planted trees. Although the trees are in leaf, their canopies are not well established and so do not obscure views beyond. Footpaths and bridges over the river with steps, handrails, seating and litter bins are visible between the trees. At the edge of the park is a tall concrete wall topped with fencing and another black fence beyond. Beyond this is the A57 Mancunian Way which is only partially visible in the centre of the view where it is elevated above the fence line. In the rear of the view are the varied roofscapes of Brunswick on the left hand side through to the edge of the city centre on the right hand side. The buildings are of a variety of ages and architectural styles although they are relatively typical of the locality. The proximity of the buildings to the view location means that only glimpses of the upper floor and roofscape can be seen and there are clear, open views of the sky. The exception to this is on the right hand side of the view, where the Unite Students Mill Point residential towers dominate the view.
Visual susceptibility	Medium
Value attached to view	Moderate
Visual sensitivity	Medium

Table 6.19: Baseline visual conditions for viewpoint 11

Viewpoint 11 – Ardwick Green	
Figure reference	Figure 6.22
Distance	Medium – 500m from Site
Direction	Southwest
Season and condition	Spring, partly overcast.
Type of receptor	Pedestrians and park users.
Reason for view selection	Greenspace in close proximity to the Site which contains listed elements.
Description of existing view	The foreground of the view contains a number of areas of maintained but slightly degraded amenity grass, separated by tarmac footpaths. To the left of the view are streetlights and a flag pole which are focal points in the foreground. To the centre and right of the view are a series of mature trees. The canopies obscure much of the view beyond the trees and contribute to the green character of the view. To the rear of the view, the brick piers of the park gates are visible along with the Grade II listed park railings, which are, however, relatively typical of the locality. The Ardwick Telephone Exchange building is a prominent feature in the view. Although this contains some distinctive architectural qualities, it is currently disused and partly degraded in parts. Beneath the tree canopies on the right of the view, glimpses of buildings along Ardwick Green South can be seen. These are predominantly red brick and of a similar articulation of the Ardwick Telephone Exchange building. The low rise nature of these buildings and the proximity of the mature trees means there are open views of the sky.
Visual susceptibility	Medium
Value attached to view	Low
Visual sensitivity	Medium Low

Table 6.20: Baseline visual conditions for viewpoint 12

Viewpoint 12 – Sylvia Pankhurst Way	
Figure reference	Figure 6.23
Distance	Medium – 250m from Site
Direction	West
Season and condition	Spring, partly overcast.
Type of receptor	Pedestrians, residents at home, road users.
Reason for view selection	Primary route through residential neighbourhood adjacent to the Site (New Brunswick).
Description of existing view	The foreground of the view contains the carriageways of Mawson Road and Whitekirk Close. Adjacent to the carriageway in the centre of the view is a small area of recently developed public realm which contains areas of amenity grass, seating and small trees. Across the view are several low-rise residential houses which are red/buff brick with some small areas of white cladding on the more recently developed properties. The front of most of these properties contain well maintained boundary walls, fences and railings, along with some small trees. The low-rise nature and/or proximity of the buildings results in open views of the sky. There are parked cars located across the view, most of which are located in on-road parking bays or small parking courts, which are both relatively typical of the locality. In the far left of the view is sight of the rear of the Unite Students Kincardine Court building, which is a different architectural style and articulation compared to the residential properties in view. In the rear centre of the view, at the end of the vista, there are a number of large mature trees located within Gartside Gardens. These are in leaf and obscure most of the view beyond. However, a number of towers from the city centre skyline project above the tree canopy, which are of a distinctly different architectural style compared to the residential properties in view.
Visual susceptibility	High
Value attached to view	Moderate
Visual sensitivity	High Medium

Table 6.21: Baseline visual conditions for viewpoint 13

Viewpoint 13 – Junction of Upper Brook Street and Plymouth Grove	
Figure reference	Figure 6.24
Distance	Medium – 500m from Site
Direction	Northwest
Season and condition	Spring, overcast.
Type of receptor	Highway users, pedestrians, workers, university students and staff.
Reason for view selection	Key pedestrian and vehicular route into and out of the city centre. Key vehicular junction close to hospital and university campuses.
Description of existing view	The foreground of the view is dominated by the carriageway, pavements and highway infrastructure associated with the Upper Brook Street and Plymouth Grove junction. In the right of the view, on the pavement associated with the pedestrian crossing, are two mature trees. The canopy of these, along with the canopy of the trees in the Southern Manchester Cemetery behind, obscure much of the right side of the view. There is, however, sight of the cemetery boundary railings underneath the tree canopy. Beyond these trees is a row of low-rise, terraced residential properties which are part of the Linden Homes New Brunswick development. In front of these properties is a wide grass verge than contains a series of semi-mature trees. There are also a series of mature trees beyond these properties and along the left side of Upper Brook Street. The Michael Smith building, associated with the University of Manchester, is the prominent feature in the left side of the view. This is of a modern architectural style, typical of the locality. The façade treatment includes a combination of red brick, glass and grey cladding. Further along Upper Brook Street towards the rear of the view, is sight of several buildings associated with the University of Manchester. These are a variety of ages, architectural styles and cladding types. At the very end of the view are glimpses of the city centre skyline.
Visual susceptibility	Low
Value attached to view	Low
Visual sensitivity	Low

Table 6.22: Baseline visual conditions for viewpoint 14

Viewpoint 14 – Grosvenor Street	
Figure reference	Figure 6.25
Distance	Close – 100m from Site
Direction	Northeast
Season and condition	Spring, overcast.
Type of receptor	Highway users, pedestrians, workers, university students and staff.
Reason for view selection	Key pedestrian and vehicular route through the university campus. Grade II listed 94-98 Grosvenor Street and Grade II listed Oddfellows Hall are in view.
Description of existing view	The view is framed on either side by close proximity, low-rise buildings. To the left side is the Grade II listed 94-98 Grosvenor Street, which is now predominantly commercial use. Although the upper storeys of the façade contain elements of distinguishable architecture, the ground floor is degraded in part. The building framing the right side of the view is the Grade II listed Oddfellows Hall. This has a number of distinguishable features of a recognisable quality. There is a newly completed extension to this building which introduces a more contemporary architectural style to the view. Between the buildings is the one-way carriageway of Grosvenor Street and adjacent pavements, which contain extensive highway signage, bollards, streetlights and road markings. Behind this are several mature trees. Their canopies obstruct much of the view beyond, although there are glimpses of the buildings on Upper Brook Street. In the rear of the view is sight of Grosvenor Street as it continues on the other side of Upper Brook Street, although highway signage obstructs much of the view. The radio transmitter is a prominent feature in the background and projects higher than the surrounding buildings and tree canopies.
Visual susceptibility	Low
Value attached to view	Low
Visual sensitivity	Low

Table 6.23: Baseline visual conditions for viewpoint 15

Viewpoint 15 – Junction of Oxford Road and Ackers Street	
Figure reference	Figure 6.26
Distance	Medium – 550m from Site
Direction	North
Season and condition	Spring, overcast.
Type of receptor	Highway users, pedestrians, workers, university students and staff.
Reason for view selection	Key pedestrian and vehicular route through the university campus and into/out of the city centre. Grade I listed Roman Catholic Church of The Holy Name of Jesus and Grade II* listed Victoria University of Manchester are in view.
Description of existing view	The prominent feature of this view is the Grade I listed Roman Catholic Church. This is in very good condition, has distinct features worthy of conservation and creates a strong sense of place. This contributes a large proportion of the right side of the view, extends upwards beyond the view extent and prevents open views of the sky. Immediately adjacent to the church is the Manchester Universities & RNCM Catholic Chaplaincy which is of a distinctly different architectural style articulation and quality compared to the church. In front of this building is a large mature tree, which is one of several along Oxford Road. Their canopies obscure sight of the buildings behind them. The foreground of the view is dominated by the two lane Oxford Road carriageway adjacent pavements. To the left of the view, a tree canopy in close proximity to the view obscures some of the upper portion of the view. However, glimpses of the Grade II* listed Victoria University of Manchester can be seen. Beyond this, glimpses of the city centre skyline are visible. Particularly prominent in this part of the view is the Unite Students residential tower which is of a modern architectural style, although this is typical of the locality, and projects higher than the surrounding buildings.
Visual susceptibility	Medium
Value attached to view	Moderate
Visual sensitivity	Medium

Table 6.24: Summary of baseline visual conditions

Viewpoint	Susceptibility	Value	Sensitivity
01	Low	Low	Low
02	Medium	Moderate	Medium
03	Low	Low	Low
04	High	Moderate	High Medium
05	High Medium	Moderate	High Medium
06	Low	Moderate	Medium Low
07	Low	Low	Low
08	Low	Low	Low
09	Medium	Moderate	Medium
10	Medium	Moderate	Medium
11	Medium	Low	Medium Low
12	High	Moderate	High Medium
13	Low	Low	Low
14	Low	Low	Low
15	Medium	Moderate	Medium

Embedded Mitigation

- 6.106 The reduction or elimination of negative effects on the townscape and visual environment is a key part of the development proposals. As set out in GLVIA3, key mitigation processes that have been considered are prevention, reduction, remedy, and enhancement. The design of the building and associated public realm have been subject to extensive pre-application discussions to refine their form and appearance. Through this process, potential adverse townscape and visual effects have been identified, and eliminated or reduced, and positive effects enhanced. Mitigation of adverse townscape and visual effects is therefore embedded in the Proposed Development, and no “applied” mitigation is proposed. In summary, the embedded mitigation strategy is set out below.

Buildings

- 6.107 Embedded mitigation information received from SimpsonHaugh architects regarding buildings A1 and A2 is as follows:

“Building A1/A2 and Building A3 have been designed to be read as a family. Building A1/A2 exists as mass with a form, whereas Building A3 is a rational and orthogonal mass. The buildings then share the same cladding palette, materiality and kit of parts to directly relate them to one another. The kit of parts is applied in distinctly different ways to provide a differences in character and identity; with a chequerboard pattern applied to Building A1/A2 and a vertical pattern applied to Building A3. With regard to massing, Building A3 is the lowest of the blocks, which is a result of its proximity to adjacent residential buildings. Building A1/A2 increases in height through the two blocks and incorporates stepping to the south of Building A1. The location of Building A1’s height addresses the large open space to the north of the site and the increased distance to adjacent residential buildings. The faceted and stepped mass to Building A1 is intended to promote slenderness and provide a form that appears different from the viewpoint that it is read. This is intertwined with the cladding design and materiality, which is intended to promote changes in lighting conditions.”

- 6.108 Embedded mitigation information received from Hawkins\Brown architects regarding buildings A1 and A2 is as follows:

“The Life Science buildings (B1,B2 and B3) sit in the context of the Grade II listed chapel. The massing of the buildings have been carved away to produce a series of setbacks which respond to key datums of the chapel. The three buildings mediate the heights of the adjacent proposals in the context of the chapel. With the smallest buildings, B3, forming the backdrop of key views along Upper Brook Street. Architectural details have also been inspired by the chapel, including the fenestration, roofline and potential perforation patterns. Buildings B1/B2 and B3 have been designed to be read as a family of Life Science Buildings. They have the same Architectural language throughout, with their material palette and form giving them distinct characters. B1 and B3 are a red anodised metal, in reference to the rich colours of Ardwick. B2 is a silver anodised metal which acts as neutral backdrop to the chapel, which the tones of the chapel and nature of Gartside gardens being picked up in the reflective nature of the material.”*

Public realm

- 6.109 As part of the Proposed Development, there are extensive areas of public realm proposed across the Site. This includes areas of amenity grass, shrub and herbaceous planting and tree planting. These will make a positive contribution to the townscape and visual environment at ground level and will improve the pedestrian environment. However, these will only be perceivable a short distance away from the Site and will not mitigate any of the townscape or visual effects of the Proposed Development.

Effects of lighting

- 6.110 The Proposed Development will be subject to an internal and external lighting scheme, expected to consist of lit internal spaces at high levels with greater and more intensely lit internal and external spaces closer to ground level. This will be developed post planning but is likely to include public realm and feature architectural lighting, highways lighting to Upper Brook Street and safety lighting to building escape routes, in addition to internal lighting to ground floor units. The greater heights of the building will extend the visibility of this lighting. This will be noticeable in all views in which the Proposed Development is visible.
- 6.111 This increased lighting will be seen in the context of other large-scale buildings that already emit high levels of lighting across the university campuses. The surrounding highways, particularly Upper Brook Street, are subject to high levels of lighting through the night. A greater level of lighting to the development will be a positive addition, and will activate and animate the streetscape for those walking along Upper Brook Street. The change to the existing baseline should be considered in this context.

Mitigating effects of lighting

- 6.112 The amount of light and 'throw' or 'spill' can be mitigated and reduced through the use of appropriate shrouds, angled fittings, and low energy light fittings, subject to detailed technical design. This is beyond the scope of this general assessment, which is based on the general assumptions of the likely lighting schemes typical of this form of development and the mitigation methods and technologies currently used on similar developments.

Assessment of Likely Significant Effects

Townscape

- 6.114 The predicted townscape effect brought about by the Proposed Development on each Townscape Character Area, for both the construction period and the operational development, is set out in the tables below. This assessment assumes that the embedded mitigation described in the section above has been implemented. With regards to construction phasing it has been assumed at this stage that standard practices will be employed and that the development of the site will be carried in a series of phases based over a 7.5 year build out. The overall effect recorded within this assessment assumes simultaneous built out to represent a potential 'worse case' scenario for the assessment.

Table 6.25: Assessment of townscape effects for Townscape Character Area 1

Townscape Character Area 1 – Corridor Manchester		
Proximity to Site	Close - <50m	
Townscape receptor	Large scale modern university buildings; some listed buildings; areas of well-maintained public realm; mix of uses (educational, commercial, residential, health); fragmented urban grain; some sense of place.	
Sensitivity	Medium Low	
	Construction	Operation
Magnitude of change	There will be no direct effects on the townscape character of TCA 1 as a result of the construction phase of the Proposed Development, other than to a localised area along the eastern edge. Any change to the character of this TCA will likely be minor and limited to some glimpsed views of tower crane activity appearing above built form and against the skyline. Site traffic, hoarding and plant may introduce a minor difference to the perceptual quality of TCA where it joins the Site. However, these changes are considered to not be uncharacteristic when set within the attributes of the receiving townscape. The magnitude of change to this TCA during the construction period will be Low .	There will be a minor alteration to the baseline character, experienced primarily from the eastern edge of the TCA. There will be an localised encroachment of tall, large-scale architecture on the edge of the TCA. This will be visible from some areas within the TCA, however, the presence of large buildings that currently exist in proximity to and within the TCA result in the Proposed Development not being uncharacteristic when set within the attributes of the receiving townscape. The Proposed Development will locally reinforce the urban grain to the eastern edge of the TCA and create a notable sense of place along the streetscape of Upper Brook Street. The magnitude of change to this TCA during the operation period will be Low .
Predicted townscape effects	Minor - Moderate	Minor - Moderate
Nature of townscape effects	Adverse	Beneficial

Table 6.26: Assessment of townscape effects for Townscape Character Area 2

Townscape Character Area 2 – The Village		
Proximity to Site	Medium - 500m from Site	
Townscape receptor	Conservation Areas; large number of listed buildings; distinctive architecture; majority tight and uniform urban grain; some modern architectural additions.	
Sensitivity	High Medium	
	Construction	Operation
Magnitude of change	It is expected that there will be no perceivable change to the townscape character of TCA 2 during the construction period on Site and it is unlikely that there will be any discernible inter-visibility. Overall, the Proposed Development will not introduce any discernible difference in aesthetic and perceptual quality in comparison to the baseline conditions. The magnitude of change to this TCA during the construction period will be Negligible.	It is expected that there will be no perceivable change to the townscape character of TCA 2 during the operation period. The regular and tight urban grain will provide containment across most of the TCA resulting in the Proposed Development not being perceivable. The Proposed Development will not introduce any discernible difference in aesthetic and perceptual quality in comparison to the baseline conditions. The magnitude of change to this TCA during the operation period will be Negligible.
Predicted townscape effects	Negligible	Negligible
Nature of townscape effects	N/A	N/A

Table 6.27: Assessment of townscape effects for Townscape Character Area 3

Townscape Character Area 3 – North Campus		
Proximity to Site	Medium - 300m from Site	
Townscape receptor	Large scale building associated with university; incidental greenspace; fragmented and inconsistent urban grain.	
Sensitivity	Low	
	Construction	Operation
Magnitude of change	It is expected that there will be no perceivable change to the townscape character of the southern edge TCA 3 during the construction period on Site. Although there will be some glimpsed views of tower cranes, the construction of the Proposed Development will not introduce any discernible difference in aesthetic and perceptual quality of the TCA. The magnitude of change to this TCA during the construction period will be Negligible .	There will be a localised, indirect, and very minor alteration to the baseline character experienced from the southern edge of the TCA. The informal and loose urban grain will allow some glimpsed views of taller aspects of the Proposed Development. However, the presence of tall buildings that currently exist in proximity to and within the TCA result in the Proposed Development not being uncharacteristic when set within the attributes of the receiving townscape. The magnitude of change to this TCA during the operation period will be Negligible .
Predicted townscape effects	Negligible	Negligible
Nature of townscape effects	N/A	N/A

Table 6.28: Assessment of townscape effects for Townscape Character Area 4

Townscape Character Area 4 – Mayfield		
Proximity to Site	Medium - 500m from Site	
Townscape receptor	Large park; modern architectural features; areas requiring improvement; fragmented and inconsistent urban grain.	
Sensitivity	Medium Low	
	Construction	Operation
Magnitude of change	It is expected that there will be no perceivable change to the townscape character of the southern edge TCA 3 during the construction period on Site. Although there will be some glimpsed views of tower cranes, the construction of the Proposed Development will not introduce any discernible difference in aesthetic and perceptual quality of the TCA. The magnitude of change to this TCA during the construction period will be Negligible .	There will be a localised, indirect, and very minor alteration to the baseline character experienced from the southern edge of the TCA. The informal and loose urban grain will allow some glimpsed views of taller aspects of the Proposed Development. However, the presence of tall buildings that currently exist in proximity to and within the TCA result in the Proposed Development not being uncharacteristic when set within the attributes of the receiving townscape. The notable sense of place within Mayfield Park will not be affected by the Proposed Development. The magnitude of change to this TCA during the operation period will be Negligible .
Predicted townscape effects	Negligible	Negligible
Nature of townscape effects	N/A	N/A

Table 6.29: Assessment of townscape effects for Townscape Character Area 5

Townscape Character Area 5 – Upper Brook Street		
Proximity to Site	Close - Site within TCA	
Townscape receptor	Vacant commercial and light industrial buildings; surface car parks; areas requiring improvement; fragmented and inconsistent urban grain.	
Sensitivity	Low	
	Construction	Operation
Magnitude of change	It is considered that the construction activity associated with the Proposed Development will result in direct, albeit localised and temporary, effects upon TCA 5. Increased construction traffic may disrupt circulation at intermittent times during the construction period. Hoardings will be erected around the boundaries, enclosing the Site. As construction progresses, a central concrete core and tall plant including tower cranes will be visible within the skyline. The magnitude of change to TCA 5 during the construction period will be High .	There will be a substantial alteration to the baseline character through the replacement of low commercial buildings with tall, large scale architecture. This Proposed Development is of a different aesthetic and perceptual quality in comparison to the baseline conditions. The Proposed Development will infill an area of vacant building and unused land and will reinforce the local urban grain. Additionally, the new public realm as part of the Proposed Development will be a positive contribution to the townscape. The magnitude of change to TCA 5 during the construction period will be High .
Predicted townscape effects	Moderate	Moderate
Nature of townscape effects	Adverse	Beneficial

Table 6.30: Assessment of townscape effects for Townscape Character Area 6

Townscape Character Area 6 – New Brunswick		
Proximity to Site	Close - <50m	
Townscape receptor	Low rise residential neighbourhood; well-maintained greenspaces; small areas of light industry	
Sensitivity	Medium	
	Construction	Operation
Magnitude of change	There will be no direct effects on the townscape character of TCA 6 as a result of the construction phase of the Proposed Development. Indirect effects will primarily be as a result of inter-visibility of construction work and limited to some glimpsed views of tower crane activity appearing above built form and against the skyline. Site traffic, hoarding and plant may introduce a minor difference to the aesthetic and perceptual of TCA where it joins the Site. The magnitude of change to this TCA during the construction period will be Medium.	The encroachment of a tall building will cause a partial alteration to the baseline character on the western edge of the TCA. The predominantly low-rise nature of the TCA will result in the taller elements of the Proposed Development being perceivable. Although the Proposed Development will be a prominent element, the presence of large scale and modern architecture adjacent to, and in the context of the Site will result in it not being substantially uncharacteristic. The Proposed Development will infill an area of currently unused land adjacent to the TCA and will reinforce the local urban grain. The ground floor material palette will introduce a minor aesthetic difference in comparison to the baseline. However, there will be activation on the ground floor blocks fronting on to Upper Brook Street and Kincardine Road, which will create a sense of place and contribute positively to the streetscape. The magnitude of change to this TCA during the operation period will be Medium.
Predicted townscape effects	Moderate	Moderate
Nature of townscape effects	Adverse	Neutral

Visual

6.115 The predicted visual effects brought about by the Proposed Development on each viewpoint, for both the construction period and the operational development, is set out in the tables below. This assessment assumes that the embedded mitigation described in the section above has been implemented.

Table 6.31: Assessment of visual effects for viewpoint 01

Viewpoint 01 – Upper Brook Street		
Figure reference	Figure 6.12	
Visual sensitivity	Low	
	Construction	Operation
Proposed view	Construction of the Proposed Development will be clearly visible by the observer. There will be increased construction traffic along Upper Brook Street and site hoardings will be visible at street level. As construction progresses, several concrete cores and tall plants including tower cranes will be visible, which will be uncharacteristic of the view.	The Proposed Development will occupy a large and extensive proportion of the view and will be clearly visible to the observer. It will significantly break the skyline, although it won't project higher than the Alan Turing building in the left of the view. The Proposed Development will introduce a new architectural character and articulation, which will change the appearance of the view, although won't be considered incongruous in the context of the existing buildings. The foreground blocks will be a prominent feature in view and partially obscure the view of the Grade II* listed Former Unitarian Chapel. The tower will form new focal point at the end of the view and there will be new activation and greening at street level along Upper Brook Street.
Magnitude of change	High	High
Predicted visual effects	Moderate	Moderate
Nature of visual effects	Adverse	Beneficial

Table 6.32: Assessment of visual effects for viewpoint 02

Viewpoint 02 – All Saints Park		
Figure reference	Figure 6.13	
Visual sensitivity	Medium	
	Construction	Operation
Proposed view	There will be very limited visibility of construction work and only glimpsed views of tower crane activity appearing above built form and against the skyline. This will occupy a small proportion of the view, and will only result in a slightly perceptible change that will not affect the character or the quality of the view.	The Proposed Development will introduce a new architectural element to the background of the view. It will be partially obscured by tree canopies, although this will change seasonally. The Proposed Development will be different in scale, massing and façade compared to the context of the existing buildings and therefore contains elements that will be considered uncharacteristic of the view. However, it will only occupy a small proportion of the view, and will only result in a slightly perceptible change that will not affect the green character or the quality of the view.
Magnitude of change	Low	Low
Predicted visual effects	Minor - Moderate	Minor - Moderate
Nature of visual effects	Adverse	Adverse

Table 6.33: Assessment of visual effects for viewpoint 03

Viewpoint 03 – Upper Brook Street		
Figure reference	Figure 6.14	
Visual sensitivity	Low	
	Construction	Operation
Proposed view	Construction of the Proposed Development will be easily noticed by the observer. There will be increased construction traffic along Upper Brook Street and site hoardings will be visible at street level. As construction progresses, several concrete cores and tall plants including tower cranes will be visible, which will be uncharacteristic of the view.	The tower within the Proposed Development will extend beyond the vertical extent of the photograph used for the assessment (38 storeys out of the total 41 storeys of the tower are visible within the photograph extent). The tower will introduce a large element that is considered uncharacteristic of the view and the style of architecture will be a significant change to the existing character. The tower will be distinctly perceivable and easily noticed by the observer. Only the southern elevations of the lower blocks within the Proposed Development will be visible. The height and massing of these will be comparable to the buildings on the opposite side of Upper Brook Street. However, their architectural style and façade colour will be a perceptible change in the view.
Magnitude of change	High	High
Predicted visual effects	Moderate	Moderate
Nature of visual effects	Adverse	Adverse

Table 6.34: Assessment of visual effects for viewpoint 04

Viewpoint 04 – Hanworth Close		
Figure reference	Figure 6.15	
Visual sensitivity	High Medium	
	Construction	Operation
Proposed view	Construction of the Proposed Development will be clearly visible to the observer. There will be glimpses of site hoardings along Kincardine Road at street level. As construction progresses, several concrete cores and tall plants including tower cranes will be visible, which will be uncharacteristic of the view.	The scale, height and architectural character of the Proposed Development will be substantially different to the existing buildings. The Proposed Development will cause a substantial change and be totally uncharacteristic to the low-rise residential character of the view. The Proposed Development will significantly break the skyline, occupy a large and extensive proportion of the view and will be clearly visible to the observer.
Magnitude of change	High	High
Predicted visual effects	Major	Major
Nature of visual effects	Adverse	Adverse

Table 6.35: Assessment of visual effects for viewpoint 05

Viewpoint 05 – Gartside Gardens		
Figure reference	Figure 6.16	
Visual sensitivity	High Medium	
	Construction	Operation
Proposed view	Construction of the upper portion of the Proposed Development will likely be visible the observer. There will be also glimpses of site hoardings along Kincardine Road at street level. As construction progresses, several concrete cores and tall plants including tower cranes will be visible, which will be uncharacteristic of the view.	The tower will become the new focal point in the view, projecting above all other buildings and significantly breaking the skyline. The lower blocks will also project above some of the tree canopies. The scale, façade treatment and architectural style will be a substantial alteration to the green character of the view and means the Proposed Development will be easily noticed by the observer. Although there are some glimpsed views of other large scale towers in the far right of the view, the Proposed Development will be considered substantially uncharacteristic to the view. A significant proportion of the Proposed Development will be partially obscured by tree canopies, although this will change seasonally where more extensive visibility of the building will occur.
Magnitude of change	High	High
Predicted visual effects	Major	Major
Nature of visual effects	Adverse	Adverse

Table 6.36: Assessment of visual effects for viewpoint 06

Viewpoint 06 – Whitworth Hall		
Figure reference	Figure 6.17	
Visual sensitivity	Low	
	Construction	Operation
Proposed view	There will be no visibility of the construction of the Proposed Development.	There will be no visibility of the Proposed Development.
Magnitude of change	Negligible	Negligible
Predicted visual effects	Negligible	Negligible
Nature of visual effects	N/A	N/A

Table 6.37: Assessment of visual effects for viewpoint 07

Viewpoint 07 – Booth Street West		
Figure reference	Figure 6.18	
Visual sensitivity	Low	
	Construction	Operation
Proposed view	Construction of the Proposed Development will likely be visible to the observer. There will be increased construction traffic along Upper Brook Street and site hoardings will be visible at street level. As construction progresses, several concrete cores and tall plants including tower cranes will be visible, which will be uncharacteristic of the view.	The Proposed Development will become a focal point in the centre of the view. It will project higher than the surrounding buildings, although it won't be the tallest building in view as the Alliance Manchester Business School building in the right of the view extends above the view extent. At the end of the view where Booth Street West meets Upper Brook Street, the Proposed Development will narrow the vista and obscure sight of the mature trees in Gartside Gardens. This will affect the amount of greening in of the view. The Proposed Development will occupy a partial proportion of the view and will likely be noticed by the observer, however it will not be considered substantially incongruous in the context of the existing mixture of architecture in view.
Magnitude of change	Medium	Medium
Predicted visual effects	Minor - Moderate	Minor - Moderate
Nature of visual effects	Adverse	Neutral

Table 6.38: Assessment of visual effects for viewpoint 08

Viewpoint 08 – Junction of Princess Street and Charles Street		
Figure reference	Figure 6.19	
Visual sensitivity	Low	
	Construction	Operation
Proposed view	Construction of the Proposed Development will introduce some visibility of construction work and limited views of tower crane activity appearing above built form and against the skyline. This will occupy a small proportion of the view, and will only result in a slightly perceptible change that will not affect the character or the quality of the view.	The Proposed Development will become a focal point in the centre of the view. It will project higher than the surrounding buildings, although it won't be the tallest building in view. It will occupy a small proportion of the view and will likely be noticed by the observer, however it will not be considered uncharacteristic of the view, as the view already contains large scale buildings of a modern architectural style.
Magnitude of change	Low	Low
Predicted visual effects	Minor	Minor
Nature of visual effects	Adverse	Neutral

Table 6.39: Assessment of visual effects for viewpoint 09

Viewpoint 09 – Vimto Park		
Figure reference	Figure 6.20	
Visual sensitivity	Medium	
	Construction	Operation
Proposed view	Construction of the Proposed Development will introduce some visibility of construction work and limited views of tower crane activity appearing above built form and against the skyline. This will occupy a small proportion of the view, and will only result in a slightly perceptible change that will not affect the character or the quality of the view.	The Proposed Development will become a new focal point in the centre of the view. It will break the skyline and project higher than all other built form. It will be a prominent feature in the view, but will not be considered uncharacteristic, given that the Faraday Tower is already visible and will obscure part of the Proposed Development. There will be a slightly perceivable change, however this will not substantially alter the green character of the view.
Magnitude of change	Low	Low
Predicted visual effects	Minor - Moderate	Minor - Moderate
Nature of visual effects	Adverse	Neutral

Table 6.40: Assessment of visual effects for viewpoint 10

Viewpoint 10 – Mayfield Park		
Figure reference	Figure 6.21	
Visual sensitivity	Medium	
	Construction	Operation
Proposed view	Construction of the Proposed Development will likely be visible to the observer. As construction progresses, several central concrete cores and tall plants including tower cranes will be visible, which will be uncharacteristic of the view.	The lower blocks of the Proposed Development will be of a similar height and massing to the existing buildings in the background of the view and will not be uncharacteristic when set within the view. There will be a slightly perceptible change in the existing view but this will not affect the green character of the view. The tower of the Proposed Development will become a new focal point in the centre of the view and will likely be noticed by the observer. It will project above the surrounding buildings, although it will not be the tallest building in view. It will act as a continuation of the built form that exists on the right side of the view and will not be substantially uncharacteristic given the modern and varied architectural style of these existing buildings.
Magnitude of change	Medium	Medium
Predicted visual effects	Moderate	Moderate
Nature of visual effects	Adverse	Neutral

Table 6.41: Assessment of visual effects for viewpoint 11

Viewpoint 11 – Ardwick Green		
Figure reference	Figure 6.22	
Visual sensitivity	Medium Low	
	Construction	Construction
Proposed view	Construction of the Proposed Development will unlikely be clearly noticeable by the observer. As construction progresses, a concrete core and tall plant including tower cranes will be visible, which will be uncharacteristic of the view. However, sight of this construction will only be visible in a very limited part of the view.	The Proposed Development will introduce a slightly perceptible architectural element, which will only occupy a small proportion of the view. Although it will break the skyline and be visible above the tree canopies, it will be of a comparable height to the Ardwick Telephone Exchange building. The extent of the Proposed Development that will be visible will change seasonally, however, the buildings on the A6 Ardwick Green South will permanently obscure much of the Proposed Development. The green character of the view will not be affected by Proposed Development.
Magnitude of change	Low	Low
Predicted visual effects	Minor - Moderate	Minor - Moderate
Nature of visual effects	Adverse	Neutral

Table 6.42: Assessment of visual effects for viewpoint 12

Viewpoint 12 – Sylvia Pankhurst Way		
Figure reference	Figure 6.23	
Visual sensitivity	High Medium	
	Construction	Operation
Proposed view	Construction of the Proposed Development will be easily noticed by the observer, although the bottom portion will be obscured by the mature trees in Gartside Gardens and the existing buildings in view. As construction progresses, several concrete cores and tall plants including tower cranes will be visible, which will be uncharacteristic of the view.	The scale, height and architectural character of the Proposed Development will be substantially different to the existing buildings. The Proposed Development will cause a substantial change and be totally uncharacteristic to the low-rise residential character of the view. A proportion of the Proposed Development will be partially obscured by existing buildings in view. Despite this, it will significantly break the skyline, occupy a large and extensive proportion of the view and will be clearly visible to the observer.
Magnitude of change	High	High
Predicted visual effects	Major	Major
Nature of visual effects	Adverse	Adverse

Table 6.43: Assessment of visual effects for viewpoint 13

Viewpoint 13 – Junction of Upper Brook Street Plymouth Grove		
Figure reference	Figure 6.24	
Visual sensitivity	Low	
	Construction	Operation
Proposed view	Construction of the Proposed Development will introduce very limited visibility of construction work and glimpsed views of tower crane activity appearing above built form and against the skyline. This will occupy a small proportion of the view, and will only result in a slightly perceptible change that will not affect the character or the quality of the view.	There will be a very minor alteration to the view. The Proposed Development will project higher than the residential properties in front, however, it will be of a comparable height to the buildings on the opposite side of Upper Brook Street. It is unlikely to be discernible to the casual observer, particularly within the context of the surrounding buildings. The Proposed Development will not screen any significant vistas or be uncharacteristic in the view given the variety of other buildings in view in terms of style and scale.
Magnitude of change	Low	Low
Predicted visual effects	Minor	Minor
Nature of visual effects	Adverse	Neutral

Table 6.44: Assessment of visual effects for viewpoint 14

Viewpoint 14 – Grosvenor Street		
Figure reference	Figure 6.25	
Visual sensitivity	Low	
	Construction	Operation
Proposed view	Construction of the Proposed Development will be easily noticed by the observer. There will be increased construction traffic along Upper Brook Street and Grosvenor Street and site hoardings will be visible at street level. As construction progresses, a concrete core and tall plant including tower cranes will be visible, which will be uncharacteristic of the view.	The Proposed Development will introduce a prominent feature to the right centre of the view, which will occupy a large and extensive proportion of the view. It will be easily noticed by the observer, partly due to its proximity to the view location. As a result of the Proposed Development, the mature tree on Grosvenor Street will be lost and there will be no visibility of the sky on the right side of the view. The Proposed Development's height, massing and architectural style will be uncharacteristic of the view.
Magnitude of change	High	High
Predicted visual effects	Moderate	Moderate
Nature of visual effects	Adverse	Adverse

Table 6.45: Assessment of visual effects for viewpoint 15

Viewpoint 15 – Junction of Oxford Road and Ackers Street		
Figure reference	Figure 6.26	
Visual sensitivity	Medium	
	Construction	Operation
Proposed view	There will be no visibility of the construction of the Proposed Development.	There will be no visibility of the Proposed Development.
Magnitude of change	Negligible	Negligible
Predicted visual effects	Negligible	Negligible
Nature of visual effects	N/A	N/A

Additional Mitigation / Enhancement Measures

6.116 This section describes the measures which are required to mitigate any significant environmental effects with regards to townscape character and visual amenity.

Construction

6.117 To facilitate any development on the Site, there will be a period of construction activity, estimated at 7.5 years starting in Q2 2024 (as described in the draft Alliance Construction Management Plan). A range of construction activities are anticipated to be carried out, with the potential to result in direct and indirect effects on townscape character and visual amenity. These include:

- Site clearance, including the removal of surfaces, materials, and vegetation from the site.
- Temporary footpath diversions.
- Establishment of temporary site compounds and hoarding.
- Construction of temporary access points into the site.
- Temporary working areas within the Site.
- Erection of temporary batching plants and tower cranes.
- Excavation, removal and stockpiling of materials and soils.
- Construction of hard standings.
- Underground and over-ground service installation and diversion.
- Temporary traffic management signs and signals on local roads.
- Movements of construction traffic and other vehicles.
- Construction of the new building.

6.118 The construction of the Proposed Development could give rise to temporary effects on townscape character and visual amenity. As construction activity is of a temporary nature, the effects will be over a relatively short period of time. The effects are reversible and will only be experienced during the construction phase. These include:

- Effects arising from changes to the structure of the townscape within the site area and effects on its immediate setting.
- Effects to townscape character or visual amenity within the wider study area because of visibility of construction activities and the presence and occupation of tower cranes and demolition works.
- Effects of temporary site infrastructure, such as site traffic and construction compounds especially those located in areas adjacent to sensitive townscape and visual receptors.

Mitigation of construction effects

6.119 The following mitigation measures are considered industry standard and would be expected as a minimum. Demolition and construction methodology will be based on minimising the impact upon the surrounding area by making the site as self-sufficient within its boundary as possible and committing to implementing industry best practice. Impact mitigation measures have been set out in the draft Alliance Construction Management Plan and include the measures to minimise and manage potential townscape and visual effects as summarised below:

- The Proposed Development is planned across 3 stages. It is envisaged that phase 1 will last for 36 months, phase 2 will last between 24 and 30 months and phase 3 will last between 24 and 30 months.
- An initial hoarding line will be formed along the entire length of Kincardine Road boarding the site with strategically placed pit lanes for vehicle deliveries, offloading and material movement to supply the construction works and site compound. Any hoarding adjustments will be undertaken accordingly prior to the commencement of each phase.
- Vehicle and separate site pedestrian access gates shall be installed at each end of the hoarding as shown above to allow vehicle movement off the public road into the site boundary with the least impact on the traffic circulation.
- Site access signage will be placed in clear visible positions warning both vehicles and pedestrians alike of the location of the site entrance.
- All site entrance and exit gates shall be managed and controlled by designated gatemen and banksmen to ensure the safe and controlled movement of vehicles into/out of the site boundary and to ensure the traffic and pedestrians are managed accordingly.
- It is anticipated that a total of 9 tower cranes and external hoists will be required across the phases, as well as cantilever loading platforms, and external mast climber platforms. For tower crane assembly, sections of full road closure will be required at weekends to carry out the erection works safely.
- Take all reasonable steps to minimise the creation of dust, with the use of low-impact breakers, screens and enclosures and water dust suppression systems where parts of the internal building need to be demolished and removed, should this be deemed necessary.
- Curtail, suspend or re-arrange work as necessary to allow the works to proceed whilst reducing the impact on any of the adjacent building occupiers or neighbouring properties/premises.
- Ensure all plant is fit for its purpose and adequately maintained so that noise generation is within the manufacturer's stated maximum noise level.
- Given particular consideration to activity on site at the start of the day to minimise disturbance of the neighbours. Reversing manoeuvres will be

avoided in the early morning to prevent reversing sirens sounding. The timing of any particularly noisy operations will be coordinated to minimise disturbance as far as reasonably practicable.

- Monitor the condition of the public highway when HGVs are leaving site.
- Air-quality and noise monitoring shall be in place throughout the works.
- Light pollution from the site temporary lighting shall be planned in such a way and controlled to minimise the impact on the adjacent premises.
- Where pedestrians are required to walk near to the site hoarding, particularly relating to the opening of adjacent phases of the development, additional segregation, protection measures, lighting, or signage shall be provide as required.
- Site security and logistics staff shall be courteous and respectful to the public moving around the site boundary and shall provide directions in relation to the works or the vehicle movements being carried out.
- All construction delivery vehicles shall be fully compliant and roadworthy.
- The site shall implement a Waste Management Plan which shall provide a strategy and management plan for reducing, storage and disposal of all wastes generated during the construction works. It is also concerned with the establishment of procedures for complying with statutory and good practice requirements for waste management.
- All waste will be stored in an appropriate container to prevent escape of material and the site must be left in a clean and tidy condition at the end of each day.
- The working area which will be classed as a “Demolition zone” will be fully enclosed with hoarding which will be fully secured at all times. The perimeter location of the fencing will be moved accordingly to suit the sequence of demolition.

The Completed and Operational Development

- 6.120 As outlined in 6.133 ‘Embedded Mitigation’, the design of the building and associated public realm have been subject to extensive pre-application discussions to refine their form and appearance. Through this process, potential adverse townscape and visual effects have been identified, and eliminated or reduced, and positive effects enhanced. Mitigation of adverse townscape and visual effects is therefore embedded in the Proposed Development, and no “applied” mitigation or enhancement measures are proposed.

Residual Effects

Townscape and Visual

- 6.121 Although the implementation of the additional mitigation/enhancement measures would likely reduce the overall effect on each townscape and visual receptor during construction, it is not anticipated that this will be enough to alter the results of the assessment already described and summarised in **Tables 6.25 to 6.45**.

Table 6.46: Residual Effects Summary

Description of Effect	Embedded Mitigation	Potential Effect (inc. Significance)		Further Mitigation	Residual Effect (inc. Significance)	
		Construction	Operation		Construction	Operation
Townscape Character Area 01 – Corridor Manchester	Incorporated into building and public realm design, as described in ‘Embedded Mitigation’ above.	Minor – Moderate Adverse	Minor – Moderate Beneficial	Construction mitigation as described in ‘Additional Mitigation / Enhancement Measures’ above. No “applied” building or landscape mitigation proposed.	Minor – Moderate Adverse	Minor – Moderate Beneficial
Townscape Character Area 02 – The Village		Negligible	Negligible		Negligible	Negligible
Townscape Character Area 03 – North Campus		Negligible	Negligible		Negligible	Negligible
Townscape Character Area 04 – Mayfield		Negligible	Negligible		Negligible	Negligible
Townscape Character Area 05 – Upper Brook Street		Moderate Adverse	Moderate Beneficial		Moderate Adverse	Moderate Beneficial
Townscape Character Area 06 – New Brunswick		Moderate Adverse	Moderate Neutral		Moderate Adverse	Moderate Neutral
Viewpoint 01 – Upper Brook Street		Moderate Adverse	Moderate Beneficial		Moderate Adverse	Moderate Beneficial
Viewpoint 02 – All Saints Park		Minor – Moderate Adverse	Minor – Moderate Adverse		Minor – Moderate Adverse	Minor – Moderate Adverse
Viewpoint 03 – Brook Street		Moderate Adverse	Moderate Adverse		Moderate Adverse	Moderate Adverse
Viewpoint 04 – Hanworth Close		Major Adverse	Major Adverse		Major Adverse	Major Adverse

Viewpoint 05 – Gartside Gardens		Major Adverse	Major Adverse		Major Adverse	Major Adverse
Viewpoint 06 – Whitworth Hall		Negligible	Negligible		Negligible	Negligible
Viewpoint 07 – Booth Street West		Minor – Moderate Adverse	Minor – Moderate Neutral		Minor – Moderate Adverse	Minor – Moderate Neutral
Viewpoint 08 – Junction of Princess Street and Charles Street		Minor Adverse	Minor Neutral		Minor Adverse	Minor Neutral
Viewpoint 09 – Vimto Park		Minor – Moderate Adverse	Minor – Moderate Neutral		Minor – Moderate Adverse	Minor – Moderate Neutral
Viewpoint 10 – Mayfield Park		Moderate Adverse	Moderate Neutral		Moderate Adverse	Moderate Neutral
Viewpoint 11 – Ardwick Green		Minor – Moderate Adverse	Minor – Moderate Neutral		Minor – Moderate Adverse	Minor – Moderate Neutral
Viewpoint 12 – Sylvia Pankhurst Way		Major Adverse	Major Adverse		Major Adverse	Major Adverse
Viewpoint 13 – Junction of Upper Brook Street and Plymouth Grove		Minor Adverse	Minor Neutral		Minor Adverse	Minor Neutral
Viewpoint 14 – Grosvenor Street		Moderate Adverse	Moderate Adverse		Moderate Adverse	Moderate Adverse
Viewpoint 15 – Junction of Oxford Road and Ackers Street		Negligible	Negligible		Negligible	Negligible

Conclusions

Townscape

- 6.122 The Proposed Development will introduce townscape effects to 6 Townscape Character Areas which have been identified and evaluated within the baseline study.
- 6.123 The predicted townscape effects range from **Negligible** to **Moderate Beneficial**. The predicted townscape effects upon The Village, North Campus and Mayfield TCAs will be **Negligible** during construction and operation. Corridor Manchester will experience **Minor – Moderate Adverse** effects during construction and **Minor – Moderate Beneficial** effects during operation as the Proposed Development presents a clear relationship with the urban grain and scale of TCA, as well as introducing improved permeability and new public realm.
- 6.124 Upper Brook Street and New Brunswick are the TCAs predicted to experience a significant effect as a result of the Proposed Development. The predicted townscape effect upon TCA 5 Upper Brook Street is **Moderate Adverse** during construction and **Moderate Beneficial** during operation due to the Site encompassing almost all of the TCA, the transformational nature of the Proposed Development and the benefits it introduces including a more defined and cohesive urban grain, improved permeability and new public realm. New Brunswick will experience **Moderate Adverse** effects during construction and **Moderate Neutral** effects during operation. In this case, **Neutral** means it is considered that the resulting townscape effects will be neither **Beneficial** nor **Adverse**. The Proposed Development will introduce a number of indirect benefits in close proximity to the New Brunswick townscape, including creating a more cohesive and permeable urban grain on Site as well as new public realm. However, the scale of built form and the architectural character of the Proposed Development is more appropriate to Corridor Manchester and not considered reflective of New Brunswick.

Visual

- 6.125 The Proposed Development will introduce visual effects to 15 verified views which have been identified and evaluated within the baseline study.
- 6.126 The predicted visual effects during operation of the Proposed Development range from **Negligible** to **Major Adverse**. Viewpoints 6 and 15 will experience **Negligible** effects. Viewpoints 8 and 13 will experience **Minor Neutral** effects, viewpoint 2 will experience **Minor – Moderate Adverse** effects, and viewpoints 7, 9 and 11 will experience **Minor – Moderate Neutral** effects. The effects on viewpoints 2, 6, 7, 8, 9, 11 and 13 will not be considered significant.
- 6.127 Significant effects are those which are predicted to be **Moderate** and above. During operation of the Proposed Development, viewpoints 3 and 14 will experience **Moderate Adverse** effects, viewpoint 1 will experience **Moderate Beneficial** effects, and viewpoint 10 will experience **Moderate Neutral** effects. Viewpoints 4, 5 and 12 will experience **Major Adverse** effects. This is due to the Proposed Development being considered substantially uncharacteristic of the view, occupying a large

proportion of the view, being easily noticed by the observer and being a significant change to the character of the view.

- 6.128 The effects during the construction of the Proposed Development on viewpoints 2, 3, 4, 5, 6, 12, 14 and 15 will be the same as the effects during operation (see paragraphs above). The remaining viewpoints will have an improved nature of effect during operation compared to construction. Viewpoints 8 and 13 will experience **Minor Adverse** effects during construction and **Minor Neutral** effects during completion. Viewpoints 7, 9 and 11 will experience **Minor – Moderate Adverse** effects during construction and **Minor – Moderate Neutral** effects during completion. Viewpoint 1 will experience **Moderate Adverse** effects during construction and **Moderate Beneficial** effects during completion. Viewpoint 10 will experience **Moderate Adverse** effects during construction and **Moderate Neutral** effects during completion.

Assessment of Cumulative Effects

Refer to: **Figure 6.10** – Committed Developments

Approach

- 6.129 The purpose of assessing the cumulative townscape and visual effects is to identify additional changes caused by the Site in addition to other similar developments, or as the combined effect of a set of developments taken together.
- 6.130 The assessment of cumulative effects in this report focuses specifically on the effects of the Site in addition to other significant developments of a similar scale and type within a 750m radius of the Site. The Site will be assessed for townscape and visual effects within the context of the cumulative sites. The sites selected for the cumulative assessment are situated within the extents of the study area (with the exception of site 5, which is located on the edge of the study area). Beyond this extent, it is anticipated that there will be no likely perceivable change to views of the Proposed Development on Site, and no likely cumulative townscape effects in relation to the Proposed Development on Site. The assessment presupposes the cumulative schemes identified will be built as per the planning proposals.
- 6.131 With respect to visual effects in particular, the level of cumulative effects is assessed with regards to what is visible within the observer's arc of vision at the same time, without moving their head, as described within the GLVIA¹⁹.
- 6.132 Table 6.47 provides a list of the developments which have been included within the cumulative effects assessment.

¹⁹ Landscape Institute, Institute of Environmental Management & Assessment, *Guidelines for Landscape & Visual Impact Assessment*

Table 6.47: Cumulative sites

Site Ref.	Application No.	Distance and Direction	Proposal	Scoped-in / Scoped-out	Justification
1.	101664/FO/2013/N2	Adjacent to the Site's eastern boundary	Brunswick Neighbourhood Selective demolition and clearance (including a number of residential, retail and other non-residential buildings) to allow the phased redevelopment and refurbishment of the Brunswick Neighbourhood, including the erection of 444 new residential dwellings (C3); the refurbishment of 839 existing homes [including low rise reversals and the refurbishment of Artillery Court, Silkin Court, Lockton Court, Lamport Court, and existing maisonettes and low rise houses]; a new boulevard and new access roads, new car parking and service areas; a new mixed use building comprising of 4 retail units (A1 or launderette or A5), and a neighbourhood housing office (B1a) with 18 apartments (C3) above; a mixed use residential extra care home with 60 residential units, and a day care centre on part of the ground floor (C2/D1); the upgrading of Gartside Gardens [with new multi use games area, a new playground, realigned pathways, new entrances and new landscaping]; a new orchard; 25 new allotments; new boundary treatments; new open spaces; with associated infrastructure, landscaping and tree planting.	Scoped out	- Immediately adjacent to the Site - Located within New Brunswick TCA - The majority of this development has been completed and therefore included within the baseline assessment, rather than the cumulative assessment (referred to as 1A in Figure 6.10). - The remainder of the Linden Homes development on the corner of Upper Brook Street and Brunswick Street is the only part of this application included in the cumulative assessment(referred

					to as 1B in Figure 6.10).
2.	124472/FO/2019	15m east	Kincardine Court Extension Erection of a part 4, part 5, part 6 storey extension to existing student accommodation building to form 25 additional student flats (comprising 100 bedrooms) (Use Class Sui Generis) to form 86 student flats in total (329 bedrooms) following removal, modification and reconfiguration of existing car parking, landscaping and boundary treatment together with the erection of a single storey water tank.	Scoped in	- Immediately adjacent to the Site - Located within New Brunswick TCA
3.	134288/FO/2022	200m north-west	Number 3 Circle Square Erection of 15 storey building comprising office space (Use Class E(g)(i)) and ancillary flexible commercial uses (Use Class E), rooftop terrace, highway works, landscaping, and other associated works	Scoped in	- Within close proximity of the site - Located within the Corridor Manchester TCA - Development will introduce another tower to the City Centre skyline which will be visible from and in the context of the Site
4.	125799/FO/2019	420m north-west	MMU Science and Engineering Building Demolition of existing John Dalton West Building and associated structures, and erection of a new 7 storey education building (Use Class D1) for the Faculty of Science and Engineering (comprising teaching and research spaces, academic offices, social learning areas, catering/kitchen facilities and an energy centre), physical connections to and external refurbishment of	Scoped in	- Within Site study area - Located within the Corridor Manchester TCA - Development will be visible in the context of the Site

			the John Dalton Tower, hard and soft landscaping works, car and cycle parking and associated works.		
5.	125573/FO/2019	675m north-west	First Street South Construction of four buildings of heights varying from 10 storeys to 45 storeys together comprising Co-living bedspaces (use class sui generis) and associated amenity facilities, with ground floor commercial units (Use classes A3 (Café / Restaurant and D2 (Gym)), private amenity space and public realm comprising hard and soft landscaping, car parking and cycle facilities and other associated works.	Scoped in	- Immediately outside study area - Development will introduce another tower to the City Centre skyline which will be visible from and in the context of the Site
6.	124972/FO/2019	570m northeast	Mayfield Plot O - Baring Street Office Number of storeys: 9 Office space: 97,316	Scoped in	- Within Site study area - Located within Mayfield TCA
7.	125248/FO/2019	550m northeast	The Republic Number of storeys: 13 Office space: 315,544 sqft Ground floor commercial space: 16,813 sqft (A1-4, D1, 2)	Scoped in	- Within Site study area - Located within Mayfield TCA
8.	N/A	Adjacent to Site's southern boundary	Upper Brook Street Redevelopment Demolition of existing structures on site and the erection of two blocks of varying height comprising student accommodation and life sciences use.	Scoped in	- Within Site study area - Located within Mayfield TCA

Likely Residual Cumulative Effects and their Significance

Townscape

- 6.133 The study area comprises 6 Townscape Character Areas (TCA) as illustrated within **Figure 6.7**. Each TCA represents a distinct area of individual local townscape character within the local vicinity of the Site. The 8 cumulative sites as shown in **Figure 6.10** are distributed amongst the study area and are situated within various TCAs.
- 6.134 **Tables 6.48 to 6.53** below identify the cumulative townscape effects each TCA will experience as a result of the combined presence of cumulative sites in addition to the Proposed Development on Site.

Table 6.48: Townscape Character Area 1 cumulative effects

Townscape Character Area 1 – Corridor Manchester		
Townscape sensitivity	Medium Low	
Cumulative sites present	3, 4, 5	
	Proposed Development	Addition of cumulative sites
Magnitude of change	Low	Low
Townscape effect	Minor – Moderate Beneficial	Minor – Moderate Beneficial
Comments	Cumulative sites 3, 4 and 5 will introduce a combination of large scale and contemporary buildings to the north western part of the TCA. They will increase the overall scale of built form in the area and reinforce the local urban grain by infilling currently vacant sites. However, given the scale of the Proposed Development and the proximity to the TCA, the townscape effect will remain the same.	

Table 6.49: Townscape Character Area 2 cumulative effects

Townscape Character Area 2 – The Village		
Townscape sensitivity	High Medium	
Cumulative sites present	None	
	Proposed Development	Addition of cumulative sites
Magnitude of change	Negligible	Negligible
Townscape effects	Negligible	Negligible
Comments	TCA 3 does not include any cumulative sites. The only cumulative site that is in proximity is 3, which will introduce a contemporary, large-scale building. However, the tight urban grain will provide containment across most of the TCA and therefore it is unlikely that cumulative site 3 will be perceivable. As a result, the perceived change to the townscape brought about by the Proposed Development will remain the same.	

Table 6.50: Townscape Character Area 3 cumulative effects

Townscape Character Area 3 – North Campus		
Townscape sensitivity	Low	
Cumulative sites present	None	
	Proposed Development	Addition of cumulative sites
Magnitude of change	Negligible	Negligible
Townscape effects	Negligible	Negligible
Comments	TCA 3 does not include any cumulative sites. The only cumulative site that is in proximity is 3, which will introduce a contemporary, large-scale building. However, the presence of other buildings of similar height and architectural style in this area means there will be no discernible change to the townscape. As a result, the perceived change to the townscape brought about by the Proposed Development will remain the same.	

Table 6.51: Townscape Character Area 4 cumulative effects

Townscape Character Area 4 – Mayfield		
Townscape sensitivity	Medium Low	
Cumulative sites present	6, 7	
	Proposed Development	Addition of cumulative sites
Magnitude of change	Negligible	Negligible
Townscape effects	Negligible	Negligible
Comments	The cumulative sites will introduce contemporary, large scale buildings into the TCA. However, there will be no perceivable alteration to the magnitude of change brought about by the introduction of any cumulative sites and the townscape effects will remain the same.	

Table 6.52: Townscape Character Area 5 cumulative effects

Townscape Character Area 5 – Upper Brook Street		
Townscape sensitivity	Low	
Cumulative sites present	8	
	Proposed Development	Addition of cumulative sites
Magnitude of change	High	Medium
Townscape effects	Moderate Beneficial	Minor - Moderate Beneficial
Comments	Cumulative site 8 will introduce a combination of large scale and contemporary buildings to the southern part of the TCA. They will increase the overall scale of built form in the area and reinforce the local urban grain by infilling currently unused sites. The perceived change to the townscape brought about by the Proposed Development on Site will be reduced by the cumulative sites and will be reduced.	

Table 6.53: Townscape Character Area 6 cumulative effects

Townscape Character Area 6 – New Brunswick		
Townscape sensitivity	Medium	
Cumulative sites present	1B, 2	
	Proposed Development	Addition of cumulative sites
Magnitude of change	Medium	Low
Townscape effects	Moderate Neutral	Moderate Neutral
Comments	Cumulative site 1B will introduce low rise residential buildings of a similar architectural style to the baseline character. Cumulative site 2 will introduce a contemporary, large scale extension to an existing building. However, given the scale and proximity of the Proposed Development, there will be no perceivable alteration to the magnitude of change brought about by this cumulative site and the townscape effects will remain the same.	

Visual

- 6.135 An assessment of 15 representative views of the Site has been undertaken, as identified in **Figure 6.11**. The 8 cumulative sites as shown in **Figure 6.10** will be visible in several of the viewpoints.
- 6.136 **Tables 6.54 to 6.68** below identify the cumulative visual effects each viewpoint will experience as a result of the combined presence of cumulative sites within the view and the Proposed Development on Site.

Table 6.54: Viewpoint 01 cumulative effects

Viewpoint 01 – Upper Brook Street		
Visual sensitivity	Low	
Cumulative sites present	8	
	Proposed Development	Addition of cumulative sites
Magnitude of change	High	Medium
Visual effects	Moderate Beneficial	Minor - Moderate Beneficial
Comments	Cumulative site 8 will introduce a very prominent element of built form into the right side of the view. This will project further than the top and right of the view extent and will obscure part of the view of the Proposed Development. Although it will introduce a different aesthetic and perceptual quality to the view, it will provide a continuation of the block formation introduced by the Proposed Development. Therefore, the magnitude of change and predicted visual effects brought about by the Proposed Development will be reduced.	

Table 6.55: Viewpoint 02 cumulative effects

Viewpoint 02 – All Saints Park		
Visual sensitivity	Medium	
Cumulative sites present	None	
	Proposed Development	Addition of cumulative sites
Magnitude of change	Low	Low
Visual effects	Minor – Moderate Adverse	Minor – Moderate Adverse
Comments	There is no visibility of any of the cumulative sites. As such, the magnitude of change and predicted visual effects brought about by the Proposed Development will remain the same.	

Table 6.56: Viewpoint 03 cumulative effects

Viewpoint 03 – Upper Brook Street		
Visual sensitivity	Low	
Cumulative sites present	8	
	Proposed Development	Addition of cumulative sites
Magnitude of change	High	High
Visual effects	Moderate Adverse	Moderate Adverse
Comments	There is a glimpsed view of cumulative site 8 in the background of the view. However, this is not distinctly perceivable within the view and, as such, the magnitude of change and predicted visual effects brought about by the Proposed Development will remain the same.	

Table 6.57: Viewpoint 04 cumulative effects

Viewpoint 04 – Hanworth Close		
Visual sensitivity	High Medium	
Cumulative sites present	5	
	Proposed Development	Addition of cumulative sites
Magnitude of change	High	High
Visual effects	Major Adverse	Major Adverse
Comments	There is a glimpsed view of cumulative site 5 in the background towards the right of the view. However, this is not distinctly perceivable within the view and, as such, the magnitude of change and predicted visual effects brought about by the Proposed Development will remain the same.	

Table 6.58: Viewpoint 05 Cumulative Effects

Viewpoint 05 – Gartside Gardens		
Visual sensitivity	High Medium	
Cumulative sites present	3	
	Proposed Development	Addition of cumulative sites
Magnitude of change	High	High
Visual effects	Major Adverse	Major Adverse
Comments	There is a glimpsed view of cumulative site 3 in the background towards the right of the view. However, this is not distinctly perceivable within the view and, as such, the magnitude of change and predicted visual effects brought about by the Proposed Development will remain the same.	

Table 6.59: Viewpoint 06 cumulative effects

Viewpoint 06 – Whitworth Hall		
Visual sensitivity	Medium Low	
Cumulative sites present	8	
	Proposed Development	Addition of cumulative sites
Magnitude of change	Negligible	Negligible
Visual effects	Negligible	Negligible
Comments	Visibility of cumulative site 8 is almost completely obscured by tree canopy. Although this is likely to change seasonally, it will not be distinctly perceivable within the view. As such, the magnitude of change and predicted visual effects brought about by the Proposed Development will remain the same.	

Table 6.60: Viewpoint 07 cumulative effects

Viewpoint 07 – Booth Street West		
Visual sensitivity	Low	
Cumulative sites present	None	
	Proposed Development	Addition of cumulative sites
Magnitude of change	Medium	Medium
Visual effects	Minor – Moderate Neutral	Minor – Moderate Neutral
Comments	There is no visibility of any of the cumulative sites. As such, the magnitude of change and predicted visual effects brought about by the Proposed Development will remain the same.	

Table 6.61: Viewpoint 08 cumulative effects

Viewpoint 08 – Junction of Princess Street and Charles Street		
Visual sensitivity	Low	
Cumulative sites present	3	
	Proposed Development	Addition of cumulative sites
Magnitude of change	Low	Low
Visual effects	Minor Neutral	Minor Neutral
Comments	There is a glimpsed view of cumulative site 3 in the centre of the view. However, this is not distinctly perceivable within the view and, as such, the magnitude of change and predicted visual effects brought about by the Proposed Development will remain the same.	

Table 6.62: Viewpoint 09 cumulative effects

Viewpoint 09 – Vimto Park		
Visual sensitivity	Medium Low	
Cumulative sites present	None	
	Proposed Development	Proposed Development
Magnitude of change	Low	Low
Visual effects	Minor – Moderate Neutral	Minor – Moderate Neutral
Comments	Visibility of cumulative site 8 is almost completely obscured by tree canopy. Although this is likely to change seasonally, it will not be distinctly perceivable within the view. As such, the magnitude of change and predicted visual effects brought about by the Proposed Development will remain the same.	

Table 6.63: Viewpoint 10 cumulative effects

Viewpoint 10 – Mayfield Park		
Visual sensitivity	Medium	
Cumulative sites present	6, 7	
	Proposed Development	Addition of cumulative sites
Magnitude of change	Medium	Low
Visual effects	Moderate Neutral	Minor - Moderate Neutral
Comments	Cumulative sites 6 and 7 will be prominent and distinctly perceivable elements of built form that will project above existing roof lines and the height of the Proposed Development. They will introduce a different aesthetic and perceptual quality to the view and will also obscure much of the view beyond the park boundary. Therefore, the magnitude of change and predicted visual effects brought about by the Proposed Development will be reduced.	

Table 6.64: Viewpoint 11 cumulative effects

Viewpoint 11 – Ardwick Green		
Visual sensitivity	Medium Low	
Cumulative sites present	5	
	Proposed Development	Addition of cumulative sites
Magnitude of change	Low	Low
Visual effects	Minor – Moderate Neutral	Minor – Moderate Neutral
Comments	Visibility of cumulative site 8 is almost completely obscured by tree canopy. Although this is likely to change seasonally, it will not be distinctly perceivable within the view. As such, the magnitude of change and predicted visual effects brought about by the Proposed Development will remain the same.	

Table 6.65: Viewpoint 12 cumulative effects

Viewpoint 12 – Sylvia Pankhurst Way		
Visual sensitivity	High Medium	
Cumulative sites present	8	
	Proposed Development	Addition of cumulative sites
Magnitude of change	High	Medium
Visual effects	Major Adverse	Moderate - Major Adverse
Comments	Cumulative site 8 will introduce a prominent element of built form into the left side of the view. This will project higher than both the existing roof lines and the lower blocks of the Proposed Development. Although cumulative site 8 will introduce a different aesthetic and perceptual quality to the view, it will provide a continuation of the block formation introduced by the Proposed Development. Therefore, the magnitude of change and predicted visual effects brought about by the Proposed Development will be reduced.	

Table 6.66: Viewpoint 13 cumulative effects

Viewpoint 13 – Junction of Upper Brook Street and Plymouth Grove		
Visual sensitivity	Low	
Cumulative sites present	3, 8	
	Proposed Development	Addition of cumulative sites
Magnitude of change	Low	Negligible
Visual effects	Minor Neutral	Negligible
Comments	There is a glimpsed view of cumulative site 3 which will introduce built form to the end of the vista. Additionally, cumulative site 8 will obscure much of the view of the Proposed Development. Therefore, the magnitude of change and predicted visual effects brought about by the Proposed Development will be reduced.	

Table 6.67: Viewpoint 14 cumulative effects

Viewpoint 14 – Grosvenor Street		
Visual sensitivity	Low	
Cumulative sites present	7	
	Proposed Development	Addition of cumulative sites
Magnitude of change	High	High
Visual effects	Moderate Adverse	Moderate Adverse
Comments	There is a glimpsed view of cumulative site 7 in the centre of the view. However, this is not distinctly perceivable within the view and, as such, the magnitude of change and predicted visual effects brought about by the Proposed Development will remain the same.	

Table 6.68: Viewpoint 15 cumulative effects

Viewpoint 15 – Junction of Oxford Road and Ackers Street		
Visual sensitivity	Medium	
Cumulative sites present	None	
	Proposed Development	Addition of cumulative sites
Magnitude of change	Negligible	Negligible
Visual effects	Negligible	Negligible
Comments	There is no visibility of any of the cumulative sites. As such, the magnitude of change and predicted visual effects brought about by the Proposed Development will remain the same.	

References

This TVA has been prepared with reference to the following:

Corridor Manchester, *Strategic Vision to 2025*, (Corridor Manchester, 2015)
<https://www.manchester.gov.uk/info/500113/city_centre_regeneration/7900/city_centre_regeneration_area/17> [accessed 26 April 2023]

Land Use Consultants, *Greater Manchester Landscape Character and Sensitivity Assessment*, (Manchester: Land Use Consultants, 2018)
<<https://www.greatermanchester-ca.gov.uk/media/1727/greater-manchester-landscape-character-and-sensitivity-report.pdf>> accessed 11 May 2023].

Landscape Institute, Institute of Environmental Management & Assessment, *Guidelines for Landscape & Visual Impact Assessment*, 3rd ed. (London: Routledge, 2013)

Landscape Institute, *Townscape Character Assessment, Technical Information Note, Revised April 2018*. (London: Landscape Institute 2018)
<<https://landscapewpstorage01.blob.core.windows.net/www-landscapeinstitute-org/2018/04/tin-05-2017-townscape.pdf>> [accessed 11 May 2023]

Manchester City Council, *City Centre Strategic Plan 2015-2018*, (Manchester: Manchester City Council, 2016)
<https://secure.manchester.gov.uk/downloads/file/24745/city_centre_strategic_plan> accessed 11 May 2023].

Manchester City Council, *Extant Unitary Development Policies (UDP)* (n.d.)
<https://www.manchester.gov.uk/downloads/download/4975/extant_udp_policies> [accessed 26 April 2023]

Manchester City Council, *Guide to Development in Manchester - Supplementary Planning Document and Planning Guidance (SPD)* (Manchester: Manchester City Council, 2007)
<https://secure.manchester.gov.uk/site/scripts/download_info.php?downloadID=644&fileID=1424> [accessed 26 April 2023].

Manchester City Council, *Manchester's Local Development Framework Core Strategy Development Plan Document*, (Manchester: Manchester City Council, 2012)
<https://secure.manchester.gov.uk/downloads/download/5672/core_strategy> [accessed 26 April 2023].

Manchester City Council, *Tree Preservation Orders*, (Manchester: Manchester City Council, 2019)
<<https://open-data-mcr-council.hub.arcgis.com/maps/234d49a3783b47e49d7016747654e988/about>> [accessed 19 June 2023].

Ministry of Housing, Communities and Local Government, *National Planning Policy Framework*. (London: Ministry of Housing, Communities and Local Government; 2021) <<https://www.gov.uk/government/publications/national-planning-policy-framework--2>> [accessed 26 April 2023]

Natural England, *National Character Area profile: 55: Manchester Conurbation*, (Natural England, 2013) <<https://publications.naturalengland.org.uk/publication/5989113924681728?category=587130>> [accessed 11 May 2023].

Whyard, J, *Strategic level city-wide urban characterisation study*, (Manchester: Manchester City Council, 2010) <https://www.manchester.gov.uk/downloads/500002/council_policies_and_strategies> [accessed 11 May 2023].

7. Built Heritage

Introduction

- 7.1 This chapter assesses the likely significant effects of the proposed development on the historic environment. In particular, it considers the potential effects on the existing built heritage in the wider area.
- 7.2 The chapter describes the methods used to assess the likely significant effects, the baseline conditions currently existing at the site and in its surroundings, the potential direct and indirect effects of the proposed development arising from the construction and the operational phase, the mitigation measures required to prevent, reduce, or offset the identified significant effects and the residual effects. It has been written by Turley Heritage.
- 7.3 This Chapter is supported by the following figures and appendices:
- **Appendix 7.1: Heritage Assessment**
 - **Appendix 7.2: Heritage Asset Plan**
- 7.4 The Heritage Assessment has been undertaken within the context of relevant planning policies, guidance documents and legislative instruments. These are summarised below.

Assessment Methodology and Significance Criteria

- 7.5 A Study Area of 500m from the Site Boundary has been set as a basis for the consideration of potential effects of the Proposed Development on built heritage assets. The Site, Study Area and all heritage assets within it are identified on a **Heritage Asset Plan** at **Appendix 7.2**.
- 7.6 In defining an appropriate Study Area, best practice guidance, professional judgement, and a review of the potential effects of the Proposed Development on built heritage has been applied. The following factors have been taken into consideration:
- The nature and extent of the Proposed Development;
 - The proximity of heritage assets to the Proposed Development;
 - The degree of inter-visibility between heritage assets and the Site taking into consideration, for instance, changes in topography as well as interposing townscape and landscape features and informed by a site visit; and
 - The significance of heritage assets and the contribution made by their setting, including any known historic or functional relationships.
- 7.7 The Proposed Development, due to its height, scale and mass, may be visible beyond the Study Area. However, in accordance with the NPPF and Historic England guidance the professional judgements made in this Assessment are based on the effect of the

Proposed Development on the significance of heritage assets, rather than whether the development will be visible from them, although this is also a consideration.

Surveys and Data Sources

7.8 The following background studies have informed this Chapter:

- **Heritage Assessment:** A detailed Heritage Assessment (**Appendix 7.1**) has been prepared. This assessment has been carried out to address the statutory duty of the Planning (Listed Buildings and Conservation Areas) Act 1990 and in accordance with planning policy (including the requirement of NPPF Paragraph 194) and best practice guidance. The Heritage Assessment identifies heritage assets with potential to be affected by the Proposed development, assesses their significance and setting, and assesses the impact of the Proposed Development upon that significance.

Assessment Process

- 7.9 In the absence of specific prescribed criteria for the assessment of impacts on built heritage, the methodology for establishing the relative value or importance of heritage assets; the magnitude of change; and the significance of effect will be taken from Design Manual for Roads and Bridges (DMRB) (Volume 11, Section 2, Part 4, 2019)¹ and informed by Historic England guidance.
- 7.10 Analysis has also been informed by site visits undertaken during December 2022 and March 2023. Site visits sought to gauge potential effects of the Proposed Development on heritage assets, inform judgements on their relative heritage significance and importance within any grouping, and also how sensitive they would be to change within their setting.

Reporting of the Environmental Effect and Significance Criteria

- 7.11 The assessment of likely significant environmental effects as a result of the Proposed Development has been taken into account for the construction and operational phases.

Determining Sensitivity of Receptor

- 7.12 The heritage significance (value or importance) of the heritage assets (receptors) is defined on the basis of **Table 7.1** which has been informed by the DMRB and a clear understanding and appreciation of the heritage significance of each asset and the contribution of setting to their heritage significance. This has been undertaken in accordance with Historic England guidance and informed by a site visit, research and professional opinion. The Heritage Assessment (**Appendix 7.1**) establishes the heritage baseline and heritage significance of the heritage assets and this has informed judgements on the sensitivity of the receptor.

¹ Design Manual for Roads and Bridges (DMRB) (Volume 11, Section 2, Part 4) (2019).

Table 7.1: Criteria for Determining the Sensitivity of the Receptor

Sensitivity	Asset Type
High	Scheduled monuments with standing remains Registered Battlefields Grade I and II* listed buildings Other listed buildings that can be shown to have exceptional qualities in their fabric or historical association not adequately reflected in the listing grade Grade I and II* registered parks and gardens Conservation areas containing very important buildings
Medium	Grade II listed buildings Historic (unlisted) buildings that can be shown to have exceptional qualities in their fabric or historical association Grade II registered parks and gardens Conservation areas containing important buildings Historic townscape or built-up areas with historic integrity in their buildings, or built settings (e.g., including street furniture and other structures)
Low	'Locally listed' buildings and landscapes Historic (unlisted) buildings of modest quality in their fabric or historical association Historic townscape or built-up areas of limited historic integrity in their buildings, or built settings (e.g., including street furniture and other structures)
Negligible	Assets of no architectural or historic note; buildings of an intrusive character

Determining the Magnitude of Change

- 7.13 The magnitude of change (or impact) to heritage assets is assessed using the criteria outlined in **Table 7.2**. The terminology used in **Table 7.2** (Major, Moderate, Minor, negligible, No Change) differs to the DMRB (major/ large, moderate/medium, minor/ small), however it has been adopted to ensure consistency across the ES.

Table 7.2: Criteria for Determining the Magnitude of Change/Impact to Heritage Assets

Magnitude of Change (Impact)		Definition
Major	Adverse	Loss of resource and/or quality and integrity of resource; severe damage to key characteristics, features or elements.
	Beneficial	Large scale or major improvement of resource quality; extensive restoration; major improvement of attribute quality.
Moderate	Adverse	Loss of resource, but not adversely affecting the integrity; partial loss of/damage to key characteristics, features or elements.
	Beneficial	Benefit to, or addition of, key characteristics, features or elements; improvement of attribute quality.
Minor	Adverse	Some measurable change in attributes, quality or vulnerability; minor loss of, or alteration to, one (maybe more) key characteristics, features or elements.
	Beneficial	Minor benefit to, or addition of, one (maybe more) key characteristics, features or elements; some beneficial impact on attribute or a reduced risk of negative impact occurring.
Negligible	Adverse	Very minor loss or detrimental alteration to one or more characteristics, features or elements.
	Beneficial	Very minor benefit to or positive addition of one or more characteristics, features or elements.

Magnitude of Change (Impact)		Definition
No Change	Adverse	No loss or alteration of characteristics, features or elements; no observable impact in either direction.

Determining the Level of Effect

7.14 The level of effect attributed has been assessed based on the sensitivity of the affected receptor and the magnitude of change due to the Proposed Development, as set out in **Table 7.3** below, also informed by the 'Design Manual for Roads and Bridges' (LA 104 Environmental Assessment and Monitoring) and (LA 106 Cultural Heritage Assessment).

Table 7.3: Criteria for Determining the Significance of Effect on Heritage Asset Receptors

Sensitivity of Receptor	Magnitude of Effect				
	No change	Negligible	Minor	Moderate	Major
High	Neutral	Slight	Slight or moderate	Moderate or large	Large or very large
Medium	Neutral	Neutral or slight	Slight	Moderate	Moderate or large
Low	Neutral	Neutral or slight	Neutral or slight	Slight	Slight or moderate
Negligible	Neutral	Neutral	Neutral or slight	Neutral or slight	Slight

7.15 The level of effect is confirmed as a single level and not a range, informed by professional judgement. For each effect, it has been concluded whether the effect is 'beneficial' or 'adverse'. A statement is also made as to whether the level of effect is '**Significant**' or '**Not Significant**', again based on professional judgement.

7.16 The following terms have been used to define the significance of the effects identified and these can be 'beneficial' or 'adverse':

- **Very large effect:** where the Proposed Development is likely to cause a considerable change from the baseline conditions and the receptor has limited adaptability, tolerance or recoverability or is of the highest sensitivity. This effect is considered to be 'Significant.'
- **Large effect:** where the Proposed Development is likely to cause either a considerable change from the baseline conditions at a receptor which has a

degree of adaptability, tolerance or recoverability or a less than considerable change at a receptor that has limited adaptability, tolerance or recoverability. This effect is considered more likely to be 'Significant' but will be subject to professional judgement.

- **Moderate effect:** where the Proposed Development is likely to cause a small, but noticeable change from the baseline conditions on a receptor which has limited adaptability, tolerance or recoverability or is of the highest sensitivity; or where the Proposed Development is likely to cause a considerable change from the baseline conditions at a receptor which can adapt, is tolerant of the change or/and can recover from the change. This effect is considered less likely to be 'Significant' but will be subject to professional judgement.
- **Slight:** where the Proposed Development is unlikely to cause a noticeable change at a receptor, despite its level of sensitivity or there is a considerable change at a receptor which is not considered sensitive to a change. This effect is 'Not Significant'.
- **Neutral:** Where the Proposed Development will cause no change to the receptor. This effect is 'Not Significant.'

7.17 The level of effect to heritage assets is quantified based upon the particular heritage significance and setting of the asset and the nature of the effect on that significance. A detailed discussion is set out within the accompanying Heritage Assessment (**Appendix 7.1**). The assessor has therefore exercised professional and reasoned judgment in determining which of the levels of effect is more appropriate and this Chapter should be read in conjunction with the accompanying Heritage Assessment.

Assumptions / Limitations

7.18 To ensure transparency within the EIA process, the following limitations and assumptions have been identified:

- The list of heritage and non-heritage asset assets within the Study Area has been compiled from information provided by the Greater Manchester Historic Environment Record, and the National Heritage List for England.
- This Chapter is focussed on built heritage only. An archaeological desk-based assessment has been produced as a standalone document and will be submitted as part of the Application. This assesses the potential impacts on buried archaeological remains.

Consultation**Table 7.4 – Consultation Table**

Consultation	Date and Time	Comments	Actions
Initial consultation on draft proposals was undertaken with Historic England.	A meeting was held on 14 March 2023 and pre-application feedback was provided on 22 March 2023.	The feedback received was focussed on the potential impact of the Proposed Development on the grade II* listed former Unitarian Chapel. On the basis of the limited contribution made by its setting, Historic England does not have an in-principle concern with the scale of development proposed. However, it stated that care should be taken to ensure that the Chapel continues to be read, experienced, not overshadowed and enclosed, that it remains visually prominent in views along Upper Brook Street and that sufficient space is created around it in order to allow it to breathe. Historic England had no objection to the principle of the masterplan but encouraged the avoidance of harm and consideration of how the listed building can be better expressed and revealed.	The design team has taken this feedback into consideration in developing the proposals.

Baseline Conditions

- 7.19 The baseline conditions have been established through an initial desktop survey to identify the relevant heritage assets within the Study Area, supported by a site visit. Desktop analysis was confirmed through a review of Historic England's National Heritage List for England, Greater Manchester Historic Environment Record (provided by Greater Manchester Archaeological Advisory Service (GMAAS) on 23 May 2023) and other local resources. Desktop and archival research have contributed to an understanding of the historic development of the Site, heritage assets and surrounding area.
- 7.20 The historical development of the site is discussed in detail within the accompanying Heritage Assessment (**Appendix 7.1**); however, a summary of the historic development is set out below:
- The area began to develop in the late 18th century, as part of the expansion of Manchester as a growing industrial centre.
 - The Site and surrounding area were developed into terraced residential streets in the early 19th century.
 - A Unitarian Chapel, a Congregational Chapel with attached Sunday School, and a Free Library were constructed within the Site in the mid-19th century, with the rest of the Site occupied by terraced housing.
 - Following the Second World War, the terraced housing within the Site and surrounding area began to be cleared. The Congregational Chapel and Sunday School and the Free Library formerly located within the Site were also cleared during this period. The Unitarian Chapel remained within an otherwise cleared area.
 - The cleared areas of the Site were subject to gradual development over the later part of the 20th century and were occupied by a series of large commercial buildings, including car showrooms. These buildings are now vacant and deteriorating.

Designated Heritage Assets

- 7.21 The designated heritage assets that have been identified and considered within the Chapter are set out in **Table 7.5**. These are assets with potential to experience a significant environmental effect. With reference to guidance set out in the DMRB, the effect on the cultural heritage resource is not significant when the impact does not substantially diminish or enhance the heritage interest of the cultural heritage resource.

Table 7.5: Sensitive Heritage Assets

Asset Type	Name	Grade	Sensitivity
Listed Building	Former Unitarian Chapel	II*	High
Listed Building	The Mawson Hotel	II	Medium
Listed Building	Oddfellows Hall	II	Medium
Listed Building	94-98 Grosvenor Street	II	Medium
Listed Building	Adult Deaf and Dumb Institute (Former)	II	Medium
Listed Building	Former Grosvenor Picture Palace	II	Medium
Conservation Area	Whitworth Street	N/A	Medium

- 7.22 The designated heritage assets within **Table 7.5** are identified on a Heritage Asset Plan, together with other assets within the Study Area at **Appendix 7.2**.

Embedded Mitigation

Construction

There is no embedded mitigation for the construction phase.

The Completed and Operational Development

- 7.23 Embedded mitigation measures include the approach to the layout, scale, mass, height, design, appearance, materials and landscaping of the Proposed Development.
- 7.24 Blocks A1 (ground plus 41 storeys) and A2 (ground plus 14 storeys) are two interlinked towers with a tapering bow shaped plan form. Block A3 (ground plus 12 storeys) is a lower, separate building, with a more regular footprint. Block A1 has intermediate steps at levels 16 and 28 and, in combination with A2, is finished in anodised aluminium and glass, with back painted glass panels in grey.
- 7.25 Blocks B1 (9 storeys), B2 (7 storeys) and B3 (5 storeys) of Plot B, to the south, are broadly orthogonal buildings, arranged around the grade II* listed Former Unitarian Chapel. They are clad in two tonnes of anodised aluminium, B1 and B3 in red, and B2 in silver. The building mass is designed to create setbacks to address the Chapel and these are set out as roof terraces.
- 7.26 The Proposed Development is intended to be expressed as a family of buildings, with the tallest form closer to the city edge and reducing in height southwards. The lighter tone of the northern buildings resonates with the modern materiality of the nearby

University estate and the red tone of the Life Sciences blocks references the red brick and traditional material of residential areas to the east.

- 7.27 A series of interconnected spaces and links are created by the landscaping proposals, including community squares and walks with a combination of planting, lawns, seating, avenue planting and mixed material surfacing.

Assessment of Likely Significant Effects

Construction

- 7.28 The effects of the construction phase will be temporary. There are several forms of temporary effects that may affect the identified heritage assets during this phase. This includes the temporary diminution in the quality of the setting of heritage assets, from the presence of mobile cranes, visible machinery, earthworks and material management and construction traffic movements. These may result in change in the setting of heritage assets and increased visual intrusion. The risk of such effects will be partially mitigated by construction management measures described earlier in this Chapter. However, such changes could detract from the experience of the heritage significance of heritage assets within the Study Area.
- 7.29 It is considered that due to the proximity of the Site, the significance and setting of these assets and the likely visual effects of the construction phase, there would be temporary adverse effects on the Former Unitarian Chapel (grade II* listed), the Mawson Hotel (grade II listed), Oddfellows Hall (grade II listed) and 94-98 Grosvenor Street (grade II listed).
- 7.30 Due to increased distances and intervening development, the adverse effects of the construction phase on the Adult Deaf and Dumb Institute (Former), the Former Grosvenor Picture Palace and Whitworth Street Conservation Area are considered to be negligible, resulting in a neutral or slight significance of effect.
- 7.31 These effects are set out at Table 7.6.

Operation

- 7.32 There will be combination of positive and negative effects on the **Former Unitarian Chapel**. The addition of buildings of the height, scale and mass shown and in excess of the Chapel is considered to cause some harm to the significance of the listed building by reducing its prominence and causing a degree of distraction and conflict. However, the existing compromised setting of the asset must be taken into consideration, and impact is tempered by the quality of the design and materials of the Proposed Development and the way in which it responds to its context. There are also positive effects arising from the creation of high-quality public realm that will enhance the setting of the Chapel and encourage greater interaction with it. It will continue to be the only historic building in this section of Upper Brook Street and will retain a degree of distinction due to its architectural interest, legible historic interest and the contrast of its stone-built construction, alongside its larger modern neighbours. It is concluded, on balance, that there would be a moderate adverse effect on the Chapel.
- 7.33 Overall, given the limited contribution the setting of the **Mawson Hotel** makes to its significance and the existing presence of modern buildings of increased height and

scale within its setting, it is not considered that, although clearly visible, the Proposed Development would harm the significance of the pub. Its historic and architectural interest will continue to be clearly appreciable against a backdrop of taller buildings of varying heights, increasing in height towards the city centre. There would be negligible effect on the Hotel.

- 7.34 It is considered that change to the character of the setting of **Oddfellows Hall** and **94-98 Grosvenor Street** and the visual impact created by the Proposed Development would cause a degree of harm to the significance of the two listed buildings. The orientation of the listed buildings and the way in which they are experienced and appreciated means that there would be a minor adverse effect on both assets.
- 7.35 Although clearly visible from the setting of the **Adult Deaf and Dumb Institute (Former)** and the **Former Grosvenor Picture Palace**, it is not considered that the Proposed Development, at a distance and separated by intervening development, would detract from the ability to appreciate or experience the historic or architectural interest of the two grade II listed buildings. There would be a negligible effect on these assets.
- 7.36 It is not expected that the Proposed Development would influence the character and appearance of the **Whitworth Street Conservation Area** to the extent that the significance of the designated area would be diminished or harmed. The taller buildings of Plot A occupy the narrowest part of the Site and the narrow end of the tower faces the conservation area. It has been designed in a lighter and more reflective palette, and in doing so, its visual impact is lessened in views south from the conservation area.
- 7.37 It is not considered that the presence of the Proposed Development in views southwards would be harmful to the significance or character or appearance of the Whitworth Street Conservation Area. There would be a negligible effect during the operation phase.
- 7.38 These effects are set out at Table 7.6.

Table 7.6 Likely Significant Effects

Receptor	Mitigation Measure	Likely Significant Effect
Construction		
Former Unitarian Chapel	n/a	Moderate Adverse magnitude of change and a moderate significance of effect, short term and reversible. local level.
The Mawson Hotel	n/a	Minor adverse magnitude of change and a slight significance of effect, short term and reversible. At the local level.
Oddfellows Hall	n/a	Minor adverse magnitude of change and a slight significance of effect, short term and reversible. At the local level.
94-98 Grosvenor Street	n/a	Minor adverse magnitude of change and a slight significance of effect, short term and reversible. At the local level.
Adult Deaf and Dumb Institute (Former)	n/a	Negligible adverse magnitude of change and a neutral significance of effect, short term and reversible. At the local level.
Former Grosvenor Picture Palace	n/a	Negligible adverse magnitude of change and a neutral significance of effect, short term and reversible. At the local level.
Whitworth Street Conservation Area		Negligible adverse magnitude of change and a neutral significance of effect, short term and reversible. At the local level.

Receptor	Mitigation Measure	Likely Significant Effect
Operation		
Former Unitarian Chapel	n/a	Moderate adverse magnitude of change and a moderate significance of effect, long term and permanent. At the local level.
The Mawson Hotel	n/a	Negligible adverse magnitude of change and a neutral significance of effect, long term and permanent. At the local level.
Oddfellows Hall	n/a	Minor adverse magnitude of change and a slight significance of effect, long term and permanent. At the local level.
94-98 Grosvenor Street	n/a	Minor adverse magnitude of change and a slight/neutral significance of effect, long term and permanent. At the local level.
Adult Deaf and Dumb Institute (Former)	n/a	Negligible adverse magnitude of change and a neutral significance of effect, long term and permanent. At the local level.
Former Grosvenor Picture Palace	n/a	Negligible adverse magnitude of change and a neutral significance of effect, long term and permanent. At the local level.
Whitworth Street Conservation Area	n/a	Negligible adverse magnitude of change and a neutral significance of effect, long term and permanent. At the local level.

Additional Mitigation / Enhancement Measures

Construction

7.39 The following mitigation measures will be applied:

- The construction phase of the Proposed Development will be regulated by a Construction Environment Management Plan (CEMP).
- The perimeter of the Site will be secured by temporary secure fencing, barriers or hoardings.
- Construction traffic management measures will be introduced.

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7.40 None

Residual Effects

7.41 The implementation of a CEMP will not reduce the overall level of effect for each receptor and this is reflected in the residual effects table. These measures will however assist in containing and managing the construction process of the Proposed Development, including partially screening the visual impact.

7.42 No additional mitigation is applied in addition to the identified embedded mitigation of the operational phase. Residual effects therefore remain the same.

Table 7.2 Residual Effects Summary

Description of Effect	Embedded Mitigation	Potential Effect (inc. Significance)	Further Mitigation	Residual Effect (inc. Significance)
Construction				
Impact of the Proposed Development on the significance and setting of the Former Unitarian Chapel	None	Moderate Adverse magnitude of change and a moderate significance of effect, short term and reversible. local level.	Construction management measures and CEMP	Moderate Adverse magnitude of change and a moderate significance of effect, short term and reversible. local level.
Impact of the Proposed Development on the significance and setting of the Mawson Hotel	None	Minor adverse magnitude of change and a slight significance of effect, short term and reversible. At the local level.	Construction management measures and CEMP	Minor adverse magnitude of change and a slight significance of effect, short term and reversible. At the local level.
Impact of the Proposed Development on the significance and setting of Oddfellows Hall	None	Minor adverse magnitude of change and a slight significance of effect, short term and reversible. At the local level.	Construction management measures and CEMP	Minor adverse magnitude of change and a slight significance of effect, short term and reversible. At the local level.
Impact of the Proposed Development on the significance and setting of 94-98 Grosvenor Street	None	Minor adverse magnitude of change and a slight significance of effect, short term and reversible. At the local level.	Construction management measures and CEMP	Minor adverse magnitude of change and a slight significance of effect, short term and reversible. At the local level.
Impact of the Proposed Development on the significance and setting of the Adult Deaf and Dumb Institute (Former)	None	Negligible adverse magnitude of change and a neutral significance of effect, short term and reversible. At the local	Construction management measures and CEMP	Negligible adverse magnitude of change and a neutral significance of effect, short term and reversible. At the local

Description of Effect	Embedded Mitigation	Potential Effect (inc. Significance)	Further Mitigation	Residual Effect (inc. Significance)
		level.		level.
Impact of the Proposed Development on the significance and setting of the Former Grosvenor Picture Palace	None	Negligible adverse magnitude of change and a neutral significance of effect, short term and reversible. At the local level.	Construction management measures and CEMP	Negligible adverse magnitude of change and a neutral significance of effect, short term and reversible. At the local level.
Impact of the Proposed Development on the significance and setting of the Whitworth Street Conservation Area	None	Negligible adverse magnitude of change and a neutral significance of effect, short term and reversible. At the local level.	Construction management measures and CEMP	Negligible adverse magnitude of change and a neutral significance of effect, short term and reversible. At the local level.
Operation				
Impact of the Proposed Development on the significance and setting of the Former Unitarian Chapel	The layout, scale, mass, height, design, appearance, materials and landscaping of the Proposed Development	Moderate adverse magnitude of change and a moderate significance of effect, long term and permanent. At the local level.	N/A	Moderate adverse magnitude of change and a moderate significance of effect, long term and permanent. At the local level.
Impact of the Proposed Development on the significance and setting of the Mawson Hotel	The layout, scale, mass, height, design, appearance, materials and landscaping of the Proposed Development	Negligible adverse magnitude of change and a neutral significance of effect, long term and permanent. At the local level.	N/A	Negligible adverse magnitude of change and a neutral significance of effect, long term and permanent. At the local level.

Description of Effect	Embedded Mitigation	Potential Effect (inc. Significance)	Further Mitigation	Residual Effect (inc. Significance)
Impact of the Proposed Development on the significance and setting of Oddfellows Hall	The layout, scale, mass, height, design, appearance, materials and landscaping of the Proposed Development	Minor adverse magnitude of change and a slight significance of effect, long term and permanent. At the local level.	N/A	Minor adverse magnitude of change and a slight significance of effect, long term and permanent. At the local level.
Impact of the Proposed Development on the significance and setting of 94-98 Grosvenor Street	The layout, scale, mass, height, design, appearance, materials and landscaping of the Proposed Development	Minor adverse magnitude of change and a slight/neutral significance of effect, long term and permanent. At the local level.	N/A	Minor adverse magnitude of change and a slight/neutral significance of effect, long term and permanent. At the local level.
Impact of the Proposed Development on the significance and setting of the Adult Deaf and Dumb Institute (Former)	The layout, scale, mass, height, design, appearance, materials and landscaping of the Proposed Development	Negligible adverse magnitude of change and a neutral significance of effect, long term and permanent. At the local level.	N/A	Negligible adverse magnitude of change and a neutral significance of effect, long term and permanent. At the local level.
Impact of the Proposed Development on the significance and setting of the Former Grosvenor Picture Palace	The layout, scale, mass, height, design, appearance, materials and landscaping of the Proposed Development	Negligible adverse magnitude of change and a neutral significance of effect, long term and permanent. At the local level.	N/A	Negligible adverse magnitude of change and a neutral significance of effect, long term and permanent. At the local level.
Impact of the Proposed Development on the significance and setting of the Whitworth Street Conservation Area	The layout, scale, mass, height, design, appearance, materials and landscaping of the Proposed Development	Negligible adverse magnitude of change and a neutral significance of effect, long term and permanent. At the local level.	N/A	Negligible adverse magnitude of change and a neutral significance of effect, long term and permanent. At the local level.

- 7.43 The highest level of effect is on the grade II* listed Former Unitarian Chapel, where a moderate adverse effect has been identified for both the construction and operational phases of the Proposed Development.
- 7.44 With reference to guidance set out in the DMRB, the effect on the cultural heritage resource is **not** significant when the impact **does not substantially diminish or enhance the heritage interest of the cultural heritage resource**. The identified moderate adverse effects would harm the significance of the listed building but it is not considered that the heritage interest of the listed building would be 'substantially diminished'. These effects are therefore not considered to be significant.

Conclusions

- 7.45 The Built Heritage ES Chapter has been prepared by Turley Heritage to assess the likely significant environmental effects of the Proposed Development on the above ground historic built environment of the Site and the surrounding area during the construction and operational phases.
- 7.46 An assessment of the significance and setting of built heritage assets within a 500m radius Study Area of the Site and with potential to be affected has been undertaken. This is set out within the accompanying Heritage Assessment (Appendix 7.1) and has been undertaken in accordance with best practice guidance and advice contained within the NPPF, PPG, DMRB and Historic England guidance.
- 7.47 During the construction phase there would be temporary adverse effects on the Former Unitarian Chapel (grade II* listed), the Mawson Hotel (grade II listed), Oddfellows Hall (grade II listed) and 94-98 Grosvenor Street (grade II listed). Adverse effects of the construction phase on the Adult Deaf and Dumb Institute (Former), the Former Grosvenor Picture Palace and Whitworth Street Conservation Area would be negligible, resulting in a neutral or slight significance of effect.
- 7.48 During the operation phase there would be a moderate adverse effect on the Former Unitarian Chapel, a negligible effect on the Mawson Hotel, a minor adverse effect on Oddfellows Hall and 94-98 Grosvenor Street, a negligible effect on the Adult Deaf and Dumb Institute (Former) and the Former Grosvenor Picture Palace and a negligible effect on the Whitworth Street Conservation Area.
- 7.49 The highest level of effect is on the grade II* listed Former Unitarian Chapel, where a moderate adverse effect has been identified for both the construction and operational phases of the Proposed Development.
- 7.50 With reference to guidance set out in the DMRB, the effect on the cultural heritage resource is **not** significant when the impact **does not substantially diminish or enhance the heritage interest of the cultural heritage resource**. The identified moderate adverse effects would harm the significance of the listed building but it is not considered that the heritage interest of the listed building would be 'substantially diminished'. These effects are therefore not considered to be significant.

Assessment of Cumulative Effects

7.51 Table 7.3 outlines the cumulative schemes that were assessed.

Table 7.3 Cumulative Sites

Site Ref.	Application No.	Proposal	Scoped-in / Scoped-out	Justification
1.	101664/FO/2013/N2	Brunswick Neighbourhood Selective demolition and clearance (including a number of residential, retail and other non-residential buildings) to allow the phased redevelopment and refurbishment of the Brunswick Neighbourhood, including the erection of 444 new residential dwellings (C3); the refurbishment of 839 existing homes [including low rise reversals and the refurbishment of Artillery Court, Silkin Court, Lockton Court, Lamport Court, and existing maisonettes and low rise houses]; a new boulevard and new access roads, new car parking and service areas; a new mixed use building comprising of 4 retail units (A1 or launderette or A5), and a neighbourhood housing office (B1a) with 18 apartments (C3) above; a mixed use residential extra care home with 60 residential units, and a day care centre on part of the ground floor (C2/D1); the upgrading of Gartside Gardens [with new multi use games area, a new playground, realigned pathways, new entrances and new landscaping]; a new orchard; 25 new allotments; new boundary treatments; new open spaces; with associated infrastructure, landscaping and tree planting.	Scoped In	Close proximity to the Site
2.	124472/FO/2019	Kincardine Court Extension Erection of a part 4, part 5, part 6 storey extension to existing student accommodation building	Scoped In	Close proximity to the Site

		to form 25 additional student flats (comprising 100 bedrooms) (Use Class Sui Generis) to form 86 student flats in total (329 bedrooms) following removal, modification and reconfiguration of existing car parking, landscaping and boundary treatment together with the erection of a single storey water tank		
3.	134288/FO/2022	Number 3 Circle Square Erection of 15 storey building comprising office space (Use Class E(g)(i)) and ancillary flexible commercial uses (Use Class E), rooftop terrace, highway works, landscaping, and other associated works	Scoped In	Within Study Area
4.	125799/FO/2019	MMU Science and Engineering Building Demolition of existing John Dalton West Building and associated structures, and erection of a new 7 storey education building (Use Class D1) for the Faculty of Science and Engineering (comprising teaching and research spaces, academic offices, social learning areas, catering/kitchen facilities and an energy centre), physical connections to and external refurbishment of the John Dalton Tower, hard and soft landscaping works, car and cycle parking and associated works.	Scoped In	Within Study Area
5.	125573/FO/2019	First Street South Construction of four buildings of heights varying from 10 storeys to 45 storeys together comprising Co-living bedspaces (use class sui generis) and associated amenity facilities, with ground floor commercial units (Use classes A3 (Café / Restaurant and D2 (Gym)), private amenity space and public realm comprising hard and soft landscaping, car parking and cycle facilities and other associated works.	Scoped In	Within Study Area
6.	124972/FO/2019	Mayfield Plot O - Baring Street Office Number of storeys: 9 Office space: 97,316	Scoped Out	Outside Study Area
7.	125248/FO/2019	The Republic Number of storeys: 13 Office space: 315,544 sqft Ground floor commercial space: 16,813 sqft (A1-4, D1, 2)	Scoped Out	Outside Study Area
8.	N/A	Upper Brook Street Redevelopment Demolition of existing structures on site and the erection of two blocks of varying height comprising student accommodation and life sciences use	Scoped In	Close proximity to the Site

Likely Residual Cumulative Effects and their Significance

Construction

- 7.52 Following a review of all cumulative developments (those scoped in), including their proximity to and relationship with the heritage assets identified within this Chapter, it is concluded that only development 8 (Upper Brook Street Redevelopment Demolition of existing structures on site and the erection of two blocks of varying height comprising student accommodation and life sciences use) has the potential for in combination effects on the Former Unitarian Chapel and the Mawson Hotel, should the construction phases of the Proposed Development and this scheme coincide.
- 7.53 The in-combination construction effects of Cumulative Development 8 and the Proposed Development on the Former Unitarian Chapel are not considered to be greater than the level of effect reported for the Proposed Scheme in isolation (i.e., moderate adverse).
- 7.54 The in-combination effect of Cumulative Development 8 and the Proposed development on the Mawson Hotel would be increased to moderate adverse during the construction phases and would remain 'not significant'.

The Completed and Operational Development

- 7.55 Once operational it is not considered that the cumulative developments identified, with the exception of Cumulative Development 8, would give rise to in-combination effects with the Proposed Development. This is based on the conclusions of technical reporting submitted for the other cumulative developments identifying no 'significant' effects on heritage assets or the cumulative developments being located a sufficient distance and thus exhibiting a degree of separation from the Proposed Development that there would be no common receptors affected.
- 7.56 Cumulative Development 8 (*Upper Brook Street Redevelopment Demolition of existing structures on site and the erection of two blocks of varying height comprising student accommodation and life sciences use*), has the potential for in combination effects on the Former Unitarian Chapel and the Mawson Hotel, during operational phases, due to the proximity of this development to these assets and the height, scale and mass of these proposals, in combination with the Proposed Development.
- 7.57 The in-combination operation effects of Cumulative Development 8 and the Proposed Development on the Former Unitarian Chapel are not considered to be greater than the level of effect reported for the Proposed Scheme in isolation (i.e., moderate adverse).
- 7.58 The in-combination operation effects of Cumulative Development 8 and the Proposed Development on the Mawson Hotel are not considered to be greater than the level of effect reported for the Proposed Scheme in isolation (i.e., negligible adverse).

References

The Planning (Listed Buildings and Conservation Areas) Act 1990

National Planning Policy Framework (2021)

MCC (2012) Manchester Core Strategy 2012-2027.

National Planning Practice Guidance (2014, updated 2019);

Historic England (2015) Good Practice Advice in Planning (GPA) Note 2 'Managing Significance in Decision Taking in the Historic Environment'.

Historic England (2017) GPA3 'The Setting of Heritage Assets' 2nd Edition.

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

Historic England (2019) Advice Note 1: Conservation Area Designation, Appraisal and Management (2nd Edition).

National Highways (2019) Design Manual for Roads and Bridges, LA 106: Cultural heritage assessment.

IEMA (2015). Environmental Impact Assessment Guide to: Shaping Quality Development and IEMA (2016). Environmental Impact Assessment Guide to: Delivering Quality Development.

8. Transport and Access

Introduction

- 8.1 This chapter of the Environmental Statement (ES) assesses the effects of the proposed development on transport and access matters. In particular, it considers the anticipated environmental effects of the development on existing traffic conditions for a local study area including sections of Kincardine Road, A34 Upper Brook Street, Booth Street East, Brunswick Street & Grosvenor Street.
- 8.2 The chapter describes the methods used to identify and assess likely significant traffic related effects, the prevailing baseline conditions for the site and its surroundings, the potential direct and indirect effects arising from additional development related traffic movements or development related changes to the network, proposed mitigation measures required to prevent, reduce, or offset the identified significant effects and any likely residual impacts.
- 8.3 Detailed highways and transport network operational assessment work, including the identification of development trip generation and assignment, link and junction capacity analysis, review of general site accessibility by sustainable travel modes and construction traffic effects has been considered in a formal Transport Assessment (TA) document submitted in support of the Planning Application. This TA is included as **Appendix 8.1** to this report. Section 2.3 of the TA report includes for a full review of Transport Policy relevant to the proposed development, including reference to national & local planning policy and relevant Local Transport Plan policies and schemes.
- 8.4 This Chapter is supported by the following figures and appendices:
- **Appendix 8.1** - Transport Assessment
 - **Figure 8.1** - November 2022 Observed 'Do-Nothing' Traffic Survey Flows
 - **Figure 8.2** - 24hr 'Do-Nothing' and 'With Peak Construction' Traffic Flows
 - **Figure 8.3** - Proposed Development Combined Trip Assignment
 - **Figure 8.4** - Baseline + Proposed Development 'With Development' Traffic Flows
 - **Figure 8.5** - Baseline + Cumulative Development 'With Cumulative Development' Traffic Flows

Assessment Methodology and Significance Criteria

- 8.5 Transport related environmental impacts are typically associated with changes in local traffic demand, both in terms of the total number of development vehicles and the type of vehicles generated. Key impact types to be considered in traffic related environmental assessment are as follows:

- Changes in development traffic demand impacting on prevailing highway operating conditions, such as accident risk and network congestion & delay on key links in the immediate vicinity of the proposal site and further a-field;
- Changes in development traffic demand impacting on other local road network users and the immediate community, resulting in reduced amenity (e.g. community severance, pedestrian delay / intimidation, etc.);
- Changes in development traffic demand resulting in noise and air quality effects at surrounding / frontage properties to key access road corridor and at other identified links and junctions

8.6 Transport related environmental impacts also vary over the different stages of the development lifetime. Typically, a full assessment of transport environmental impact considers the following:

- *Construction Traffic Impact* – i.e. the extent of vehicle movements that would take place to / from the site during the construction phase and any effects of physical construction works on the operation of the immediate highway network (e.g. temporary access points, lane closures, etc). It should be noted that any environmental impacts associated with construction are generally only temporary in nature (occurring for the extent of the project build period only) and are rarely constant over the full construction period. Typically, construction traffic impact can vary greatly in scale depending on the nature and intensity of main activities taking place on site on any particular day.
- *Operational Traffic Impact* – i.e. the day-to-day transport impact of the operation of the development proposals - associated with typical staff, visitor and delivery vehicle trip demand and the impacts of the implementation of permanent new access / junction features and other related highway improvements.

8.7 The scope and nature of the assessment work set out within this ES chapter reflects the extent of matters which are understood to be of material interest to the Local Highway Authority (Manchester City Council – MCC) and the Transport for Greater Manchester (TfGM - in the role of manager of the Greater Manchester Key Route Network (KRN)). Scoping consultation with officers of MCC and TfGM was undertaken during Winter / Spring 2023 and identified that the assessment of key highways and transport issues should be concentrated on understanding future predicted traffic demand levels associated with the proposed development and the anticipated changes in future highway network conditions that could be expected to occur as part of the construction and operation of the proposals - in particular, the effects of the proposed closure of the nearby local road of Inchley Road and extension of one-way controls (northbound) on Kincardine Road, which form an integral part of the development proposals. **Table 8.1** below summarises the nature of scoping discussions held with relevant stakeholders.

8.8 In accordance with best practice, the assessment of the transport related impacts of the proposed development has been undertaken in line with advice set out in the following documents:

- “Guidelines for the Environmental Assessment of Road Traffic” produced by the Institute of Environmental Assessment (March 1993) (now Institute of Environmental Management & Assessment (IEMA).
- “The Design Manual for Roads & Bridges”, produced by the Department for Transport (DfT).
- National Planning Policy Guidance (NPPG) “Travel Plans, Transport Statements and Travel Plans” (Ref: 42-014-20140306).

8.9 This guidance identifies that impact assessment can generally be classified as follows:

- *Operational Issues* – i.e. does the network offer sufficient capacity to accommodate development traffic movements and what improvements might be required to ensure suitable future year operational performance?
- *Environmental Issues* – i.e. what are the environmental effects of predicted additional development related traffic movements and what mitigation measures might be required in order to manage these impacts, to ensure that they fall within appropriate thresholds?

8.10 In the case of the proposed development at Upper Brook Street it must be recognised that development related traffic effects can be expected to be generated by both:

- Traffic demand generated by the operation / construction of the development proposals;
- Local re-assignment of traffic across the study area as a result of road closures directly associated with the delivery of the development proposals and any other traffic management measures to support such closures, such as changes in one-way operation.

8.11 Indeed, in the case of the Upper Brook Street proposals, which relate to essentially ‘car-free’ development and so are not expected to generate significant traffic demand, it is the proposed road closure and associated re-assignment of baseline local traffic to alternative routes, which is anticipated to give rise to main scheme related local highways and transport effects.

Transport Network Operational Assessment Approach

8.12 Development related network operational impact has been considered via reference to the following core assessment matters:

- *Link capacity assessments* – comparison of predicted future year development traffic estimates (review of changes in link flow demand).
- *Detailed junction capacity modelling* - using appropriate industry standard computer modelling software.

8.13 A detailed review of highway network operational performance analysis is provided in the TA report (see, in particular, sections 3, 8 & 9 to the formal TA report). The TA document sets out the detailed appraisal methodology for the highway network link and junction operational appraisal and draws appropriate conclusions as to the

ability of the network to accommodate development traffic flows from a transport safety and capacity perspective.

- 8.14 The TA report considers the following extent of study network, the nature of which was established during formal scoping discussions with the key highway stakeholders.

Link Flow Assessment

- Grosvenor Street West of Kincardine Road
- Grosvenor Street West of Kincardine Road
- Kincardine Road South of Grosvenor Street
- Kincardine Road North of Whitekirk Close
- A34 Upper Brook Street North of Booth Street East
- A34 Upper Brook Street South of Booth Street East
- Booth Street East West of A34 Upper Brook Street
- A34 Upper Brook Street North of Brunswick Street
- A34 Upper Brook Street South of Brunswick Street
- Brunswick Street East of A34 Upper Brook Street

Junction Capacity Assessment

- A34 Upper Brook Street / Grosvenor Street (Traffic Signals – LINSIG)
 - A34 Upper Brook Street / Booth Street East (Traffic Signals – LINSIG)
 - A34 Upper Brook Street / Brunswick Street (Traffic Signals – LINSIG)
 - Kincardine Road / Whitekirk Close (Give Way – PICADY)
 - Kincardine Road / Hanworth Close (Give Way – PICADY)
- 8.15 Core conclusions of the detailed TA assessment work are summarised in this chapter for reference.

Transport Network Environmental Assessment Approach

- 8.16 This ES chapter therefore mainly concentrates on the potential environmental effects of development related transport traffic, in terms of the effects of changes in traffic patterns and demand in relation to local amenity and potential effects on sensitive users / receptors.
- 8.17 IEMA guidelines have been used as the core reference document to inform the environmental appraisal of development related road traffic effects. These guidelines suggest the following general rules of thumb when considering the initial 'screening' of traffic & transport related environmental impact and the identification of where more detailed analysis of specific environmental effects might be required:

- “Rule 1: Include highway links where traffic flows will increase by more than 30% (or the number of heavy goods vehicles will increase by more than 30%)
 - Rule 2: Include any other specifically sensitive areas where traffic flows have increased by 10% or more”
- 8.18 With respect to the core Rule 1 (30%) threshold, IEMA guidance notes that traffic forecasting is not an exact science and that it is generally accepted that accuracies of greater than 10% are not achievable. Day to day variation of traffic on a route corridor is frequently at least some + or – 10% of data recorded on a single survey date. The IEMA guidelines therefore suggest that, at a basic level, projected changes in total traffic of less than 10% would create no discernible environmental impact.
- 8.19 IEMA guidance further notes that the most discernible environmental impacts of road traffic are considered to be noise / vibration, severance and pedestrian delay & intimidation. In terms of these potential impacts, IEMA guidance states the following:
- In general, people are unable to perceive a change in noise nuisance for changes in noise levels of less than 3dB(A), such changes require a “doubling or halving in the level of traffic”.
 - At low flows, increases in traffic of around 30% can double the delay experienced by pedestrians attempting to cross a road.
 - Severance (community disruption) and intimidation are much more sensitive to traffic flow and DfT suggest 30%, 60% and 90% changes in traffic levels should be considered as ‘sight’, ‘moderate’ and ‘substantial’ impacts respectively.
- 8.20 Other environmental impacts (e.g.: pollution, ecology, etc.) are considered to be less sensitive to traffic flow changes, and IEMA guidelines recommended that, as a starting point, a 30% change in traffic would represent a reasonable threshold for the need to undertake a more detailed assessment of environmental conditions (our underlining). Where there are major changes in the composition of the traffic flow, say a much greater flow of HGVs, the IEMA guidance identifies that a lower percentage change threshold might be appropriate, and the assessor should use their professional judgement as to whether additional detailed assessment is required on any specific route corridor.
- 8.21 Guidance with respect to Rule 2 (10% threshold) identifies that the assessor should consider the inclusion of any other locations or network links where a 10% change in traffic demand is predicted in specific ‘environmentally sensitive’ areas (our underlining). The IEMA guidelines suggest a ‘sensitive’ receptor could include accident blackspot locations, conservation areas, routes outside hospitals, links with high pedestrian flows, etc. IEMA guidance notes that it would not normally be appropriate to consider links where total traffic flows have changed by less than 10% unless there are significant changes in the composition of traffic, e.g. an unusually large increase in the number of heavy goods vehicles. Ultimately the assessor is charged with utilising professional judgement to determine whether further assessment is necessary in such cases. In coming to such a judgement, the assessor will also need to reflect the ‘cumulative’ effects of a combination of new development schemes against background conditions – typically inherent to good practice future year network demand modelling.

- 8.22 In the case of the immediate study network to the proposed development site, particularly the key local routes of A34 Upper Brook Street, Brunswick Street and Grosvenor Street such routes are not considered to be of a 'sensitive' nature. These routes are predominantly of distributor road standard and already accommodate significant levels of through traffic demand. Furthermore, these routes are not characterised by immediate sensitive receptors – albeit it is acknowledged that sections of Grosvenor Street and Brunswick Street do include for some residential frontage development. Whilst the study section of Kincardine Road corridor is a quieter more local road route, it is not considered to be 'sensitive', as it has historically served commercial development (car sales and other uses) and does not include for any specific 'sensitive' receptors.
- 8.23 For clarity, the assessment work set out below has been prepared on the industry standard IEMA approach - that a projected change in total traffic or HGV traffic levels of less than the relevant IEMA screening threshold (30%) on each link would not create discernible traffic related environmental impact and, in such cases, further detailed assessment would not be required. As noted above, IEMA guidance identifies that traffic effects, including air pollution are typically less sensitive to traffic flow changes and that a 30% change in total traffic flow represents a reasonable threshold for perceptible impact and thus the inclusion of a link as part of more detailed assessment to determine the extent of effects. The above IEMA guidance, however, does not apply to links that fall within designated Air Quality Management Areas (AQMA's), where more stringent thresholds have been identified by recent guidance produced by the Institute of Air Quality Management (IAQM). For those links that fall within designated AQMA's, IAQM guidance identifies a threshold level for new development traffic on a link of 100 two-way light vehicle movements per day or 25 two-way HGV movements. The analysis of traffic related Air Quality matters is considered separately within a detailed Air Quality Assessment report (prepared by Redmore Environmental) submitted as part of the supporting suite of planning application documents.
- 8.24 Paragraphs 8.14 – 8.15 to this ES chapter set out the broad assessment methodology to be adopted for the assessment of any likely significant transport related environmental effects of the proposed development. This includes reference to the preliminary IEMA screening approach for road traffic effects, based on the core 10% and 30% screening thresholds. In those cases where these relevant screening thresholds would be exceeded, Column 3 in Table 2.1 of the IEMA guidelines sets out a list of environmental effects that are appropriate for consideration in more detail.
- 8.25 Paragraph 2.4 of the IEMA guidelines notes that not all of the effects listed in column 3 of Table 2.1 to the IEMA guidance are applicable to every development. In the case of the surrounding highway network to the proposed development, it is considered that the following matters represent the relevant traffic environmental factors suitable for further review, should preliminary IEMA screening thresholds be exceeded.
- Pedestrian Delay:
 - Pedestrian Amenity:
 - Community Severance:
 - Driver Delay:

- Road Safety;
- Air Quality & Traffic Related Dust & Dirt
- Noise & Vibration;

Significance Criteria

- 8.26 The assessment of likely significant environmental effects associated with the proposed development takes into account traffic and transport effects associated with both the site construction stage, as well as day-to-day operational impacts of the completed development. The significance level attributed to each impact identified has been assessed based on the magnitude of traffic and transport related changes expected to take place as a consequence of application scheme / cumulative effects, and the sensitivity of the affected receptor / receiving environment to any such changes.

Impact Significance

- 8.27 The approach to the assessment of the significance of effects has been based on the following definitions, which have been adapted from relevant guidance notes.
- Major Beneficial;
 - Moderate Beneficial;
 - Minor Beneficial;
 - Negligible;
 - Minor Adverse;
 - Moderate Adverse; and,
 - Major Adverse.
- 8.28 For guidance the above impact significance criteria should be considered as follows:
- *Major impact:* where the proposed development would have a substantive impact (either positive or negative), resulting in a loss of resource and / or the quality and integrity of a resource or location via a major impact on key characteristics, features or elements.
 - *Moderate impact:* where the proposed development would have a noticeable impact (either positive or negative), resulting in a loss of resource, but not adversely affecting the integrity (partial impact on key characteristics, features or elements).
 - *Minor impact:* where the proposed development would result in a small, barely noticeable impact (either positive or negative), resulting in some measurable changes in attributes or one or more key characteristics, features or elements
 - *Negligible:* where no discernible impact is predicted as a result of the proposed development.
- 8.29 Impacts classified as Major and / or Moderate are considered as being potentially 'Significant' in environmental assessment terms. Typically changes in baseline traffic

demand of less than 30% due to development are not anticipated to result in clearly discernible traffic related environmental effects and thus form the basis for the screening of potential significant effects. As noted above, a secondary 10% screening threshold is relevant for specific 'sensitive' locations, however, this secondary threshold is not considered as being appropriate to the routes forming the study network to the proposed development (see paragraph 8.14).

Assumptions / Limitations

- 8.30 The Baseline starting position for the assessment of traffic and transport effects associated with new development is typically a 'Do-Nothing' situation of network operation under existing site use and prevailing network conditions. In the case of the assessment work set out in this chapter, however, it must be recognised that the baseline traffic survey work that informs both the TA & ES appraisals was undertaken during November 2022, at a point in time when there was no extant traffic movements taking place at the proposal site. Whilst this is reflective of existing site conditions, it does not reflect the fact that the site benefits from planning consent for significant car sales land use, was until recently in constant use as a regional car dealership and that the buildings associated with this historical use remain on site. Indeed, it is understood that there is no reason why such car sales uses could not be recommenced at the site should the current development proposals not be taken forward.
- 8.31 This extant car sales development position is considered to represent a material consideration when reviewing the results of the formal transport and highways assessment set out in this chapter, as the methodology adopted (no existing baseline traffic demand associated with the site) represents an absolute 'worst case' position when reviewing comparative future network operation, as no account is taken of potential 'net' traffic effects when compared against extant land use and the traffic levels that could be generated under such consents. Indeed, as set out in section 7.6 to the supporting TA report (see **Appendix 8.1**), re-use of the proposal site for car sales land use could reasonably be expected to result in a significant level of traffic demand over the immediate local highway network (of the order of 64 - 77 vehicles per hour (two-way) during traditional AM & PM rush hour periods and almost 770 vehicle trips across a working weekday. Such traffic levels are well in excess of the future trip demand levels anticipated to be generated by the development scheme, which is to be promoted as being essentially car-free, with no general car parking to be provided on-site. Indeed the analysis in section 7.6 to the TA suggests that car sales use of the site could be expected to generate of the order of 320 more car trip movements than the proposed mixed-use development (see Table TA7.7 to **Appendix 8.1**). The comparative assessment approach referenced in this chapter does not include for any assessment of any 'net' benefits that would arise from the replacement of a historical / future higher traffic generating use at the site, with a lower traffic intensity land use.
- 8.32 This ES chapter primarily focuses on changes in 24hr AADT traffic volumes, an approach which is in line with the assessment of key traffic related environmental variables, which typically consider impacts with respect to longer timeframes. Notwithstanding this, the chapter will make reference to identified peak hour conditions where relevant, particularly in those cases where peak hour traffic changes suggest the potential for significant short-term levels of development traffic related impact when compared to daily forecasts.

- 8.33 Proposed development related traffic demand has been calculated via reference to a trip generation exercise based on person-based trip rates extracted from the TRICS database and discussed and agreed with highways stakeholders during the scoping stage. It is recognised that the derivation of these trip rates has involved reference to some sites within Gt London, however, the sites chosen were carefully screened to best reflect the core locational characteristics of the Upper Brook Street site (i.e. good accessibility by a range of travel modes, proximity to University campus and limited on-site car parking / car-free development). It is considered that the person-based approach adopted also ensures for the review of potential maximum future site operation, by considering high capacity use of the site in line with observed travel trends.

Table 8.1: Schedule of Pre-Application Transport & Access Consultation

Consultation	Date and Time	Comments	Actions
Initial Highways Pre-App Meeting Client / Focus TP / MCC Highways & Planning / TfGM	1 November 2022	Setting out key development principles and the nature of highway improvement that could be required to allow for closure of Inchley Road and allow effective site servicing.	
Submission of Tech Note (HTN01a) Submission of Prelim Kincardine Road Sketch Plans	9 March 2023 15 March 2023	Setting out results of November 2022 traffic survey exercise. Analysis of anticipated changes to local traffic flows associated with closure of Inchley Road / one-way extension of Kincardine Road. Preliminary junction modelling and suggested improvement layout option at Upper Brook Street / Booth Street East / Inchley Road.	For review by MCC / TfGM
Highways Pre-App Meeting 2 Client / Focus TP / MCC Highways & Planning / TfGM	16 March 2023	Discussion of submitted Tech Note & Sketch Drawings	

Highways Pre-App Meeting 4 Client / Focus TP / MCC Highways & Planning / TfGM	11 April 2023	Conformation of one-way extension principles and identification of preliminary assessment scope / requirements and required formal documentation.	
Note on Parking Numbers Submission of Tech Note (HTN03)	25 April 2023 27 April 2023	Note setting out trip rate methodology and scope of future TA report.	For review by MCC / TfGM
ES Scoping Letter	5 th May 2023	Submission of formal ES scoping letter including section on Highways & Transport Matters and request to 'scope out' development operational traffic effects.	For review by MCC
Highways Pre-App Meeting 4 Focus TP / MCC Highways / TfGM	14 May 2023	Discussion of detailed technical matters following MCC / TfGM review of Scoping Note 03 and detailed comments on junction modelling & assessment parameters. Discussion of revised junction arrangements at A34 Upper Brook Street / Booth Street East junction and incorporation improved pedestrian arrangements.	

Baseline Conditions

Existing Site Conditions

- 8.34 As noted, the proposal site is currently unoccupied and does not generate any day-to-day vehicle or non-car trips - a situation that is reflected in the November 2022 traffic survey data used to inform the assessment of Baseline 'Do-Nothing' conditions. It should be acknowledged, however, that the site could potentially be brought back into use for car sales land use, but that such an option has not been considered further as part of this analysis.

Existing Highway Network Connections & Observed Network Operating Conditions

Local Road Network Conditions: Traffic Demand & Queuing

- 8.35 The proposed development site land parcels lie adjacent to the following local road corridors:
- *A34 Upper Brook Street* – multi-lane distributor road, characterised by traffic intermediate signal junction connections and traffic signal-controlled pedestrian / cycle crossing points. The route acts as one of the key access routes to / from Manchester city centre, linking to southern suburbs.
 - *Kincardine Road* – local single carriageway access road, providing frontage development access and local access road connections to the adjacent Brunswick estate. The route is generally lightly trafficked and is a signed local 'quiet street' cycle route, operating under a 20mph speed limit. The northern section of the route currently experiences some rat-run traffic levels between Grosvenor Street / Booth Street East, using the connecting route of Inchley Road.
 - *Grosvenor Street* - a one-way (westbound) local distributor road connection, linking between the A6 London Road and A34 Upper Brook Street. The route is of single carriageway one-way layout but includes for 1.2m advisory cycle lanes both in the westbound and eastbound (contra-flow) directions. The route operates as part of the Brunswick 20mph zone.
- 8.36 In addition, the ES study area also considers the western section of Brunswick Street between A34 Upper Brook Street and Kincardine Road. This route operates as a local distributor route between the A6 and A34 corridors and is of circa 9.5m single carriageway, incorporating advisory cycle lane markings in both travel directions and wide footways to both sides. The route operates under a 20mph speed limit as part of the Brunswick 20mph zone.
- 8.37 Local highway network operating conditions have been established by comprehensive traffic surveys carried out in November 2022. These surveys included for classified turning counts and queue surveys at the following junctions for the 12-hour weekday period 07:00 – 19:00. This survey schedule allows for a full understanding of traffic patterns across the study area, including for all side road junction connections along the immediate section of Kincardine Road to the proposal site.

- Upper Brook Street / Grosvenor Street Traffic Signals – All movements & queues
- Upper Brook Street / Inchley Road / Booth Street East Traffic Signals – All movements & queues*
- Upper Brook Street / Brunswick Street – All movements & queues
- Kincardine Road / Hanworth Close – side road turning movements only
- Kincardine Road / Inchley Road – all turning movements*
- Kincardine Road / Whitekirk Close – side road turning movements only

* Junctions 2 & 5 effectively undertaken as a linked survey, to ensure full understanding of extent of U-turn movements for right turn southbound Upper Brook Street traffic to Booth Street East.

8.38 A full review of the results of the traffic survey exercise, with specific attention on 'busiest hour' AM & PM peak periods is set out in section 3.2 to the parallel TA report. This analysis identified AM & PM peak 'rush hour' periods of 08:15-09:15 and 16:45-17:45 respectively. Review of peak hour traffic patterns identified the following:

- Traffic flow on A34 Upper Brook Street demonstrates strong tidal peak demand in the AM peak, with northbound demand (to Manchester city centre) being the dominant movement during this peak period. PM peak traffic levels show a more equal balance in directional traffic demand.
- There is a relatively high demand for turning movements between A34 Upper Brook Street (S) and Booth Street East during both peak periods. During the AM peak this movement represented 518 left turn movements from A34 Upper Brook Street (S) to Booth Street East and 300 movements in the reverse right turn direction. In the PM peak these movements showed demand levels of 401 (left turn) and 490 (right turn) respectively.
- Traffic levels on Kincardine Road are relatively low, particularly to the south of the Inchley Road mini-roundabout – at less than 100 vehicles per hour (two-way) in the AM peak and less than 140 vehicles per hour (two-way) during the PM peak period. Demand to the north of the mini-roundabout is influenced by the local Grosvenor Street - Inchley Road rat-run movement, which results in a more substantive southbound demand on this part of Kincardine Road. Indeed the left turn movement from Grosvenor Street to Kincardine Road was noted to be of the order of 157 and 204 movements for the AM & PM peak hours respectively, when compared to just 35 and 19 movement for the reverse Kincardine Road – Grosvenor Street movement.
- Traffic levels on Inchley Road are of the order of 360 (AM peak) to 400 (PM peak) vehicles per hour during peak periods, with almost negligible HGV traffic. The majority of traffic using Inchley Road seeks to access Booth Street East at the Upper Brook Street / Booth Street East / Inchley Road traffic signals.
- Existing Inchley Road traffic shows uneven directional demand, with circa two-thirds of recorded movements on the link travelling west from Kincardine Road to Booth Street East / A34 Upper Brook Street, with a much lower level of

demand in the reverse direction. This directional demand trend is likely to reflect the potential for local rat-run movements from Grosvenor Street (W) to Booth Street East / A34 Upper Brook Street via Kincardine Road & Inchley Road, with this rat-run movement noted to be heavier during the PM peak, reflecting tidal movements away from Manchester city centre at this time. Traffic flow is low in the reverse directions as movements from Booth Street East / Upper Brook Street to Grosvenor Street do not offer the same rat-run advantages due to the one-way nature of Grosvenor Street.

- Existing 'right turn' demand for movements from Upper Brook Street (N) to Booth Street East (involving a U-turn at the Inchley Road / Kincardine Road mini-roundabout) is of the order of 58 vehicle trips in the AM peak (56 light vehicles and 2 HGVs) and 24 light vehicle movements (no HGVs) during the PM peak. The AM peak U-turn demand represents over 45% of total recorded eastbound traffic demand on Inchley Road.
- Traffic demand to / from the local residential estate roads of Hanworth Close and Whitekirk Close show no obvious signs of substantive local rat-run demand, with traffic flows on both links during AM & PM peak periods being less than 100 vehicles per hour (2-way).

8.39 Details of recorded AM Peak, PM Peak and 12-hour (07:00-19:00) turning movements at key junctions within the study period are presented in **Figure 8.1** to this report. These figures also include for an estimated 24hr AADT value, which has been calculated via the application of a suitable conversion factor (12hr to 24hr AADT) as extracted from Tables (TRA0307 and TRA0308) to "Road Traffic Estimates Great Britain 2021".

8.40 In addition to the above recorded baseline traffic volumes, the November 2022 survey exercise also included for the recording of traffic queues on all of the approach arms to the main traffic signal-controlled junctions along the A34 Upper Brook Street corridor. These surveys recorded the maximum queue on each junction approach (by lane) at the end of each red signal phase, across the full 12hr survey period. This exercise highlighted no evidence to suggest that core study area traffic signal junctions on the A34 Upper Brook Street corridor are currently showing signs of significant over-capacity / congestion issues. Indeed observed peak hour queue levels were noted to be relatively low for intermediate junctions on key distributor road corridors linking to Manchester city centre and generally suggest satisfactory baseline operational performance.

8.41 The above junction performance conclusions are supported by the results of Baseline junction modelling using industry standard capacity assessment software. This exercise included the analysis of both the traffic signal junctions to A34 Upper Brook Street, as well as local junctions on Kincardine Road. The modelling results for the Kincardine Road T-junctions confirms that these junctions are currently operating with significant spare capacity. The A34 Upper Brook Street corridor junctions are busier, reflecting A34 Upper Brook Street's distributor road status, however, the modelling does not suggest significant existing capacity / congestion issues, which is reflective of surveyed conditions. Furthermore, the modelling suggests that improved operational performance could be experienced at these junctions via relatively minor changes in signal timings or the individual 'optimisation' of junction nodes. This suggests that there could be inherent flexibility within the

immediate A34 Upper Brook Street route corridor and surrounding streets, to accommodate any local traffic re-assignments / changes in traffic volumes associated with road closures / extension of local one-way controls.

Local Road Network Conditions: Traffic Demand & Queuing

- 8.42 An appraisal of the operational safety of the immediate local highway network to the application site has been carried out through a review of historical Personal Injury Accident (PIA) data obtained from the TfGM database for the most recently available 5-year search period (1 November 2017 to 31 October 2022 inclusive). This database includes for all accident incidents as recorded by the police & emergency services and therefore represents 'industry standard' data utilised for the calculation of accident rates and the assessment of highway safety. The specification of a minimum five-year search period accords with criteria recommended in NPPG good practice guidance, with the study area including for the length of A34 Upper Brook Street and Kincardine Road between Brunswick Street to the south and Grosvenor Street to the north.

- 8.43 The accident review exercise demonstrates that no accident events have taken place over the full length of Kincardine Road during the survey period, including at the terminal junctions with Brunswick Street and Grosvenor Street. This is likely to reflect the relative low intensity / low speed use of this route.

- 8.44 A number of accident events have been recorded along the study section of A34 Upper Brook Street. Review of these incidents notes that accidents mainly took place in 'clusters' associated with the three main traffic signal junctions with Grosvenor Street, Booth Street East / Inchley Road and Brunswick Street. There are no clear accident trends at these locations that that could be expected to be exacerbated by the proposed development. Indeed, the application scheme includes for the introduction of local active travel measures along the A34 Upper Brook Street and Kincardine Road corridors that could be expected to enhance active travel accessibility and improve safety for these key vulnerable users. The delivery of enhanced cycle measures on Kincardine Road and improved connections to other local cycle infrastructure and routes may also encourage cycle users away from the A34 Upper Brook Street corridor and therefore reduce the potential for pedal cycle related conflicts on this route.

Sustainable Transport Connections

- 8.45 The proposal site is well located to allow for access by a range of sustainable travel options, with key available local connections set out below:

Public Transport Connections

- 8.46 Frontage bus stops on A34 Upper Brook Street are served by the regular frequency number 50 bus route between Media City & East Didsbury, via Salford & Manchester city centre (St Peters Square). This bus route provides a 12-minute day-time service frequency Monday - Saturday and 15-minute evening frequency. Sunday services provide a 15-minute day-time service and 20-minute evening service.

- 8.47 In addition to this available direct site frontage bus service, a wide range of other bus routes are available within a 5 – 7 minute walk of the site at stops on both the Oxford Road corridor and A6 London Road corridors. The Oxford Road corridor operates as

a high frequency bus corridor and offers modern high quality passenger infrastructure, reflecting its role as the main bus corridor serving the city centre from South Manchester. Regular services are available linking to Altrincham, Urmston, Stockport, Didsbury, Withington, Chorlton, Old Trafford, Leigh, Salford, Middleton & Langley.

- 8.48 Further bus connections are available to the east of the site at stops on A6 London Road at Ardwick Green, providing additional regular connections towards Heaton Chapel, Stockport and south west Tameside (Denton / Hyde / Gee Cross).

- 8.49 The application site at Upper Brook Street is also well located to provide opportunities for walking connections to the central Manchester national rail stations of Manchester Piccadilly and Manchester Oxford Road. Manchester Piccadilly is the main rail hub for Manchester, providing services to a range of destinations including, London, Birmingham, Sheffield, Leeds, Liverpool, Scotland and Wales. The station is located circa 900m walk to the north east of the northern boundary of the application site, with a number of walking routes available. It is considered that the main walking route would involve links via Upper Brook Street – Sackville Street – Granby Row – A6 London Road, which is characterised by good standard footway routes adjacent to key roads and sections of segregated off-road walking routes. The crossing of key main road routes is supported by push-button traffic signal-controlled facilities. Alternative walking connections are available through the adjacent Brunswick residential area via Grosvenor Street and footways linking to the main A6 London Road corridor.

- 8.50 Manchester Oxford Road station is located circa 800m to the north west of the northern boundary to the application site and is served by a wide range of local commuter services to south Manchester and more strategic links to Liverpool, Leeds, Sheffield, East Anglia, the North West and Scotland. The main walking route from the application site to the station would be via either Grosvenor Street or Booth Street East, connecting to the walking routes along Oxford Road. These walking routes are of good quality, with push-button traffic signal-controlled crossing points available to allow safe and controlled crossing of Upper Brook Street and Oxford Road.

- 8.51 The application site's excellent potential for connectivity by public transport is reflected by its Greater Manchester Accessibility Level (GMAL) rating of 8, placing it in the top accessibility category. This GMAL score highlights the highly accessible nature of the site location and practical opportunities for the promotion of car-free living and working.

Access by Walking & Cycling

- 8.52 In addition to the above identified local public transport connections, the location of the application site also provides the opportunity for easy access to a wide range of local shops, services and educational areas by foot or cycle. Whilst accessibility to 'every-day' services are most relevant to the considering the proposed PBSA element of the mixed-use scheme, the ability to be able to access such facilities will also be attractive and useful for staff based at the Life Science employment units. It must also be recognised that the proposed development will also deliver a small range of ancillary facilities on-site for use by residents and staff with future uses anticipated to include an 'essentials' convenience store, coffee-shop / food-outlets and potentially a medical use / pharmacy.

- 8.53 National planning guidance notes that walking is the most important mode of travel at the local scale, offering the greatest potential to replace short distance car trips of under 2km. Guidance produced by CIHT also notes that 800m represents an 'acceptable' walking distance to community facilities and shops, with 1.2km representing a 'preferred maximum'. 2km has been identified as a suitable walk distance for regular commuting trips and journeys to / from educational facilities. 1.2km & 2km walking catchments would include effectively the full University of Manchester & Manchester Metropolitan University teaching campuses, key rail stations, the shops and services along the Oxford Road & Whitworth Street corridors and parts of Manchester city centre. As noted above, key local routes to the application site (Upper Brook Street, Oxford Road, Sackville Street and Grosvenor Street) all provide a good baseline standard of pedestrian infrastructure, being characterised by wide footways and traffic-signal controlled interchanges at local junctions.
- 8.54 Furthermore, as identified in paragraph 8.88 to this chapter, the Kincardine Road corridor is to be improved to deliver an active travel orientated enhanced corridor as part of the wider Upper Brook Street proposals (in support of the closure of Inchley Road and extended one-way operation on Kincardine Road), along with additional walk / cycle east-west links between University of Manchester and the Brunswick residential area.
- 8.55 National Planning Guidance also notes that cycling has the potential to substitute for short car trips – particularly those journeys of less than 5km or which could form part of a longer journey by public transport. The location of the application site allows for practical cycling access to a range of local areas including all of Manchester city centre, as well as Old Trafford, Chorlton, Fallowfield, Levenshulme, Gorton, and northern suburbs such as Cheetham Hill. the Kincardine Road corridor is already recognised as an important local 'quiet street' cycling corridor, linking the Plymouth Grove residential areas, with the Sackville Street corridor and Manchester city centre to the north. Furthermore, the site is located close to the Oxford Road 'beeline' cycling corridor, which provides high quality segregated cycle infrastructure for journeys to / from Manchester city centre, the main University of Manchester & Manchester Metropolitan University campuses and Rusholme / Fallowfield / Didsbury / South Manchester. It is anticipated that the delivery of the application scheme will allow for further enhancement of Kincardine Road as a key cycling corridor, thereby improving wider cycle connectivity.
- 8.56 A number of GM cycle hire docking stations are located within a short walk of the proposal site, with the nearest facility on Grosvenor Street, to the west of Upper Brook Street (6 bike docking station). Other local facilities include 8 bike docks at Ardwick Green and 4 bikes at Brunswick Street.

Embedded Mitigation

- 8.57 The paragraphs below describe those measures which form an integral part of the proposed development that are anticipated to assist in controlling and managing development related highways and traffic effects and therefore must be understood when reviewing the nature and extent of predicted development impacts.

Construction

- 8.58 No embedded mitigation measures are proposed during the construction period.

The Completed and Operational Development

- 8.59 The design and delivery of the proposed development would include for a range of measures that will maximise site accessibility by alternative transport modes to the private car. These initiatives would include:
- Promotion of the concept of 'car-free' development – the site will be delivered with no general parking to be provided on site, with users encouraged to use alternative travel modes to the private car or utilise spaces in surrounding local multi-storey car parks. This approach will limit the levels of traffic travelling directly to / from the site in future.
 - The proposed junction improvements at the A34 Upper Brook Street / Booth Street East junction to be delivered as part of the measures to allow for closure of Inchley Road and conversion to a public square, include for local pedestrian and cycle crossing / access enhancements and improved access by these modes to the proposed development site. Similarly the supporting highway works associated with the extension of one-way operation on Kincardine Road include improvements to pedestrian and cycle facilities, including a segregated contra-flow cycle lane and provide better integration with surrounding key walk / cycle routes. The development proposal design also promotes increased site permeability, including a number of new walk routes between Kincardine Road and A34 Upper Brook Street.
 - The location of the PBSA element of the scheme immediately adjacent to the two main University campus destinations can be expected to encourage high levels of walk / cycle access and effectively remove the need for student resident car ownership / car access.

Assessment of Likely Significant Effects

Demolition & Construction

Key Construction Strategy Principles

- 8.60 A review of anticipated of anticipated highway network operational and traffic related environmental effects of development construction is set out in Chapter 10 to the supporting TA report. This exercise identifies that the construction of the proposed development would be delivered over three distinct and consecutive phases following initial site enabling works, with Phase 1 anticipated to require 36 months input and Phases 2 & 3, 24-30 months each.
- 8.61 Construction of the proposed development is to be supported by site delivery strategy of main site vehicle deliveries being undertaken via Kincardine Road. This reflects the restricted nature of the site, in terms of limited available active frontage for deliveries, given that the northern and western site boundaries are formed by the local distributor road routes of Grosvenor Street and A34 Upper Brook Street, which are likely to be unsuitable for long term lane closures. Some servicing of the site could be possible via Inchley Road during the delivery of Phase 1 works, but this would not be available for later stages.
- 8.62 Servicing via Kincardine Road would be delivered via footway and lane closures along the route, to form pit lanes and materials storage areas, along with the parallel conversion of the road to one-way access (northbound) and the closure of Inchley Road to general traffic (to be closed and converted to a public square as part of Phase 1 external works). This local road closure and one-way strategy effectively replicates the proposed permanent local traffic management strategy to be adopted to support the completed application scheme.
- 8.63 The following local highway works would be required to be implemented in advance of the commencement of the Phase 1 construction works in order to deliver the site servicing strategy:
- Closure of Inchley Road to through traffic and formal stopping-up of this route.
 - Temporary Traffic Regulation Orders (TTRO) to allow for closure of site side footway and northbound lane to Kincardine Road to allow for formation of site logistics 'pit lanes' and site hoarding along Kincardine Road frontage. TTRO to also include for conversion of Kincardine Road to one-way northbound controls and temporary closure of affected existing parking bays along this route. The extent of required hoarding will vary across the phased lifetime of the construction project.
 - Delivery of improvements to A34 Upper Brook Street / Booth Street East junction to support the closure of Inchley Road – i.e. delivery of new right turn lane for A34 Upper Brook Street to Booth Street East traffic and associated amendments to approach lanes to A34 Upper brook Street ad Booth Street East. It is anticipated that these enabling works would deliver the majority of the proposed permanent improvements at this location, albeit that the final central pedestrian crossing of A34 Upper Brook Street would not be implemented until completion of Phase 1 and the opening of the public square. It is anticipated that the interim junction improvement layout would

allow for construction delivery vehicle entry access to the Inchley Road site compound (gates set well back within the site to allow for off-carriageway storage) from A34 Upper Brook Street (N) and Booth Street East. No entry access to the Inchley Road construction compound access would be permitted from A34 Upper Brook Street (S) with delivery vehicles approaching from the south, required to access the site via Brunswick Street & Kincardine Road.

- Amendments to traffic islands and road markings at junction of Kincardine Road / Grosvenor Street to assist large construction vehicle turning movements. Traffic light controls and locations of pedestrian crossings / stop lines would not be affected.
- Potential minor amendments to the traffic island and road markings at junction of Brunswick Street / Kincardine Road to assist the swept path of large construction vehicle turning movements and to avoid conflicts with cycle users.
- Closure of the bus lay-by on A34 Upper Brook Street to the immediate west of proposed buildings A1 & A2 and use of this area and associated frontage footway as an additional logistics pit lane.
- Site hoardings to incorporate the site frontage footway to Grosvenor Street between Kincardine Road and A34 Upper Brook Street and A34 Upper Brook Street between Grosvenor Street and Inchley Road. These footway closures will also require TTRO's.

8.64 As a result of the proposed site hoarding and local traffic management strategy, the access routes for construction delivery vehicles accessing the site under Phase 1 would be as follows:

- Approach via or Grosvenor Street or A34 Princess Street: via A34 Upper Brook Street (N) & Inchley Road entry;
- Approach via Booth Street East: via Inchley Road entry;
- Approach via A34 Upper Brook Street (S): via Brunswick Street & Kincardine Road.
- Exit from the site via Kincardine Road – Grosvenor Street – A34 Upper Brook Street.

8.65 The Phase 2 & 3 access strategy, following delivery of Phase 1 and completion of public square works on Inchley Road would be as follows:

- Approach via or Grosvenor Street or A34 Princess Street: via A34 Upper Brook Street – Brunswick Street – Kincardine Road;
- Approach via Booth Street East: via A34 Upper Brook Street – Brunswick Street – Kincardine Road
- Approach via A34 Upper Brook Street (S): via Brunswick Street & Kincardine Road.
- Exit from the site would be via Kincardine Road – Grosvenor Street – A34 Upper Brook Street.

- 8.66 All construction delivery vehicles arriving at the site would be pre-informed about the access route options and vehicle management and would be required to comply with these directives. It is anticipated that delivery vehicle access to the site would ultimately be managed by a formal book-in / book out system, with delivery vehicles allocated a timed slot to ensure that excess demand and on-street queuing / lay-over does not take place. A driver penalty / disciplinary system would be enforced to ensure that delivery vehicles are operated in accordance with the defined delivery procedures.

Construction Traffic Estimates

- 8.67 The applicant has prepared estimates of anticipated staffing levels associated with the delivery of the three main construction phases. This exercise has been informed by recent project experience of delivering other space constrained city centre construction schemes (Axis, Oxygen & Renaissance) and suggests that a total of circa 370 staff is likely to be required over the duration of Phase 1, 275 staff during Phase 2 and 200 staff during Phase 3.
- 8.68 In practice, however, it is unlikely that these identified full construction staff totals would be required to be present on site at any one time (particularly as each Phase of the building delivery programme would be staged (demolition, construction of building frame, building façade, building fit-out, external works), such that many tasks would not directly overlap. To provide an indication of anticipated maximum staff levels the applicant has suggested that at peak operating levels (during Phase 1), the site could be expected to be staffed by up to 250 construction operatives and circa 40 on-site management / office-based staff.
- 8.69 Estimates of staff vehicle demand associated with these predicted peak construction staffing levels suggest that predicted maximum weekday construction staff traffic demand levels could be expected to be of the order of 280 vehicle movements per day (in + out), and of a relatively low level during traditional AM & PM 'rush hour' periods – i.e. below 1 vehicle movement per minute. Maximum morning construction related trip movements associated with the site would typically take place before 08:00 (77 vehicle movements in hour 07:00-08:00), with relatively few trip movements taking place during the critical 08:00-09:00 AM 'rush hour' period. Trip movements during the 17:00-18:00 PM 'rush hour' peak period could be expected to be of the order of 45 vehicles per hour (in + out), with peak afternoon traffic volumes likely to take place during the period 16:00 - 17:00 (57 vehicle movements), with most construction operative shifts expected to be completed before 17:00.
- 8.70 Based on the operational experience of delivering space constrained site construction projects elsewhere within the city centre, the applicant has estimated the following typical maximum daily HGV (i.e. vehicles above 3.5mgw) delivery traffic demand levels across the site construction period:
- Demolition & Excavation / Enabling Works (per phase): up to 20 tipper movements (i.e. 20 in / 20 out) per day.
 - Phase 1 Construction HGV Traffic: up to 120 HGV movements (60 in / 60 out) per day.
 - Phase 2 Construction HGV Traffic: up to 60 HGV movements per day (30 in / 30 out) per day.

- Phase 3 Construction HGV Traffic: up to 60 HGV movements per day (30 in / 30 out) per day.

8.71 Due to the restricted nature of the construction site, which will limit opportunities for practical loading / unloading and material storage space, it is anticipated that all construction HGV delivery movements to / from the site would be directly managed via a formal booking system. Implementation of such a booking system would support 'just in time' material supply at the site and allow for deliveries to be spread across the day in a controlled manner, avoiding unregulated 'surges' in demand and associated site and local road congestion. Based on maximum Phase 1 construction operation of up to 120 delivery HGV movements per day (60 in / 60 out), it is anticipated that maximum managed hourly vehicle demand is likely to be of the order of 5 - 8 HGV arrivals and 5 - 8 HGV departures per hour, during core construction periods (07:00-15:00), with lower levels of HGV traffic at other times.

8.72 Based on the above review of anticipated construction staff and HGV traffic levels, it is estimated that peak construction operation of the site could generate the following combined weekday daily traffic levels during key demand periods:

- AM Construction Peak (07:00-08:00): Arr 82 (77 / 5), Dep 5 (0 / 5)
- AM Network Peak (08:00-09:00): Arr 44 (36 / 8), Dep 8 (0 / 8)
- PM Construction Peak (16:00-17:00): Arr 2 (0 / 2), Dep 59 (57 / 2)
- PM Network Peak (17:00-18:00): Arr 2 (0 / 2), Dep 46 (44 / 4)
- 24 Hour Traffic: Arr 200 (140 / 60), Dep 200 (140/60)

(Total vehicles / HGVs)

Predicted Construction Traffic Network Operational Effects

8.73 Review of this information suggests that total 'peak' construction related traffic demand during key network AM & PM 'rush hour' peak periods is likely to be similar, if not slightly lower, than the traffic levels predicted for day-to-day operation of the completed proposed development, as illustrated below.

AM Network Peak:

- Predicted Peak Construction Traffic: Arr 44 (36 / 8), Dep 8 (0 / 8)
- Predicted Day-to-Day Operational Traffic: Arr 44 (43 / 1), Dep 26 (25 / 1)

PM Network Peak:

- Predicted Peak Construction Traffic: Arr 2 (0 / 2), Dep 46 (44 / 4)
- Predicted Day-to-Day Operational Traffic: Arr 5 (5 / 0), Dep 43 (43 / 0)

8.74 It is therefore considered that there is little evidence to expect that predicted 'peak' construction related traffic volumes would give rise to material detrimental network operational capacity effects.

Predicted Construction Traffic Environmental Effects

- 8.75 To inform the assessment of potential construction traffic related environmental effects, an assessment has been carried out of anticipated local construction traffic routeing within the local stud area and predicted changes in daily traffic levels during peak Phase 1 construction periods. This exercise has been carried out based on the following core assumptions
- Closure of Inchley Road to general traffic and operation of Kincardine Road as one-way northbound route.
 - All site management traffic & visitor traffic to access the construction site via Kincardine Road.
 - All construction site operative traffic to utilise local car parks at Circle Square / Aquatics Centre / Charles Street and University. No construction operative vehicle access to the construction site.
 - Construction HGV traffic to access site via Inchley Road & Kincardine Road as per the approach set out in paragraph 8.65 to this chapter.
 - Staff and HGV traffic to approach the site on the basis of 'cordon' approach proportions derived from observed light vehicle / HGV traffic trends and manual assignment of trips to the network via reference to proposed future road closures.
- 8.76 Predicted future year 'with Peak Construction Traffic Movements' are illustrated in **Figure 8.2** to this report. These estimates also include for general background local network traffic re-assignment related to the closure of Inchley Road and one-way operation on Kincardine Road.
- 8.77 To provide an understanding of the combined construction traffic effects (i.e. both construction traffic + local re-assignment) during the construction period, these 'With Peak Construction' traffic estimates have been compared to Baseline 'Do-Nothing' traffic flows (i.e. assuming no changes to the highway network and no development on the application site (see also **Figure 8.2**)). This comparison exercise is summarised in **Table 8.2** below,

Table 8.2: Comparison of Predicted 'Do-Nothing' & 'With Peak Construction' Traffic Volumes on Key Study Area Links

	All Vehicles			HGVs		
	24 Hr Do Noth	24hr Construct	24 HR Diff (%)	24 Hr Do Noth	24hr Construct	24 HR Diff (%)
Grosvenor St W of Kincardine Rd	3353	5268 (1915)	57.1%	51	140 (89)	176.7%
Grosvenor St E of Kincardine Rd	4286	4166 (-120)	-2.8%	62	67 (5)	8.5%
Kincardine Road S of Grosvenor St	1636	1102 (-533)	-32.6%	25	73 (47)	186.9%
Kincardine Road N of Whitekirk Cl	1197	1253 (56)	4.6%	13	38 (25)	199.5%
A34 Upper Brook N of Booth St East	19847	21669 (1822)	9.2%	437	517 (80)	18.2%

A34 Upper Brook S of Booth St East	26777	27642 (865)	3.2%	563	598 (35)	6.2%
Booth St East W of A34 Upper Brook	11602	11720 (117)	1.0%	199	216 (17)	8.3%
A34 Upper Brook N of Brunswick St	26509	27374 (865)	3.3%	563	598 (35)	6.2%
A34 Upper Brook S of Brunswick St	26216	26371 (154)	0.6%	533	581 (48)	9.1%
Brunswick St E of A34 Upper Brook	9367	10573 (1206)	12.9%	175	215 (40)	22.7%

- 8.78 Review of the results of this comparison exercise demonstrate similar trends in changes in general traffic movements for the operation of the full completed development. Total traffic volumes can be expected to reduce on Kincardine Road (as a result of the removal of background rat run traffic between Grosvenor Road and Inchley Road), with associated increases on a) Grosvenor Street to the west of Kincardine Road, b) the section of A34 Upper Brook Street between Grosvenor Street and Booth Street East and, c) the section of Brunswick Street between A34 Upper Brook Street and Kincardine Road. General traffic increases on all links apart from the very short section of Grosvenor Street can be expected to be well below IEMA 'rule 1' thresholds for significant environmental effects.
- 8.79 **Table TA8.2** also illustrates predicted changes in daily HGV movements across the local highway network. This comparison exercise highlights very high percentage change increases on the Kincardine Road and Grosvenor Street (section west of Kincardine Road). The increases on Kincardine Road are not unsurprising, given that this route would be required to act as the main delivery vehicle route serving the site during the construction phase, but also reflects that the route currently experiences a very low level of HGV flow (typically less than 30 vehicles per day). Peak construction traffic could be expected to result in a net increase of up to 20 additional HGV movements on the section of Kincardine Road south of Inchley Road and 48 HGVs on the northern section between Inchley Road and Grosvenor Street (reflecting the removal of some existing rat-run HGV trips as part of the local re-assignment effects of the closure of Inchley Road). The additional construction related HGV movements would be spread relatively evenly across the core working day.
- 8.80 The predicted increases in HGV traffic movements on the short section of Grosvenor Street to the west of Kincardine Road, relates to the need for all HGV exit traffic from the construction site to access this route corridor from Kincardine Road as part of local one-way traffic management arrangements.
- 8.81 In practice, whilst the predicted additional construction related HGV traffic on Kincardine Road and Grosvenor Street (W) would result in some local environmental effects, it is not anticipated that these would be greater than **minor adverse** in impact significance. In practice these movements would take place at slow speed, reflecting the 20mph speed limit on this route, would not directly interact with pedestrians (reflecting closure of the site side footway and the availability of a segregated footway to the north) and there are few existing residential properties directly fronting this route. Most properties along the route are set well back from the operational carriageway edge and typically represent rear or gabled end elevations, with rear elevations characterised by high close boarded fence boundary

treatment. Closest properties to the carriageway edge on Kincardine Road relate to the student resident block adjacent to Haymans Walk.

8.82 There are no frontage properties to the key section of Grosvenor Street west of Kincardine Road.

8.83 Predicted HGV increases on other surrounding local study area routes are predicted to be at levels below IEMA 'rule 1' thresholds. Maximum predicted HGV increase on these other routes is predicted to take place on the section of Brunswick Street between A34 Upper Brook Street and Kincardine Road (22.7% increase in background HGV movements). This high percentage change value must be viewed in the context that this reflects a predicted daily HGV increase of just 40 vehicles on this route, which currently already experiences over 9,500 vehicle movements per day. Such HGV traffic increases would therefore represent less than a 0.5% increase in existing overall total traffic levels. It is therefore not anticipated that such relatively low levels of actual day-to-day construction HGV demand would give rise to greater than **minor adverse** traffic related environmental effects.

8.84 It is acknowledged that the construction of the application site at Upper Brook Street would require a range of temporary network interventions that could be expected to give rise to additional effects on the local highway network over and above those simply related to vehicle movements and operational capacity. The points below set out these potential anticipated additional network effects:

- *Closure of site side footpaths to Kincardine Road, Grosvenor Street & Upper Brook Street to facilitate site hoardings* – these footway closures would be required for almost the full duration of Phase 1 and would result in inconvenience for users of these routes. Temporary **minor adverse** Impact.
- *Implementation of one-way operation & construction site hoarding on Kincardine Road* - would result in temporary loss of southbound 'quiet road' cycle linkages, in particular during Phase 1. Temporary **minor adverse** impact. Alternative temporary quiet road cycle diversion routes would need to be identified and supported by appropriate signage and road markings.
- *Temporary closure of bus lay-by to Upper Brook Street* – closure of the southbound bus lay-by to deliver a temporary construction site pit lane and safety hoardings, would require passengers using this stop to need to utilise alternative nearby bus stop options. **Minor adverse** Impact.
- *Potential community severance issue associated with closure of Inchley Road* – Inchley Road is noted to be an important community walk and cycling route between the Brunswick residential estate and local destinations to the west, including the Oxford Road corridor, the Universities and Hulme. Closure of Inchley Road as part of the Phase 1 construction works could therefore result in a practical barrier to local / walking and cycling trips unless directly addressed. Potential temporary **moderate adverse** impact, without mitigation.
- *Potential transfer of dust and dirt to the local highway network* – major demolition and construction projects can be expected to generate the potential for dust / dirt emissions, either related to carried products and materials or related to the transfer of loose materials / mud from the construction site servicing areas

via vehicle wheels / bodies. Potential **minor / moderate adverse impact**, without mitigation.

The Completed and Operational Development

Key Development Principles

- 8.85 The proposed development represents the comprehensive regeneration of the site to deliver mixed-use development, primarily comprising of Purpose Built Student Accommodation (PBSA), Life Sciences based employment floorspace and ancillary retail, commercial and community uses, along with on-site landscaping and public open space. The scheme will be delivered across five buildings of varying heights, located to the west of Kincardine Road:
- 1,100 Student Accommodation beds across 3 buildings (A1 & A2 – 880 beds & A3 – 220 beds);
 - 45,874sqm floorspace for Life Science Uses across 3 buildings (B1, B2 & B3).
 - Ancillary ground floor uses – likely to include café, food retail & community / medical uses spread across a range of buildings;
 - New public square; and
 - Other areas of public realm and landscaping.
- 8.86 To reflect key sustainable development principles and to respond to the priorities for the area identified within the Oxford Road Corridor SRF, the development is to be promoted as being ‘car-free’, with no permanent general car parking to be provided on site, with on-site parking restricted for accessibility use only. Vehicle servicing would be delivered by integrated loading bay areas to Kincardine Road (primarily serving the PBSA element of the scheme and ancillary uses within these buildings) and dedicated internal loading areas within the Life Sciences zone.
- 8.87 The application scheme is to be supported by a comprehensive package of highway and environmental improvements to those roads immediately surrounding the site, to enhance access to the site and to allow for the closure of Inchley Road and conversion to a new public square. These highway works include for the following key elements:
- Closure of Inchley Road between Kincardine Road and Upper Brook Street to traffic and conversion to new public square including enhanced walk / cycle connections to Gartside Gardens.
 - Amendments to Kincardine Road corridor to deliver enhanced pedestrian areas, improved parking and servicing arrangements, a segregated contra-flow cycle lane and one-way northbound general traffic operation from Brunswick Street to Grosvenor Street.
 - Removal of southbound bus layby on A34 Upper Brook Street at the PBSA site frontage and replacement with widened footway and revised bus stop layout.
 - Junction improvement at the A34 Upper Brook Street / Booth Street East traffic signals to respond to the closure of Inchley Road and creation of the new public square - including improved pedestrian & cycle crossing arrangements and

new right turn lane for southbound traffic on A34 Upper Brook Street to connect to Booth Street East.

- 8.88 Plans of the core principles of these improvement works are illustrated in Appendix TA7 to the TA report included as **Appendix 8.1** to this chapter.

Anticipated Changes in Local Traffic Network & Assignment Associated with Closure of Inchley Road

- 8.89 Whilst Inchley Road is not a primary route utilised by a significant number of vehicles, the November 2022 surveys identified that baseline two-way traffic on the link is at circa 360 - 400 vehicle movements per hour during peak hour periods, therefore its closure, alongside supporting future one-way operation of Kincardine Road could be expected to have some knock-on local network operational effects. Based on the analysis of existing traffic demand trends, it is considered that Inchley Road currently performs the following local network functions:

- Directly facilitates right turn movements from Upper Brook Street (N) to Booth Street East, by allowing traffic to U-turn at the nearby Kincardine Road / Inchley Road mini roundabout junction. Such right turn movements are currently prohibited at the traffic signals, with the U-turn manoeuvre being the signed route for such A34 Upper Brook Street (N) - Booth Street East movements.
- Provides a local connection between A34 Upper Brook Street & Booth Street East and immediate parts of the adjacent New Brunswick residential area (i.e. traffic to / from Whitekirk Close and Hanworth Close);
- Offers the potential for a local 'rat-run' opportunity for traffic between Grosvenor Street (E) and Booth Street East (westbound) & A34 Upper Brook Street (southbound), thereby providing some level of relief to the Grosvenor Street (E) approach to A34 Upper Brook Street / Grosvenor Street traffic signals and corresponding Upper Brook Street (N) approach to the Booth Street East signals.

- 8.90 The closure of Inchley Road to through traffic would require those vehicle movements currently utilising the road to have to re-assign to an alternative route. For those local residential trips and 'rat run' movements, this re-assignment would likely be achieved by relatively simple local re-routing, primarily using the available alternative connections to A34 Upper Brook Street (via Grosvenor Street). In the case of those traffic movements from A34 Upper Brook Street to Booth Street East, alternative routing would not be possible under existing network arrangements, unless supported by direct changes to the A34 Upper Brook Street / Booth Street East junction, viz:

- Closure and removal of the Inchley Road side road arm connection.
- New right turn flare lane from Upper Brook Street (N) to Booth Street East.
- Amendments to Upper Brook Street approach lane designations to both north and south of junction.
- Improved pedestrian and cycle crossing arrangements of Upper Brook Street.

- New wider crossing island to Booth Street East and re-designation of approach lanes to allow for two right turn exit lanes.
- 8.91 In addition to the above changes at the A34 Upper Brook Street / Booth Street East junction, the closure of Inchley Road to through traffic would also require local amendments to Kincardine Road, to remove the existing mini-roundabout junction with Inchley Road and the extension of one-way operation, between Whitekirk Close and Grosvenor Street to deliver full one-way northbound controls.
- 8.92 Detailed local network modelling has been carried out to understand the predicted effects of these local changes to the road network. This work identified the following:
- The main change in local demand conditions would be the removal of 'rat-run' traffic on the northern section of Kincardine Road and its relocation to the eastern Grosvenor Street approach and the section of A34 Upper Brook Street between Grosvenor Street and Booth Street East. In practice such re-assignment will result in a circa 11.5% - 13.6% increase in peak hour trip movements on A34 Upper Brook Street and a halving of traffic on the northern section of Kincardine Road.
 - Some local increases in traffic are predicted on the western section of Brunswick Street between Kincardine Road and A34 Upper Brook Street, associated with the re-assignment of some local Brunswick Estate traffic to this route, following closure of Inchley Road. In practice, however, predicted changes in traffic on this local distributor road route are relatively low, being less than 2 additional vehicles per minute (two-way).
 - Traffic flow changes on other local route corridors within the study area are anticipated to be generally limited (below well below 5% change compared to Baseline traffic volumes).

Predicted Development Traffic Demand

- 8.93 The proposed development has been designed as being an essentially 'car-free' development, with no general staff / visitor / resident car parking to be provided on site. It is therefore anticipated that the vast majority of day-to-day users of the site would travel using sustainable travel modes (walk / cycle / public transport), reflecting the site's highly accessible location. Notwithstanding this, it is accepted that even taking account of the fundamental car-free principles of the scheme, there may still be some vehicle trip movements associated with the site - primarily taxi, delivery vehicle and general site servicing related trips, which would seek to directly access the site. Also a small number of site users may still choose to utilise the car when travelling, albeit that they will be directed / required to park at nearby available public car park sites within a reasonable walking catchment, as no parking would be available at the site itself.
- 8.94 Trip generation estimates for the proposed development have been calculated based on multi-modal person-based trip data, in order to ensure an understanding of maximum overall site trip demand levels over key travel modes. Trip rate estimates have been prepared for the core development elements at the site (full details of this methodology is included as section 7 to the TA report) and identify the following key findings:

- PBSA Development:* vehicle related trip demand to / from the PBSA element is predicted to be generally very low - being of the order of circa 74 vehicle trips (in + out, including for LGV & OGV trips), over the core weekday daytime 12-hour period and at negligible levels during AM & PM 'rush hour' peak times. Few private car trips are predicted associated with day-to-day use of the student residences (25 movements, in + out over the 12-hour weekday daytime period), with the majority of vehicle trips being either associated with taxi movements or light goods delivery vans. Direct pedestrian access to the site (related to pedestrian and public transport trips from nearby stops / stations) is expected to be much more significant, being in excess of 1550 movements for the core weekday daytime 12hr-period and 120 – 180 movements per hour, during AM & PM peak hours, reflecting the short / close proximity nature of the majority of PBSA related journeys.
- Life Sciences Employment:* a relatively low level of anticipated vehicle trip movements, of the order of 340 vehicle trips (in + out), including for taxi, LGV and HGV servicing, over the core 12-hour weekday daytime period 07:00-19:00. Car & motor-cycle trip demand during AM and PM rush hour peak periods is predicted to be less than 1 vehicle movement per minute (47 trips during the AM peak and 26 trips during the PM peak). Direct pedestrian access to the site (combined pedestrian and public transport trips, which would involve a walk trip arrival / departure at the site) can be expected to be significant, being circa 4,709 movements across the core weekday daytime 12hr-period (07:00-19:00) and circa 800 movements per hour during the identified AM peak period.
- Ancillary Development Elements:* whilst it can be anticipated that there would be some external travel demand associated with the ancillary commercial and community uses to be based in the flexible ground floor units to the main buildings. It is anticipated that the majority of the day-to-day travel demand associated with these uses would be generated either by the core on-site uses, reflecting the ancillary / complementary nature of these additional businesses / facilities, or from directly within the immediate surrounding community / catchment. On this basis general vehicle trip demand associated with the operation of this ancillary / complementary space is anticipated to be negligible, being mainly related to delivery and servicing trips, which are unlikely to be more than handful of movements per day.

8.95 Overall, the development proposals are only predicted to generate a combined vehicle trip demand of circa 43 - 72 vehicle trips per hour, during AM & PM peak rush hour periods and circa 450 vehicle movements for the core 12hr weekday day time period (see **Table 8.3** below). Furthermore, only a relatively small percentage of these trips would directly seek to access the application site itself, with the majority (car trips) being directed to surrounding existing car park sites.

Table 8.3: Predicted Proposed Development Vehicle Trip Demand and Demand Accessing Site By Other Modes on Foot

	AM Peak			PM Peak			12-Hour (07:00-19:00)		
	Arr	Dep	Tot	Arr	Dep	Tot	Arr	Dep	Tot
Car & M-Cyc	33	17	49	0	28	28	128	144	272

Taxi	10	8	18	4	9	12	44	49	93
OGV	3	0	3	0	0	0	7	4	11
LGV	1	1	2	1	2	3	37	36	73
Total Vehs	47	26	72	5	39	43	216	233	449
<i>By Other Modes on Foot</i>	788	216	1004	195	706	900	3580	3645	7224

- 8.96 The majority of trips to / from the site would be undertaken by more sustainable modes of transport (walk / cycle / public transport), but could be expected to arrive / depart the site on foot. The above analysis suggests that the proposals could be expected to generate of the order of 900 – 1000 by foot associated with these other modes of transport during peak demand periods, with a clear tidal demand pattern during these times (majority of trips being arrival movements during the AM peak and departures during the PM peak). It could be expected that these local walk arrival / departure trips, as well as walk trips to / from local surrounding car parks for car & motorcycle users, could be spread over a number of local walking routes, the majority involving a requirement to utilise local traffic signal crossing points at junctions with the A34 Upper Brook Street. It is noted that these crossing points are of generally high standard, incorporating high-capacity pedestrian facilities, or are to be improved by development funded enhancements, so it is considered that such levels of pedestrian demand could be satisfactorily accommodated.
- 8.97 To ensure a robust assessment of proposed development traffic effects it has been assumed that all predicted development related vehicle traffic demand is essentially 'new' to the study network, when compared to 'Do-Nothing' traffic conditions. The assignment of proposed development site traffic has been undertaken via a cordon-based approach discussed and agreed with MCC Highways & TfGM, with development related vehicle movements predicted to enter / exit the wider study area cordon via an agreed set of main approach / exit routes. No development traffic movements to / from the application site has been assumed to have a trip origin / destination from within the immediate Brunswick Estate.

Predicted Development Traffic Assignment

- 8.98 Trip assignment proportions to / from the external cordon entry / exit links have been calculated based on observed AM & PM peak approach / exit traffic levels recorded during the November 2022 surveys, but taking account of relevant local re-assignment requirements associated with the proposed future closure of Inchley Road / extended Kincardine Road one-way operation required to support the proposed development. The cordon entry / exit traffic has then been assigned to relevant internal links within the study area to allow appropriate access to / from the proposed development site elements at Kincardine Road (for taxi, LGV and HGV trips).
- 8.99 This assignment exercise is summarised in **Figure 8.3** to this chapter and demonstrates that predicted AM & PM peak hour development related traffic is unlikely to generate significant levels of new vehicle movements on Kincardine Road and that maximum traffic demand on the A34 Upper Brook Street corridor is likely to be of the order of 21 – 22 vehicle trip movements per hour during AM & PM network peak periods - on the section between Grosvenor Street and Booth Street East. Additional development related traffic on the section of Brunswick Street

between A34 Upper Brook Street and Kincardine Road could be expected to be of the order of 8 – 12 vehicle trips per hour or 1 new vehicle every 5 – 7 minutes.

'With Development' Network Traffic Levels

- 8.100 Discussions with officers of MCC Highways and TfGM identified that future operational testing, including for proposed development traffic effects, should be undertaken based on a position of no future additional background traffic growth, in line with MCC objectives for controlling traffic growth within the regional centre. Indeed, the 'right mix' targets set out in the GMTS 2040 strategy, identify the key objective of reducing overall vehicle trip demand to / from the regional centre.
- 8.101 'With Development' traffic estimates of future network traffic conditions have therefore been derived by the application of the following changes to the Baseline 'Do-Nothing' 2022 traffic survey information:
- The local network re-assignment effects associated with the closure of Inchley Road / extension of one-way operation on Kincardine Road (see paragraph 8.93 to this chapter); and,
 - The addition of predicted total future development traffic levels (see paragraph 8.100 to this chapter).
- 8.102 The resultant 'With Development' traffic flow estimates used as the reference traffic flow forecasts for appraisal outlined over the remainder of this chapter, are included as **Figure 8.4** to this report.

Assessment of Network Operational 'With Development' Effects

- 8.103 The TA report includes for a detailed review of the operational capacity of the identified key junctions within the local study area, utilising industry standard LINSIG and PICADY junction capacity models developed in liaison with MCC & TfGM and in the case of the LINSIG traffic signal models, via reference to operational traffic signal data supplied by TfGM. This appraisal of predicted 'With Development' junction operational capacity identified the following:
- *A34 Upper Brook Street / Grosvenor Street:* The junction is predicted to continue to operate with a level of spare operational capacity under 'Do-Something' peak period conditions.
 - *A34 Upper Brook Street / Booth Street East:* The amended junction design is predicted to operate at close to capacity for 'Do-Something' traffic re-assignment scenarios, assuming that the 'all-red' phase would be called every signal cycle. This represents broadly similar operation when compared to the current four arm junction arrangements (including for continued access to Inchley Road), albeit with some additional overall delay during the AM peak. Ultimately such traffic performance needs to be balanced against the major walk / cycle access improvements delivered by the new layout.
 - *Upper Brook Street / Brunswick Street:* The current junction layout is predicted to operate at or close to practical capacity under 'Do-Something' PM peak demand conditions, relate to a 96.7% degree of saturation for the A34 (S) approach lane including for the right turn flare. Whilst this lane does not show

unacceptable queuing and, in practice, some additional flow balancing between this lane and the inside (straight-on lane) would result in improved performance, some congestion is predicted associated with the right turn movement, which at present is based on turning in gaps or the inter-green at the end of the stage.

- Both local side road junction connections to Kincardine Road (serving Hanworth Close and Whitekirk Close) are predicted to operate with significant spare capacity.

8.104 Analysis has identified the potential for additional operational efficiencies to be delivered at these junctions via further investigation into changes in signal timings / junction layout. Modelling runs based on a 90-second traffic signal cycle time and the introduction of an additional IGA stage at the A34 Upper Brook Street / Brunswick Street junction, suggests additional material improvements in junction performance, such that all junctions are predicted to be able to operate with positive junction PRC values for all peak hour demand scenarios.

8.105 Based on the above detailed network testing, the TA concludes that there is no evidence to suggest that the delivery of the Upper Brook Street Masterplan – North scheme would result in severe / unacceptable future network operating conditions over the local study area.

Environmental Assessment Screening: Predicted Changes in General Traffic Levels 'Do-Nothing' v 'With-Development' Conditions

8.106 **Table 8.4** below provides a comparison in predicted traffic (all vehicles) movements on a range of key links within the study area between existing Baseline 'Do-Nothing' conditions and predicted 'With-Development' conditions, including for proposed development related traffic and local re-assignment effects associated with the closure of Inchley Road and extension of one-way controls on Kincardine Road.

Table 8.4: Comparison of Predicted 'Do-Nothing' & 'With Development' Traffic Volumes on Key Study Area Links

	AM Pk Do Noth	AM Pk With Dev	AM Peak Diff (%)	PM Pk Do Noth	PM Pk With Dev	PM Peak Diff (%)
Grosvenor St W of Kincardine Rd	311	514 (16)	65.1%	447	700 (12)	56.6%
Grosvenor St E of Kincardine Rd	428	424 (7)	-1.0%	629	594 (1)	-5.6%
Kincardine Road S of Grosvenor St	187	90 (9)	-51.9%	220	106 (11)	-51.8%
Kincardine Road N of Whitekirk Cl	97	101 (11)	4.1%	136	143 (5)	5.1%
A34 Upper Brook N of Booth St East	1576	1792 (35)	13.7%	1682	1935 (24)	15.0%
A34 Upper Brook S of Booth St East	2275	2355 (33)	3.5%	2472	2541 (22)	2.8%
Booth St East W of A34 Upper Brook	1131	1160 (29)	2.5%	1280	1297 (17)	1.3%

A34 Upper Brook N of Brunswick St	2277	2357 (33)	3.5%	2450	2519 (22)	2.8%
A34 Upper Brook S of Brunswick St	2286	2313 (27)	1.2%	2248	2264 (16)	0.7%
Brunswick St E of A34 Upper Brook	849	945 (15)	11.3%	808	932 (9)	15.3%

Total Vehicles (Development Related Traffic Movements)

	12hr Do Noth	12hr With Dev	12hr Diff (%)	24 AADT Do Noth	24 AADT With Dev	24 AADT Diff (%)
Grosvenor St W of Kincardine Rd	2913	4565 (111)	56.7%	3353	5240 (113)	56.3%
Grosvenor St E of Kincardine Rd	3724	3626 (26)	-2.6%	4286	4171 (27)	-2.7%
Kincardine Road S of Grosvenor St	1421	939 (85)	-33.9%	1636	1069 (86)	-34.7%
Kincardine Road N of Whitekirk Cl	1040	1095 (81)	5.3%	1197	1251 (84)	4.5%
A34 Upper Brook N of Booth St East	17243	18872 (222)	9.5%	19847	21710 (244)	9.4%
A34 Upper Brook S of Booth St East	23264	24085 (211)	3.5%	26777	27711 (232)	3.5%
Booth St East W of A34 Upper Brook	10080	10244 (164)	1.6%	11602	11786 (184)	1.6%
A34 Upper Brook N of Brunswick St	23031	23852 (211)	3.6%	26509	27442 (232)	3.5%
A34 Upper Brook S of Brunswick St	22777	22943 (166)	0.7%	26216	26398 (182)	0.7%
Brunswick St E of A34 Upper Brook	8138	9200 (106)	13.1%	9367	10579 (112)	12.9%

Total Vehicles (Development Related Traffic Movements)

8.107 Review of the results of this exercise demonstrates the following:

- New development related traffic volumes on local links are predicted to be low. In practice, any substantive changes in traffic flow are related to the re-assignment effects associated with the proposed road closures / extended one-way operation.
- Reduction in traffic of circa 30% - 50% on the northern section of Kincardine Road, primarily as a result of the removal of rat-run traffic on this link through the closure of Inchley Road.
- Increases on immediate sections of Grosvenor Street and A34 Upper Brook Street between Grosvenor Street and Booth Street East, as result of the re-assignment of the rat-run traffic to these designated distributor road corridors. Maximum increases on the key section of A34 Upper Brook Street can be expected to be of the order of 9% - 15.0% of 'Do-Nothing' traffic levels.
- Increases elsewhere on the A34 Upper Brook Street corridor can be expected to be well below 5% of baseline 'Do-Nothing' traffic levels.

- Impact on the Brunswick Street corridor, between A34 Upper Brook Street and Kincardine Road, is predicted to be an increase in traffic of the order of 11% - 15% of Baseline 'Do-Nothing' traffic levels.
- 8.108 The above exercise demonstrates that the majority of study links demonstrate only relatively small changes in both peak hour and 24hr ADDT total traffic demand, at levels that would not typically be expected to result in material changes in traffic related environmental effects. All links, except for the short section of Grosvenor Street between Kincardine Road and A34 Upper Brook Street and the northern connecting section of Kincardine Road are predicted to be well below the key Rule 1 (30%) IEMA thresholds for the identification of potential significant traffic related environmental impacts. Development related traffic effects on these low percentage change routes are therefore not anticipated likely to be more than **negligible / minor adverse** in nature.
- 8.109 As identified above, the short section of Grosvenor Street to the west of Kincardine Road is expected to experience a change in traffic demand in excess of the IEMA Rule 1 thresholds. The extent of this predicted change is predominantly related to the re-assignment of existing baseline rat-run traffic away from Kincardine Road, following the closure of Inchley Road, with this traffic to instead use the distributor road routes of Grosvenor Street and A34 Upper Brook Street in future. Ultimately it is not considered that this level of increase in traffic on Grosvenor Street is of material concern given that:
- The impact only relates to a very short section of Grosvenor Street – circa 45m between Kincardine Road and A34 Upper Brook Street;
 - Grosvenor Street is a local distributor route and is more appropriate to accommodate such rat-run traffic movements. Removal of this traffic from Kincardine Road would result in environmental improvements on this link.
 - There are no sensitive / active frontage receptors in this location. The proposed development will provide frontage to both Grosvenor Street and Kincardine Road, with the adjacent section of Kincardine Road predicted to experience a consequential reduction in traffic volumes, due to the proposed re-assignment of rat-run traffic away from this route.
 - This section of Grosvenor Street already benefits from traffic signal-controlled crossing opportunities at the junction with A34 Upper Brook Street and is proposed to be the subject of additional local walking / cycling improvements associated with the proposal scheme, including a dedicated new walk / cycle crossing point adjacent to the connection with Kincardine Road.
- 8.110 Based on this review, it is not considered that a detailed assessment of environmental effects is required to be undertaken on this short section of Grosvenor Street, with development related traffic and transport effects levels on this link concluded to be **minor adverse** in scale. Such predicted effects should also be viewed in the light of the **minor beneficial** traffic effects that could be expected to take place on the adjacent section of Kincardine Road, which will experience a reduction in traffic levels, due to the removal of rat-run traffic and re-assignment to Grosvenor Street.

- 8.111 Furthermore, it should be noted that the above 'With Development' comparison exercise represents a 'worst case' review of development related network change, as it has been carried out against a Baseline 'Do-Nothing' position of no extant trip demand at the proposed development site. Whilst this methodology directly considers the predicted change in traffic conditions against observed traffic levels recorded during the November 2022 traffic surveys, the percentage impact figures derived from this approach do not reflect the underlying positive 'net impact' case for the site, associated with the replacement of a higher extant trip generating use on the site (car sales) with the current proposed 'car-free' mixed use regeneration proposals.

Additional Mitigation / Enhancement Measures

- 8.112 This section describes the measures which are considered necessary to mitigate any significant environmental effects with regards to identified potential traffic and transport related impacts.

Construction

- 8.113 Construction related traffic effects are likely to be temporary in nature and therefore best addressed by targeted short-term bespoke mitigation measures developed to address either specific local requirements or to respond to the effects of particular construction activities / highway interventions during the construction programme. The nature of such short-term mitigation measures would be set out and delivered via a detailed Construction Traffic Management Plan
- 8.114 Due the edge of city centre location of the site and constrained physical site location, it will be necessary for construction activities and deliveries to be closely managed in order to ensure to deliver efficient site operation. It is anticipated that there will be limited opportunities for vehicles and materials to lay-over at the site or to provide substantive on-site staff parking, with materials management likely to involve formal booking in / booking out procedures to avoid the potential for on-site congestion and associated lost time. The nature and need for such site controls can be expected to directly affect construction related traffic volumes, with the site unlikely to be the focus of periods of high frequency development related traffic demand.
- 8.115 It is important that any disturbance to neighbours and the local community should be minimised during the construction period where at all practical. To this end a detailed Construction Traffic Management Plan (CTMP) would need to be prepared to ensure that necessary best available techniques are adopted. It is anticipated that the CTMP would form part of the wider Construction Management Plan process and would encompass matters such as:
- Agreed construction operating hours and vehicle delivery hours.
 - Location of proposed pit lane access points, construction compounds and material lay-down areas.
 - Any on-site construction vehicle parking and manoeuvring and relevant details as to how delivery vehicle approach to the site is to be managed to avoid any issues associate with vehicle lay-over or waiting nuisance issues on surrounding streets.

- Details of construction HGV delivery booking in / booking out procedures to ensure efficient site loading practice and to avoid on-site congestion or uncontrolled 'surges' in construction HGV demand.
- Staff parking arrangements (on-site where relevant & alternative formal off-site parking opportunities and related initiatives to deter overspill on-street parking onto surrounding residential estate roads) and details of supporting staff / operative travel management initiatives, including tailoring staff shifts to encourage staff travel outside of the traditional AM & PM 'rush hour' periods & Travel Plan measures to promote use of non-car modes.
- Off-site construction HGV routing and driver incentive / disciplinary procedures to ensure suitable HGV routing.
- Construction HGV haulage route signage strategy.
- Construction vehicle cleansing procedures and details of load sheeting / covered load policy.
- Management and procedures for access by abnormal loads (as relevant).
- Programmed duration and timing of short-term material import / export HGV campaigns such as concrete pours.
- Programmed temporary road closure / temporary traffic management works and details of supporting information campaigns as relevant.

8.116 As noted in paragraph 8.72 to this chapter, the anticipated constrained nature of the construction site and need to respond to the limitations of sections of the local highway network are anticipated to result in the need for operation of a strict construction vehicle delivery strategy, with vehicles 'booked in' / 'booked out' of the site delivery areas and operation of a schedule of timed delivery slots. Such operation will reduce the potential for surges in construction traffic demand and minimise the potential for any overspill / idling of vehicles on local roads, whilst waiting to access the site.

The Completed and Operational Development

8.117 The proposed development would be delivered to encourage a range of travel options at the site including on site cycle parking, new walk / cycle connections, encouragement of the delivery of new GM cycle hire docking stations and the promotion of new car club bays on Kincardine Road. The proposals would also be supported by a comprehensive package of local highway improvement works including (see **Appendix 8.1**):

- Environmental enhancements to Kincardine Road, including a new segregated contra-flow cycle lane and improved walking / cycling links and a range of safe crossing points linking to new public realm and Gartside Gardens.
- Improved connecting walk / cycle facilities in the vicinity of the Kincardine Road / Grosvenor Street junction;
- Improved walk / cycle crossing facilities of A34 Upper Brook Street at the junction with Booth Street East, providing a direct connection to the new public square.

8.118 In addition to these physical improvements, the core development elements will be supported by the operation of Travel Plan initiatives designed to maximise the use of sustainable modes of transport for travel to / from the site and to reinforce the concept of 'car-free' development. An Interim Travel Plan has been prepared to support the operation of the PBSA buildings and a Travel Plan Framework for the Life Sciences employment area. These documents have been prepared in line with good practice guidance for residential and employment Travel Planning and set out initiatives to respond to the focus areas of:

- Providing Comprehensive Travel Information.
- Encouraging Increased Walking Trips.
- Encouraging Increased Use of Cycling.
- Encouraging Increased Use of Public Transport.
- Encouraging Efficient Car Use.
- Reducing the Need to Travel.

8.119 The promotion and administration of the Travel Plans for the proposed development would be the responsibility of the site applicant / developer, with the day-to-day management of Travel Plan achieved through the identification of a suitable person within the main development company (or subsequent Site Management Company, if relevant) to Travel Plan Coordinator (TPC) roles as part of their duties. Alternatively, the TPC role could be undertaken by a specialist Transportation Consultancy or an appropriate Council / TfGM travel plan officer, as part of funded wider area Travel Plan Coordinator duties.

8.120 Delivery and operation of the Travel Plans would be supported by the setting of SMART (Specific, Measurable, Achievable, Realistic, Time Bound) targets and regular monitoring of travel patterns at the site, with a view to reducing overall car use / vehicle mileage and promoting the use of more sustainable travel modes. Any longer-term traffic reductions towards the targets delivered via the implementation of Travel Plan initiatives would result in improved traffic related effects when compared to the robust 'With Development' position set out within the previous paragraphs of this ES chapter. Adoption and implementation of the Travel Plans therefore represents a realistic mitigation approach that would assist in addressing network wide adverse development related traffic effects.

Residual Effects

8.121 **Table 8.5** below, sets out the residual traffic and transport related environmental impacts anticipated to be associated with the proposed development, taking into account the generally positive car-free nature of the scheme, proposed supporting highway improvement works and the identified package of additional mitigation measures.

Construction

8.122 Whilst the delivery of some phases of a construction project can be expected to inevitably result in short term impacts on the highway network, it must be recognised that such impacts are temporary in nature and experience shows that most are

capable of being effectively managed by a well targeted Construction Traffic Management Plan and efficient construction work planning / phasing.

- 8.123 In the case of the proposed development and given the length of the overall construction project, it will be particularly important to ensure that key phases of construction works are planned, where practical, to integrate / respect any other potential local projects and to ensure that they are programmed to minimise the extent of local road closures / diversion arrangements. It is recognised that some local road closures and the need to deliver site security could act as a barrier to movements during some development phases, therefore the scheme will need to be supported by a coordinated series of works to maintain access where at all possible.
- 8.124 Any traffic related construction effects could be expected to cease on completion of the delivery of the site buildings and related external public realm & local highway improvements.

Completed and Operational Development

- 8.125 The day-to-day operation of the proposed development has been demonstrated to result in some relatively minor levels of additional traffic over the wider highway network, when compared to a situation of no existing traffic levels at the site - with the main local traffic effects of the development being associated with the re-assignment of existing baseline traffic as part of proposed road closures / extension of one-way controls. These changes will deliver benefits to the Kincardine Road corridor and will re-assign existing local rat-run traffic to more appropriate local distributor road routes, that will experience some increases in traffic when compared to baseline conditions as a consequence. In practice those routes most affected by more substantive additional traffic volumes under 'With-Development' scenarios are typically higher standard distributor road links that are of a nature and layout suitable to accommodate such additional through traffic movements. Residual traffic related environmental impacts under these circumstances are anticipated to be of a generally **minor adverse** nature and not considered to be significant. Furthermore, the delivery of effective Travel Plan strategies at the site, post occupation of development units, can be expected to have an on-going influence in minimising overall development traffic demand and therefore wider network environmental effects.

Table 8.5: Predicted Residual Traffic & Transport Effects

Description of Effect	Embedded Mitigation	Potential Effect (inc. Significance)	Further Mitigation	Residual Effect (inc. Significance)
Construction				
Potential for temporary closure of roads / public rights of way or temporary removal of on-street parking bays during construction of development units.	None	Major / moderate adverse temporary local level impact in short term during periods of closure.	Minimise duration of closures. Publicise closure periods and identify / sign alternative routes as agreed with LHA. Always ensure an appropriate alternative / diversion route for affected parties. Provide alternative walking route through construction site during Phase 1 to maintain link between Kincardine Road and Upper Brook Street whilst Inchley Road is closed.	Minor adverse temporary local level impact in short term during construction phase
Potential for dust and dirt from construction vehicles to transfer to road and neighbouring properties	None	Major adverse temporary local level impact in short term during construction phase if not subject to	General good practice construction management procedures. Adopt industry standard wheel wash / vehicle cleansing systems to	Minor adverse temporary local level impact in short term during construction phase.

Description of Effect	Embedded Mitigation	Potential Effect (inc. Significance)	Further Mitigation	Residual Effect (inc. Significance)
		vehicle management procedures.	minimise dust and dirt transfer on immediate haul routes to construction sites / access points	
Potential for additional construction HGV and some staff movements on immediate local streets to site and to add to local baseline peak hour traffic congestion	None	Moderate / minor adverse temporary local level impact in short term during construction phase if not subject to vehicle management procedures.	Adopt CTMP measures and, where practical, encourage construction HGV movements to take place outside of traditional weekday AM / PM peak periods. Minimise number of staff permitted to park on site and promote sustainable travel options or use of alternative formal off-site parking arrangements at local car parking sites.	Minor adverse temporary local level impact in short term during construction phase.
Operation				
Increased in general traffic and delivery vehicle movements, with concentrations on some local distributor roads (as a consequence of development proposals and associated road closures / extension of	Operation of car-free development and associated local network enhancements to support delivery of new public square.	Negligible / minor adverse permanent local impacts on local distributor road routes following delivery of (potential for pedestrian amenity, community severance & driver delay).	Operation of Travel Plan initiatives across the site to encourage maximum use of sustainable (non-car) travel modes. Implement management measures including routing information to service vehicle	Negligible / minor adverse permanent local impacts on local distributor road routes following delivery of (pedestrian amenity, severance & driver delay).

Description of Effect	Embedded Mitigation	Potential Effect (inc. Significance)	Further Mitigation	Residual Effect (inc. Significance)
one-way controls).			drivers and information on available local multi-storey public car parking.	

Residual Effects Summary

- 8.126 Some residual temporary construction related traffic and transport effects can be expected to occur during critical points of site delivery. Experience suggests that the implementation of recognised good practice management procedures can reduce the severity of any such impact. Any such effects would be temporary in nature and would not continue following the completion of the relevant construction task.
- 8.127 Residual traffic and transport effects associated with the day-to-day operation of the proposed development are anticipated to be minor in nature and would be primarily related to the changes in traffic flows on key local distributor roads as a consequence of local road closures to create new public space. Detailed modelling of local junctions suggests that any such re-assignment effects can be accommodated without generating operational capacity issues, but some local links will experience generally small increases in traffic.

Conclusions

- 8.128 Based on the above review, it is concluded that there is no evidence to suggest that the delivery and day-to-day operation of the proposed development alongside supporting mitigation measures, would give rise to greater than **minor** traffic and transport related operational and environmental effects. Traffic and transport matters are therefore not considered to represent an issue of significant concern.

Assessment of Cumulative Effects

Approach

- 8.129 As noted in paragraph 8.101, the proposed forecasting methodology agreed with MCC and TfGM underpinning the TA / ES traffic and transport assessment work, is based on network analysis informed by observed 2022 traffic levels, with no future changes in these volumes to reflect future changes in Baseline traffic levels. This represents a robust assumption, given MCC traffic reduction targets for city centre / edge of city centre routes, which could be expected to result in lower future year traffic volumes on key links within the study area. On this basis MCC / TfGM have not requested the direct consideration of the traffic effects of other local consented development.
- 8.130 Notwithstanding this approach, it is acknowledged that proposals for mixed use PBSA / Sci-Tech employment development are being progressed for the land parcels immediately adjacent to the proposed development. These plots form the southern element to the wider masterplan for the Upper Brook Street area and are also proposed to be promoted as car free development. It is understood that a planning application for this scheme is to be submitted in early Summer 2023 and therefore whilst this site does not represent a planning 'commitment', it is considered to represent a scheme of potential material significance and which could generate measurable cumulative effects in combination with the proposed development. On this basis, Focus TP have undertaken an additional cumulative assessment exercise, taking into account predicted changes in local traffic levels associated with this adjacent development scheme.

Cumulative Construction Impacts

- 8.131 The scale and nature of combined construction effects will be dependent on the delivery timing of the phasing of the two projects, with cumulative effects likely to fluctuate depending on scheme programme. Information available for the adjacent scheme suggests that, if approved, construction works associated with that site could commence in early 2024 and extend over an approximate three year build period – with construction completion envisaged in December 2026. This delivery timetable would broadly coincide with the majority of the envisaged Phase 1 works at the proposed development. On this basis, cumulative construction effects have been considered based on the potential for peak construction traffic demand to occur at both sites simultaneously, therefore ensuring for the most robust appraisal of local network effects.
- 8.132 In practice construction staff trip demand associated with both sites can be expected to be of a manageable level, as direct vehicle access to either construction site is likely to be limited - with main site operative staff parking taking place off-site within a local walking catchment. This will limit traffic effects on key immediate local routes such as Kincardine Road and Brunswick Street.
- 8.133 Main transport cumulative impact on the immediate study area routes can be expected to be related to combined delivery HGV levels and the need to balance site access / unloading / site security hoarding requirement, whilst minimising impacts on connecting links and the surrounding community.

- 8.134 Information provided by the developer of the adjacent site suggests that this development could be expected to generate of the order of 50 HGV arrival movements per day (100 HGVs in + out) during peak construction periods or 25 arrivals per day at other times. HGVs could be expected to enter the site via Kincardine Road and exit via a temporary access point to A34 Upper Brook Street (southbound direction only). These access arrangements would be capable of operating alongside the proposed closure of Inchley Road and extended one-way controls on Kincardine Road, proposed for implementation associated with the delivery of the proposed development Phase 1 works. HGV deliveries to the adjacent site would also be operated via a strictly regulated booking system.
- 8.135 In practice, given the similar nature of the Upper Brook Street Masterplan – McLaren / Kadans constriction project, it is anticipated that the peak cumulative construction traffic impact of this scheme, operating in parallel to the Upper Brook Street Masterplan (Williams Motor Co (Holdings) / Alliance UBS Limited) Phase 1, would lead to just under a doubling of construction related traffic over the wider study area. In practice, the main surrounding distributor road corridors are considered capable of accommodating such additional temporary construction traffic levels, without significant detrimental effects, reflecting the higher standard nature of these routes and the fact that the majority of staff traffic movements could be expected to take place outside of key 'rush hour' network peak periods.
- 8.136 Notwithstanding this, substantive construction related HGV related traffic could be expected to be experienced on the immediate local access routes to the construction sites, i.e. on Kincardine Road (to Whitekirk Close) and Brunswick Street (between Kincardine Road & A34 Upper Brook Street). Given the nature of the proposed one-way arrangements delivery of the adjacent scheme could result in an additional 50 HGV trips per day on Kincardine Road during peak demand periods and potentially between 50 – 75 additional HGV movements on Brunswick Street over and above the estimates identified in Table 8.2, which considered changes in traffic associated with delivery of the proposed development site only. This would result in cumulative 'peak' construction traffic increases in HGV trip levels on these links of in excess of the 30% IEMA threshold, when compared to 'Do-Nothing' baseline traffic levels.
- 8.137 Ultimately both of these key local access road routes are physically capable of accommodating such large service vehicle movements and as noted above, the directly affected sections of each route corridor are characterised by relatively limited extents of direct frontage development. For example, the affected section of Brunswick Street only includes for 13 frontage facing residential properties (to the southern side of the route) and open servicing areas / commercial properties to the northern side of the route. Kincardine Road is generally characterised by rear or side elevations to residential properties that are set well back from the edge of carriageway, with the majority of properties including for high sided close boarded fences or walls.
- 8.138 Whilst the identified daily percentage HGV increases associated with cumulative construction effects would, at first review, appear to be substantive, it must be noted that these estimates represent combined 'peak' traffic effects that are unlikely to occur for any significant period of time, if at all. In practice combined day-to-day construction HGV traffic levels could be expected to be lower than these worst case estimates. Furthermore, the predicted combined HGV traffic levels must be considered in the context of existing traffic demand levels on these routes. For

example, Brunswick Street is already a busy local distributor road route, that experiences daily traffic flows of almost 9,500 vehicles per day. In practice day-to-day traffic increases associated with combined peak construction HGV movements are unlikely to represent an overall increase of 1% of total baseline traffic levels on this route. Overall baseline traffic flow levels on the primary affected section of Kincardine Road (south of Whitekirk Close) are generally low, with little potential for vehicle – vehicle conflicts and, due to the layout of the route, few locations of direct interaction between pedestrian and vehicle movements.

- 8.139 It is considered that without suitable direct management there could be the potential for **moderate** adverse cumulative construction traffic impacts, should 'peak' construction site traffic demand occur on both sites concurrently. In practice, however, any such potential effects are capable of being addressed by the implementation of regular structured liaison between the two project Principal Contractors, MCC in the role of highway authority and key local stakeholders to identify appropriate management measures in advance of programmed project requirements. It is considered that appropriate liaison and management would allow for both projects to movement forward without giving rise to greater than **minor** cumulative traffic and transport effects. Ultimately the nature of both construction sites is such that delivery HGV access would need to be subject to strict controls, which would limit practical HGV levels and therefore promote safe and efficient network operation.

Cumulative Operational Traffic Impacts

Calculation of 'With Cumulative Development' Traffic Estimates

- 8.140 Predicted development traffic volumes associated with the adjacent mixed use scheme have been supplied by the development traffic consultants, Civic Engineers. Similar to the proposed development, it is anticipated that the car-free nature of the proposals would likely limit vehicle trip demand, with AM, & PM peak traffic demand associated with the proposals being as summarised below (two-way traffic).

AM Peak Period

- Cars (Off Site) 40
- Taxi (To Site) 3
- LGV (To Site) 6
- HGV (To Site) 2

PM Peak Period

- Cars (Off Site) 41
- Taxi (To Site) 3
- LGV (To Site) 0
- HGV (To Site) 0

12 hour (07:00-19:00)

- Cars (Off Site) 388
- Taxi (To Site) 46
- LGV (To Site) 92
- HGV (To Site) 4

- 8.141 It should be noted that part of the adjacent scheme development area is currently being utilised for informal pay & display parking, with regular car & light vehicle

movements taking place to / from the site – particularly during peak traffic periods. These movements were recorded as part of the November 2022 baseline traffic surveys and therefore are inherent to the 'Do-Nothing' & 'With Development' traffic estimates considered earlier in this chapter. In order to provide a true understanding of future cumulative effects, including for the re-development of adjacent site, the following adjustments have been made to the core 'With Development' traffic estimates to generate 'With Cumulative Development' volumes:

- Removal of the observed informal pay & display traffic associated with the current baseline use of the adjacent scheme area;
- Addition of predicted re-development traffic estimates for the proposed adjacent mixed-use scheme.

8.142 These predicted 'With Cumulative Development' forecast traffic flows are included as **Figure 8.6** to this report. It should be noted that for a number of links to the application site, the 'net' effects of the removal of the existing car park traffic at the adjacent site will outweigh any 'new' traffic volumes associated with the operation of the re-development, therefore resulting in a reduction in traffic levels when compared to the core 'With Development' analysis (see **Table 8.4** to this report).

Table 8.6: Comparison of Predicted 'With Development' & 'With Cumulative Development' Traffic Volumes on Key Study Area Links

	AM Pk With Dev	AM Pk With Cumul	AM Peak Diff (%)	PM Pk With Dev	PM Pk With Cumul	PM Peak Diff (%)
Grosvenor St W of Kincardine Rd	514	496 (-18)	-3.4%	700	671 (-29)	-4.2%
Grosvenor St E of Kincardine Rd	424	416 (-8)	-1.8%	594	597 (3)	0.5%
Kincardine Road S of Grosvenor St	90	80 (-10)	-11.1%	106	74 (-32)	-30.28%
Kincardine Road N of Whitekirk Cl	101	91 (-10)	-9.9%	143	111 (-32)	-22.4%
A34 Upper Brook N of Booth St East	1792	1784 (-7)	-0.4%	1935	1919 (-16)	-0.8%
A34 Upper Brook S of Booth St East	2355	2353 (-1)	0.0%	2541	2532 (-9)	-0.4%
Booth St East W of A34 Upper Brook	1160	1173 (14)	1.2%	1297	1283 (-14)	-1.1%
A34 Upper Brook N of Brunswick St	2357	2356 (-1)	0.0%	2519	2510 (-9)	-0.4%
A34 Upper Brook S of Brunswick St	2313	2325 (12)	0.5%	2264	2274 (10)	0.4%
Brunswick St E of A34 Upper Brook	945	920 (-25)	-2.6%	932	910 (-22)	-2.3%

Total Vehicles (UBS South Dev Traffic Effects)

	12hr With Dev	12hr With Cumul	12hr Diff (%)	24 AADT With Dev	24 AADT With Cumul	24 AADT Diff (%)
Grosvenor St W of Kincardine Rd	4565	4233 (-332)	-7.3%	5240	4849 (-391)	-7.5%
Grosvenor St E of Kincardine Rd	3626	3489 (-137)	-3.8%	4171	4009 (-162)	-3.9%
Kincardine Road S of Grosvenor St	939	744 (-195)	-20.8%	1069	839 (-229)	-21.5%
Kincardine Road N of Whitekirk Cl	1095	900 (-195)	-17.8%	1251	1021 (-229)	-18.3%
A34 Upper Brook N of Booth St East	18872	18727 (-146)	-0.8%	21710	21507 (-203)	-0.9%
A34 Upper Brook S of Booth St East	24085	24068 (-17)	-0.1%	27711	27652 (-58)	-0.2%
Booth St East W of A34 Upper Brook	10244	10362 (118)	1.2%	11786	11880 (94)	0.8%
A34 Upper Brook N of Brunswick St	23852	23829 (-23)	-0.1%	27442	27379 (-64)	-0.2%
A34 Upper Brook S of Brunswick St	22943	23060 (118)	0.5%	26398	26503 (105)	0.4%
Brunswick St E of A34 Upper Brook	9200	9057 (-143)	-1.6%	10579	10399 (-180)	-1.7%

Total Vehicles (UBS South Dev Traffic Effects)

8.143 **Table 8.7** to this report provides a comparison of the 'With Cumulative Development' traffic forecast to Baseline 'Do-Nothing' traffic. Review of this information shows generally similar results to the 'Do-Nothing' v 'With Development' exercise illustrated in **Table 8.4**. None of the study links show percentage change values that would suggest a different impact conclusion to that reached for the 'With Development' analysis.

Table 8.7: Comparison of Predicted 'No Development' & 'With Cumulative Development' Traffic Volumes on Key Study Area Links

	AM Pk Do Noth	AM Pk With Cumul	AM Peak Diff (%)	PM Pk Do Noth	PM Pk With Cumul	PM Peak Diff (%)
Grosvenor St W of Kincardine Rd	311	496 (-18)	59.5%	447	671 (-29)	50.0%
Grosvenor St E of Kincardine Rd	428	416 (-8)	-2.8%	629	597 (3)	-5.1%
Kincardine Road S of Grosvenor St	187	80 (-10)	-57.2%	220	74 (-32)	-66.4%
Kincardine Road N of Whitekirk Cl	97	91 (-10)	-6.2%	136	111 (-32)	-18.4%
A34 Upper Brook N of Booth St East	1576	1784 (-7)	13.2%	1682	1919 (-16)	14.1%
A34 Upper Brook S of Booth St East	2275	2353 (-1)	3.4%	2472	2532 (-9)	2.4%
Booth St East W of A34 Upper Brook	1131	1173 (14)	3.7%	1280	1283 (-14)	0.2%

A34 Upper Brook N of Brunswick St	2277	2356 (-1)	3.5%	2450	2510 (-9)	2.5%
A34 Upper Brook S of Brunswick St	2286	2325 (12)	1.7%	2248	2274 (10)	1.2%
Brunswick St E of A34 Upper Brook	849	920 (-25)	8.4%	808	910 (-22)	12.7%

Total Vehicles (UBS South Dev Traffic Effects)

	12hr Do Noth	12hr With Cumul	12hr Diff (%)	24 AADT Do Noth	24 AADT With Cumul	24 AADT Diff (%)
Grosvenor St W of Kincardine Rd	2913	4233 (-332)	45.3%	3353	4849 (-391)	44.6%
Grosvenor St E of Kincardine Rd	3724	3489 (-137)	-6.3%	4286	4009 (-162)	-6.5%
Kincardine Road S of Grosvenor St	1421	744 (-195)	-47.6%	1636	839 (-229)	-48.7%
Kincardine Road N of Whitekirk Cl	1040	900 (-195)	-13.5%	1197	1021 (-229)	-14.7%
A34 Upper Brook N of Booth St East	17243	18727 (-146)	8.6%	19847	21507 (-203)	8.4%
A34 Upper Brook S of Booth St East	23264	24068 (-17)	3.5%	26777	27652 (-58)	3.3%
Booth St East W of A34 Upper Brook	10080	10362 (118)	2.8%	11602	11880 (94)	2.4%
A34 Upper Brook N of Brunswick St	23031	23829 (-23)	3.5%	26509	27379 (-64)	3.3%
A34 Upper Brook S of Brunswick St	22777	23060 (118)	1.2%	26216	26503 (105)	1.1%
Brunswick St E of A34 Upper Brook	8138	9057 (-143)	11.3%	9367	10399 (-180)	11.0%

Total Vehicles (UBS South Dev Traffic Effects)

- 8.144 Based on the above review of issues it is therefore concluded that the cumulative operational traffic effects of the proposed development (UBS Masterplan North) and the adjacent mixed-use site (UBS Masterplan South) could be expected to be of a **minor / negligible** adverse nature and which would not give rise to any additional significant effects over and above those already identified earlier within this report for the core 'With Development' scenario.

References

Institute of Environmental Management and Assessment - Guidelines for the Environmental Assessment of Road Traffic, 1993.

Department for Transport - Road Traffic Estimates in Great Britain 2021 (Sept 2022)

9. Socioeconomics

Introduction

9.1 This chapter assesses the significance of the socio-economic effects of the proposed development on the identified study area. For the purposes of this assessment, the study areas are Ardwick (inner study area), Manchester (wider study area) and the North West of England. In particular, the assessment considers:

- Population;
- Housing;
- Employment, unemployment and occupations including employment demand; and
- Social and Community Infrastructure.

9.2 The chapter describes the methods used to assess the likely significant effects, the baseline conditions currently existing at the site and surroundings, the potential direct and indirect effects of the development arising from the proposed new housing and employment space, the mitigation measures required to prevent, reduce, or offset the identified significant effects and the residual effects. It has been written by Brookdale Consulting.

9.3 This chapter is supported by the following tables and charts.

- Table 9.1: Impact Methodology;
- Table 9.2: Matrix for Significance of Effect;
- Table 9.3: Population of Ardwick ward compared to Manchester and North West, 2021;
- Table 9.4: Structure of employment by sector 2021 (%)
- Table 9.5: GP surgeries within 1.2 miles of development
- Table 9.6: Dental surgeries within 1.5 miles of development
- Table 9.7: Calculation of Construction Jobs
- Table 9.8: Residual Effects Summary
- Table 9.9 Cumulative Sites
- Figure 9.1: Population projections for Manchester local authority area 2023-2043 (number);

- Figure 9.2: Population projections for Manchester local authority area by age group 2016-2026 (% change)

Assessment Methodology and Significance Criteria

Identification of Study Area

- 9.4 The study areas are selected to provide the best overview at local level (ward), local authority and regional level. As stated above, the ward for the proposed development is Ardwick (inner study area), Manchester (wider study area) and the North West of England.

Methods of Baseline Data Collection

- 9.5 The first stage of the assessment is to establish the baseline conditions through interrogation of published data or other sources. This includes a review of local and national policies and strategies related to economic development and regeneration, which is used to identify priorities at the local and national level. It also establishes the existing demographic, economic and social conditions through reference to a number of published data sources such as Census data, Higher Education Statistics Agency (HESA) data, the Office of National Statistics (ONS), NOMIS and information published by the National Health Service (NHS) and Department for Education. The baseline analysis will consider the following broad topics:

- Population;
- Housing;
- Employment, unemployment and occupations including employment demand; and
- Social and Community Infrastructure.

- 9.6 The Site, as described in the **Baseline Conditions** section of this chapter, consists of a mix of vacant sites. In the northern portion of the site is the former BMW Williams dealership and associated car parking forecourt. Towards the centre of the site, south of Inchley Road is a vacant single storey commercial building. Adjacent to this, but outside of the site boundary, is the Grade II* listed 'Former Unitarian Chapel' which following a conversion now operates as student accommodation. A vacant single storey commercial building and car park is located in the southern section of the site. The site is assumed to have negligible current socio-economic use.

- 9.7 The second stage of the assessment is to assess the socio-economic effects during both the construction and operational phases of the Proposed Development. The construction spend on the scheme will support construction jobs over the lifetime of the build. This will have multiplier effects through induced (supply chains) and indirect (employee spend supporting further jobs) impacts. These will be quantified, and their significance evaluated at local and regional level.

- 9.8 Operational impact is calculated from typical student spend¹ which is converted to jobs in appropriate sectors in the study areas and beyond. The life sciences building

¹ <https://www.manchester.ac.uk/study/experience/student-life/living-costs/>

is assessed in terms of job creation based on standard employment densities for the type of space created. An assessment of business rates impacts is included. The assessment of additionality factors (leakage and displacement) allows net benefits to be calculated.

- 9.9 The effect on demand for local social and community infrastructure is assessed with a particular focus on health and educational facilities by reference to current supply of services drawn from NHS data.
- 9.10 The impact on and relationship with housing supply and demand in the area is assessed. This assessment draws upon local housing market data gathered by the Council. Business rates and Council tax revenues are also assessed with purpose-built student accommodation (PBSA) having potential to release local housing back into the general population, thus increasing the Council's Council tax revenues.

Identification of Sensitive Receptors

- 9.11 The sensitivity of the receptor is typically assessed in terms of the recoverability of the receptor and importance of the receptor. However, this method of assessment does not perform well in terms of socioeconomic impacts (particularly beneficial impacts), where the receptor is assumed to be the economy, population, businesses and workforce in the study area. For example, in the case of job creation (or job losses) the sensitivity has been judged in terms of the level of unemployment in the area. Specific receptors identified in the assessment include construction, industrial and office employment and the sensitivity is judged on the ability of the sector to absorb the predicted increase in employment

Sensitivity of Receptors

- 9.12 The Sensitivity of the Receptor is measuring the capacity of the variable in question (e.g. population, housing, employment/unemployment) to absorb any change. This is classified as a subjective judgement based on the best available evidence within the following model:
- Very High Sensitivity – evidence base suggests the variable is already over capacity before any new change is introduced;
 - High Sensitivity – evidence base suggests the variable is close to or is at capacity;
 - Medium Sensitivity – evidence base suggests the variable has capacity to accommodate some change; and
 - Low Sensitivity – evidence base suggests the variable has no capacity issues and can easily accommodate change.
- 9.13 The Magnitude of Impact is a composite measure which judges the combined effects of the modelled impact of the development, including the location, duration and scale of the effect. The composite measure follows this model:
- Very High – a long-term and/or large-scale impact in the Inner Study Area;
 - High – any combination of impacts between the Very High and Medium definition;

- Medium – a medium-term and/or moderate scale impact in the Wider Study Area;
- Low – any combination of impact between the Medium and Negligible definition; and
- Negligible – a temporary and/or small-scale impact at the North West of England level.

Characterisation of Effect

9.14 The overall impact methodology is primarily based on a quantitative assessment of the economic impacts in terms of jobs and Gross Value Added (GVA), in line with HM Treasury Green Book guidance.

9.15 The level of significance is assessed as shown in **Table 9.1**.

Table 9.1: Impact Methodology

Magnitude of the Impact		
Spatial Extent of Impact	Duration of Impact	Scale of Impact
• Inner Study Area (Ardwick) • Wider Study Area (Manchester) • North West of England (or beyond)	• Long-term/ permanent (more than 10 years) • Medium-term (existing for 5 to 10 years) • Short-term (existing for 1 to 5 years) • Temporary effect (existing for less than 1 yr)	• As there are no specific standards or guidelines, the impacts have been assessed relative to baseline conditions, or a 'No Development' scenario

Significance Criteria

9.16 There are no recognised significance criteria for socioeconomic and health effects and, as such, professional judgement will be used based upon the identified needs of the local area, planning policy objectives and the magnitude of potential impacts in line with the significance criteria set out in **Chapter 2: EIA Approach**. Mitigation measures will be identified as required along with any residual effects.

9.17 The significance takes into consideration the following variables:

- The sensitivity of the receptor – i.e. their value and susceptibility to change;
- The magnitude of effect experienced by the receptor – i.e. the degree of alteration from the baseline;
- The scale at which any effect will be felt – i.e. site level, at the immediate setting of the site, at the scale of the study area;
- The duration of any effect (short-term, long-term etc);

- The socioeconomic effect of the development itself; and
- The changes that will occur over time with the development in place.

9.18 The magnitude of change is considered alongside the sensitivity of the receptor and the significance of the impact is thus identified. **Table 9.2** sets out the resulting impact matrix.

Table 9.2: Matrix for Significance of Effect

Magnitude of Impact (based on spatial, duration and scale of impact)	Sensitivity of Receptor			
	Very High	High	Medium	Low
Very High	Major	Major	Major	Moderate
High	Major	Major	Moderate	Minor
Medium	Major	Moderate	Moderate	Minor
Low	Moderate	Minor	Minor	Negligible
Negligible	Minor	Negligible	Negligible	Negligible

9.19 The major, moderate and minor ratings can be with Beneficial or Adverse. Any identified effects rated as Major are regarded as Significant to the EIA and are shaded grey in **Table 9.2**.

Assumptions / Limitations

9.20 The assessment is based on the latest available and most comprehensive socio-economic data sources provided by central and local government. A number of these carry production lags, for example the latest population projections are based on 2021 mid-year estimates.

Consultation

9.21 As the socio-economic assessment draws upon existing sources of information, largely government statistics, no consultation was deemed necessary. Statutory consultation responses relating to socio-economics did not highlight any issues beyond those already considered within scope.

Baseline Conditions

9.22 This section describes the baseline conditions at the Site and the study area.

Current Site

9.23 The Site comprises of a mix of vacant sites. In the northern portion of the site is the former BMW Williams dealership and associated car parking forecourt. Towards the centre of the site, south of Inchley Road is a vacant single storey commercial building. Adjacent to this, but outside of the site boundary, is the Grade II* listed 'Former Unitarian Chapel' which following a conversion now operates as student accommodation. A vacant single storey commercial building and car park is located in the southern section of the site. The site is assumed to have negligible current socio-economic use. The Site is identified for redevelopment within the SRF, with mixed commercial uses in-line with the SRF being a priority as well as increased site density.

Population

9.24 According to the ONS, based on latest 2021 data, Manchester has a total population of 549,900. Within this, the Ardwick ward accounts for 3.9% of the population at 21,906. A breakdown of the population by broad age category is given in **Table 9.3**. It can be seen that Ardwick has a very high proportion of working age people at 77%. A total of 34% of its population are in the 18-24 age reflecting the predominance of students. The North West has nearly four times the level of retired people as Ardwick ward.

Table 9.3: Population of Ardwick ward compared to Manchester & North West, 2021

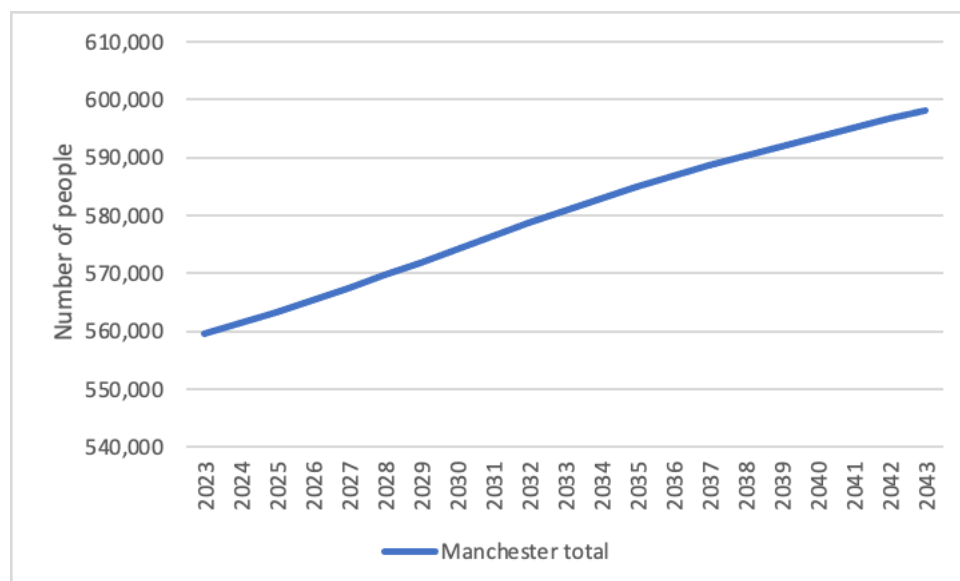
Age Range	Ardwick ward	Manchester	North West
0 to 15 years	3,958	113,500	1,389,700
16 to 64 years	16,873	383,700	4,637,700
65 and over	1,075	52,600	1,394,900
Total number	21,906	549,900	7,422,300

Age Range	Ardwick ward	Manchester	North West
0 to 15 years	18.1%	20.6%	18.7%
16 to 64 years	77.0%	69.8%	62.5%
65 and over	4.9%	9.6%	18.8%
Total %	100%	100%	100%

Source: ONS 2021 mid-year population estimates

- 9.25 Population projections, often referred to as sub-national population projections (SNPP), are produced every two or three years at local authority level, with the most recent release based on 2019 data (published March 2023). **Figure 9.1** shows the population projections for Manchester for the period 2023 to 2043. The overall population is expected to grow from 549,900 to 598,149, which represents an 8.8% increase over the period.

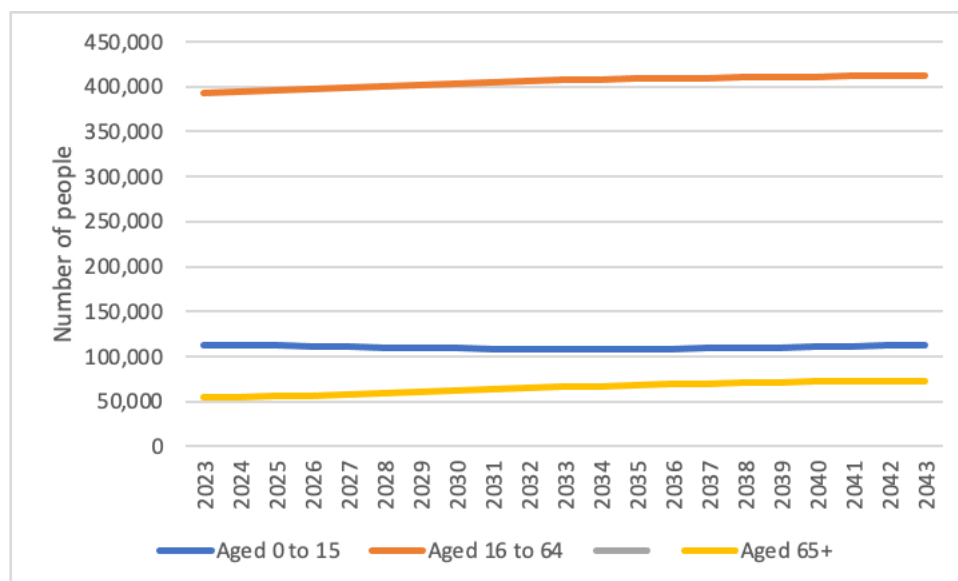
Figure 9.1: Population projections for Manchester local authority area 2023-2043 (number)



Source: ONS Crown Copyright [Population Projections from Nomis on March 2023]

- 9.26 The projections by age range are shown in Figure 9.2. The working age population is by far the largest and is expected to increase up to 2033 when it flattens off. The increase is driven by anticipated increases in student numbers. Those in retirement age are also expected to increase while the youngest age group is expected to reduce as a proportion of the population.

Figure 9.2: Population projections for Manchester local authority area by age group 2016-2026 (% change)



Source: ONS Crown Copyright [from Nomis September 2019]

- 9.27 Due to the methodology employed to calculate migration, the ONS mid-year estimates attribute a lower growth rate than would be expected. The Greater Manchester (GM) Forecasting Model was developed to strengthen and supplement the ONS mid-year estimates, by drawing upon local intelligence including expected residential development. Whilst the GM baseline forecast only goes to 2037, for Manchester, it forecasts a higher level of population growth at 16%, almost double the ONS projection to 2043². This highlights the need to plan for growth of a vibrant and dynamic city such as Manchester with a strong research and business base – see employment section.

Employment

- 9.28 ONS data show that economic activity in the Ardwick ward is 50.2%, well below Manchester at 67%, which is also below the level for the North West at 76.8%³. The low economic activity rate is due to the number of students which is 34.8% of the working age population compared to 32.8% at the Manchester level and 26.4% for the North West. Full time employment rates are 50.0%, well below the 69.1% rate across Manchester. Only 26.6% of Ardwick residents have Level 4 qualifications (degree) or above, well below the level in the rest of Manchester at 45.1% (38.6% for the North West).
- 9.29 As part of the Oxford Road Corridor, a designated Enterprise Zone (EZ) since 2016, there is a recognised need to ensure the limited amount of land available is used to its full potential by increasing density, improving quality and ensuring appropriate uses for both student accommodation and employment activities that will lever the significant knowledge-based activities of Manchester's institutions. When combined with the fact that 50% of students remain in Manchester, there is potential to:

² Greater Manchester Forecasting Model Summary of outputs – 2019 update

³ Nomis Ward Profile using 2011 Census data and Area Profile from Labour Force Survey

*'leverage the important economic advantages and agglomeration opportunities associated with the Oxford Road Corridor' and to 'maximise the opportunity to drive the City's sustainable, inclusive growth and enhanced productivity.'*⁴

- 9.30 In the period 2014-2020 an estimated 3.8m sq ft of floorspace was delivered leaving 4.2m sq ft in the pipeline representing less than 10 years land supply for the area. As a knowledge economy powerhouse, there is significant potential to grow jobs in the area through new high density employment space. The building will create a wide range of graduate and non-graduate employment opportunities ranging from lab technicians, researchers, business support and PhD / C-Level roles such as R&D, drug manufacturing, QA and marketing.
- 9.31 Wages data are only available for the whole of Manchester and the North West. By place of residence, at £574.9 per week (gross weekly earnings full time and part time)⁵ Manchester is below the North West at £603.7. However, by place of work, Manchester is above the North West at £669 versus £582⁶. This highlights that Manchester as a whole, is a relatively prosperous area with significant in-commuting for work.
- 9.32 In 2021 the total number of people working in Ardwick was 44,300⁷. This includes employees and working proprietors (sole traders, sole proprietors, partners and directors). The resident population of the ward is 21,906, and the working population is 16,867. This indicates that there is substantial net inward migration into the area for work of around 27,000. Given its city centre location and excellent public transport links, increased business space in the area would increase the opportunities for sustainable economic growth in Manchester.
- 9.33 Employment forecasts in the Greater Manchester Forecasting Model⁸ show employment in Greater Manchester is forecast to grow by 12% (183,000) jobs from 2017 to 2037. The city of Manchester is expected to provide a large share of this employment growth, especially if new development sites are brought forward, with Ardwick being a key city centre ward with growth potential.

Unemployment

- 9.34 Unemployment accounts for 6.2% of the working age population in the Ardwick ward, which is just above the rate for the rest of Manchester of 6% and well above the 4.2% level for the whole of the North West⁹.

⁴ Oxford Road Corridor Strategic Regeneration Framework Guidance September 2019

⁵ Drawn from the Annual Survey of Hours and Earnings 2018, ONS

⁶ ONS Annual Survey of Hours and Earnings (ASHE) 2022 Weekly mean pay - Gross (£) - For all employee jobs

⁷ According to the ONS Business Register and Employment Survey (BRES)

⁸ MCC (2017) *Greater Manchester Forecasting Model – Summary of outputs – 2017 update*, October 2017, Public Intelligence, Chief Executive's Department

⁹ Data from Manchester Intelligence Hub for Feb 2023 plus NOMIS Area Profile using Labour Force Survey.

Occupations

- 9.35 According to the ONS, the largest proportion of resident workers in Ardwick ward are in elementary occupations at 22.1%, followed by sales and customer services at 17% and professional at 16% (Manchester 14.8%, 11.2% and 20% respectively). Personal services are next at 10.5%, slightly above Manchester at 9.8%. The top three categories of employment account for 55.1% of the working population, slightly above the 46% for the rest of Manchester.
- 9.36 **Table 9.4** shows the structure of employment broken down by sector. BRES figures show that Ardwick employment is dominated by health (38.4%) and education (31.6%). This highlights the presence of the Manchester hospitals and University of Manchester in the ward. This 70% of jobs compares with 21.8% in Manchester and 22.5% in the North West. Only 4% of jobs in Ardwick are in retail, well below the proportion in Manchester at 7.6% and well below the North West at 9.2%. Professional, scientific & technical jobs are also low at 2.3% compared to 14% in Manchester and 8.8% in the North West. There is potential for this sector to increase with the provision of new life science space.

Table 9.4: Structure of employment by sector 2021 (%)

	Ardwick	Manchester	North West
Agriculture, forestry and fishing	0.1%	0.0%	1.1%
Mining, quarrying and utilities	0.0%	0.3%	1.0%
Manufacturing	1.1%	2.6%	8.4%
Construction	1.1%	2.6%	5.5%
Motor trades	0.6%	0.5%	1.6%
Wholesale	2.3%	2.4%	3.7%
Retail	4.0%	7.6%	9.2%
Transport and storage	3.4%	7.1%	5.4%
Accommodation and food services	3.4%	8.5%	7.8%
Information and communication	0.9%	4.5%	2.8%
Financial and insurance	1.1%	5.4%	3.4%
Property	2.0%	2.8%	2.1%
Professional, scientific and technical	2.3%	14.0%	8.8%
Business administration & support	3.4%	11.1%	8.2%
Public administration and defence	3.4%	5.7%	4.8%
Education	31.6%	9.5%	7.7%
Health	38.4%	12.3%	14.8%
Arts, entertainment, recreation & other	1.0%	3.1%	3.7%

Total	44,300	422,290	3,544,000
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Source: ONS: BRES 2021

Housing

- 9.37 MCC's Core Strategy was adopted in July 2012 with an expectation of substantial housing growth to meet a growing population. At that time, over 60,000 new dwellings were anticipated as being required in Manchester equating to an average of 3,333 per year to 2027. High density development was, and is, seen as appropriate in the city centre. For PBSA, key criteria were laid down including proximity to university campuses, access to shops, wider regeneration potential, safety and crime reduction and non-proliferation of nuisance parking; with the Oxford Road corridor being designated as a strategic area¹⁰.
- 9.38 Around the same time as the Core Strategy, MCC's Student Strategy Implementation Plan was conceived to address issues arising from its large student population, namely day to day impacts on affected neighbourhoods e.g. anti-social behaviour, improving housing for students, addressing parking issues and ensuring student lets do not encroach into family housing areas.
- 9.39 At the time of the Core Strategy publication, PBSA was seen as being in potential oversupply due to a large number of applications being in the planning pipeline at the time of the introduction of student fees. However, since that time rising student numbers (especially postgraduates), the impact of COVID on rental housing supply, growth in the general population and generally smaller household sizes have restricted availability of housing leading to a rapid rise in rents. According to MCC, there were c.24,000 PBSA beds in Manchester in 2018/19 of varying age, price and quality¹¹. Between 2010/11 - 2018/19, 6,440 new houses were built in the city centre, with 28% or 1,800 units being PBSA. This has meant that most students wishing to live locally have ended up in the mainstream letting market thus putting pressure on this sector in terms of prices and reducing MCC's Council tax revenue stream. MCC has identified that Manchester's PBSA is high cost, of variable quality, sometimes in the wrong location and of poor design in terms of welfare and wellbeing of students. In revising Policy H12, MCC is endorsing high quality PBSA in the Oxford Corridor area.
- 9.40 MCC's 2022 Strategic Housing Availability Assessment highlights a need for 19,436 homes over the next five years (including a 5% buffer) with supply of all schemes (including those about to be approved) of 25,689 leading to a surplus of 6,253. Whilst it meets Government requirements, MCC recognises that there are risks to delivery and growth requirements could be higher. HESA data suggest 26% of Manchester students live in PBSA at the current time suggesting headroom for growth.
- 9.41 Ardwick has the second highest number of households in Manchester at 8,473¹² and the highest proportion of housing benefit claimants of the city centre wards at 35.2% (2,979 households). PBSA in this location provides an opportunity to improve

¹⁰ Manchester's Local Development Framework Core Strategy Development Plan Document Adopted 11th July 2012

¹¹ Manchester City Council Report for Resolution 14 October 2020 Purpose Built Student Accommodation in Manchester.

¹² Manchester City Council Intelligence Hub

housing stock, release traditional student lets back into the mainstream market, improve student experience, support regeneration and improve MCC funding streams by release of Council tax.

Health Provision

- 9.42 There are 7 General Practitioner (GP) surgeries located within 1.2 miles walking distance of the development as shown in **Table 9.5**, this radius being selected to provide choice across the city. These surgeries have a combined number of registered patients of over 96,000. All surgeries are currently accepting new patient registrations and with 69 GPs¹³ across the 7 practices, suggests adequate capacity at 1,391 patients per GP, well below the English average of 1,700¹⁴.

Table 9.5: GP surgeries within 1.2 miles of development

Distance from development	Number of surgeries	Total number of registered patients	% of surgeries accepting new patients
Within 1 mile	3	43,062	100%
1.1 to 1.2 miles	4	52,976	100%
Total number	7	96,038	100%

Source: NHS Choices

- 9.43 There are at least 3 dental surgeries located within one mile of the development and a further 7 within 1.2 miles. **Table 9.6** shows that none are accepting new NHS patients. Availability of NHS dentists is a current concern nationwide due to skills shortages and will require investment in training and funding to resolve. The Government has recently put in place new policy measures to address this. NHS Manchester has 68 dentists per 100,000 population compared with only 49 for the North West.¹⁵

¹³ <https://digital.nhs.uk/data-and-information/publications/statistical/general-and-personal-medical-services/28-february-2023#resources> (Practice-level CSVs February 2023)

¹⁴ ONS Census Trends in patient-to-staff numbers at GP practices in England: 2022

¹⁵ NHS (2022) *NHS Dental Statistics 2021-22 Annex 2 – Geographical breakdown of dental data*

Table 9.6: Dental surgeries within 1.5 miles of development

Distance from development	Number of surgeries	Number (%) accepting new NHS patients	Number (%) not accepting new NHS patients	Number (%) not supplying information
Within 1 miles	3	0 (0%)	1 (33.3%)	2 (66.6%)
1.1 to 1.2 mile	7	0 (0%)	4 (57%)	1 (43%)
Total number	10	0 (0%)	5 (50%)	5 (50%)

Source: NHS Choices

Embedded Mitigation

- 9.44 This section describes the measures which have been ‘embedded’ into the Proposed Development

Demolition and Construction

- 9.45 There are no embedded mitigation measures of relevance in this category.

The Completed and Operational Development

- 9.46 The completed and operational development will be carefully designed to provide state of the art student accommodation and office and commercial space that is attractive to workers and employers. Necessary traffic improvement works will be undertaken.
- 9.47 The location is highly sustainable given its proximity to the city centre, with rail, tram and bus transport, cycle and walking routes and proximity to the West Coast mainline and Manchester airport.

Assessment of Likely Significant Effects

- 9.48 This section of the chapter reviews the potential impacts of the scheme and their significance, accounting for the embedded mitigation.

Demolition and Construction

- 9.49 There will be a number of economic impacts as a result of the construction phase of the development. The calculations are based on the estimated construction costs for the development of £383.6m excluding VAT.
- 9.50 It is estimated in **Table 9.7** that the scale of the development could support 4,875 person years of construction related employment, comprising 1,969 on-site construction job years and a further 2,906 indirect job years in supporting industries such as specialist suppliers and manufacturing. It is estimated that the Proposed Development could be completed over a 7.5 year period which implies that there will be 262 construction FTE jobs supported on-site during the build period and a further

387 off-site indirect FTE jobs. The GVA associated with these jobs will be £47m per year.

Table 9.7: Calculation of Construction Jobs

Title	Metric
Construction expenditure (a)	£383.6m
Number of jobs per £1m of expenditure (b)	5.1 ¹⁶
Number of direct construction job years (c) = (a)*(b)	1,968.7
Employment multiplier for construction (d)	2.476 ¹⁷
Number of indirect construction job years (e) = (c)*(d-1)	2,905.8
Total number of direct and indirect job years (f) = (c)+(e)	4,874.6

Source: Brookdale Consulting

- 9.51 This generates two effects that have thus been measured on the significance of effects scale. Firstly, short-term disruption to the local area during the construction programme, though its proximity to good road connections will support access and materials movement in the immediate area. In the short-term, this could be disruptive to local businesses. The main receptor in this case is the ability of the local businesses to accommodate change. As a result of a rating of high magnitude of impact and medium sensitivity of receptor, this has been given an overall **Moderate Adverse effect**, which is **Not Significant** in EIA terms.
- 9.52 Secondly, there will be a short-term employment gain for the construction industry which is well represented in Manchester at 11,000 workers and 194,000 in the North West as a whole. It is likely that most employment benefits will be retained within the North West, but a very small level within Ardwick which has 500 workers in the sector. The contractor will be appointed on a competitive tender basis, but local contractors will be welcome to bid to maximise the opportunity for the local gain, and the use of local materials encouraged where possible. In addition, the construction workers based in Manchester will generate further benefits as they spend in local shops and other services. The main receptor in this case is construction employment. As a result of a rating of medium magnitude of impact and high sensitivity of receptor, this indicator has been given a **Moderate Beneficial** effect rating, which is **Not Significant** in EIA terms.

¹⁶ ONS Annual Business Survey 2019

¹⁷ ONS Input-Output Tables 2016

The Completed and Operational Development

Purpose Built Student Accommodation created

- 9.53 The development will create 1,100 bedrooms for purpose-built student accommodation. This is in high demand within Manchester. Based on the University of Manchester's estimated living costs for undergraduate and postgraduate students and assuming a 50/50 split between undergrad and postgrad suggests annual spending of £14.4m per year which equates to 178 direct and indirect jobs in relevant sectors and GVA per year of £9.3m. The main receptor in this case is local population. As a result of a rating of medium magnitude of impact and low sensitivity of receptor, this indicator has been given a **Minor Beneficial** effect rating, which is **Not Significant** in EIA terms.

Life sciences floorspace created and jobs

- 9.54 The development will deliver 46,643 sqm of purpose-built life science space building on the knowledge economy of Manchester. A development of this size will create 1,107 direct and indirect jobs based on an employment density of 36 sqm per job for life sciences space (which is based on the operator's experience in developing such facilities elsewhere). Displacement of 20% for life sciences in line with national guidance¹⁸ and a multiplier of 1.569 for life sciences. This will result in total GVA per year of £42.1m.
- 9.55 The development will increase the revenues to MCC through business rates (£4.9m per year) related to the life science space and Council tax (£0.7m per year) assuming that the houses that would have been occupied by students are occupied by working people. This makes a total of £5.6m per year in additional taxes to the Council.
- 9.56 The main receptor in this case is the local economy. As a result of a rating of medium magnitude of impact and medium sensitivity of receptor, this indicator has been given a **Moderate Beneficial** effect rating, which is **Not Significant** in EIA terms.

GP and Dentist Provision

- 9.57 The development will bring 1,100 new residents to the area, many of whom will be there for term time and home out of term (postgraduates staying year-round). GP provision is more than sufficient relative to national benchmarks while there is a shortage of dentists nationally. Some students may choose to remain registered at their home address for either doctors or dentists. For GP provision, as a result of a rating of low magnitude of impact and low sensitivity of receptor, this indicator has been given a **Negligible** Adverse effect rating, which is **Not Significant** in EIA terms. For dentist provision, as a result of a rating of medium magnitude of impact and high sensitivity of receptor, this indicator has been given a **Moderate Adverse** effect rating, which is **Not Significant** in EIA terms.

¹⁸ Additionality Guide Fourth Edition HCA

Additional Mitigation / Enhancement Measures

- 9.58 This section describes the measures which are required to mitigate any significant environmental effects with regards to socioeconomics.

Demolition and Construction

- 9.59 The Construction impact assessment presented identifies the potential for short term disruption to the local area during the construction programme including the logistical implications of access and materials movement in the area. While short-term, this could be moderately disruptive to the local businesses.
- 9.60 To mitigate the potential disruption, it is suggested that the design and timings for the construction programme should take this into account to minimise these effects, avoiding rush hour where possible for logistics. Best practice measures will be included within a Construction Management Plan (CMP) and secured by condition.
- 9.61 The introduction of a Local Employment Scheme could help to retain some of the employment benefits in the local area. The development will provide training for new entrants during construction.

The Completed and Operational Development

- 9.62 The impacts of the development during the operational phase are assessed as either **Minor** or **Moderate Beneficial**. Therefore, no additional mitigation of negative impacts is required. However, the developer is committed to increasing the beneficial impacts through promoting local employment through multiple routes including the Greater Manchester Local Enterprise Partnership, local groups and partnerships with Manchester focused job fairs and events.

GP and Dentist Provision

- 9.63 The impacts on GP provision are assessed as **negligible** while impacts on dental provision are assessed as **Minor Adverse**. However this reflects a national shortage of NHS dental provision post-COVID which is being addressed nationally. Encouraging students to remain registered with their home dentists or to pay for private provision might be considered.

Likely Residual Effects of the Development and their Significance

- 9.64 With implementation of best practice demolition and construction management practices, it is assumed that the effect would reduce from **Moderate Adverse** in the short-term to a short-term **Negligible** residual effect in the inner study area, which is Not Significant. **Table 9.8** summarises this assessment.
- 9.65 As the effects of the completed development are assessed as **Minor or Moderate Beneficial** no additional mitigation measures are required so the residual impacts remain the same and are rated as Not Significant.

Table 9.8: Residual Effects Summary

Description of Effect	Embedded Mitigation	Potential Effect (inc. Significance)	Further Mitigation	Residual Effect (inc. Significance)
Demolition and Construction				
Disruption to local area due to movement of materials etc.	N/A	Moderate Adverse short-term effect on immediate area, which is Not Significant	Best practice mitigation measures implemented by way of CEMP	Negligible short-term effect on immediate area, which is Not Significant
Employment gain for construction industry	N/A	Moderate Beneficial short-term effect on the wider area, which is Not Significant	Nothing additional to embedded mitigation	Moderate Beneficial short-term effect on the wider area, which is Not Significant
Operation				
Local population	N/A	Minor Beneficial effect rating on immediate area, which is Not Significant	Nothing additional to embedded mitigation	Minor Beneficial effect rating on immediate area, which is Not Significant.
Local employment	N/A	Moderate Beneficial long-term effect on immediate area, which is Not Significant	Nothing additional to embedded mitigation	Moderate Beneficial long-term effect on immediate area, which is Not Significant

Conclusions

- 9.66 The Site comprises a former car dealership and two single storey commercial units, all no longer in active use. The Site is identified for redevelopment within the Oxford Road Corridor Strategic Regeneration Framework Guidance document (SRF). There is strong demand for high quality commercial, retail and student accommodation and a need to ensure that land is allocated to the best uses.
- 9.67 Construction of the development will support 4,875 person years of construction related employment, with GVA of £47m per year for 7.5 years. This is assessed as a **Moderate Beneficial** short-term effect on the wider area, which is **Not Significant**.
- 9.68 The development will create 1,100 bedrooms for purpose built student accommodation creating 178 direct and indirect jobs in relevant sectors and GVA per year of £9.3m.
- 9.69 In addition, the development will create deliver 46,643 sqm of purpose-built life science space and creating 1,107 direct and indirect jobs and GVA per year of £42m.
- 9.70 The Proposed Development will contribute to Manchester's economic prosperity building on its knowledge economy strengths to the benefit of Greater Manchester and the North West. It will increase the revenues to Manchester City Council through business rates and Council tax in the order of £5.6m per year.
- 9.71 Given this context, the Proposed Development is regarded as having a positive and lasting effect in the area. This is assessed as a **Moderate Beneficial** overall rating which is **Not Significant** in EIA terms.

Assessment of Cumulative Effects

- 9.72 **Table 9.9** sets out the Cumulative Schemes noting which are scoped-in or scoped-out of Socio-economics and Health's Cumulative Effects Assessment (CEA).

Table 9.9 Cumulative Sites

Site Ref.	Application No.	Proposal	Scoped-in / Scoped-out	Justification
1.	101664/FO/2013/N2	Brunswick Neighbourhood Selective demolition and clearance (including a number of residential, retail and other non-residential buildings) to allow the phased redevelopment and refurbishment of the Brunswick Neighbourhood, including the erection of 444 new residential dwellings (C3); the refurbishment of 839 existing homes [including low rise reversals and the refurbishment of Artillery Court, Silkin Court, Lockton Court, Lamport Court, and existing maisonettes and low rise houses]; a new boulevard and new access roads, new car parking and service areas; a new mixed use building comprising of 4 retail units (A1 or launderette or A5), and a neighbourhood housing office (B1a) with 18 apartments (C3) above; a mixed use residential extra care home with 60 residential units, and a day care centre on part of the ground floor (C2/D1); the upgrading of Gartside Gardens [with new multi use games area, a new playground, realigned pathways, new entrances and new landscaping]; a new orchard; 25 new allotments; new boundary treatments;	In	Whilst some of this development is refurbishment, there will be an increase in new dwellings and overall demand from the development which will impact on local receptors such as construction industry and social infrastructure.

		new open spaces; with associated infrastructure, landscaping and tree planting		
2.		McLaren Kadans Erection of a purpose built student residence of 740 beds to provide much needed student accommodation plus erection of purpose built life sciences building (Use Class E(g)) of 22,367 sqm, 72 sqm of retail together with landscaping and other associated works	In	The development will increase the supply of student accommodation and R&D space which will impact on local receptors.
3.	124472/FO/2019	Kincardine Court Extension Erection of a part 4, part 5, part 6 storey extension to existing student accommodation building to form 25 additional student flats (comprising 100 bedrooms) (Use Class Sui Generis) to form 86 student flats in total (329 bedrooms) following removal, modification and reconfiguration of existing car parking, landscaping and boundary treatment together with the erection of a single storey water tank	In	The development will increase the supply of student accommodation which will impact on local receptors.
4.	134288/FO/2022	Number 3 Circle Square Erection of 15 storey building comprising office space (Use Class E(g)(i)) and ancillary flexible commercial uses (Use Class E), rooftop terrace, highway works, landscaping, and other associated works	In	The development is aimed towards the office market but will have an impact on the local receptors such as the construction industry and the wider economy.

5.	125799/FO/20 19	MMU Science and Engineering Building Demolition of existing John Dalton West Building and associated structures, and erection of a new 7 storey education building (Use Class D1) for the Faculty of Science and Engineering (comprising teaching and research spaces, academic offices, social learning areas, catering/kitchen facilities and an energy centre), physical connections to and external refurbishment of the John Dalton Tower, hard and soft landscaping works, car and cycle parking and associated works.	In	As a redevelopment, the project will not increase demand on local facilities but will impact the construction industry in the short term.
6.	125573/FO/20 19	First Street South Construction of four buildings of heights varying from 10 storeys to 45 storeys together comprising Co-living bedspaces (use class sui generis) and associated amenity facilities, with ground floor commercial units (Use classes A3 (Café / Restaurant and D2 (Gym)), private amenity space and public realm comprising hard and soft landscaping, car parking and cycle facilities and other associated works.	In	The development will increase demand on local facilities so is scoped in.

Approach

- 9.73 The first stage of the cumulative sites assessment is to establish which sites are to be included in the assessment. Of the six sites identified, all are scoped in but for different reasons. All sites will have an impact on the construction sector. One site increases accommodation provision for students by 740 and another by 100. Two increase provision for housing (one co-living and one mixed housing). One increases life-science space next to the University of Manchester, one office space in the city centre and the final site is a redevelopment of a university building.
- 9.74 These sites are assessed to establish the potential cumulative effects from the combination of all of the relevant developments to assess the potential wider impact.
- 9.75 There are no further synergistic effects included in the assessment.

Likely Residual Cumulative Effects and their Significance

Construction

- 9.76 Given the scale of these developments relative to the local construction industry, it is likely that construction jobs will leak outside the immediate area and external contractors will be required from outside the area. The indirect benefits of the construction, such as the workers' spend in the area, will still remain and are increased by the total volume of new construction activity across the programme of approved developments.
- 9.77 Given that other developments are likely to complete while new ones emerge, the overall scale of construction activity is likely to remain at a similar level. This indicator would remain as **Moderate Beneficial** impact rating for the wider area, which would remain as **Not Significant** in EIA terms.
- 9.78 The Construction effects assessment highlighted the potential for short term disruption to the local area during the construction programme given the need for access and materials movement. While short-term, this could be moderately disruptive to the area.
- 9.79 With implementation of best practice construction practices, it is assumed that the residual impact of the proposed development would move from **Moderate Adverse** in the short-term to a short-term **Negligible** residual impact in the inner study area, which is **Not Significant**. This is not expected to change for the cumulative impact assessment, assuming all developments implement the same mitigating factors.

The Completed and Operational Development

- 9.80 The cumulative effect assessment of the completed developments is based on an overall assessment of the impact on the local population, economy and social and community infrastructure. The development will provide both student homes and employment space, both of which are needed. The Oxford Corridor aims to increase the impact of Manchester's knowledge resources, encouraging high quality student accommodation and life science workspace. The inclusion of the McLaren scheme together with the Kadans development represent a combined life science space of 65,500 sqm, though this is only around 17% of the pipeline of office space according to the SRF with a need for more in the long term. The combined student accommodation will support 1840 beds in the face of strong demand for more accommodation. The sustainable transport links will support business space growth drawing in employees from across Greater Manchester. Whilst there is capacity within GPs for the population expansion forecast, there are issues with availability of dentists, in common with other parts of the UK. The cumulative effect of these developments will be to increase supply of housing, life science space, retail, and office space which will increase local economic activity and contribute towards established growth objectives.
- 9.81 Therefore, the impact significance is assumed to remain **Moderate Beneficial** to the immediate study area and **Moderate Beneficial** for the wider area, which is **Not Significant** in EIA terms.

Mitigation Measures

- 9.82 The cumulative developments and this proposed development, are complementary to Manchester's growth strategy, meeting the established demand forecast for growth in the Oxford Corridor. However, the requirement for additional dentists is being addressed at the UK Government level to increase access to NHS dentists.

References

<https://www.manchester.ac.uk/study/experience/student-life/living-costs/>¹

Greater Manchester Forecasting Model Summary of outputs – 2019 update

Nomis Ward Profile using 2011 Census data and Area Profile from Labour Force Survey

Oxford Road Corridor Strategic Regeneration Framework Guidance September 2019

Drawn from the Annual Survey of Hours and Earnings 2018, ONS

ONS Annual Survey of Hours and Earnings (ASHE) 2022 Weekly mean pay - Gross (£)
- For all employee jobs

According to the ONS Business Register and Employment Survey (BRES)

MCC (2017) *Greater Manchester Forecasting Model – Summary of outputs – 2017 update*, October 2017, Public Intelligence, Chief Executive's Department

Manchester's Local Development Framework Core Strategy Development Plan Document Adopted 11th July 2012

.Manchester City Council Report for Resolution 14 October 2020 Purpose Built Student Accommodation in Manchester.

Manchester City Council Intelligence Hub

NHS (2022) *NHS Dental Statistics 2021-22 Annex 2 – Geographical breakdown of dental data*

ONS Annual Business Survey 2019

ONS Input-Output Tables 2016

Additionality Guide Fourth Edition HCA

10. Daylight, Sunlight & Overshadowing

Introduction

- 10.1 This chapter assesses the impacts of the Proposed Development on the daylight and sunlight amenity of the neighbouring receptors, including the effects on sunlight amenity to external amenity areas.
- 10.2 The chapter describes the methods used to assess the likely significant effects, the baseline conditions currently existing at the site and surroundings, the potential direct and indirect effects of the development arising from construction of the proposed Development, the mitigation measures required to prevent, reduce, or offset the identified significant effects and the residual effects. It has been written by Proximity, a Manchester-based firm of chartered surveyors that specialises in advising clients about 'Proximity Risk' (including Daylight and Sunlight amenity impact assessment).
- 10.3 This Chapter is supported by the following figures and appendices
- **Appendix 10.1** – BRE Guidance & Assessment Methodology
 - **Appendix 10.2** – Baseline & Proposed Massing Images
 - **Appendix 10.3** – Tabulated VSC Results (Baseline vs Proposed)
 - **Appendix 10.4** – Tabulated NSL Results & NSL Contour Plots (Baseline vs Proposed)
 - **Appendix 10.5** – Tabulated APSH Results (Baseline vs Proposed)
 - **Appendix 10.6** – Time in Sun Plots (Baseline vs Proposed)
 - **Appendix 10.7** – Baseline & Proposed + Cumulative Massing Images
 - **Appendix 10.8** – Tabulated VSC Results (Baseline vs Proposed + Cumulative)
 - **Appendix 10.9** – Tabulated NSL Results & NSL Contour Plots (Baseline vs Proposed + Cumulative)
 - **Appendix 10.10** – Tabulated APSH Results (Baseline vs Proposed + Cumulative)
 - **Appendix 10.11** – Time in Sun Plots (Baseline vs Proposed + Cumulative)

Assessment Methodology and Significance Criteria

- 10.4 The assessment has been undertaken in accordance with the provisions of the BRE Guidance document *Site Layout Planning for Daylight and Sunlight – A Guide to Good Practise*.

- 10.5 Assessment of daylight and sunlight amenity impacts is also made with reference to national and local planning policy.
- 10.6 The impacts on daylight and sunlight amenity of receptors neighbouring new development are assessed in accordance with the BRE Guidance.
- 10.7 The BRE Guidance notes that loss of daylight to existing windows need not be analysed should the Proposed Development fulfil a certain criterion regarding its height and distance from the neighbouring receptor and has developed a simple “block spacing” test to establish this.
- 10.8 A line is drawn from the centre of the lowest window of the neighbouring receptor towards the Proposed Development at an angle of 25°. Should the massing of the Proposed Development fall below this line then it is unlikely to have a substantial effect on the daylight enjoyed by the existing neighbouring building.
- 10.9 The BRE Guidance notes that should any part of the Proposed Development project beyond this 25° line, a more detailed methodology comprising a ‘technical analysis’ exercise has been undertaken to identify the loss of skylight. Further detail on what a technical analysis and how it has been undertaken is set out below.
- 10.10 Where appropriate, a technical analysis exercise has been undertaken, and the daylight and sunlight conditions, as existing and proposed, have been assessed with reference to the following:
- Vertical Sky Component (“VSC”)
 - The No Sky Line (“NSL”)
 - Annual Probable Sunlight Hours (“APSH”) and Winter Probable Sunlight Hours (“WPSH”)
 - External Amenity Space Time in Sun
- 10.11 In summary, the targets, established in accordance with the BRE Guidance are as follows:

Table 10.1 – Daylight & Sunlight Targets & Alternative Target Values

	BRE Target	Acceptable Tolerance Alternative Target
VSC	27%	21.6%
NSL	At least 0.8x baseline	n/a
APSH	25%	20%
WPSH	5%	4%

- 10.12 Further detail on how these metrics are measured can be found in Appendix 10.1.
- 10.13 The Acceptable Tolerance Alternative Target has been established using BRE principles.

- 10.14 In summary, the BRE Guidance notes that retained daylight and sunlight values that are of at least 0.8x baseline value are unlikely to be noticeably different to occupants.
- 10.15 On that basis, Acceptable Tolerance Alternative Targets, appropriate to the City Centre, Corridor and City Centre Fringe areas of Manchester, are established by applying 0.8x to the BRE's targets for VSC, APSH and WPSH and shown in the table above.
- 10.16 More detail on the rationale and establishment of these are measured can be found in Appendix 10.1.

Study Area & Sensitive Receptors

- 10.17 In identifying the Study Area, the BRE Guidance has been used.
- 10.18 The Guidance emphasises the assessment of residential accommodation, specifically habitable rooms within residential buildings. A non-residential building may be assessed if there is a reasonable expectation of daylight and sunlight, such as hospitals or schools. Commercial office buildings are not typically considered to be daylight and sunlight receptors requiring impact assessment.
- 10.19 The appropriate study area has been defined following a Site inspection and research to identify neighbouring buildings of residential use, with the application of professional judgement to consider which neighbouring buildings within 250m of the Site rely on the Site for the receipt of daylight and sunlight, warranting further technical appraisal.
- 10.20 Based on their spatial relationship with the Site and outlook towards the Proposed Development, the habitable rooms of the following neighbouring buildings are identified as daylight and sunlight receptors worthy of appraisal:
- Lamport Court, Groom Street
 - Nos. 1-7 Litcham Close (odd nos. only)
 - 38-46 Hanworth Close (even nos. only)
 - 2-8 Wadesmill Walk (even nos. only)
 - 2-8 Stockland Close (even nos. only)
 - 1-23 Mawson Road (odd nos. only)
 - Hello Students / The Chapel Student Accommodation, Upper Brook Street
 - Kincardine Court, Kincardine Road
 - Elizabeth Yarwood Court, 101 Kincardine Road.

- 10.21 Rooms known to be of non-habitable use are excluded from the assessment.
- 10.22 Residential buildings outside of 250m from the Site, and those within 250m but not included within the scope of study, will not experience a material impact on daylight or sunlight amenity, based on distance from the Site and / or orientation.

Survey and Data Sources

- 10.23 To facilitate the running of the technical analysis, computerised 3D massing simulations of the Site and its immediate surroundings have been constructed, in its Baseline, Proposed and Cumulative massing configurations. In building the 3D

massing models, the following information, provided to us by others, has been relied upon:

- Photogrammetric model to the Site and surrounding area provided by Accucities
- 3D autocad model of the PBSA buildings by Simpson Haugh Architects
- 3D autocad model of the Life Sciences buildings, produced by Hawkins Brown Architects

10.24 For the purposes of the Cumulative assessments, Proximity's understanding of the massing of the various Planning approved neighbouring developments will be based on PDF drawings that are available to download from Manchester City Council's Planning public access portal.

Construction Phase

10.25 The impact that the physical construction of the Proposed Development will have on daylight and sunlight amenity of the surrounding built environment has not been considered in detail because it will be a constantly changing state with the impact gradually increasing until it reaches practical completion of the buildings.

10.26 The effects of the construction phase are temporary because they are a function of the proposed massing, which will vary during the construction phase operations.

10.27 The Proposed Development will have its greatest and long term daylight and sunlight impact upon completion of the construction phase once its massing has been fully established.

Operational Phase

10.28 The Proposed Development will have its greatest and long term daylight and sunlight impact during the operational phase once construction of the massing is completed.

Characterisation of Effect

10.29 The massing to be constructed on the Site will be the source of daylight and sunlight impacts / effects of the Proposed Development.

10.30 The construction of this massing may result in reduced sky visibility from within habitable rooms of neighbouring buildings, and the windows that serve them. This in turn will have an effect on the daylight and sunlight amenity enjoyed in the Proposed condition.

10.31 Impacts of daylight and sunlight amenity are therefore likely to be permanent and localised to individual receptors.

Significance Criteria

10.32 The significance of an environmental impact is a factor of the receptor sensitivity and the magnitude of change.

10.33 It is therefore necessary to first establish the sensitivity of a receptor, and a methodology for determining the magnitude of change.

Sensitivity of Receptors

- 10.34 Having identified the relevant receptors, it is necessary to consider their sensitivity to reductions in daylight and sunlight. The general methodology that Proximity has adopted for determining sensitivity to a measured magnitude of change is tabulated below.

Table 10.2 - Receptor Sensitivity - Characteristics

Sensitivity	Examples of receptor
High	The receptor has little ability to absorb change without fundamentally altering its present character or is of international or national importance.
Moderate	The receptor/resource has moderate capacity to absorb change without significantly altering its present character or is of high importance.
Low	The receptor/resource is tolerant of change without detriment to its character, is of low or local importance.

- 10.35 The BRE Guidance emphasises the availability of daylight and sunlight to living rooms and daylight to bedrooms and family kitchens.
- 10.36 The BRE does not impose a hierarchy of habitable rooms, i.e., confirm whether one habitable room should receive more light than another, but in real terms, such a hierarchy does exist and that hierarchy should be borne in mind when considering and evaluating the impact that the Proposed Development might have on the availability of light in a City Centre environment.
- 10.37 The above general methodology has been developed further below to establish the following window sensitivity matrix, informed in part by the BRE Guidance, and, based on the function or use of the rooms behind each of the windows that have been assessed:

Table 10.3 – Receptor Sensitivity by Room Use

Room Use	Daylight Sensitivity	Sunlight Sensitivity
Living Room / Combined Living, Kitchen & Dining ("LKD")	High	High
Kitchen / Dining	Medium	Low
Bedrooms	Medium / Low	Low
Student Accommodation	Low	Low
Communal Kitchens	Low	Low
Circulation Space	n/a	n/a
Toilets / Bathrooms	n/a	n/a
Commercial Uses	n/a	n/a

Determining the Magnitude of Change

- 10.38 It is possible to reduce the amount of daylight and / or sunlight that a window currently receives without that reduction amounting to a material / significant or adverse impact on the existing amenity enjoyed. The following has been used as a methodology for determining the magnitude of change in evaluating the results of the technical study.

Table 10.4 – Magnitude of Change Definitions

Magnitude of Change	Criteria for assessing impact
Major ($<0.6x$ baseline)	Total loss or major/substantial alteration to key elements/features of the baseline conditions such that the post development character/composition/attributes will be fundamentally changed. From a measurement perspective this will include any reduction in amenity of in excess of 40% of the existing or baseline values.
Moderate ($0.6x < 0.7x$ baseline)	Loss or alteration to one or more key elements/features of the baseline conditions such that post development character/composition/attributes of the baseline will be materially changed. From a measurement perspective this will include any reduction in amenity of between 30-40% of the existing or baseline values.
Minor ($0.7x < 0.8x$ baseline)	A minor shift away from baseline conditions. Change arising from the loss/alteration will be discernible/detectable but not material. The underlying character/composition/attributes of the baseline condition will be similar to the pre-development circumstances/situation. From a measurement perspective this will include any reduction in amenity of between 20-30% of the existing or baseline values.
Negligible ($>0.8x$ Baseline)	Very little change from baseline conditions. Change barely distinguishable, approximating to a 'no change' situation. From a measurement perspective this will include any reduction in amenity of up to 20% less than the existing or baseline values. i.e., retained values in the Proposed condition will be at least 0.8x baseline values

Significance of Impacts

- 10.39 The significance of an impact can be assessed with reference to the table below and to the BRE Guidance:

Table 10.5 – Impact Significance matrix

		Sensitivity		
		High	Moderate	Low
Magnitude of Change	Major	Major Adverse	Major Adverse	Moderate Adverse
	Moderate	Major Adverse	Moderate Adverse	Minor Adverse
	Minor	Moderate Adverse	Minor Adverse	Negligible
	Negligible	Negligible / Minor	Negligible	Negligible

- 10.40 Those impacts identified as Moderate or Major Adverse, highlighted above, are considered to be Significant.

- 10.41 Impacts that are Minor Adverse or Negligible are Not Significant.

Application of the BRE Guidance in Environmental Impact Assessment

- 10.42 Appendix H of the BRE Guidance outlines how the guidelines within can be applied in the context of Environmental Impact Assessment.
- 10.43 It notes a number of factors that tend towards a minor adverse impact, including only a small number of windows are affected; loss of light is marginally outside of the guidelines; a receptor has a low level requirement for daylight or sunlight; other reasons, such as a window standing unusually close to a boundary.
- 10.44 The BRE Guidance also notes factors tending towards a major adverse impact. Such factors include a large number of windows being affected; loss of light is substantially outside of the guidelines; all the windows in a particular property are affected.
- 10.45 Notwithstanding the above generalisation of an impact, a reduction in daylight and sunlight amenity will at all times be subject to the BRE general compliance criteria, as follows:
- If the BRE targets are met in the Proposed condition, then any reduction in daylight and sunlight will not be considered significant.
 - Where the BRE targets are not achieved in the Baseline condition, a retention of 0.8x baseline values in the Proposed Condition will not be considered significant. In accordance with the BRE Guidance, such a reduction is unlikely to be noticed by the room occupants.
 - A 20% reduction of the measured baseline NSL value (i.e., retention of 0.8x baseline value) will not have a material impact, on the grounds that such a reduction would not be noticed by the room occupants.

- As confirmed earlier in this Chapter, it is the professional opinion of Proximity that a VSC of 21.6% is within an acceptable tolerance of the BRE targets, given the City Centre / Corridor context of the Site.
- As confirmed earlier in this Chapter, it is the professional opinion of Proximity that a 4% winter and 20% annual APSH result is within an acceptable tolerance of the BRE targets, given the City Centre / Corridor context of the Site.

10.46 Where a window or room achieves the BRE target or the Acceptable Tolerance alternative target, the impact is considered to be Not Significant.

Assumptions / Limitations

- 10.47 In undertaking this appraisal Proximity has not been inside any of the neighbouring buildings. It has therefore been necessary to make some assumptions as to the size, arrangement, and use of the rooms behind the neighbouring windows.
- 10.48 Assumptions have been informed by letting particulars available from the internet, leaseplans available from Land Registry, and from Planning Applications available digitally via Manchester City Council's public planning access system, as follows:
- The Chapel Student Accommodation – MCC Ref 108102/JO/2015/N2
 - Mawson Road Houses - MCC Ref 107400/NMC/2014/N2
 - Kincardine Court Student Accommodation – MCC Ref 124472/FO/2019.
- 10.49 On the basis that the neighbouring buildings have not been inspected internally, we have also had to make assumptions as to their use and function.
- 10.50 In undertaking this appraisal Proximity has not been inside any of the neighbouring buildings. Where no room arrangement information has been identified we have assumed that each window serves its own 5m deep room or, where justified, the room is half of the neighbouring building's depth.
- 10.51 Further, the height between the internal floor level and the window cill in each room of the neighbouring buildings will influence the position of the working plane, which is the level at which the internal distribution of light is measured. We have had to assume the position of the working plane.

Baseline Conditions

- 10.52 In the baseline condition, the Site comprises surface carparking at its northern end. The central and southern portions of the Site are currently occupied by commercial buildings of between one and two storeys in height, with small areas of associated surface carparking.
- 10.53 The daylight amenity of the neighbouring receptors subject to technical analysis is tabulated below:

Table 10.6 – Baseline Daylight Amenity

Receptor	% windows achieves BRE VSC target (27%) or Alternative target (21.6%)	% windows below BRE VSC target (27%)
Nos. 1-7 Litcham Close	12 windows (75%)	4 windows (25%)
38-46 Hanworth Close	38 windows (100%)	-
2-8 Wadesmill Walk	28 windows (100%)	-
2-8 Stockland Close	18 windows (100%)	
1/9 Justin Close	17 windows (81%)	4 windows (19%)
1-23 Mawson Road	134 windows (93%)	10 windows (7%)
The Chapel Student Accommodation	126 windows (75%)	42 windows (25%)
Kincardine Court	144 windows (98%)	3 windows (2%)
Elizabeth Yarwood Court	57 windows (97%)	2 windows (3%)

10.54 The sunlight amenity of the neighbouring receptors subject to technical analysis is tabulated below:

Table 10.7 -Baseline Sunlight Amenity

Receptor	% rooms achieve Annual AND Winter Sunlight target	% rooms achieve EITHER Annual OR Winter Sunlight target	% rooms achieve NEITHER Annual NOR Winter Sunlight target
Nos. 1-7 Litcham Close	12 rooms (100%)	-	-
38-46 Hanworth Close	20 rooms (100%)	-	-
2-8 Wadesmill Walk	24 rooms (100%)	-	-
2-8 Stockland Close	16 rooms (100%)	-	-
1/9 Mawson Road	15 rooms (100%)	-	-
1-23 Mawson Road	108 rooms (100%)	-	-
The Chapel Student Accommodation	40 rooms (100%)	-	-
Kincardine Court	83 rooms (100%)	-	-
Elizabeth Yarwood Court	n/a – Site facing windows are north facing		

Embedded Mitigation

10.55 No mitigation measures are embedded into the Proposed Development which are relevant to the daylight and sunlight assessment.

Assessment of Likely Significant Effects

Construction

- 10.56 The impact that the physical construction of the Proposed Development will have on daylight and sunlight amenity of the surrounding built environment has not been considered in detail because it will be a constantly changing state with the impact gradually increasing until it reaches practical completion of the buildings.
- 10.57 The effects of the construction phase are temporary because they are a function of the proposed massing, which will vary during the construction phase operations.
- 10.58 The Proposed Development will have its greatest and long term daylight and sunlight impact upon completion of the construction phase once its massing has been fully established.

The Completed and Operational Development

- 10.59 The assessment of likely significant effects has been made through a technical analysis.
- 10.60 The results of the VSC daylight tests are tabulated in Appendix 10.3.
- 10.61 We have measured the daylight impact of the Proposed Development against the acceptable tolerance alternative target VSC target of 21.6%. This is considered reasonable given the urban location of the Proposed Development and surrounding receptors.
- 10.62 The tabulated results and contour plots of the NSL tests are presented at Appendix 10.4. To explain the NSL contour plots, the area of the room within the amber contour receives access to direct sky light. The hatched area of the room identifies each neighbouring room that will lose direct access to sky visibility, because of the Proposed Development.
- 10.63 The results of the APSH daylight tests are tabulated in Appendix 10.5.
- 10.64 As above, the BRE confirm that only windows facing within 90° of due south can have any real expectation of receiving sunlight and need to be technically appraised. This is because the sun rises in the east, sets in the west, passing through south.
- 10.65 Because some of the rooms are served by multiple windows or are dual aspect, we have summarised the results of our sunlight study on a room-by-room basis. Where Site facing windows / rooms of neighbouring buildings are north facing, they have not been sunlight amenity impact evaluated.
- 10.66 We have measured the sunlight impact of the Proposed Development against the generic Acceptable Tolerance Alternative Targets of 4% for winter APSH target and 20% annual APSH, these being appropriate to the City Centre location of the Site.
- 10.67 The tabulated VSC and NSL results contained within the Appendices of this Report appended have been colour annotated for ease of review, as follows:
- Green indicates the result achieves the unmodified BRE target;

- Yellow indicates the result achieves the Acceptable Tolerance Alternative Target;
- Pink indicates that the result is more than the Acceptable Tolerance reduction.

10.68 Results in the 'Pr/Ex' column show the proposed value as a proportion of the baseline value.

10.69 These results are colour annotated according to the magnitude of change from baseline values, as follows:

Table 10.8 – Magnitude of Change – Technical Analysis Colour coding

Magnitude of change	Retained value as proportion of Baseline Val.	Technical Analysis Colour Coding
Negligible	At least 0.8x baseline	Green
Minor	Between 0.7x – 0.8x	Yellow
Moderate	Between 0.6x – 0.7x	Amber
Major	Less than 0.6x baseline	Pink

10.70 Proposed results in the "Pr/Ex" column that are greater than 0.8x Baseline Values are coloured green. These results are considered acceptable to the BRE on the basis that any reduction in VSC, NSL or APSH would not be noticed by the room occupants, equating to Negligible Magnitude of change. Such negligible impacts are Not Significant.

10.71 Therefore, a result coloured pink in the VSC or APSH columns are considered BRE compliant if the Pr/Ex result is coloured green (i.e., the result in the Proposed Condition is not less than 0.8x baseline values). On the basis that the reduction is not likely to be noticed, the impact is Not Significant.

Daylight

10.72 Impacts on daylight amenity of the following neighbouring receptors are considered to be Not Significant:

- Lamport Court
- Nos. 1-7 Litcham Close
- 1-23 Mawson Road
- Elizabeth Yarwood Court
- Nos. 2, 4, and 8 Wadesmill Walk
- Nos. 2, 4, and 8 Stockland Close
- Nos. 38 and 40 Hanworth Close

10.73 These neighbouring buildings will not experience a significant impact on daylight amenity, for one or more of the following reasons:

- The Proposed Development will not extend beyond a line drawn at 25 degrees from the lowest window. Impacts are therefore Not Significant;
- Retained daylight and sunlight values measured as part of the technical analysis will achieve the BRE's daylight and sunlight targets, or come within an acceptable tolerance of them (given the City Centre / Corridor context); or
- Receptors will retain daylight values that are at least 0.8x baseline values. Reductions are therefore unlikely to be noticed by room occupants.

10.74 Impacts on daylight amenity that merit a more in-depth review and consideration have been identified to the following neighbouring buildings:

- Nos. 42, 44 and 46 Hanworth Close
- 6 Wadesmill Walk
- 6 Stockland Close
- The Chapel Student Accommodation
- Justin Close
- Kincardine Court

10.75 Impacts on daylight amenity of these neighbouring buildings are explained in greater detail below.

42 Hanworth Close

10.76 8 windows have been appraised, serving 4 (possibly 3) habitable rooms.

10.77 In the Proposed Condition, the windows of the unknown ground floor room (potentially an entrance hall) and both first floor rooms – believed to be bedrooms – would achieve the Acceptable Tolerance VSC Target. Each of these rooms would also pass the NSL test, experiencing negligible reductions in daylight distribution.

10.78 Impacts on the daylight amenity of these rooms is therefore Not Significant.

10.79 One window, serving a ground floor assumed living room would experience a moderate magnitude of change.

10.80 This window would achieve a VSC of 20.85%. this is negligibly different from the Alternative Target of 21.6%. Further, this room would experience negligible reduction in daylight distribution (NSL).

10.81 Despite a potentially moderate adverse impact on the window, the daylight amenity of this room as a whole, and this receptor overall, is considered to be negligible–minor adverse, and therefore **Not Significant**.

44 Hanworth Close

10.82 8 windows have been appraised, serving 4 (possibly 3) habitable rooms.

10.83 In the Proposed Condition, 6 of windows serving 2 rooms achieve the VSC Alternative Target.

10.84 Both of these rooms also pass the NSL test. Impacts on these rooms are therefore Not Significant.

- 10.85 Windows serving the ground floor living room and 1st floor bedroom would experience a moderate magnitude of change.
- 10.86 Both of these rooms would pass the BRE's NSL test, experiencing negligible reduction in daylight distribution.
- 10.87 Notwithstanding a minor adverse impact on the window, the negligible reduction in NSL to this bedroom, combined with its low daylight sensitivity, means that the impact on this bedroom is negligible to minor adverse, and therefore **Not Significant**.
- 10.88 Regarding the Living Room, the window would achieve a VSC of 19.56%. Notwithstanding a moderate magnitude of change, this is very close to the Alternative Target of 21.6% VSC. Further, this room would experience negligible reduction in daylight distribution (NSL).
- 10.89 Whilst a moderate magnitude of change to a window serving a living room suggests a Major adverse impact, in assessing significance it is appropriate to consider the following:
- This window achieves a VSC of circa 2% less than the 21.6% target. This small, measured difference between 19.56% and 21.6% should not equate to the difference between a non-significant impact and a Major Adverse impact.
 - The room passes the BRE's NSL test, experiencing negligible reduction in daylight distribution.
- 10.90 For the above reasons it is appropriate to consider that the impact on the daylight amenity of this room as a whole is considered to be minor adverse, and therefore **Not Significant**.
- 10.91 The impact on this neighbouring receptor as a whole is therefore also **Not Significant**.

46 Hanworth Close

- 10.92 8 windows have been appraised, serving 4 (possibly 3) habitable rooms.
- 10.93 In the Proposed Condition, 6 windows serving 2 rooms achieve the VSC Alternative Target.
- 10.94 Both of these rooms also pass the NSL test. Impacts on these rooms are therefore Not Significant.
- 10.95 Windows serving the ground floor living room and 1st floor bedroom would experience a moderate magnitude of change in VSC.
- 10.96 The bedroom would experience a minor magnitude of change in daylight distribution, retaining 0.78x baseline values. Given this room's low daylight sensitivity, the impact on this bedroom is minor adverse, and therefore **Not Significant**.
- 10.97 The living room would pass the NSL test, experiencing negligible reductions in daylight distribution.

- 10.98 Regarding the Living Room, the window would achieve a VSC of 18.74%. Notwithstanding a moderate magnitude of change, this is close to the Alternative Target of 21.6% VSC.
- 10.99 Whilst a moderate magnitude of change to a window serving a living room suggests a Major adverse impact, in assessing significance it is appropriate to consider the following:
- This window achieves a VSC of circa 3% less than the 21.6% target. This small, measured difference between 18.74% and 21.6% should not equate to the difference between a non-significant impact and a Major Adverse impact.
 - The room passes the BRE's NSL test, experiencing negligible reduction in daylight distribution.
- 10.100 For the above reasons it is appropriate to consider that the impact on the daylight amenity of this living room as a whole is considered to be minor adverse, and therefore **not Significant**.
- 10.101 In accordance with the BRE Guidance, on the basis that the impacts on this building are localised to a single window, and that the room served retains direct daylight to the significant majority of its area, the impact on this neighbouring receptor as a whole is minor adverse and therefore **Not Significant**.

6 Wadesmill Walk

- 10.102 7 windows have been appraised, serving 6 rooms of unknown, presumed habitable use.
- 10.103 In the Proposed Condition, the windows of 3 rooms achieve the VSC Alternative Target. These rooms also pass the BRE's NSL test, experiencing negligible impact on daylight distribution.
- 10.104 The remaining windows all achieve VSC values that are very close - and likely indistinguishable - from the 21.6% target (results ranging from 20.94% - 21.54% VSC).
- 10.105 On the basis that magnitudes of change to all of these windows is low, and all rooms assessed pass the NSL test, the impact on the daylight amenity of this receptor is Negligible and **Not Significant**.

6 Stockland Close

- 10.106 5 windows have been appraised, serving 4 rooms of unknown use.
- 10.107 In the Proposed Condition, the windows of 3 rooms achieve the VSC Alternative Target. These rooms also pass the BRE's NSL test, experiencing no impact on daylight distribution.
- 10.108 The remaining windows all achieve VSC values of 20%, which is very close to the 21.6% target.
- 10.109 On the basis that magnitudes of change to these windows is low, and all rooms assessed pass the NSL test, the impact on the daylight amenity of this receptor is Negligible and **Not Significant**.

The Chapel Student Accommodation Building

- 10.110 168 windows have been appraised, serving 106 habitable rooms.
- 10.111 By virtue of the short term and transient nature of its occupation, student accommodation is considered to be a low sensitivity daylight receptor.
- 10.112 In the Proposed Condition, 64 windows (38%) achieve the Alternative Target for VSC.
- 10.113 A further 18 windows would experience a moderate magnitude of change, and 6 would experience low magnitudes of change. Given the low sensitivity of student accommodation, impacts to these windows are considered to be minor adverse, and therefore Not Significant.
- 10.114 47 rooms would also pass the BRE's NSL test, experiencing negligible reduction in the extent to which daylight is distributed within the rooms. A further 15 rooms would experience minor – moderate magnitudes of change in NSL which, combined with the low sensitivity of student accommodation, equates to negligible – minor impacts (i.e., Not significant) on the NSL of 58% of rooms.
- 10.115 Impacts on the daylight amenity of these windows and rooms is therefore Not Significant.
- 10.116 In the Proposed Condition 104 windows (62% of windows appraised) would not achieve the Alternative Target. Of these:
- 83 windows would experience major magnitudes of change. Given the low sensitivity of student accommodation, impacts to these windows are considered to be moderate adverse, and therefore significant.
- 10.117 In the Proposed Condition 44 rooms would experience a high magnitude of change in NSL, with reductions in daylight distribution being noticeable to the room occupants. Impacts on these rooms are therefore moderate adverse.
- 10.118 Major magnitudes of change and significant impacts on daylight amenity would be experienced by a large number of windows and rooms of this building.
- 10.119 On the basis that student accommodation is a low sensitivity daylight receptor, the overall impact on this building is considered to be **Moderate adverse** and is therefore **Significant**.
- 10.120 Notwithstanding the above, there are factors that explain and contribute to this Significant impact.
- 10.121 Churches and ecclesiastical buildings are notably and commonly difficult to convert to residential use without some degree of compromise.
- 10.122 The internal arrangement of such conversions, including to this building, frequently result in tall, narrow windows – a feature of this building's Gothic Revival style – horizontally bisected by inserted floor levels. As a result, certain rooms are served by narrow windows predominantly below the working plane height, in turn limiting the distribution of light within the room.
- 10.123 Daylight amenity to the rooms of this building are also inherently limited by Gothic design features of the original church.

- 10.124 The windows of the main church are narrow and set within thick walls with deep window reveals. This limits sky visibility and the extent to which direct daylight is received.
- 10.125 This limitation on daylight amenity is further exacerbated by the presence of projecting buttresses to each side of the side elevation windows, further limiting the access of direct daylight to the window and into the room.
- 10.126 The effect of such limitations increases the likelihood that development on adjacent sites (free of massing or of low rise massing in the baseline condition), will result in inflated magnitudes of change and uplifted significance of impacts.

Kincardine Court Student Accommodation Building

- 10.127 147 windows have been appraised, serving 132 of habitable rooms.
- 10.128 In the Proposed Condition, 139 windows number of windows achieve the Alternative Target. A further 6 windows serve rooms that are served by multiple windows (at least one of which achieves that target).
- 10.129 130 rooms experience negligible impacts on NSL, and the remaining two rooms experience low magnitudes of change.
- 10.130 Given the low daylight sensitivity of student accommodation, overall impacts on this neighbouring building are **Not significant**.

1-9 Justin Close

- 10.131 21 windows have been appraised, serving 16 rooms of assumed habitable use.
- 10.132 In the Proposed Condition, 10 number of windows achieve the Alternative Target.
- 10.133 In the Proposed Condition 20 rooms would also pass the BRE's NSL test, experiencing negligible reduction in the extent to which daylight is distributed within the rooms.
- 10.134 Impacts on the daylight amenity of these windows and rooms is therefore Not Significant.
- 10.135 In the Proposed Condition 11 windows would not achieve the Alternative Target. Of these:
- 11 are positioned either below a projecting, overhanging 'porch' structure, or tight up to the underside of a projecting soffit at the eaves of the building. Both of these factors act as an inherent obstruction to daylight, by limiting the extent to which the upper portion of the sky can be seen from the window, and therefore its capacity to receive direct daylight. As noted in the BRE Guidance, the construction of even relatively modest massing can result in large relative impacts on daylight and sunlight. These features contribute to inflated magnitudes of change to these windows (ranging from moderate to major magnitude of change).
 - The other windows are located adjacent to walls, where the footprint of the building steps out. These projecting walls, immediately adjacent a window limits sky visibility and therefore daylight amenity.

10.136 Overall, and notwithstanding some localised major magnitudes of change, we consider the impact on this building to be minor adverse.

10.137 Design features of this building contribute to limitation in daylight amenity. Further, almost all of the rooms appraised would pass the BRE's NSL test, with negligible reduction in daylight distribution.

10.138 Impacts on this receptor are, overall, Minor Adverse, and therefore Not Significant.

Sunlight

10.139 In accordance with the BRE Guidance, windows serving habitable rooms have only been appraised if they face within 90 degrees of due south.

10.140 Windows that are more than 90 degrees from due south (i.e., north west, north and north east facing) windows have a limited expectation of direct sunlight due to their orientation, and do therefore not merit sunlight amenity impact appraisal.

10.141 The following neighbouring buildings will experience impacts on sunlight amenity that are **Not Significant**:

- Nos. 1-7 Litcham Close (odd nos only)
- Nos. 2-8 Wademill Walk (even nos. only)
- Nos 4-8 Stockland Close (even nos only)
- Nos. 38-46 Hanworth Close (even nos. only)
- 1-23 Mawson Road (odd nos. only)
- Kincardine Court Student Accommodation

10.142 Assessed impacts on these neighbouring buildings are Not Significant for the following reasons:

- Where buildings are located to the south of the Site, the Proposed Development will have no impact in sunlight amenity. In the UK / northern hemisphere generally, sunlight is received from the east, passing through south and setting in the west. Direct sunlight is not received from the north.
- Windows of habitable rooms achieve the BRE Targets for Winter and Annual Sunlight (5% and 25% respectively), or the Acceptable Tolerance Alternative Targets (20% and 4% respectively).
- Retained sunlight values in the Proposed Condition will be of at least 0.8x Baseline values. On that basis reductions are unlikely to be noticeable to room occupants and are therefore negligible and not significant.

10.143 Impacts on sunlight amenity that merit a more in-depth review and consideration have been identified to the following neighbouring buildings:

- 2 Stockland Close
- The Chapel Student Accommodation
- Justin Close

10.144 Impacts on daylight amenity of these neighbouring buildings are explained in greater detail below.

2 Stockland Close

10.145 4 rooms of assumed habitable use have been appraised.

10.146 In the Proposed Condition, 3 rooms would achieve the Winter and Annual sunlight targets. Impacts on sunlight amenity of these rooms is negligible and Not Significant.

10.147 One room would achieve the Annual sunlight target but not the winter sunlight target, experiencing a major magnitude of change in winter sunlight amenity (6% reduced to 3%).

10.148 Impact on the winter sunlight amenity of this room is potentially major adverse (depending on use).

10.149 The window of this room is to the north of – and immediately adjacent to – a projecting small extension / ‘bay window’ of the adjacent room. This projection to the immediate south of the window is therefore a limitation on receipt of direct sunlight by this room.

10.150 On the basis that this major adverse impact is

- localised to a single room;
- limited to winter sunlight only; and
- in part a factor of the limitation on direct sunlight caused by projecting parts of the same building,

We do therefore consider the impact on this building as a whole to be Minor adverse and therefore **Not Significant**.

1-9 Justin Close

10.151 15 rooms of assumed habitable use have been appraised.

10.152 In the Proposed Condition, 10 rooms would achieve the Winter and Annual sunlight targets or retain at least 0.8x baseline sunlight values. Impacts on sunlight amenity of these rooms is negligible and Not Significant.

10.153 One ground floor room would achieve the Annual sunlight target but not the winter sunlight target, experiencing a major magnitude of change in winter sunlight amenity (5% reduced to 0%).

10.154 This impact on winter sunlight is therefore potentially major adverse.

10.155 One ground floor room would achieve the winter sunlight target but not the annual sunlight target, experiencing a major magnitude of change.

10.156 This impact on annual sunlight is therefore potentially major adverse.

10.157 The windows of these rooms are inherently limited in their capacity to receive direct sunlight.

10.158 Notwithstanding that they achieve the sunlight targets in the baseline condition (owing to the low rise nature of the surrounding buildings and absence of massing on the Site), these windows are, respectively positioned to the immediate north of a projection / step out in the footprint of the building; and beneath a projecting porch.

10.159 Both of these factors place a significant limitation on receipt of direct sunlight by these rooms.

10.160 On the basis that these major adverse impacts are:

- localised to two rooms of 16 appraised;
- limited to either winter sunlight or annual sunlight only; and
- in part a factor of the limitation on direct sunlight caused by projecting parts of the same building,

10.161 We do therefore consider the impact on this building as a whole to be **Minor adverse** and therefore **Not Significant**.

Hello Students / The Chapel Student Accommodation

10.162 40 rooms of student accommodation use been appraised.

10.163 By virtue of the short term and transient nature of its occupation, student accommodation is considered to be a low sensitivity daylight receptor.

10.164 In the Proposed Condition, 22 rooms would achieve the Winter and Annual sunlight targets or retain at least 0.8x baseline values. Impacts on sunlight amenity of these rooms is negligible and Not Significant.

10.165 10 rooms would achieve either the Annual sunlight target but not the winter sunlight, or vice versa. Magnitudes of change to these rooms are typically major.

10.166 8 rooms achieve neither target. Magnitudes of change are typically major.

10.167 Given the low sensitivity of student accommodation, the presence of major magnitudes of change to Annual sunlight, winter sunlight or both to circa half of the rooms that have been appraised amounts to a Moderate adverse impact on this building as a whole.

10.168 Notwithstanding the impacts identified there are factors, inherent to the building's design, that limit sunlight amenity, these being:

- Windows set within the deep window reveals of the thick walls
- Projecting buttresses between windows

10.169 These design features place an inherent limitation on the sunlight amenity of these rooms and are therefore considered to contribute to the significance of the impacts identified.

Sunlight to External Amenity Spaces

10.170 Gartside Gardens has been assessed with reference to the BRE's Time in Sun Test.

10.171 The significant majority of Gartside Gardens would achieve at least 2 Hours Time in Sun on 21 March. Magnitude of change in sunlight amenity would be negligible.

10.172 Gartside Gardens would therefore continue to be adequately sunlit throughout the year in the proposed condition.

10.173 The impact on sunlight amenity of Gartside Gardens in the proposed condition is therefore **Negligible** and **Not Significant**.

10.174 The impact on the sunlight amenity of the Rear gardens of 32-46 Hanworth Close and would be **major adverse** and is therefore **significant**. The impact on the front gardens (part used as carparking) is negligible and not significant.

10.175 Notwithstanding the above, the refurbishment design contributes to the significance of the impact of the Proposed Development on the sunlight amenity of these spaces, as follows:

- These areas are located to the north side of their respective dwelling house. The houses do therefore overshadow the garden, acting as a barrier to direct sunlight, in the baseline condition;
- The gardens of these houses were historically located to the south / south east of the houses. As part of the Brunswick redevelopment, these gardens have been converted to drives / surface carparking. This has the effect of reducing external amenity area overall, as well as placing amenity space in a location with lesser sunlight amenity potential.

Additional Mitigation / Enhancement Measures

10.176 No additional mitigation measures are proposed during construction or operation of the Proposed Development.

Residual Effects

10.177 On the basis that no mitigation measures are proposed, the Residual Effects of the Proposed Development on the Daylight and Sunlight amenity of the neighbouring sensitive receptors remain as per the Operational Phase effects identified earlier in this chapter, and summarised in the table below:

Table 10.9 Residual Effects Summary

Description of Effect	Embedded Mitigation	Potential Effect (inc. Significance)	Further Mitigation	Residual Effect (inc. Significance)
Construction				
Not Applicable				
Operation				
Daylight Amenity				
Reduction in daylight amenity of: - Nos. 1-7 Litcham Close 1-23 Mawson Road - Elizabeth Yarwood Court - Nos. 2-8 Wadesmill Walk - Nos. 2-8 Stockland Close - Nos. 38-46 Hanworth Close - Kincardine Court	None Proposed	Negligible	None Proposed	Negligible, which is not significant
Reduction in daylight amenity of the Chapel	None Proposed	Moderate Adverse impact on Daylight Amenity	None Proposed	Moderate Adverse impact on Daylight Amenity,

Description of Effect	Embedded Mitigation	Potential Effect (inc. Significance)	Further Mitigation	Residual Effect (inc. Significance)
Student Accommodation Building				which is Significant
Reduction in daylight amenity of 1/9 Justin Close	None Proposed	Minor Adverse impact on Daylight Amenity	None Proposed	Minor Adverse impact on Daylight Amenity, which is not Significant
Sunlight Amenity				
Reduction in sunlight amenity of: • Nos. 1-7 Litcham Close • 1-23 Mawson Road • Elizabeth Yarwood Court • Nos. 2-8 Wadesmill Walk • Nos. 2-8 Stockland Close • Nos. 38-46 Hanworth Close • - Kincardine Court • Gartside Gardens	None Proposed	Negligible	None Proposed	Negligible
Reduction in sunlight amenity of 2 Stockland Close	None Proposed	Minor Adverse	None Proposed	Minor Adverse, which is not significant
Reduction in sunlight amenity of 1/9 Justin Close	None Proposed	Minor Adverse	None Proposed	Minor Adverse, which is not significant

Description of Effect	Embedded Mitigation	Potential Effect (inc. Significance)	Further Mitigation	Residual Effect (inc. Significance)
Reduction in sunlight amenity of The Chapel Student Accommodation	None Proposed	Moderate Adverse	None Proposed	Moderate Adverse, which is Significant
Reduction in sunlight amenity to rear gardens of 32-46 Hanworth Close	None Proposed	Major Adverse	None Proposed	Major Adverse

Conclusions

10.178 The impact of the Proposed Development on the daylight and sunlight amenity of the neighbouring receptors has been assessed as part of this chapter.

10.179 Following an inspection of the Site and the buildings in the vicinity, the following neighbouring buildings and external amenity spaces have been identified as relevant receptors that merit impact appraisal:

- Lamport Court, Groom Street
- Nos. 1-7 Litcham Close (odd nos. only)
- 38-46 Hanworth Close (even nos. only)
- 2-8 Wadesmill Walk (even nos. only)
- 2-8 Stockland Close (even nos. only)
- 1-23 Mawson Road (odd nos. only)
- The Chapel Student Accommodation, Upper Brook Street
- Kincardine Court, Kincardine Road
- Elizabeth Yarwood Court, 101 Kincardine Road.
- Gartside Gardens

10.180 Due to distance from the Site or orientation, there are no other residential buildings in the wider vicinity of the Site which would experience material impact on daylight and sunlight amenity, nor merit impact appraisal.

10.181 A technical analysis has been undertaken. A technical analysis is the computerised measurement of daylight and sunlight values as they currently exist (the baseline condition) and following the Proposed Development (the proposed condition).

10.182 We have also undertaken analysis of the daylight and sunlight levels following construction of the Proposed development, to also include other development sites that are in the proximity of the properties surrounding the Site, this is to establish the cumulative impact on the surrounding windows.

Impacts on Daylight and Sunlight Amenity

10.183 The majority of the receptors appraised experience, overall, negligible impacts or minor adverse impacts on daylight and sunlight amenity. These impacts are Not Significant.

10.184 The Chapel Student Accommodation building would experience moderate adverse impacts on daylight amenity and sunlight amenity, which are Significant.

10.185 The rear gardens of 32-46 Hanworth Close will experience a major adverse impact, which is significant. The design of these houses and gardens do, however, contribute to this impact.

10.186 Prior to their refurbishment, in which the front and rear of the house was reversed, the gardens of these dwellings were located to the south east of the building. The current arrangement repositioned the garden area to the north west, where direct sunlight is more limited by the terraces of houses. Impacts to the front gardens of these houses (in part used as drive / parking space) are negligible and not significant.

- 10.187 The result is that impacts on the rear external amenity areas of these houses are increased through the design of the refurbishment.
- 10.188 Following completion of the technical analysis, we have been made aware of minor changes to the height of the planet screen portion of parts of the Proposed Development, due to refinement and development of the design. Where the height has been increased, this is by between 100mm and 500mm. Whilst this could result in marginally different daylight and sunlight analysis results, we consider that this change is neither material nor significant and would not result in changes to the conclusions drawn in this chapter.

Assessment of Cumulative Effects

- 10.189 We are briefed to consider the potential cumulative daylight and sunlight impact of the Proposed Development with other neighbouring developments that are planning approved but construction works have not yet commenced on site.
- 10.190 Assessment of cumulative effects has been made through completion of a technical analysis, to the same methodology set out above.
- 10.191 A list of planning approved developments in the wider area is provided in the table below.
- 10.192 The list is extensive but having researched and considered the location and massing of these other property developments, many of them are not considered to be close enough to the Site for their massing to have any material cumulative daylight and sunlight impact on any of the neighbouring buildings and external spaces considered as part of this Chapter.
- 10.193 However, the massing of the following neighbouring approved property developments are considered to be potentially in close enough proximity to the Site and the Key neighbouring receptors that have been evaluated in this Chapter to justify cumulative review:

Table 10.10 Cumulative Sites

Site Ref.	Application No.	Distance and Direction	Proposal	Scoped-in / Scoped-out	Justification
1.	101664/FO/2013/N2	Adjacent to the Site's eastern boundary	Brunswick Neighbourhood	Scoped in	Certain receptors will be demolished
2.	124472/FO/2019	15m east	Kincardine Court Extension	Scoped in	Extension constructed
3.	134288/FO/2022	200m north-west	Number 3 Circle Square	Scoped out	To north of Site & distance on it mean no material influence on daylight and sunlight of receptors
4.	125799/FO/2019	420m north-west	MMU Science and Engineering Building	Scoped out	To north of Site & distance on it mean no material influence on daylight and sunlight of receptors
5.	125573/FO/2019	675m north-west	First Street South	Scoped out	To north of Site & distance on it mean no material influence on daylight and sunlight of receptors
6.	124972/FO/2019	570m north east	Mayfield Plot O - Baring Street Office	Scoped out	To north of Site & distance on it mean no material influence on daylight and sunlight of receptors

7.	125248/FO/2019	550m north east	The Republic	Scoped out	To north of Site & distance on it mean no material influence on daylight and sunlight of receptors
8.	N/A	Adjacent to the Site's southern boundary		Scoped In	Massing will be seen by Kincardine Court & Replace Elizabeth Yarwood Court

Likely Residual Cumulative Effects and their Significance

Construction

- 10.194 The Proposed Development and the Cumulative buildings in the vicinity will have their greatest and long term daylight and sunlight impact upon completion of the construction, and once their massing has been fully established.
- 10.195 For this reason, no further consideration has been given to the Cumulative Impacts during the Construction Phase.

The Completed and Operational Development

- 10.196 With the exception of Kincardine Court, all other neighbouring buildings assessed will experience cumulative impacts on daylight and sunlight amenity that are **Not Significant**.
- 10.197 Impacts on daylight amenity remain as previously stated in this chapter, with no significant uplift in impact in the Cumulative condition.
- 10.198 They are either too far from the additional Cumulative development included in the analysis or, in the case of Elizabeth Yarwood Court, to be replaced in the Cumulative Condition by Building Ref. 8.
- 10.199 Regarding sunlight amenity of Gartside Gardens in the cumulative condition, the significant majority of Gartside Gardens would continue to achieve at least 2 Hours Time in Sun on 21 March.
- 10.200 In the cumulative condition Gartside Gardens would experience a negligible reduction in the extent to which it receives time in sun. It would therefore continue to be adequately sunlit throughout the year.
- 10.201 The impact on sunlight amenity of Gartside Gardens in the cumulative condition is therefore **Negligible** and **Not Significant**.
- 10.202 In the Cumulative Condition Kincardine Court would experience an impact due to the combined presence of the Proposed Development and Building Ref. 8.
- 10.203 87 windows of 147 appraised (59%) would not achieve the Alternative VSC Target, typically experiencing moderate and major magnitudes of change.
- 10.204 Of the 132 rooms appraised, 66 rooms (50%) would experience negligible impact on NSL, compared to 130 rooms in the Proposed (i.e., non-cumulative) condition.
- 10.205 34 rooms would experience Minor magnitude of change in NSL; 22 would experience a moderate magnitude of change and 10 a Major magnitude of change in the cumulative condition.
- 10.206 Given the low sensitivity of Kincardine Court, Major magnitudes of change to these Kincardine Road-facing windows and rooms equate to **Moderate Adverse** Impacts on daylight amenity.
- 10.207 Notwithstanding low sensitivity of this neighbouring building, the number of windows and rooms experiencing moderate adverse impacts tends towards a **Significant Impact** on daylight amenity.

- 10.208 This impact would be experienced by the Kincardine Road-facing windows and rooms of this neighbouring building. Parts of the Proposed Development and both blocks of Building Ref. 8 will be seen through these windows in the Cumulative condition.
- 10.209 There are also cumulative impacts on sunlight amenity of Kincardine Court. In the cumulative condition, four rooms would experience a moderate adverse impact on winter sunlight amenity only, and two rooms would experience moderate adverse impacts on annual and winter sunlight amenity.
- 10.210 Overall, there is a small cumulative impact on sunlight amenity compared to the Proposed Condition, in which all rooms achieve the sunlight targets (i.e., no significant impacts).
- 10.211 On the basis that only a small number of rooms experience a significant impact on winter sunlight, and a smaller number still experiencing a significant impact on annual and winter sunlight, overall the Cumulative impact on sunlight amenity of Kincardine Court is **Minor adverse – negligible**, and therefore **Not Significant**.

11. Wind Microclimate

Introduction

- 11.1 This chapter assesses the effects of the Proposed Development on Wind Microclimate in relation to pedestrian comfort and safety. In particular, it considers the potential wind microclimate effects and likely effects of the proposed development on the following:
- Undesirable wind speeds at ground and raised levels of the site, surrounding buildings and nearby areas of public realm during the construction phase; and
 - Undesirable wind speeds at ground and raised levels of the site, surrounding buildings and nearby areas of the public realm during the operational phase.
- 11.2 The chapter describes the methods used to assess the likely significant effects, the baseline conditions currently existing at the site and surroundings, the potential direct and indirect effects of the development arising from unsuitable or strong winds, the mitigation measures required to prevent, reduce, or offset the identified significant effects and the residual effects.

Assessment Methodology and Significance Criteria

CFD Testing

- 11.3 Wind microclimate conditions have been established using a 3D model, extending 500m radius from the Site, tested using high resolution Computational Fluid Dynamics (CFD).
- 11.4 CFD is a digital modelling technique, which simulates the effect of wind for the built environment. The air is divided into hundreds of millions of “cells”, within which the equations of motion are solved.
- 11.5 A suitable atmospheric boundary layer (to accurately capture the effect of local buildings and terrain on atmospheric wind speeds and turbulence) was generated.
- 11.6 A 3D model of the Proposed Development was included in the CFD model and wind speeds were measured on and around the site to determine the strength and frequency of pedestrian level wind speeds.
- 11.7 Wind speeds on and around the site were measured at 1.5m above any surfaces expected to be used for pedestrian activity, to determine the conditions at and around the site. The model was run at full scale from 18 wind angles, spaced using 10° or 30° increments such that no sector contributes more than 10% of the annual wind.
- 11.8 The wind microclimate effects are assessed annually and seasonally. The windiest season (typically the winter months of December, January and February) are reported as this is when the strongest winds are expected, summer conditions (June,

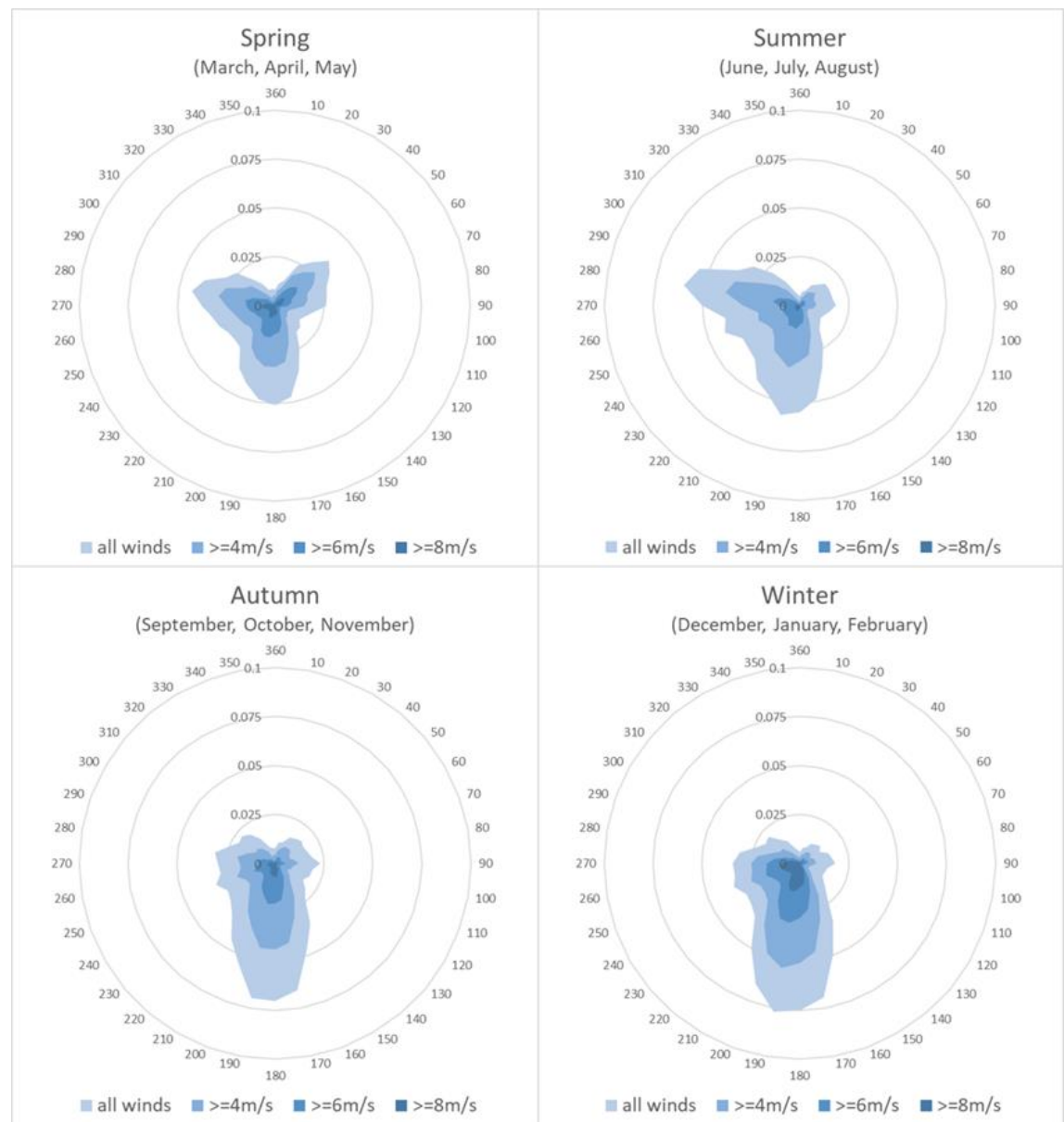
July, August) are reported as this is the season when pedestrian usage of outdoor spaces is expected to be highest.

Meteorological Conditions

11.9 On-site and local wind speeds measured through the CFD modelling were combined with 30 years-worth of weather data for Manchester International Airport, corrected for terrain local to the airport and the application site, to obtain annual and seasonal frequency and magnitude of wind speeds across the model. This allows the 'grading' of the pedestrian level winds according to the Lawson Comfort Criteria, which are explained later in this section of the chapter.

11.10 Seasonal wind roses for the airport are shown in Figure 11.1. These show that dominant wind direction is from the south.

Figure 11.1 Seasonal Wind Roses for Manchester International Airport (1990-2021)



- 11.11 Correction factors have been applied to take into account the different extended surroundings of the application site relative to the airport, and their influence on the wind conditions. Land surrounding airports is typically flat and open, to minimize wind turbulence for aircraft. The local atmospheric boundary layer of the wind will be different to that at the application site.
- 11.12 The correction factors between the airport (measured 10m above ground) and the application site (at a reference height of 120m) are shown in Table 11.1. These correction factors help to translate wind conditions measured at the airport, to the application site. It should be noted that the terrain analysis has been performed using sectors of 30°, which is presented in the below table.

Table 11.1 Site Wind Correction Factors

Direction	0°	30°	60°	90°	120°	150°	180°	210°	240°	270°	300°	330°
Correction Factor	1.46	1.46	1.42	1.39	1.32	1.30	1.31	1.30	1.31	1.39	1.55	1.40

Lawson Comfort Criteria

- 11.13 Effects were assessed through comparison of measured wind conditions against the Lawson Comfort Criteria.
- 11.14 The Lawson Criteria is recognised guidance used universally across the UK to assess the impact of the proposed development on wind flows in public spaces. Lawson devised a scale for assessing the suitability of wind conditions in the urban environment based upon threshold values of wind speed and frequency of occurrence. This guidance will be used to inform the assessment. The commonly used London Docklands Development Corporation (LDDC) method of the Lawson Criteria is set out in Table 11.2 and Table 11.3 below.

Table 11.2 Lawson Comfort Criteria (LDDC variant)

Comfort Category	Mean Wind Speed (5% exceedance)	Description
Sitting	4m/s	Acceptable for outdoor sitting use (e.g. cafes, benches, balconies)
Standing	6m/s	Acceptable for main building entrances, pick-up / drop-off points and bus stops
Walking (leisure)	8m/s	Acceptable for strolling
Walking (business)	10m/s	Acceptable for external pavements, walking purposefully without lingering
Uncomfortable	>10m/s	Not comfortable for regular pedestrian access

Table 11.3 Lawson Safety Criteria (LDDC Variant)

Safety Category	Mean Wind Speed (2hrs/year exceedance)	Description
No Safety Exceedance	<15m/s	No significant risk of strong winds for any users.
S15 (distress)	>15m/s	Unsafe for frail individuals, or cyclists
S20 (safety)	>20m/s	Wind conditions considered unsafe for all users

Target Wind Conditions

- 11.15 For a typical mixed-use urban area within which the site is located, the desired wind microclimate would typically need to have areas acceptable for sitting, standing (including at entrances of buildings) and walking use. Table 11.1 and Table 11.2 set out the description of the comfort categories to classify wind conditions.
- 11.16 The target is for the majority of thoroughfares to be suitable for leisure walking. Localised regions of business walking can be tolerated as a transitory pedestrian will pass through them relatively quickly, but an extensive region of business walking is not acceptable.
- 11.17 Within roadways, business walking is acceptable as these areas will only be used by people undertaking high energy activities such as cycling or brisk walking to cross the road. Uncomfortable conditions are not acceptable in pedestrianised areas.
- 11.18 The areas immediately outside any building entrances should be suitable for standing use during the windiest season to provide a “buffer” between the still conditions in interior spaces and the general thoroughfare.
- 11.19 Bus stops are targeted to be suitable for standing, as pedestrians would be expected to dwell in these spaces for a longer duration than a general thoroughfare.
- 11.20 Amenity areas are targeted to be suitable for a mixture of standing and sitting in summer conditions.

Strong Winds

- 11.21 Any areas which show up as either subject to strong winds (defined as when there is either a distress exceedance or a safety exceedance in accordance with Table 11.2) or uncomfortable (during the windiest season) will require mitigation, unless they are in locations where pedestrian access can be controlled in the event of strong winds. This applies to all thoroughfares (for pedestrians) and roads (for cyclists) around the Proposed Development.

Strong Winds

- 11.22 Any areas which show up as either subject to strong winds (defined as when there is either a distress exceedance or a safety exceedance in accordance with Table 11.2) or uncomfortable (during the windiest season) will require mitigation, unless they are in locations where pedestrian access can be controlled in the event of strong

winds. This applies to all thoroughfares (for pedestrians) and roads (for cyclists) around the Proposed Development.

Test Scenarios

11.23 The following scenarios were tested as part of the assessment:

- Scenario 1: Baseline for site and surrounds;
- Scenario 2: Proposed development in baseline surrounds; and
- Scenario 3: Proposed development in cumulative surrounds.

Identification of Sensitive Receptors

11.24 Receptors are identified according to the expected pedestrian activities for different areas in the Site and surrounding area. All receptors are considered of high sensitivity to pedestrian comfort and strong winds, as these can render a space unusable or pose a risk to the safety of pedestrians or cyclists.

11.25 The following sensitive receptors have been identified, and are shown in Figure 11.2:

- General thoroughfares and roadways;
- Bus stops on Upper Brook Street (marked B on Figure 11.2);
- Entrances to the proposed development (marked E on Figure 11.2);
- Off-site entrances (marked O on Figure 11.2);
- Existing amenity in Gartside Gardens (marked GG on Figure 11.2);
- Existing amenity around Engineering Buildings A and B (marked EB on Figure 11.2);
- Proposed amenity at ground floor within the site (marked A on Figure 11.2); and
- Proposed roof terraces within the proposed development.

Figure 11.2 Sensitive Receptors**Characterisation of Effect**

- 11.26 Any adverse effects (for strong winds and comfort) are categorised as significant, as these will require mitigation in order to achieve suitable comfort and safety conditions. Any beneficial effects for strong winds will be categorised as significant, as this will reduce the overall wind safety risk for the area. Any negligible (for strong winds and comfort) or beneficial effects (for comfort) will have suitable conditions for the intended use without mitigation, so are not classed as significant.

Significance Criteria

- 11.27 Beneficial effects are those where conditions are calmer than required for the intended use. Adverse effects are those where conditions are windier than required for the intended use, or there is a risk to safety due to strong winds. The scale of wind effects is defined as set out below:

- Major Beneficial: wind conditions are three categories calmer than required;
- Moderate Beneficial: wind conditions are two categories calmer than required;
- Minor Beneficial: wind conditions are one category calmer than required;
- Negligible / No Effect: wind conditions are those required;
- Minor Adverse: wind conditions are one category windier than required;

- Moderate Adverse: wind conditions are two categories windier than required; and
- Major Adverse: wind conditions are three categories windier than required.

- 11.28 Additionally, any risk to pedestrian safety due to strong winds is classified as a Major Adverse effect.
- 11.29 All wind effects will be either site or local effects. For the purposes of this study, a site effect is classified as one which is measured within the site red line boundary, a local effect is one which is measured elsewhere in the study area (the study area being the area shown in Figure 11.2, consisting of 186,000 sqm centred on the site).
- 11.30 All effects for the completed and operational Proposed Development will be permanent effects, any effects during construction will be temporary effects. All wind effects are direct effects resulting from the impact of the Proposed Development on the local wind environment.

Assumptions / Limitations

- 11.31 The accuracy of the results is dependent upon the accuracy of the architectural CAD used to construct the model.
- 11.32 There is an inherent assumption that on-site wind speeds will scale linearly with the measured wind speeds at the airports.
- 11.33 It is assumed that, during the construction process, wind conditions will gradually change from the Baseline Conditions to the conditions for the Completed Proposed Development.
- 11.34 It is assumed that on-site activity during construction will be able to withstand a higher category of pedestrian comfort level than for the Completed Proposed Development.

Consultation

- 11.35 No wind microclimate specific consultation has been undertaken with regards to this project.

Baseline Conditions**Characterisation of the Baseline**

- 11.36 A CFD scenario (Scenario 1) consisting of the existing site within existing surrounds was tested to establish baseline conditions.
- 11.37 Figure 11.3 shows winter comfort for Scenario 1. Figure 11.4 shows summer comfort for Scenario 1. Figure 11.5 shows strong winds for Scenario 1.

Pedestrian Comfort

- 11.38 General thoroughfares and roadways range between suitable for sitting, standing and leisure walking in winter and for sitting and standing in summer. This is suitable for the intended use.
- 11.39 The bus stops on Upper Brook Street (marked B in results figures) are suitable for sitting in all seasons. This is suitable for the intended use.
- 11.40 The principal off-site entrances (marked O in results figures) range between suitable for sitting or standing in all seasons. This is suitable for the intended use.
- 11.41 The Gartside Gardens amenity space (marked GG in results figures) are suitable for standing in winter and a mixture of sitting and standing in summer. This is suitable for the intended use.
- 11.42 The off-site amenity by Engineering Buildings A and B (marked EB in results figures) are suitable for a mixture of sitting and standing in all seasons. This is suitable for the intended use.

Strong Winds

- 11.43 There are no regions of strong winds (exceeding 15m/s for more than 0.025% annually) within the study area for the baseline scenario.

Figure 11.3 Winter Comfort for Scenario 1 (Existing Site with Existing Surrounds)

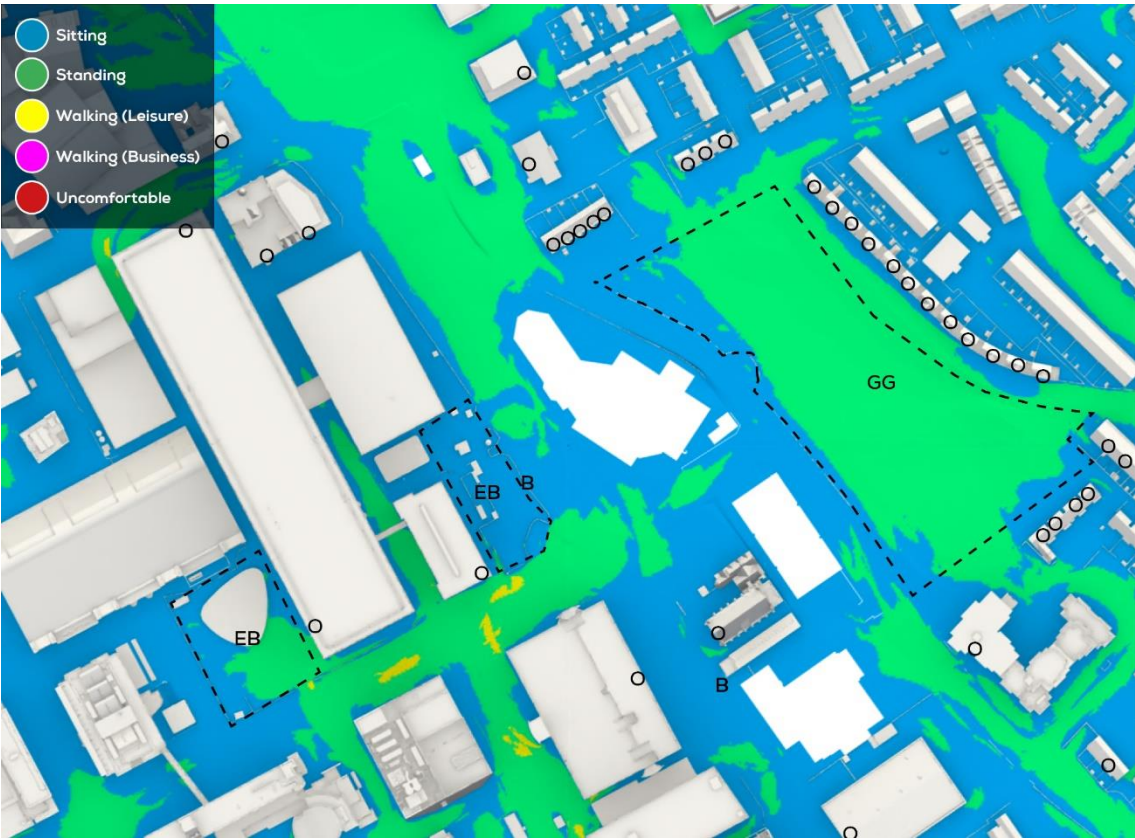


Figure 11.4 Summer Comfort for Scenario 1 (Existing Site with Existing Surrounds)

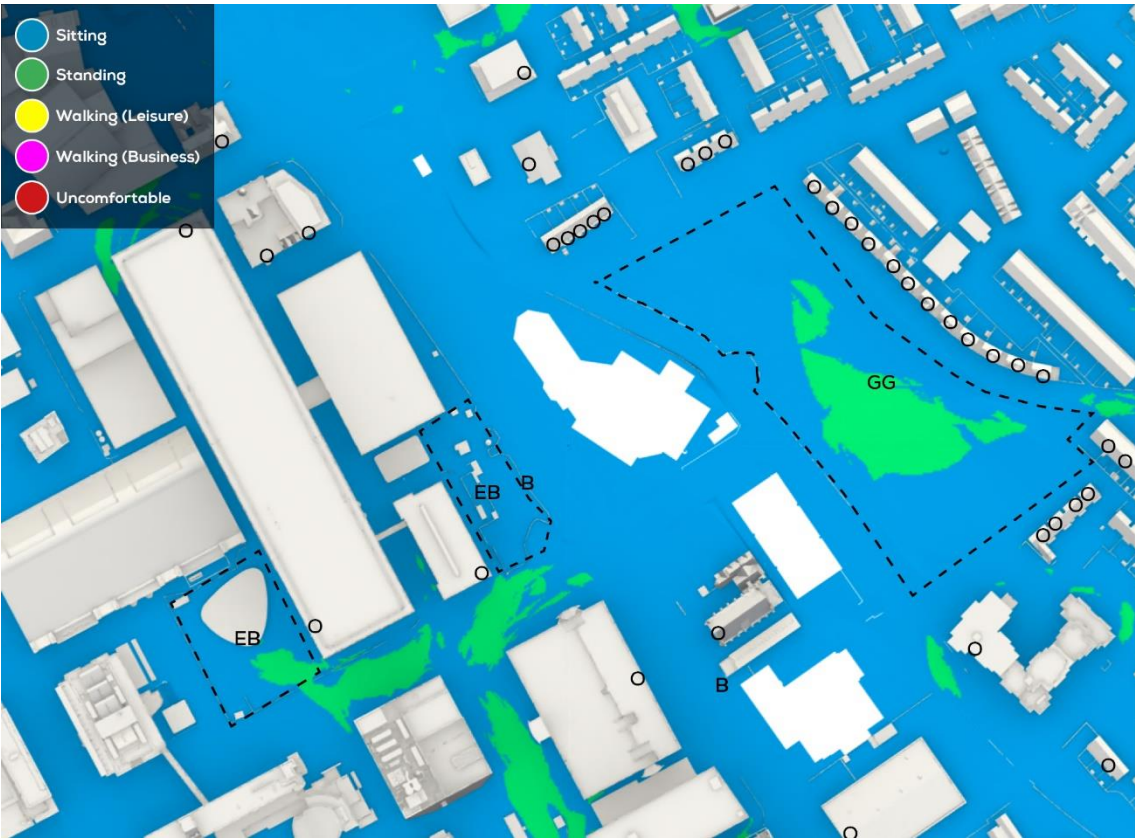


Figure 11.5 Strong Winds for Scenario 1 (Existing Site with Existing Surrounds)

Embedded Mitigation

Demolition and Construction

- 11.44 There are no embedded mitigation measures with regards to the demolition and construction phase.

The Completed and Operational Development

- 11.45 For the completed and operational development, the following embedded wind mitigation measures were included in the design of the proposed development:
- Tree planting in accordance with the proposed landscaping scheme (located and sized as shown in Figure 11.6);
 - Two raised planters (600mm tall) in Hanworth Square (shown blue in Figure 11.7); and
 - A series of nineteen 1500mm wide x 3000mm tall 50% porous screens (shown red in Figure 11.7).

Figure 11.6 Tree Locations as Tested

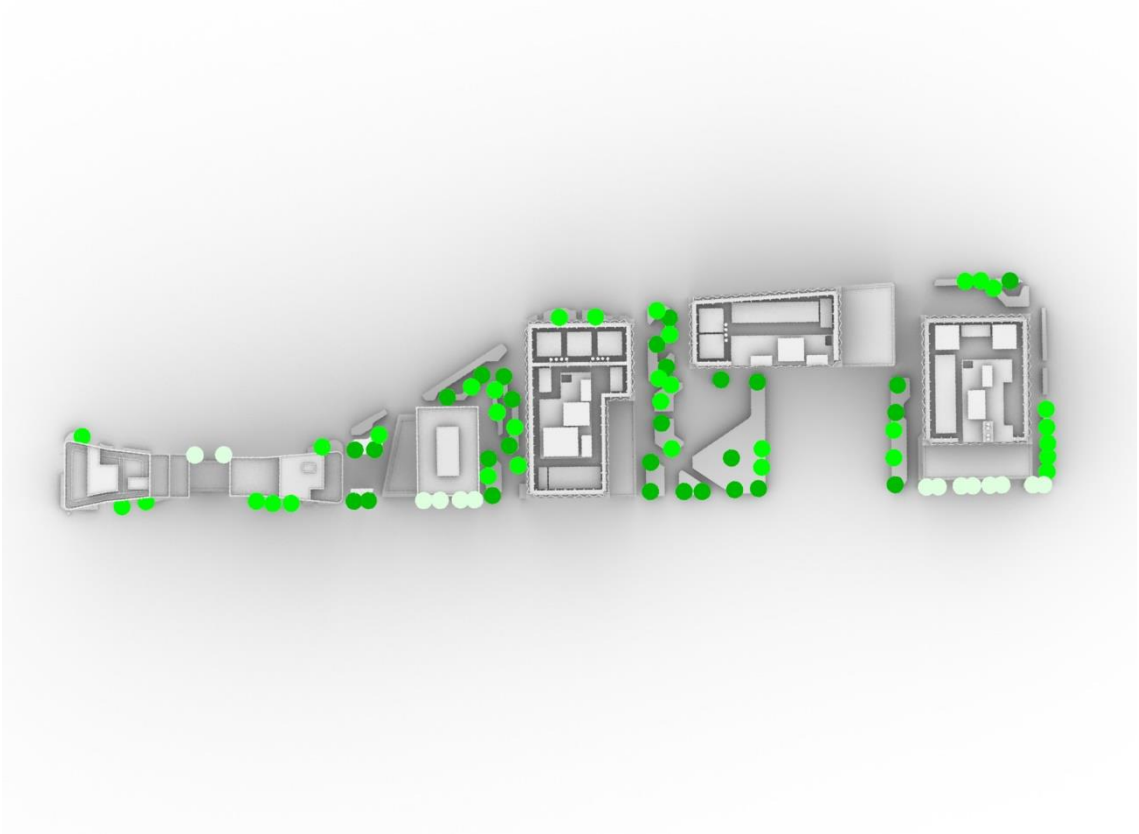
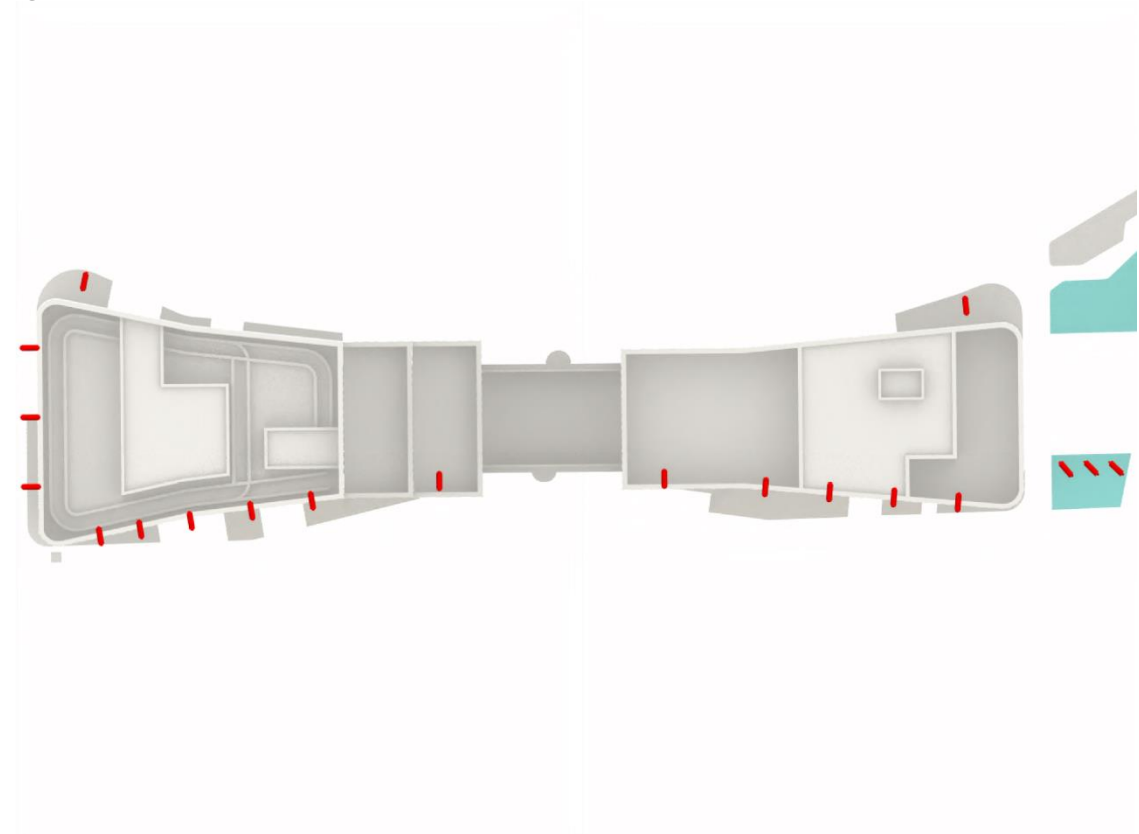


Figure 11.7 Screens and Raised Planters as Tested



Assessment of Likely Significant Effects

Demolition and Construction

- 11.46 During construction, conditions will gradually change from the baseline conditions to conditions for the completed and operational development. Therefore, construction effects can be inferred from the effects due to the completed and operational development.
- 11.47 As all wind effect for the completed and operational development are negligible, all demolition and construction wind effects will also be **Negligible (not significant)**.

The Completed and Operational Development

- 11.48 A CFD scenario (Scenario 2) consisting of the proposed development within existing surrounds was tested to establish operational wind effects.
- 11.49 Figure 11.8 shows winter comfort at ground level for Scenario 2. Figure 11.9 shows summer comfort at ground level for Scenario 2. Figure 11.10 shows strong winds at ground level for Scenario 2.
- 11.50 Figure 11.11 shows winter comfort at terrace level for Scenario 2. Figure 11.12 shows summer comfort at terrace level for Scenario 2. Figure 11.13 shows strong winds at terrace level for Scenario 2.

Pedestrian Comfort

- 11.51 General thoroughfares and roadways range between suitable for sitting, standing and leisure walking in winter and for sitting and standing in summer. This is suitable for the intended use and is a **Negligible wind effect (not significant)**.
- 11.52 The bus stops on Upper Brook Street (marked B in results figures) are suitable for sitting or standing in all seasons. This is suitable for the intended use and is a **Negligible wind effect (not significant)**.
- 11.53 The entrances to the proposed development (marked E in results figures) range between suitable for sitting or standing in all seasons. This is suitable for the intended use and is a **Negligible wind effect (not significant)**.
- 11.54 The principal off-site entrances (marked O in results figures) range between suitable for sitting or standing in all seasons. This is suitable for the intended use and is a **Negligible wind effect (not significant)**.
- 11.55 The proposed ground floor amenity spaces around the site (marked A in results figures) are suitable for a mixture of sitting, standing and leisure walking in winter and for a mixture of sitting and standing in summer. This is suitable for the intended use and is a **Negligible wind effect (not significant)**.
- 11.56 The proposed terrace level amenity spaces are suitable for a mixture of sitting and standing in all seasons. This is suitable for the intended use and is a **Negligible wind effect (not significant)**.
- 11.57 The Gartside Gardens amenity space are suitable for a mixture of sitting and standing in winter and for sitting in summer. This is suitable for the intended use and is a **Negligible wind effect (not significant)**.

- 11.58 The off-site amenity by Engineering Buildings A and B are suitable for a mixture of sitting and standing in winter and for sitting in summer. This is suitable for the intended use and is a **Negligible wind effect (not significant)**.

Strong Winds

- 11.59 There are no regions of strong winds (exceeding 15m/s for more than 0.025% annually) at any accessible location, either at ground or terrace levels, within the study area for scenario with the proposed development and existing surrounds. This is a **Negligible wind effect (not significant)**.

Figure 11.8 Winter Comfort for Scenario 2 (Proposed Development with Existing Surrounds)

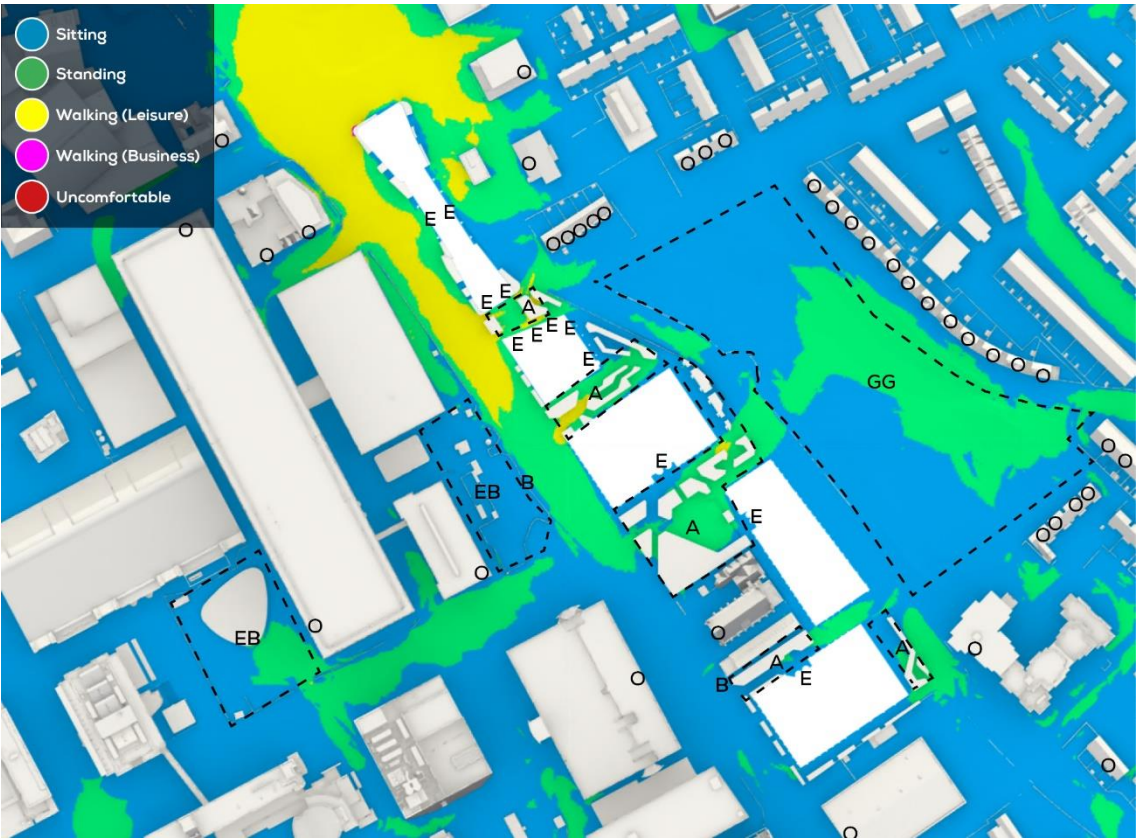


Figure 11.9 Summer Comfort for Scenario 2 (Proposed Development with Existing Surrounds)

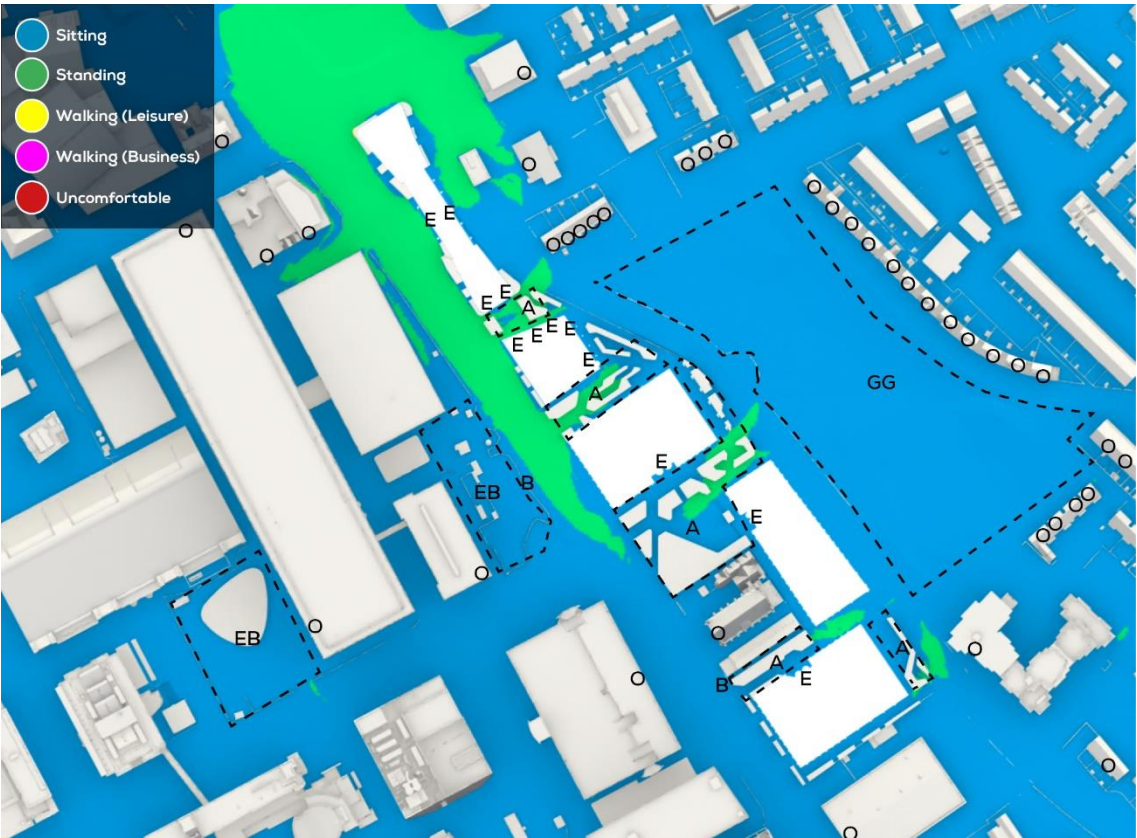


Figure 11.10 Strong Winds for Scenario 2 (Proposed Development with Existing Surrounds)



Figure 11.11 Winter Comfort at Terrace Level for Scenario 2 (Proposed Development with Existing Surrounds)

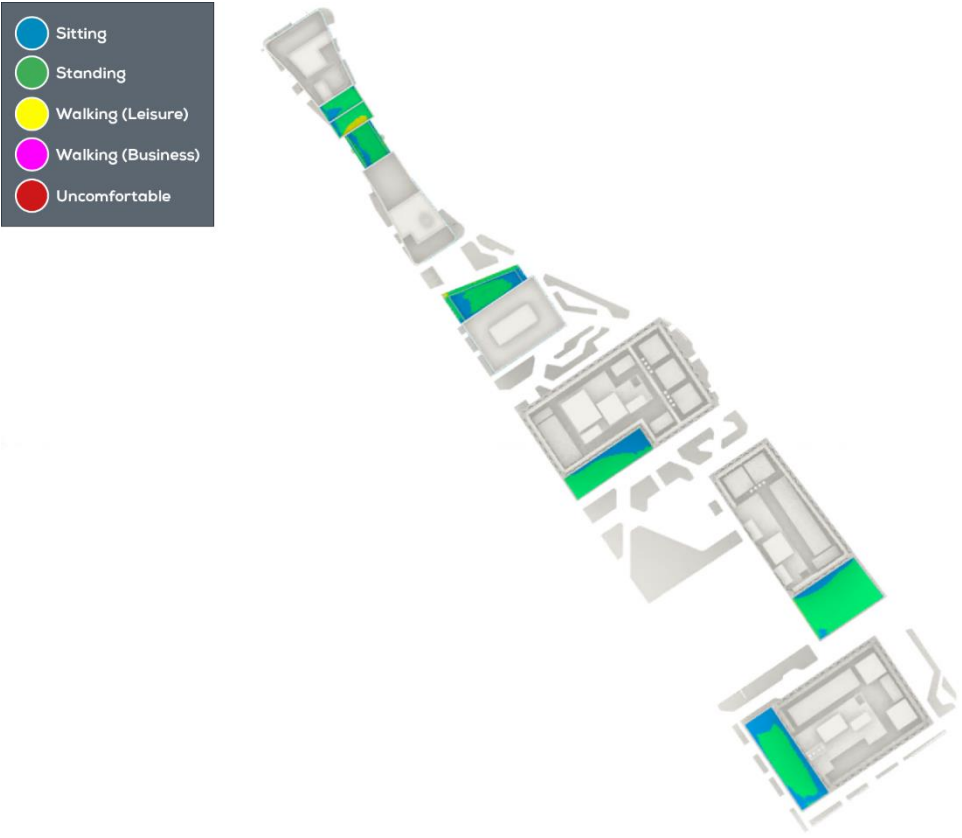


Figure 11.12 Summer Comfort at Terrace Level for Scenario 2 (Proposed Development with Existing Surrounds)

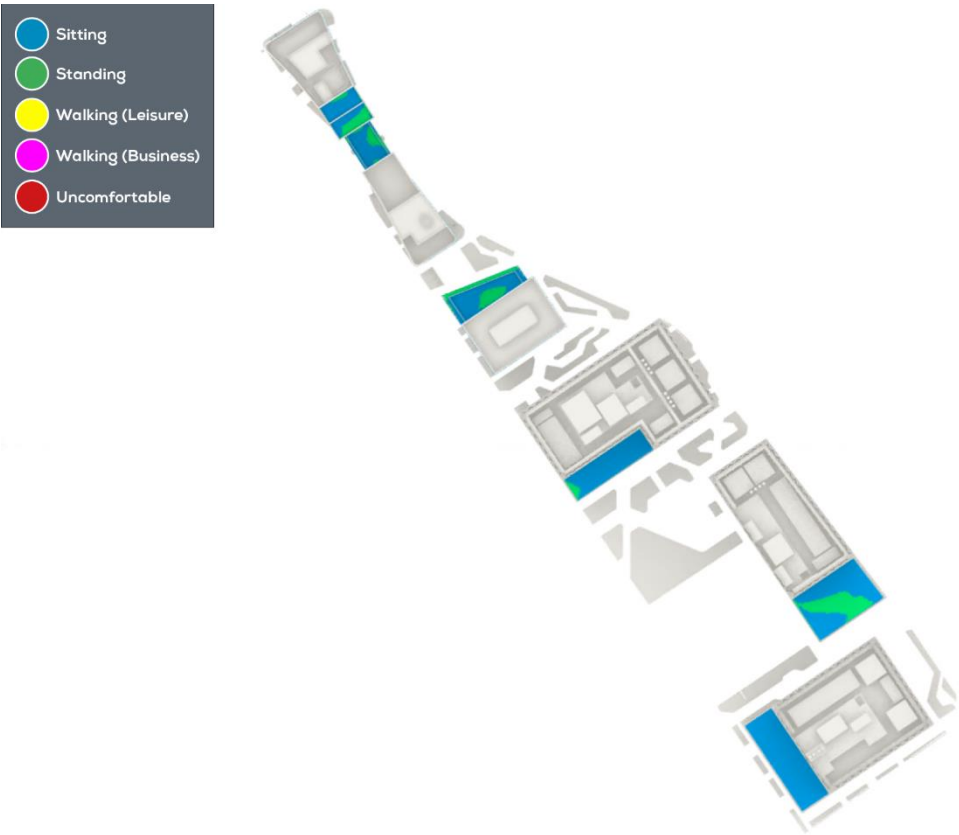


Figure 11.13 Strong Winds at Terrace Level for Scenario 2 (Proposed Development with Existing Surrounds)



Additional Mitigation / Enhancement Measures

Demolition and Construction

- 11.60 No additional wind mitigation/enhancement measures are required.

The Completed and Operational Development

- 11.61 No additional wind mitigation/enhancement measures are required.

Residual Effects

- 11.62 As no further mitigation measures are proposed, the residual effects will be the same as those stated above. Residual effects are summarised in Table 11.4.

Table 11.4 Residual Effects Summary

Description of Effect	Embedded Mitigation	Potential Effect (inc. Significance)	Further Mitigation	Residual Effect (inc. Significance)
Construction				
Thoroughfares & Roadways	N/A	Negligible (not significant)	N/A	Negligible (not significant)
Bus stops	N/A	Negligible (not significant)	N/A	Negligible (not significant)
Off-site entrances	N/A	Negligible (not significant)	N/A	Negligible (not significant)
Existing amenity spaces	N/A	Negligible (not significant)	N/A	Negligible (not significant)
Strong winds	N/A	Negligible (not significant)	N/A	Negligible (not significant)
Operation				
Thoroughfares & Roadways	N/A	Negligible (not significant)	N/A	Negligible (not significant)
Bus stops	N/A	Negligible (not significant)	N/A	Negligible (not significant)
On-site entrances	Proposed landscaping scheme and 1.5m x 3m 50% porous screens	Negligible (not significant)	N/A	Negligible (not significant)

Description of Effect	Embedded Mitigation	Potential Effect (inc. Significance)	Further Mitigation	Residual Effect (inc. Significance)
Off-site entrances	N/A	Negligible (not significant)	N/A	Negligible (not significant)
Proposed ground floor amenity spaces	Proposed landscaping scheme and 1.5m x 3m 50% porous screens	Negligible (not significant)	N/A	Negligible (not significant)
Proposed terrace level amenity spaces	N/A	Negligible (not significant)	N/A	Negligible (not significant)
Existing amenity spaces	N/A	Negligible (not significant)	N/A	Negligible (not significant)
Strong winds	Proposed landscaping scheme and 1.5m x 3m 50% porous screens	Negligible (not significant)	N/A	Negligible (not significant)

- 11.63 As shown in Table 11.4, all residual effects relating to wind during construction and operation of the Proposed Development are Negligible, which is not significant.

Conclusions

- 11.64 A Computational Fluid Dynamics (CFD) based wind assessment was performed of the Proposed Development with both existing and cumulative surrounds.
- 11.65 Embedded wind mitigation measures were included in the form of the proposed landscaping scheme, raised (600mm) planters in Hanworth Square and a series of nineteen 1500mm wide by 3000mm tall 50% porous screens around the PBSA section of the proposed development.
- 11.66 With the above measures included, wind conditions were suitable for all thoroughfares, roadways, bus stops, proposed entrances, off-site entrances, proposed ground level amenity, proposed terrace level amenity and existing amenity spaces.
- 11.67 All wind effects are **negligible (not significant)**.

Assessment of Cumulative Effects

Approach

- 11.68 An additional CFD scenario as tested to ascertain the impact of local cumulative schemes. Those schemes which were considered as part of the assessment are set out in Table 11.5.
- 11.69 The following scheme was considered sufficiently advanced to be included within the baseline surrounds:
- Number 3 Circle Square (134288/FO/2022)
- 11.70 The following schemes were only included as part of the cumulative surrounds:
- Brunswick Neighbourhood (101664/FO/2013/N2); and
 - Kincardine Court Extension (24472/FO/2019).

Table 11.5 Cumulative Sites

Site Ref.	Application No.	Distance and Direction	Proposal	Scoped-in / Scoped-out	Justification
1.	101664/FO/2013/N2	Adjacent to the Site's eastern boundary	Brunswick Neighbourhood	Scoped-in	
2.	24472/FO/2019	15m east	Kincardine Court Extension	Scoped-in	
3.	134288/FO/2022	200m north-west	Number 3 Circle Square	Scoped-in	
4.	125799/FO/2019	420m north-west	MMU Science and Engineering Building	Scoped-out	Outside of study radius
5.	125573/FO/2019	675m north-west	First Street South	Scoped-out	Outside of study radius
6.	124972/FO/2019	570m northeast	Mayfield Plot O - Baring Street Office	Scoped-out	Outside of study radius
7.	125248/FO/2019	550m northeast	The Republic	Scoped-out	Outside of study radius
8.	N/A	Adjacent to the Site's southern boundary	Upper Brook Street Redevelopment	Scoped-in	

Likely Residual Cumulative Effects and their Significance

Construction

- 11.71 During construction, conditions will gradually change from the baseline conditions to conditions for the completed and operational development. Therefore, construction effects can be inferred from the effects due to the completed and operational development.
- 11.72 As all cumulative wind effects for the completed and operational development are negligible, all cumulative demolition and construction wind effects will also be **Negligible (not significant)**.

The Completed and Operational Development

- 11.73 A CFD scenario (Scenario 3) consisting of the proposed development within cumulative surrounds was tested to establish operational wind effects.
- 11.74 Figure 11.14 shows winter comfort at ground level for Scenario 3. Figure 11.15 shows summer comfort at ground level for Scenario 3. Figure 11.16 shows strong winds at ground level for Scenario 3.
- 11.75 Figure 11.17 shows winter comfort at terrace level for Scenario 3. Figure 11.18 shows summer comfort at terrace level for Scenario 3. Figure 11.19 shows strong winds at terrace level for Scenario 3.

Pedestrian Comfort

- 11.76 General thoroughfares and roadways range between suitable for sitting, standing and leisure walking in winter and for sitting and standing in summer. This is suitable for the intended use and is a **Negligible wind effect (not significant)**.
- 11.77 The bus stops on Upper Brook Street (marked B in results figures) are suitable for sitting or standing in all seasons. This is suitable for the intended use and is a **Negligible wind effect (not significant)**.
- 11.78 The entrances to the proposed development (marked E in results figures) range between suitable for sitting or standing in all seasons. This is suitable for the intended use and is a **Negligible wind effect (not significant)**.
- 11.79 The principal off-site entrances (marked O in results figures) range between suitable for sitting or standing in all seasons. This is suitable for the intended use and is a **Negligible wind effect (not significant)**.
- 11.80 The proposed ground floor amenity spaces around the site (marked A in results figures) are suitable for a mixture of sitting, standing and leisure walking in winter and for a mixture of sitting and standing in summer. This is suitable for the intended use and is a **Negligible wind effect (not significant)**.
- 11.81 The proposed terrace level amenity spaces are suitable for a mixture of sitting and standing in all seasons. This is suitable for the intended use and is a **Negligible wind effect (not significant)**.

- 11.82 The Gartside Gardens amenity space are suitable for a mixture of sitting and standing in winter and for sitting in summer. This is suitable for the intended use and is a **Negligible wind effect (not significant)**.
- 11.83 The off-site amenity by Engineering Buildings A and B are suitable for a mixture of sitting and standing in winter and for sitting in summer. This is suitable for the intended use and is a **Negligible wind effect (not significant)**.

Strong Winds

- 11.84 There are no regions of strong winds (exceeding 15m/s for more than 0.025% annually) at any accessible location, either at ground or terrace levels, within the study area for scenario with the proposed development and existing surrounds. This is a **Negligible wind effect (not significant)**.

Figure 11.14 Winter Comfort for Scenario 3 (Proposed Development with Cumulative Surrounds)

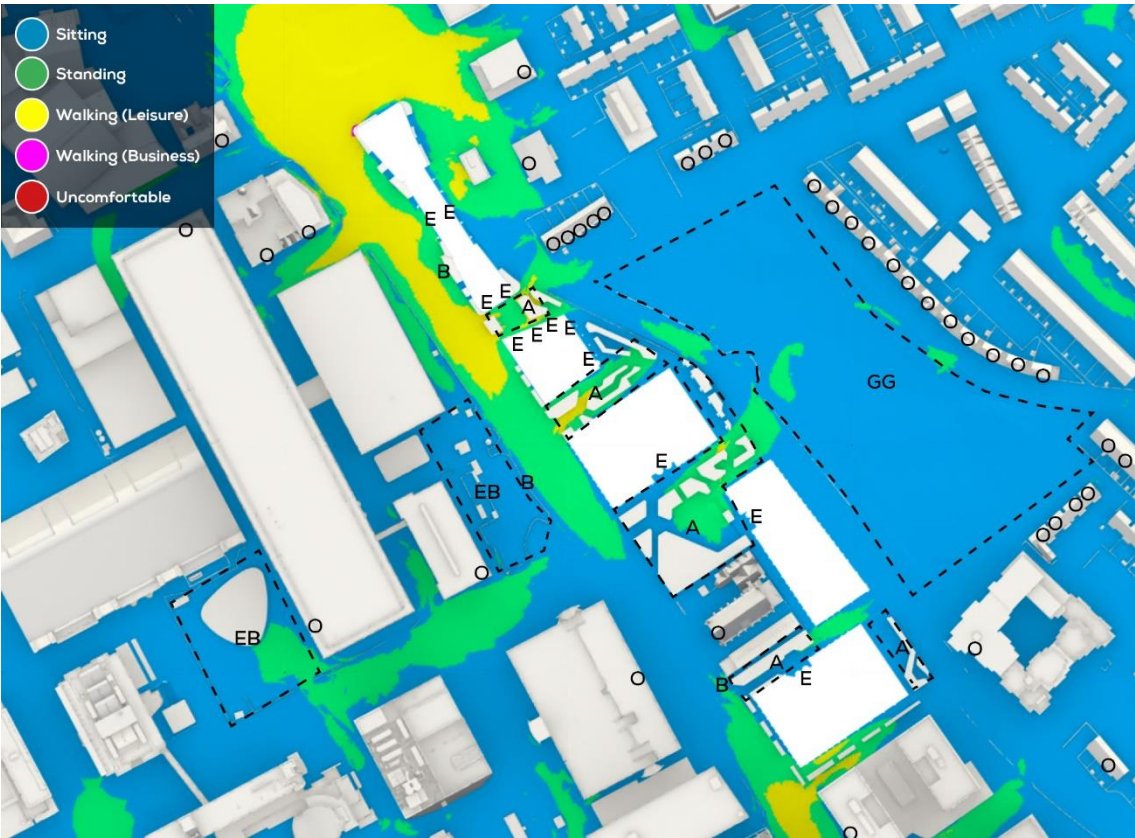


Figure 11.15 Summer Comfort for Scenario 3 (Proposed Development with Cumulative Surrounds)

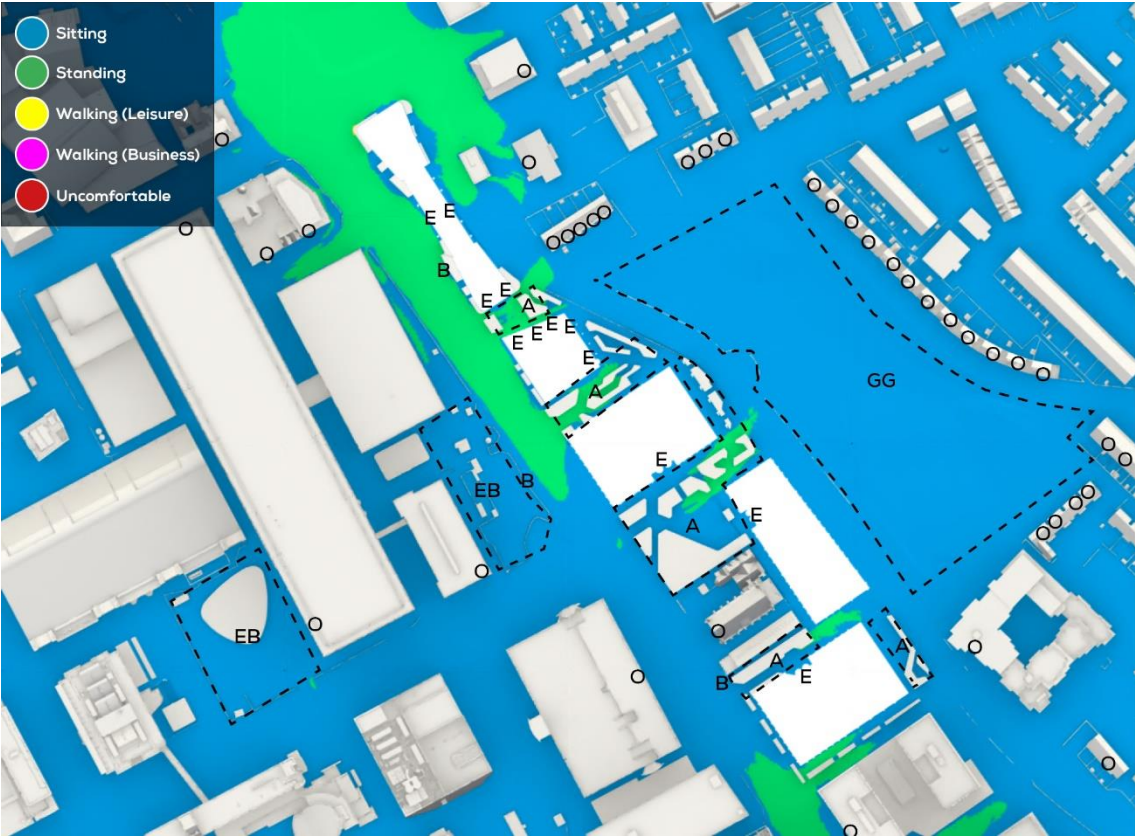


Figure 11.16 Strong Winds for Scenario 3 (Proposed Development with Cumulative Surrounds)



Figure 11.17 Winter Comfort at Terrace Level for Scenario 3 (Proposed Development with Cumulative Surrounds)

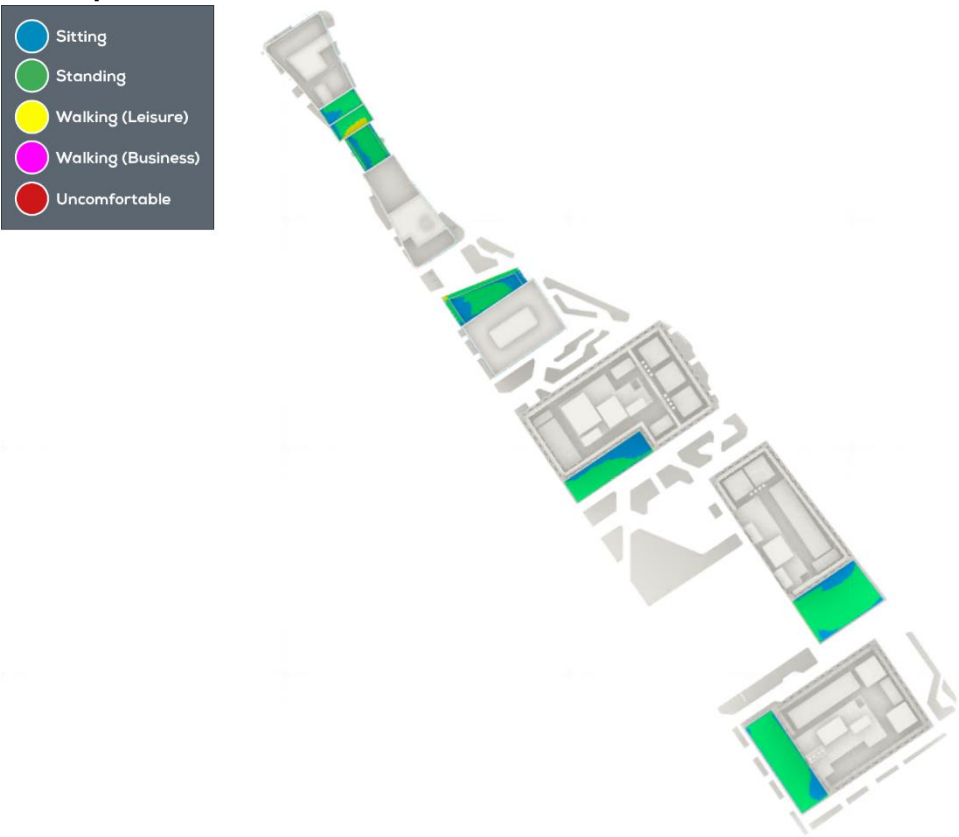


Figure 11.18 Summer Comfort at Terrace Level for Scenario 3 (Proposed Development with Cumulative Surrounds)

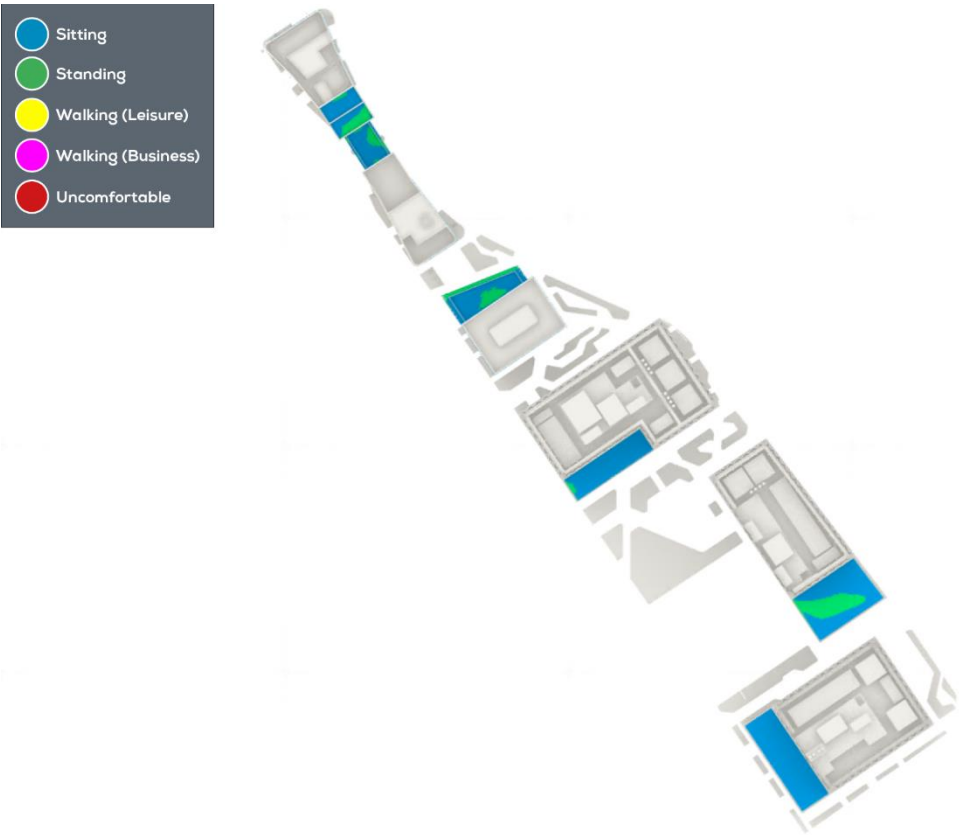


Figure 11.19 Strong Winds at Terrace Level for Scenario 3 (Proposed Development with Cumulative Surrounds)



12. Climate Change

Introduction

- 12.1 This chapter assesses the effects that may arise as a result of climate change on the Proposed Development (hereafter referred to as the 'Resilience Assessment') and the effects of GHG emissions associated with the Proposed Development (hereafter referred to as the 'GHG Emissions Assessment') in accordance with the Town and Country Planning (Environmental Impact Assessment) Regulations 2017¹ (as amended) (hereafter referred to as the 'EIA Regulations').
- 12.2 The chapter describes the methods used to assess the likely significant effects, the baseline conditions currently existing at the site and surroundings, the potential direct and indirect effects of climate change on the Proposed Development and the potential direct and indirect effects of the Proposed Development on climate change, the mitigation measures required to prevent, reduce, or offset the identified significant effects and the residual effects. It has been written by BWB Consulting Ltd.
- 12.3 This Chapter is supported by the following figures and appendices:
- Figure 12.1: Approximate Site Location;
 - Figure 12.2: Steps Involved in a GHG Assessment;
 - Figure 12.3: Average, Minimum and Maximum Temperatures Near the Site in 2022;
 - Appendix 12.1 - Steps Involved in Assessing Climate Change Resilience and Adaptation in EIA and Determining the Significance of Impacts;
 - Appendix 12.2 - Climatic Variables Considered for Each Sensitive Receptor;
 - Appendix 12.3 - Planning Policy Context;
 - Appendix 12.4 - District, Regional and National GHG Emissions (2020); and
 - Appendix 12.5 - Assessment of Resilience of the Proposed Development to Climate Change.

Assessment Methodology and Significance Criteria

- 12.4 The likely significant environmental effects to be considered within this Climate Change chapter are as follows:
- The resilience of the Proposed Development to climate change;
 - The influence of the Proposed Development on climate change; and

¹ UK Government (updated 2020) Town and Country Planning (Environmental Impact Assessment) Regulations 2017 (the 'EIA Regulations') Available from: <https://www.legislation.gov.uk/uksi/2017/571/2020-12-24>

- The cumulative effects of the Proposed Development.

12.5 The scope and methodologies for the resilience of the Proposed Development to climate change and the influence of the Proposed Development on climate change will be addressed in separate subsections in the remainder of this section.

Consultation

12.6 An informal EIA Scoping Note for the Proposed Development was submitted to Manchester City Council (MCC) on the 5th May 2023 to determine the extent of issues to be considered in the assessment and reported in this chapter of the ES.

12.7 In relation to the Resilience Assessment, it was proposed within the EIA Scoping Note to undertake a comprehensive and evidence-based assessment following IEMA guidance (2020)². The assessment would utilise climate information published by the UK Meteorological Office ('Met Office') and the latest UK Climate Projections (UKCP18) where available to determine the current and future baseline.

12.8 In relation to the GHG Assessment, it was proposed to undertake a proportionate assessment which included both quantitative and qualitative approaches to assessing GHG emissions in accordance with IEMA guidance³.

12.9 For clarity, sources of carbon emissions have been grouped to differentiate between primary, secondary and tertiary sources as follows:

12.10 Scope 1 refers to emissions from sources that an organisation owns or controls directly – for example from burning fuel in our fleet of vehicles (if they're not electrically-powered).

12.11 Scope 2 are emissions that a company causes indirectly and come from where the energy it purchases and uses is produced. For example, the emissions caused when generating the electricity that we use in our buildings would fall into this category.

12.12 Scope 3 encompasses emissions that are not produced by the company itself and are not the result of activities from assets owned or controlled by them, but by those that it's indirectly responsible for up and down its value chain. An example of this is when we buy, use and dispose of products from suppliers. Scope 3 emissions include all sources not within the scope 1 and 2 boundaries.

12.13 **Table 12.1** sets out the GHG emissions considered and whether it was proposed to scope them in or out of the GHG Assessment and whether it was proposed to assess them quantitatively or qualitatively if scoped in. It was proposed to scope natural capital out of the assessment given the low levels of green and blue infrastructure on the existing Site. The scoping process was used to determine a proportionate assessment for the Proposed Development. It should be recognised that qualitative assessments are acceptable in accordance with IEMA guidance³ where, for example, data is unavailable.

² IEMA (2020) Environmental Impact Assessment Guide to Climate Change Resilience and Adaptation

³ IEMA (2022) 'Assessing Greenhouse Gas Emissions and Evaluating their Significance'

Table 12.1: GHG Emissions Scoping

GHG Emissions Sources	Description	Scoped In / Out	Quantitative / Qualitative
Construction			
Direct GHG (Energy) – Scope 1	Construction energy – On-site fuel combustion (e.g. construction plant)	Scoped In	Quantitative
Direct GHG (Vehicles) – Scope 1	Vehicular emissions.	Scoped In	Quantitative
Indirect GHG (Construction) - Scope 3	Embodied carbon associated with construction (materials and construction process)	Scoped In	Quantitative
Solid Waste - Scope 3	Waste arising during construction	Scoped In	Qualitative
Water - Scope 3	Water demand associated with construction works	Scoped In	Qualitative
Operation			
Direct GHG (vehicles) – Scope 1	Vehicular emissions.	Scoped In	Quantitative (consistent with Transport Assessment))
Direct GHG (Energy) – Scope 1	Operational energy – On-site fuel combustion (e.g. gas, biomass, solar provisions, vehicular emission)	Scoped In	Quantitative (Consistent with Energy Strategy)
Indirect GHG (Energy) – Scope 2	Operational energy – Off-site generation (e.g. Grid electricity, heat and steam).	Scoped In	Quantitative
Water – Scope 3	Water demand associated with the buildings	Scoped In	Qualitative
Solid Waste - Scope 3	Waste arising from building occupants and end users / visitors	Scoped In	Qualitative
Natural Capital – Scope 3	Green and blue infrastructure (e.g. soft landscaping, water bodies, sustainable drainage features)	Scoped Out	N/A

Methodology to Assess the Resilience of the Proposed Development to Climate Change

- 12.14 IEMA's guidance² for making a development resilient against, and adaptable to, climate change stresses that climate change should be an integrated consideration within the EIA. This includes, for example, in the review of alternatives and the project design, how baseline environmental conditions may change with a changing climate and the resilience of mitigation measures to climate change. It should be informed by an understanding of future climate change scenarios and of the potential range of effects associated with these projections.
- 12.15 By its very nature, climate change spans a range of topics and therefore elements of climate change are considered throughout this ES and other planning documents. This assessment applies the guiding methodology, the steps of which are set out in **Table 1** of **Appendix 12.1**.

Study Area

- 12.16 The study area consists of the infrastructure within the Site, as shown in the Site Layout Plan (Drawing No.: UBS-HBA-SW-00-DR-A-081005). Information on climate trends and projections at the regional and local scale (where available) are utilised.
- 12.17 The location of the Site is shown in **Figure 12.1**.

Temporal Scope

- 12.18 As the construction phase of the Proposed Development is expected to take approximately 7.5 years (see **Chapter 5: Proposed Development**), the variability of the climate in the last 10 years has been taken into account when judging its resilience to climate change during this phase. The identification of recent extreme short-term weather events has also been done, as recommended by IEMA². Given the length of the construction phase, it will not be considered within the Resilience Assessment. However, climate change-related mitigation measures for the construction phase will be recommended to bolster resilience.
- 12.19 In relation to the operational phase, the long-term impacts of climate change, as predicted in the UKCP18, will be used to judge its resilience. This accords with IEMA guidance². Climate change-related mitigation measures for the operational phase will be based on these long-term projections, looking at changes over the planned lifetime of the Proposed Development, which is assumed to be at least 60 years from commissioning.

Baseline Data Collection

- 12.20 The baseline data collected and presented in this Chapter were sourced through desktop research, as well as information from other chapters within this ES.
- 12.21 Historical regional weather data for North-West England published by the Met Office and data from relevant websites will be utilised to establish the current climate within the region and the Site in which the Proposed Development would be located.
- 12.22 Climate trends and projections are published by the Met Office through the UKCP website and provide the most up to date assessment of how the climate of the UK

may change over this century. The projections that are used to define the future baseline against which resilience of the Proposed Development is assessed are 'UKCP18' projections for the 2080s under a high emissions scenario ('Representative Concentration Pathway⁴ 8.5') for the 12 km² UKCP18 grid square in which the Proposed Development would be located.

12.23 Data used within the Resilience Assessment has been collected from the following sources:

- Relevant websites which provide information on recent weather patterns at the regional and local scales;
- UK Climate Projections (2018) (UKCP18⁵) – UK climate change projections used to define the future baseline against which the resilience of the Proposed Development to climate change is assessed;
- Centre for Environmental Data Analysis (CEDA⁶) – for observed climate data;
- Met Office regional climate profile for North West England and Isle of Man⁷ – for observed climate data;
- Relevant websites which provide information on recent weather patterns at the local scale; and
- Where relevant, information within assessments offered in respect of other Chapters within this ES.

12.24 Taken together, it is considered that the data sources in combination with other topical assessments that form the Application provide a robust indication of the prevailing baseline situation relevant to the assessment reported within this Chapter.

Identifying Sensitive Receptors

12.25 Sensitive receptors were identified through examination of:

- The Site Plan Layout (Drawing No.: UBS-HBA-SW-00-DR-A-081005) for the Proposed Development;
- Other Chapters within this ES;
- Other documents which will be submitted as part of the Application, such as the Design and Access Statement; and
- Professional judgement.

⁴ A Representative Concentration Pathway is a greenhouse gas concentration trajectory adopted by the International Panel on Climate Change (IPCC). RCP 8.5 is the worst-case scenario modelled for climate projections.

⁵ Met Office (2018) 'UK Climate Projections (UKCP)'. Available from: <https://www.metoffice.gov.uk/research/approach/collaboration/ukcp>

⁶ CEDA Catalogue 'UK Climate Projections 2018 (UKCP18)'. Available from: <https://catalogue.ceda.ac.uk/uuid/c700e47ca45d4c43b213fe879863d589?jump=related-docs-anchor>

⁷ Met Office (2016) 'North West England & Isle of Man: climate' Available from: <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>

12.26 Following a review of the above information, the following receptors have been identified as being sensitive:

- Substructure;
- Infrastructure / Building Structures;
- Roads and Pathways;
- Landscaping / Habitats; and
- Employees, Ancillary Equipment (construction phase) / Building Occupants & End Users (operational phase).

12.27 **Appendix 12.2** lists the climate variables, including extreme weather events, which have been considered in the Resilience Assessment (indicated with a tick in the table). Blank cells indicate variables that have not been considered further in this assessment due to geography and/or the context of the Proposed Development. A risk-based approach to assessing change adaptation for settlements and infrastructure has been applied and adapted using best practice guidance and professional judgement^{2,8}.

12.28 Given the location of the Site in relation to the coast, potential sea-related effects have not been considered relevant to the Resilience Assessment and have therefore been excluded. The potential effects of wind have been scoped out of the Resilience Assessment given the International Panel on Climate Change's (IPCC) prediction that the increase in wind speeds for the second half of the 21st century is not expected to deviate significantly compared to the current variability of wind speeds⁹. Furthermore, **Chapter 11- Wind Microclimate** of this ES states that "*There are no regions of strong winds (exceeding 15m/s for more than 0.025% annually) within the study area for the baseline scenario*". The potential effects of humidity and the salinity / pH have also been excluded based on the professional judgement that any potential future effects of these variables would not lead to significant impacts.

Assumptions and Limitations

12.29 The assumptions and limitations which apply to the Resilience Assessment are outlined in **Table 12.2**. For each assumption or limitation, an explanation of the possible effect of the assumption has been provided, as well as a description of any corrective actions that have been taken to adjust for any limitations. These assumptions are considered reasonable and are not likely to impact on the outcome of the assessment.

⁸ Standards Australia (2013) 'Climate change adaptation for settlements and infrastructure - A risk based approach' Available from: https://infostore.saiglobal.com/en-gb/standards/as-5334-2013-119943_saig_as_as_251367/

⁹ Met Office (no date) 'UK and Global extreme events – Wind storms'. Available from: <https://www.metoffice.gov.uk/research/climate/understanding-climate/uk-and-global-extreme-events-wind-storms>

Table 12.2: Resilience Assessment Assumption and Limitations

Assumption / Limitation	Consequence	Resolution
The assessment undertaken provides a broad indication of the potential impacts of climate change on the Proposed Development.	The assessment is based on a qualitative assessment and professional judgement.	An approach has been developed and applied in this assessment based on existing best practice IEMA guidance ² .
There is currently no agreed methodology that should be applied for assessing the vulnerability of major schemes under the EIA Regulations.	The assessment has not been undertaken in line with specific standards.	An approach has been developed and applied in this assessment based on existing best practice IEMA guidance ² .
The UKCP18 projections have been used to infer future changes in a range of climate variables that may affect the resilience of the Proposed Development to climate change. At the time of writing, these represent the most up-to-date representation of future climate in the UK.	The UKCP18 data currently available does not provide data from extreme precipitation, drought, snow and ice, extreme temperature, solar radiation, wind or relative humidity. Data for these aspects has been taken from UKCP09. 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 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 (Representative Concentration Pathways (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 resilience has been assessed. This is consistent with the precautionary principle (i.e. 'worst case' scenario).
Analysis of climate projections is based on selected observational data available at the time of assessment.	Future climate projections, which may be more accurate, could not be accounted for within this 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.

Assumption / Limitation	Consequence	Resolution
The determination of resilience has been undertaken under the assumption that industry design standards will be adhered to where detailed information is unavailable.	Industry design standards may not have been updated to account for climate resilience.	To be applied, as applicable, as the design, construction and operation of the Proposed Development develops.
Limitations associated with the approach taken for the in-combination climate change impacts (ICCI) Assessment relate to uncertainties inherent within UKCP18 Projections.	Climate change, by its very nature, is associated with a range of assumptions and limitations. For example, there is uncertainty regarding how global climatic trends will be reflected at the regional scale. To overcome these issues, probabilistic forecast climate change data has been used from UKCP18. This has been coupled with the replication of proven effective approaches undertaken for similar project types.	Assessments made in relation to 'consequence' and 'likelihood' rely on professional judgement and evidence gathered through other environmental disciplines. All assumptions and limitations, including any exclusions, together with assumptions for choices and criteria leading to exclusion of input and output data have been documented as part of the assessment.

Determining the Significance of Impacts

Vulnerability and Sensitivity of Receptors

- 12.30 The Resilience Assessment has not only identified the Proposed Development's potentially sensitive receptors to climate change, but also determined each receptor's sensitivity to these changes should they occur. In simplistic terms, the vulnerability of the proposals are determined as follows:

$$\text{sensitivity of the receptor} \times \text{susceptibility of the proposals to climatic change} = \text{the degree of vulnerability}$$

- 12.31 To aid the user, definitions for each have been set out in **Table 12.3**.

Table 12.3: Definitions for Sensitivity of Receptors

Term	Definition
Receptor's Sensitivity	The degree of response of a receiver to a change and a function of its capacity to accommodate and recover from a change if it is affected.
Receptor's Susceptibility	Its ability to be affected by a change
Receptor's Vulnerability	A measure of its potential exposure to the changing climate

- 12.32 Identifying the sensitivity of receptors has been achieved by determining each receptor's susceptibility and vulnerability to climate change.
- 12.33 Criteria for determining a receptor's susceptibility in this assessment are included within **Table 2 of Appendix 12.1**
- 12.34 Criteria for determining a receptor's vulnerability are included within **Table 3 of Appendix 12.1**.
- 12.35 Assessing the significance of potential effects on the Proposed Development has applied a risk-based methodology for identifying potential climate impacts and assessing their severity (IEMA²) and can be summarised into the following steps:
- Identifying potential climate change risks to a scheme or project;
 - Assessing these risks (potentially prioritising to identify the most severe); and
 - Formulating mitigation actions to reduce the impact of the identified risks.
- 12.36 The assessment of risk to the Proposed Development includes assessing the likelihood (or probability) and consequence of the impacts identified. The likelihood and consequence of each effect have been qualitatively assessed using the descriptions in **Table 4** and **Table 5 of Appendix 12.1**. The determination of the likelihood and consequence have been based on professional judgement and IEMA guidance²).
- 12.37 The assessment of the magnitude of impacts to receptors has considered factors including:
- The acceptability of any disruption in use if the Proposed Development fails;
 - Its capital value if it had to be replaced;
 - Its impact on neighbours;
 - The vulnerability of the Proposed Development element or receptor; and
 - Whether there are dependencies between the receptor and any interconnected network of nationally important assets on the Proposed Development.

Significance of Effects

- 12.38 The significance of the potential effects of climate change on receptors is determined by combining the likelihood and consequence ratings in **Tables 4** and **5** of **Appendix 12.1**, respectively, as shown in **Table 12.4**.

Table 12.4: Matrix for Significance for Resilience Assessment

Measure of Consequence	Measure of Likelihood				
	Very Low	Low	Medium	High	Very High
Negligible	Not significant	Not significant	Not significant	Not significant	Not significant
Minor	Not significant	Not significant	Not significant	Significant	Significant
Moderate	Not significant	Not significant	Significant	Significant	Significant
Large	Not significant	Significant	Significant	Significant	Significant
Very Large	Not Significant	Significant	Significant	Significant	Significant

- 12.39 There are some instances where the effects of climate change may be beneficial for receptors. This is clearly stated where relevant within the Resilience Assessment.
- 12.40 In accordance with best practice, short-term effects are considered to be those associated with the construction work and long-term effects are those associated with the completed and operational Proposed Development.

Applying Mitigation

- 12.41 Suitable mitigation measures to address adverse effects on the ability of resources and receptors to adapt to climate change will be developed by other topical specialists and chapter authors contributing to the ES. For example, climate change projections based on current Environment Protection Agency (EPA) guidance have been used in the Flood Risk Assessment as part of the assessment of drainage and flood-risk issues, and appropriate mitigation and design responses proposed.
- 12.42 Measures will be embedded into the design of the Proposed Development which would increase its resilience to climate change. Following the identification of any residual impacts, additional mitigation measures might also be recommended to further increase the Proposed Development's resilience to climate change.

Influence of the Proposed Development on Climate Change

- 12.43 The GHG Assessment relates to the effects of GHG emissions relating to the Proposed Development which would contribute to climate change. The Proposed Development will be assessed within the context of the UK's evolving carbon agenda,

as set-out in **Appendix 12.3** The GHG Assessment follows IEMA's best practice procedures, the steps of which are illustrated in **Figure 12.2**.

- 12.44 In selecting or developing an approach for a GHG Assessment suitable for the purposes of EIA, the aim should be to deliver a robust, proportionate, appropriate and consistent assessment..
- 12.45 In summary, this chapter provides a quantitative assessment of GHG emissions for vehicle use during operation only.
- 12.46 GHGs related to vehicular emissions during construction and operation have been considered by utilising current and future baseline data provided by the Transport Consultant for the Proposed Development.

Study Area

- 12.47 GHG emissions are not geographically limited. They have a global effect rather than directly affecting any specific local receptor to which a level of sensitivity can be assigned. The GHG Assessment is not restricted by geographical area and a spatially limited study boundary cannot be clearly drawn as the scale of the impact considered in the context of atmospheric GHG concentrations is global. Therefore, in accordance with IEMA guidance³, the receptor for GHG emissions is the global atmosphere. Reference has been made to the global context as appropriate. However, for the purposes of this assessment, the study area relates to the Proposed Development's access roads, as shown in the Site Plan Layout (Drawing No.: UBS-HBA-SW-00-DR-A-081005), and the immediate roads that vehicles either enter or exit the Site from. Traffic flows associated with other roads included within the affected transport network, as set out in data provided by the Transport Consultant for the Proposed Development, have not been included to avoid the double counting of traffic. Assumptions for the journey length of each vehicle is set out in the 'Baseline Data Collection' sub-section below.

Identifying Sensitive Receptors

- 12.48 In accordance with IEMA guidance³, the global environment within which GHG emissions are emitted is considered to be the sensitive receptor within the GHG Assessment; the sensitivity of the global atmosphere is high.

Sources of GHG Emissions

- 12.49 The Study Area is comprised of 'direct'¹⁰ and 'indirect'¹¹ emissions sources as set out in **Table 12.5**.

¹⁰ Direct GHG emissions are emissions from sources that are owned or controlled by the reporting entity.

¹¹ Indirect GHG emissions are emissions that are a consequence of the activities of the reporting entity but occur at sources owned or controlled by another entity.

Table 12.5: GHG Emissions Sources

GHG Emissions Sources	Emission Type	Description
Construction	Direct	Direct sources of GHG emissions associated with vehicle movements and construction plant.
	Indirect	Embodied carbon associated with construction (materials, construction process, in-use building component maintenance and eventual demolition).
Occupiers / End Users	Direct	User behaviour during the operational phase, including heavy duty vehicles (HGVs) associated with waste collection.
	Indirect	Business / recreational travel, employee commuting and other vehicular trips that start or end within the Site.
Operational Requirements	Indirect	On-site energy consumption and generation.

12.50 At the time of writing, there is sufficient information available to quantify the following sources of GHG emissions:

- Direct sources of GHG emissions associated with vehicle movements during the construction and operational phases;
- Embodied carbon associated with construction; and
- On-site energy consumption during the operational phase.

12.51 GHG emissions associated with solid waste and water consumption have been assessed qualitatively rather than quantitatively as it is the professional opinion of the author that GHG emissions associated with these sources would make up a very small minority of the total GHG emissions and would not have a material effect on whether total GHG emissions would constitute a significant adverse impact.

Baseline Data Collection

12.52 Baseline data for the GHG Assessment has been collected from the following sources:

- UK Local and regional CO₂ emissions – data tables¹²; and
- The traffic data provided by the Transport Consultant with respect to development-related vehicle movements during the construction and operational phases.

12.53 24-hour annual average daily traffic (AADT) flows for light duty vehicles (LDVs) and heavy goods vehicles (HGVs) were provided by the Transport Consultant (Focus Transport Planning) for both the construction and operational phases. All trip rates are two-way. Furthermore, following agreement between the Transport Consultant and MCC and Transport for Greater Manchester, the future baselines for both the construction and operational phases have been assessed to be the same as the 2022 baseline year.

12.54 In the absence of pre-defined distances for commuter vehicles (LDVs), the most recent UK average journey distance as defined by the National Travel Survey¹³ (8.4 miles/13.1 km) was applied. It should be noted that although the UK average journey distance has decreased according to the most recent National Travel Survey¹⁴, it was considered that pre-Covid19 data should be used. In lieu of data related to the average journey distance of HDVs in the UK, an average journey length of 75 km has been assumed based on BWB's experience of similar developments. The roads were classified as "Urban (not London)" as applicable. An assumed load of 100% has been applied for all vehicle movements. An average vehicle speed of 30 mph (48 kph) has been assumed based on the speed limit of the roads surrounding the Site. A summary of the assumptions of the annual inputs used in the carbon modelling are provided in **Table 12.6**.

Table 12.6: Traffic Modelling Assumptions

Proposed Development Site Traffic Modelling Assumption	
Average Link Length (LDV)	13.1 km
Average Link Length (HDV)	75 km
Road Type	Urban (not London)
Assumed load	100%
Average vehicle speed	48 kph / 30 mph

12.55 The following scenarios were provided for the construction phase:

- Baseline year without the Proposed Development (2022);
- Construction Year 'without development' scenario (2024); and
- Construction Year 'with development' scenario (2024).

¹² Gov.uk (2022) 'UK local authority and regional greenhouse gas emissions national statistics'. Available from: <https://www.gov.uk/government/collections/uk-local-authority-and-regional-greenhouse-gas-emissions-national-statistics>

¹³ Department for Transport (2019) 'National Travel Survey England'. Available from: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/906276/national-travel-survey-2019.pdf

¹⁴ Department for Transport (2022) 'National Travel Survey England'. Available from: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1101636/nts-2021-factsheet.pdf

12.56 Traffic data flow assumptions for the three scenarios above are shown in **Table 12.7**. Construction of the Proposed Development is expected to occur in three phases, commencing in Quarter 2 of 2024 and lasting approximately 7.5 years. As the most intense construction work is anticipated to occur during 2024, this year has been chosen as the 'Construction Year' to provide a 'worst-case scenario'.

Table 12.7: Construction Year Traffic Data

	Baseline Year (2022)		Construction Year 'without development' (2024)		Construction Year 'with development' (2024)	
	LDV	HDV	LDV	HDV	LDV	HDV
Total Network	130,790	2,621	130,790	2,621	130,952	2,901
Daily Occupier Increase Compared to Baseline	N/A	N/A	0	0	162	280

12.57 The following scenarios were provided for the operational phase:

- Baseline year without the Proposed Development (2022);
- Future Year 'without development' scenario (2031); and
- Future Year 'with development' scenario (2031).

12.58 Traffic data flow assumptions for the three scenarios above are shown in **Table 12.8**. Given that construction is expected to commence in Quarter 2 of 2024 and is expected to last approximately 7.5 years, it has been assumed that the Proposed Development will be built out in its entirety by 2031. Furthermore, following agreement between the Transport Consultant and MCC and Transport for Greater Manchester.

Table 12.8: Future Year Traffic Data

	Baseline Year (2022)		Future Year 'without development' (2031)		Future Year 'with development' (2031)	
	LDV	HDV	LDV	HDV	LDV	HDV
Total Network	130,790	2,621	130,790	2,621	137,527	2,722
Daily Occupier Increase Compared to Baseline	N/A	N/A	0	0	+ 6,737	+ 101

Quantifying Effects

- 12.59 GHG quantification follows the principles outlined in key documents such as the GHG Protocol Corporate Standard¹⁵, BS EN ISO 14064-2:2019¹⁶ or PAS 2080.
- 12.60 Calculations have been taken at different scales reflecting specific activities, components or elements of construction. Therefore, individual calculations have been summed to form a GHG emissions inventory for the quantification as a whole.
- 12.61 GHGs include the following seven gases: CO₂, Methane (CH₄), Nitrous oxide (N₂O), Hydrofluorocarbons (HFCs), Perfluorocarbons (PFCs), Sulphur hexafluoride (SF₆) and Nitrogen trifluoride (NF₃). CO₂ equivalent, abbreviated as 'CO₂e', is a metric used to compare the emissions from various GHGs on the basis of their global-warming potential (GWP) for a 100-year period, by converting amounts of other gases to the equivalent amount of CO₂ with the same GWP. This includes scaling factors reflecting improvements in the quality of fuel, the increase in EVs, and fleet composition based on European emission standards from pre-Euro I to Euro 6/VI (including Euro 6 subcategories).
- 12.62 When undertaking a quantification calculation the formula for determining a GHG emission (or removal value), associated with the construction works, energy consumption and vehicular trips has applied the following structure:

$$GHG\ emission\ factor \times Activity\ data = GHG\ emission\ or\ removal$$

- 12.63 The CO₂e for a gas is derived by multiplying the tonnes of the gas by the associated GWP. Reporting of GHG emissions in this Chapter is done in kilo tonnes of CO₂e (ktCO₂e), which is the cumulative emissions of GHGs for a particular process (i.e. fossil fuel-powered vehicles emissions result in more types of GHGs than just CO₂).

Assessing Effects

Vehicular Emissions

- 12.64 An indicative assessment for vehicular emissions during both the construction phase and operational phase was determined for relevant scenarios using applicable traffic data and Department of the Environment, Food and Rural Affairs (Defra) Emission Factors Toolkit (EFT) v11.0, which is the most current iteration of the tool at the time of writing and is deemed suitable for large scale and high-level applications. The EFT allows users to calculate road vehicle pollutant emission rates for NO_x, PM₁₀, PM_{2.5} and CO₂, the GHGs which comprise the vast majority of exhaust fumes from vehicles, for a specified year, road type, vehicle speed and vehicle fleet composition. The main product of fuel combustion in vehicles is CO₂. Though long-lived gases, like CH₄, N₂O, CO, and H₂, are GHGs and have global effects on atmospheric chemistry and climate, they have not been assessed independently as they are more difficult to estimate and depend strongly on technology, vehicle type and driving conditions, information which is not available at the time of writing. What is more, the contribution of these gases are considered small in comparison to CO₂.

¹⁵ World Resources Institute (2004): The Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard.

¹⁶ British Standards Institute (2019): Greenhouse gases - Specification with guidance at the project level for quantification, monitoring and reporting of greenhouse gas emission reductions or removal enhancements

- 12.65 The EFT is updated periodically due to updates to underlying data including vehicle fleet composition and emissions factors. The default fleet projections in EFT v11.0 are based on fleet growth assumptions which were current before the Covid-19 outbreak in the UK. In consequence, default fleet outputs from the tool do not reflect short or longer term impacts on emissions in 2020 and beyond resulting from behavioural change during the national or local lockdowns. The projection method takes into account the local baseline Euro fleet and the national fleet projections. It is assumed that the local fleet will follow the same profile as the national fleet, and that the difference between the two fleets is due to the local fleet being either 'ahead' or 'behind' the national fleet in terms of Euro class uptake.
- 12.66 A summary of the results of GHG emission modelling for the operational phase are included in **Table 12.11** in the 'Assessment of Likely Significant Effects' section of this Chapter.

Energy Emissions

- 12.67 GHG emissions from on-site energy consumption has been assessed qualitatively as information on the amount of kilowatt hours per year required for the Proposed Development is unavailable at this stage.

Maintenance

- 12.68 Maintenance associated with the Proposed Development is not considered to be a significant source of GHG emissions. Therefore, this has been scoped out.

Decommissioning

- 12.69 The effects of the decommissioning phase of the Proposed Development have been scoped out due to a design life of over 25 years and uncertainties around the carbon intensity of fuels which would be used within the deconstruction techniques. It is therefore not possible to proportionally assess effects and impacts during decommissioning. Given that decommissioning is anticipated to occur post 2050, and consistent with policy, the UK construction sector (for decommissioning works) is expected to be net zero.

Determining Significance

- 12.70 The key information from IEMA guidance³ in relation to determining the significance of effects is as follows:
- *"The GHG emissions from all projects will contribute to climate change, the largest interrelated cumulative environmental effect. GHG emissions have a combined environmental effect that is approaching a scientifically defined environmental limit; as such any GHG emissions or reductions from a project might be considered to be significant";*
 - *"The crux of significance is not whether a project emits GHG emissions, nor even the magnitude of GHG emissions alone, but whether it contributes to reducing GHG emissions relative to a comparable baseline consistent with a trajectory towards net zero by 2050";*

- *"The UK has set a legally binding GHG reduction target for 2050 with interim five-yearly carbon budgets which define a trajectory towards net zero. The 2050 target (and interim budgets set to date) are, according to the CCC, compatible with the required magnitude and rate of GHG emissions reductions required in the UK to meet the goals of the Paris Agreement, thereby limiting severe adverse effects";*
- *"To meet the 2050 target and interim budgets, action is required to reduce GHG emissions from all sectors, including projects in the built and natural environment. An EIA for any development must therefore give proportionate consideration to whether and how that development will contribute to or jeopardise the achievement of these targets";*
- *"For the avoidance of doubt, a 'minor adverse' or 'negligible' non-significant effect conclusion does not necessarily refer to the magnitude of GHG emissions being carbon neutral (i.e. zero on balance) but refers to the likelihood of avoiding severe climate change, aligning project emissions with a science-based 1.5°C compatible trajectory, and achieving net zero by 2050"; and*
- *"When evaluating significance, all new GHG emissions contribute to a significant negative environmental effect; however, some projects will replace existing development that have higher GHG profiles. The significance of a project's emissions should therefore be based on its net impact, which may be positive, negative or negligible".*

12.71 Although it is accepted that all GHG emissions contribute to climate change, IEMA has set out how to determine whether GHG emissions associated with individual developments are significant in EIA terms.

12.72 IEMA guidance³ states that the significance of effects can be defined and compared against various carbon budgets, such as local authority budgets and sectoral budgets. Where this cannot be achieved, or where it is more suitable, the determination of significance can also be defined and compared against UK Carbon Budget Targets, which are set out in **Table 12.9**. As yearly carbon budgets set by MCC are deemed applicable to private development, and in the absence of agreed, quantifiable, thresholds for what level of GHG emissions is considered significant in an EIA, IEMA guidance and professional judgement based on both sectoral and UK carbon budgets has been used to assess the significance of effects.

Table 12.9: UK Carbon Budgets

Carbon Budget Years	Total Carbon Budget (ktCO ₂ e)
2023 – 2027 (4 th Carbon Budget)	1,950,000
2028 – 2032 (5 th Carbon Budget)	1,765,000
2033 – 2037 (6 th Carbon Budget)	965,000

12.73 IEMA Guidance³ notes that in relation to the largest-scale developments, “an indicative threshold of 5% of the UK or devolved administration carbon budget in the applicable time period is proposed, at which the magnitude of GHG emissions irrespective of any reductions is likely to be significant. A project that meets this threshold can in itself materially affect achievement of the carbon budget”. As the Proposed Development is not considered to qualify as a development of the largest scale, a more stringent threshold of 1% of the relevant sectoral and UK Carbon Budgets has been set.

12.74 **Table 12.10** sets out the significance criteria for the GHG Assessment.

Table 12.10: Significance Criteria for GHG Emissions

Effect Significance	Description of Criteria
Negligible	The project's GHG impacts would be reduced through measures that go well beyond existing and emerging policy and design standards for projects of this type, such that radical decarbonisation or net zero is achieved well before 2050. A project with negligible effects provides GHG performance that is well 'ahead of the curve' for the trajectory towards net zero and has minimal residual emissions; or emissions are equal to the emissions predicted in the 2024 (construction) / 2031 (operational) 'Do Nothing' baseline scenarios.
Minor Adverse	The project's GHG impacts would be fully consistent with applicable existing and emerging policy requirements and good practice design standards for projects of this type. A project with minor adverse effects is fully in line with measures necessary to achieve the UK's trajectory towards net zero, and/or: An increase in combined (i.e. total) emissions predicted in the 2024 (construction) / 2031 (operational) 'Do Nothing' baseline scenarios, but less than 1% of total emissions from the relevant sectoral and UK Carbon Budgets and with a commitment to reasonable and deliverable measures to seek to reduce these emissions in accordance with relevant policy and guidance.
Moderate Adverse	The project's GHG impacts are partially mitigated and may partially meet the applicable existing and emerging policy requirements but would not fully contribute to decarbonisation in line with local and national policy goals for projects of this type. A project with moderate adverse effects falls short of fully contributing to the UK's trajectory towards net zero, and/or: An increase in combined (i.e. total) emissions predicted in the 2024 (construction) / 2031 (operational) 'Do Nothing' baseline scenarios, but less than 1% of total emissions from the relevant sectoral and UK Carbon Budgets and without a commitment to reasonable and deliverable measures to seek to reduce these emissions, in accordance with relevant policy and guidance.
Major Adverse	The project's GHG impacts are not mitigated or are only compliant with do-minimum standards set through regulation, and do not provide further reductions required by existing local and national policy for projects of this type. A project with major adverse effects is locking in emissions and does not make a meaningful contribution to the UK's trajectory towards net zero, and/or:

Effect Significance	Description of Criteria
	An increase in combined (i.e total) emissions predicted in the 2024 (construction) / 2031 (operational) 'Do Nothing' baseline scenarios, that results in GHG emissions representing greater than 1% of total emissions from the relevant sectoral and UK Carbon Budgets.

- 12.75 For the purposes of the GHG Assessment, negligible and minor adverse effects are not considered to be significant in EIA terms and in line with measures necessary to achieve the UK's trajectory towards net zero.

Applying Mitigation

- 12.76 It is important that project designers incorporate measures to reduce GHG emissions at an early stage. GHG mitigation is best achieved by taking a planned and focused approach following the IEMA GHG management hierarchy principles. The IEMA GHG Management Hierarchy, as shown in **Table 12.11**, comprises the following stages: eliminate; reduce; substitute and compensate.

Table 12.11: GHG Mitigation Hierarchy

Step	Strategy
Eliminate	Within all major development decisions, investigate and deploy options to eliminate GHG emissions.
Reduce	Ensure that construction and operational activities will deliver efficient use of energy and resources.
Substitute	Commit to renewables and low carbon materials, methods and technologies in place of more carbon intensive sources.
Compensate	Develop a strategy to compensate residual or 'unavoidable' emissions.

Assumptions and Limitations

- 12.77 Uncertainty can arise from quality of data, study boundaries and period of assessment, and can never be eliminated from a study.
- 12.78 The assumptions and limitations which apply to the GHG Assessment are outlined in **Table 12.12**. For each assumption or limitation, an explanation of the possible effect of the assumption has been provided as well as a description of any corrective actions that have been taken to adjust for any limitations. These assumptions are considered reasonable and are not likely to impact on the outcome of the GHG Assessment.

Table 12.12: GHG Assessment Assumptions and Limitations

Assumption / Limitation	Consequence	Resolution
Data on the anticipated transportation distances for LDVs and HDVs along links modelled for the Transport Assessment have not been provided and have been based on average journey distances as defined by the National Travel Survey ¹³ .	Any changes to the distances could be considered to materially affect the chapter outcomes.	The transportation distances assumed have been used in GHG emission modelling using the Defra EFT and are considered reasonable based on professional judgement.
The future traffic levels for the GHG Assessment of the Proposed Development are based upon the year of most intense construction activity predicted to be in 2024 and the year it will be operational in full, predicted to be in 2031. An operational period of 60 years has been assumed for the assessment of GHG emissions.	If the most intense construction activity was to occur in a year other than 2024, or if the Proposed Development was to become fully operational in a year other than 2031, vehicular GHG emissions would be less accurate.	As the assessment provides an indicative amount of GHG emissions, it is considered that calculations are representative of approximate emissions if the construction year or fully operational year deviates a little from 2024 / 2031.
The default fleet projections in EFT v11.0 are based on fleet growth assumptions which were current before the Covid-19 outbreak in the UK. In consequence, default fleet outputs from the tool do not reflect short or longer term impacts on emissions in 2020 and beyond resulting from behavioural change during the national or local lockdowns.	The growth assumptions will not be as accurate as previous versions of the EFT as the Covid-19 outbreak will have disturbed the natural growth of fleet projections. However, if traffic modelling throughout the Covid-19 outbreak had been used, it would provide much less accurate growth assumptions given that much fewer vehicles were in use.	The growth assumptions used in EFT v11.0 are considered to be sufficient to capture real life growth assumptions.

Assessing In-combination and Cumulative Effects

- 12.79 In relation to the resilience of the Proposed Development to climate change, the in-combination climate change impacts (ICCI) Assessment relates to the combined effect of the potential impacts of the Proposed Development and potential climate change impacts on the receiving environment. The approach to the ICCI Assessment followed the guidance set out in by IEMA² in **Appendix 12.1**. The ICCI Assessment involved a review of other chapters within this ES which have the potential to affect the significance of impacts identified in relation to climate change.
- 12.80 The ICCI Assessment scenario considers construction and operation of the Proposed Development. The baseline for the ICCI Assessment is the same as that identified for the Resilience Assessment. The likelihood of an ICCI occurring is determined based on the likelihood of a climate hazard occurring, combined with the sensitivity of the receptor to the combined impact of the climate hazard and the Proposed Development. The determination of significance is the same as that for Resilience Assessment.
- 12.81 In relation to GHG emissions, as GHG emission impacts and resulting effects are global rather than affecting one localised area, the approach to cumulative effects assessment for GHGs differs from that for many EIA topics where only projects within a geographically bounded study area of, for example, 10 km would be included. Therefore, all global cumulative GHG sources are relevant to the effect on climate change, and this has been considered in defining the receptor (the atmospheric concentration of GHGs) as being of 'high' sensitivity to further emissions. Effects of GHG emissions from specific cumulative projects therefore in general should not be individually assessed, as there is no basis for selecting any particular (or more than one) cumulative project that has GHG emissions for assessment over any other (IEMA, 2022³).

Baseline Conditions

Resilience of the Proposed Development to Climate Change

Regional Climatic Conditions

- 12.82 Information relating to climatic conditions in the North-West, the geographic region in which the Site is located, was obtained from the Met Office⁷ and is summarised below to provide a general indication of climatic conditions in the region. Climate conditions which are more relevant to the Site is discussed in the 'Local Climatic Conditions' sub-section below.
- 12.83 The North-West of England has several distinct geographical areas. Much of the land west of the Pennines, which includes the area the Site is located, is relatively flat and generally below 150 m, with westward draining rivers.

Temperature

- 12.84 The mean annual temperature across the region varies from around 9°C to just over 10.5°C. Variations in temperature depend on both altitude, with a decrease of about 0.5°C for each 100 m increase in altitude, and proximity to the coast. Mean daily

maximum temperatures range from just over 7°C to 10°C during the winter months and from 19°C to 21°C in the summer.

- 12.85 According to the Met Office¹⁷, the highest daily maximum temperature record for the region was set in Nantwich, Cheshire on 19th July 2022 when the temperature reached 38.4°C. The lowest daily minimum temperature record for the region was set in St Michaels-on-Wyre, Lancashire when the temperature reached -21.9°C.
- 12.86 An 'air frost' occurs when the temperature at 1.25 m above the ground falls below 0°C, whereas incidence of a 'ground frost' refers to a temperature below 0°C measured on a grass surface. The number of days of frost ranges from 20 to 75 across the region, depending on altitude.

Precipitation

- 12.87 Rainfall across the North-West region tends to be associated with low pressure weather patterns from the Atlantic to the west or with convection (when the sun's energy heats the surface of the Earth, causing water to evaporate to form water vapour), with most rainfall occurring in autumn and winter months. Meanwhile, the majority of rainfall during the summer months originate from convection caused by solar surface heating, which forms shower clouds leading to showers and thunderstorms. Periods of prolonged rainfall can lead to widespread flooding in the region, especially in winter and early spring when soils are usually near saturation. The autumn of 2000 was particularly wet, with over twice the normal rainfall in much of the Pennines and Greater Manchester. Historically, Manchester receives 830 mm on average each year, which is much lower than amounts of rainfall at areas of higher altitude within the North-West region.
- 12.88 Thunderstorms are most likely to occur from May to September, reaching their peak in July and August.

Sunshine

- 12.89 The length of the day at the study area is extremely variable over the course of the year. Between 1981 – 2010, mean monthly hours of sunshine ranged between approximately 49 (December) – 190 (May) at Manchester Airport.
- 12.90 Between 1942 – 2004 at the same location, extreme minimum mean monthly hours of sunshine ranged from approximately 10 (January) – 110 (May), whilst extreme maximum mean monthly hours of sunshine ranged from approximately 75 (January) – 285 (June).

Wind

- 12.91 The North-West of England is amongst the most exposed parts of the UK given its proximity to the Atlantic Ocean and large number of upland areas. Strong winds across the area are associated with pockets of low pressure which travel from a westerly direction. The frequency and strength of these depressions is greatest during winter months, especially from December to February, and this is when mean wind speeds and gusts (short duration peak values) are strongest. The range of wind

¹⁷ Met Office (no date) 'UK climate extremes'. Available from:
<https://www.metoffice.gov.uk/research/climate/maps-and-data/uk-climate-extremes>

directions between south and north-west accounts for the majority of occasions and the majority of the strongest winds blow from this range of directions. Spring months tend to have a maximum frequency of winds from the north east, whilst summer months can have a greater incidence of north west or west winds associated with sea breezes.

- 12.92 According to the Met Office¹⁷, the record for the highest gust speed was 163 kph, which was set on two separate occasions in Sellafield, Cumbria on 16th January 1984 and St. Bees Head, Cumbria on 8th January 2005.

Local Climatic Conditions

Historical Weather Data

- 12.93 Average monthly climatic conditions between 1991 - 2020 at Rochdale Climate Station (located 15 km north-east of the Site and the nearest weather station for which this information was available) was obtained from the Met Office¹⁸, are shown in **Table 12.13**. This table shows that average maximum and minimum temperatures have been lowest between December and February, whilst average maximum and minimum temperatures have been highest between May and September. Most rainfall has occurred between October - January, whilst the least has occurred between March - June. The monthly mean wind speed has been highest between January and April, whilst it has been weakest between July and October.

¹⁸ Met Office (no date) 'UK climate averages – Rochdale Climate Station. Available from: <https://www.metoffice.gov.uk/research/climate/maps-and-data/uk-climate-averages/gcw2ymd6s>

Table 12.13: Average monthly climatic conditions between 1991 - 2020 at Rochdale Climate Station

Month	Maximum temperature (°C)	Minimum temperature (°C)	Days of air frost (days)	Sunshine (hours)	Rainfall (mm)	Days of rainfall ≥1 mm (days)	Monthly mean wind speed at 10 m (knots)
January	6.93	1.5	10.16	32.16	119.19	17.05	8.41
February	7.45	1.41	9.32	49.83	97.11	13.69	8.65
March	9.57	2.51	6.06	98.86	89.91	13.41	9.45
April	12.47	4.55	2.33	152.72	68.36	11.75	9.52
May	15.6	7.19	0.28	175.45	65.67	10.95	8.93
June	18.24	10.13	0	152.85	82.87	12.59	7.74
July	20.01	11.94	0	170.77	96.9	13.11	6.69
August	19.55	11.77	0	153.52	100.22	14.77	6.22
September	17.11	9.55	0	116.33	97.8	13.23	6.37
October	13.39	6.85	1.07	78.66	116.78	15.35	7.19
November	9.7	3.86	5.05	41.64	123.53	17.22	7.74
December	7.18	1.5	10.1	42.69	138.88	17.63	7.39
Annual Average / Total	13.13 (Avg.)	6.09 (Avg.)	44.37 (Total)	1265.48 (Total)	1197.22 (Total)	170.75 (Total)	7.85 (Avg.)

Recent Weather Data

12.94 Weather data for 2022 was collected to build a profile of recent weather conditions in proximity to the Site. Data presented was obtained from the weatherspark website, unless stated otherwise, and interpolated from recorded weather conditions at the following four weather stations:

- City Airport Manchester (1 km west of the Site);
- Manchester Airport (12 km south of the Site);
- Leeds Bradford International Airport (58 km north-east of the Site); and
- Robin Hood Airport Doncaster Sheffield (82 km, east of the Site).

Temperature

12.95 In 2022, the warmest part of the year was between early June and early September, whilst the coldest part of the year was between October and March.

12.96 Maximum temperatures peaked at 38°C on 19th July, whilst the lowest temperature was -10.0°C recorded on 15th December. Average, minimum and maximum temperatures for 2022 are shown in **Figure 12.3**.

Precipitation

12.97 No precipitation-related information which spans an entire year was available to help understand recent precipitation in proximity to the Site. However, according to the Meteostat website¹⁹, the total amount of precipitation at Manchester Airport (the closest weather station to the Site for which information on precipitation was available) between June to December in 2022 was 532.6 mm. The most precipitation in one day was 21.1 mm on 17th November. Generally, the amount of precipitation was higher in winter months than in summer months.

Wind

12.98 Wind speeds were higher on average in spring and winter months in 2022. December witnessed the highest number of days (7) that had gusts of wind stronger than 60 kph, with the strongest (98.2 kph) occurring on 21st February. The majority of wind direction was from the west and south-west winds for the majority of 2022. The distribution of wind direction at the Site is represented by the wind rose which is included in **Figure 11.1** which was used to inform the assessment within **Chapter 11: Wind Microclimate** of this ES.

Daylight Hours

12.99 In 2022, the length of the day varied extremely over the course of the year. The maximum amount of daylight hours occurred on 21st June when there is 17 hours, 2 minutes of daylight. The minimum amount of daylight hours occurs on December 21st when there is 7 hours, 28 minutes of daylight.

¹⁹ Meteostat (no date) 'Manchester Airport 2022'. Available from: <https://meteostat.net/en/place/gb/manchester?s=03334&t=2022-01-01/2022-12-31>

Humidity

- 12.100 Humidity is based on the dew point, as it determines whether perspiration will evaporate from the skin, thereby cooling the body.
- 12.101 In 2022, humidity was at its highest between mid-July and late August. Humidity was low for the remainder of the year.

Influence of the Proposed Development on Climate Change

Existing GHG Baseline

National emissions

- 12.102 In 2021, net territorial emissions in the UK of the basket of seven GHGs covered by the Kyoto Protocol were estimated to be 424,500 ktCO₂e, a decrease of 5.2% compared to the 2019 figure (the most recent pre-Covid pandemic year) and 47.3% lower than they were in 1990. CO₂ made up around 80% of the 2021 total²⁰.
- 12.103 The transport sector consists of emissions from road transport, railways, domestic aviation, shipping, fishing and aircraft support vehicles. It is estimated to have been responsible for around 31.5% of CO₂ emissions in the UK in 2021. The main source of emissions from this sector is the use of petrol and diesel in road transport. CO₂ emissions from transport fell by 11.2% in 2021 compared to 2019. Between 1990 and 2019, there has been relatively little overall change in the level of GHG emissions from the transport sector.

Local, regional and national emissions comparison

- 12.104 A summary of local, regional and national GHG emissions (2020)²¹ for relevant sectors are presented in **Appendix 12.4**.

Existing Site Land Use

- 12.105 Given that existing buildings on the Site are currently vacant, as outlined in **Chapter 3:Site Description**, the baseline GHG emissions from within the Site are expected to be very low.

Vehicular Emissions from Road

- 12.106 Business, Energy and Industry Strategy (BEIS) (2022)²⁰ data demonstrates a trend in the reduction in vehicular carbon emissions from local, regional and national sources from the year 2005, with forecasts showing a continuation in reductions over the next years in keeping policy, targets and a betterment in technology. The data shows that vehicular road emissions contributed approximately 38.5% of the total GHG emissions within Manchester in 2020.

²⁰ Department for Business, Energy and Industrial Strategy (February 2022): 2021 UK Greenhouse Gas Emissions, Provisional Figures

²¹ Gov.uk (2022) 'UK local authority and regional greenhouse gas emissions national statistics'. Available from: <https://www.gov.uk/government/collections/uk-local-authority-and-regional-greenhouse-gas-emissions-national-statistics>

12.107 The total GHG emissions from road transport for 2020 (606.3 ktCO₂e) constitutes a reduction of 28.1% compared to the equivalent figure for 2005 (842.7 ktCO₂e).

12.108 Using baseline (2022) data provided by the Transport Consultant, total GHG emissions from vehicles on the roads surrounding the Site have been estimated to result in 133.0 ktCO₂e as presented in **Table 12.14**.

Table 12.14: Baseline Vehicular Road Emissions (2022)

Total Number of Vehicles (per annum)	Total LDV (ktCO ₂ e/yr)	Total HGV (ktCO ₂ e/yr)	Total ktCO ₂ e/yr
133,411	130,790	2,2621	133.0

Future Baseline

Resilience of the Proposed Development to Climate Change

12.109 As the world warms, the UK is generally likely to have hotter, drier summers and warmer, wetter winters. Temperatures in the UK exceeded 40°C for the first time on record in the summer of 2022, and extreme weather events are likely to become even more frequent.

12.110 The following future climatic conditions are predicted for the 12 km² area within which the Site is located based on extensive weather measurement records collected by the Met Office and reported in the UKCP18²². These predictions are based on a 4°C rise in global average temperatures, which aligns with RCP 8.5, and are as follows:

- The hottest summer day is likely to be 39.2°C, which is an increase of 6.4°C compared to the hottest summer day between 1991 – 2019;
- The hottest winter day is likely to be 20.4°C, which is an increase of 1.7°C compared to the hottest winter day between 1991 – 2019;
- It is expected that there may be ten “summer days” (days above 25°C per month on average) compared to two summer day between 1991 – 2019;
- A decrease in the average number of rainy days per month in summer to nine days, compared to 12 days between 1991 – 2019. No change is expected in the average number of rainy days per month in winter compared to the average number (14) between 1991 – 2019;
- An increase in the wettest day of summer to 59 mm of rain, compared to 47 mm of rain for the wettest day of the summer year between 1991 – 2019; and
- An increase in the wettest day of winter to 48 mm of rain, compared to 38 mm of rain for the wettest day of winter between 1991 – 2019.

²² British Broadcasting Corporation (2022) ‘What will climate change look like near me?’. Available from: <https://www.bbc.co.uk/news/resources/1dt-d6338d9f-8789-4bc2-b6d7-3691c0e7d138>

12.111 In relation to wind, according to UKCP18 projections there is projected to be “an increase in near surface wind speeds over the UK for the second half of the 21st century for the winter season when more significant impacts of wind are experienced. However, the increase in wind speeds is modest compared to natural variability from month to month and season to season, so confidence is low”²³.

Sensitivity of Receptors

12.112 The resilience of the Proposed Development to climate change depends on the level of exposure of the receptors to changes in different climate variables. In the short-term, natural vulnerability will dominate the weather-related risks that are experienced, including any extreme events (such as storms and heatwaves). Over the long term, the climate we experience will be influenced by levels of GHG emissions.

12.113 The sensitivity of each receptor was determined through professional judgement and the results are shown in **Table 12.15**.

Table 12.15: Sensitivity of Receptors

Receptor	Susceptibility	Vulnerability	Sensitivity
Substructure	Low	Low	Low
Infrastructure / Built Structures	Moderate	Moderate	Moderate
Roads and Footpaths	Moderate	Moderate	Moderate
Landscaping / Habitats	Low	Moderate	Moderate
Ancillary Equipment	Low	Low	Low
End Users / Employees	Moderate	Moderate	Moderate

The Influence of the Proposed Development on Climate Change

Vehicular GHG Emissions

12.114 Under the 2024 ‘Do Nothing’ scenario for the construction phase of the Proposed Development, GHG emissions are expected to decrease by 3.2 ktCO₂e/yr compared to the 2022 baseline scenario as shown in **Table 12.16**.

²³ Met Office (no date) ‘UK and Global extreme events – Wind storms’. Available from: <https://www.metoffice.gov.uk/research/climate/understanding-climate/uk-and-global-extreme-events-wind-storms>

Table 12.16: Baseline Scenario Comparison for Construction

Year	Total Vehicles	Total LDV	Total HGV	Total ktCO ₂ e
2022 Baseline Scenario	133,411	130,790	2,621	133.0
2024 'Do Nothing' Scenario	133,411	130,790	2,621	129.2
Predicted Change	0	0	0	- 3.2

12.115 Under the 2031 'Do Nothing' scenario for the operational phase of the Proposed Development, GHG emissions are expected to decrease by 23.8 ktCO₂e/yr compared to the 2031 baseline scenario as shown in **Table 12.17**.

Table 12.17: Baseline Scenario Comparison for Operation

Year	Total Vehicles	Total LDV / ktCO ₂ e	Total HGV / ktCO ₂ e	Total ktCO ₂ e
2022 Baseline Scenario	133,411	130,790	2,621	133.0
2031 'Do Nothing' Scenario	133,411	130,790	2,621	109.2
Predicted Change	0	0	0	-23.8

Energy

12.116 According to the UK's 6th Carbon Budget, GHG emissions would need to be reduced to 293,400 ktCO₂e by 2031, the completed year of the Proposed Development.

12.117 This Carbon Budget also shows that non-residential buildings should contribute 8,500 ktCO₂e to the abatement of CO₂ through energy efficiency measures by 2031, whilst residential buildings should contribute 17,430 ktCO₂e to the abatement of CO₂ through energy efficiency measures by the same year.

Embedded Mitigation

12.118 This section describes the measures which have been 'embedded' into the Proposed Development. Adaptation and mitigation are complementary strategies for reducing and managing the risks of climate change. Many adaptation and mitigation options can help address climate change, but no single option is sufficient by itself²⁴.

²⁴ IPCC (2014): Climate Change 2014 Synthesis Report

12.119 The Proposed Development has been designed, as far as possible, to avoid and minimise impacts and effects relating to GHG and climate change through the process of design-development and by embedding mitigation measures as recommended within other Chapters within this ES. Details of embedded mitigation measures that have been integrated into the design of the Proposed Development in order to improve its resilience to various extreme weather events and to minimise GHG emissions has been set out below. Design also includes best practice design measures and mitigation associated with the conservation of ecological assets and flood risk protection.

Resilience of the Proposed Development to Climate Change

The Completed and Operational Development

12.120 Specifically in relation to flood risk, according to Flood Risk Assessment and Outline Drainage Strategy, Sustainable Urban Drainage Systems (SuDS) and other flood risk minimisation measures will be employed to mitigate the impact of heavy precipitation events. Surface water drainage infrastructure will be managed to ensure that the 1 in 100-year + 45% climate change water is maintained on the Site with no off-site impacts. This document also sets out a management and maintenance strategy to ensure that the drainage infrastructure functions as intended throughout the operational phase.

12.121 According to the Design and Access Statement, which will be submitted in support of the Proposed Development, widespread tree planting integrated across the Site to provide shade during summer, increase flood resilience and provide carbon sequestration.

The Influence of the Proposed Development on Climate Change

The Completed and Operational Development

Energy

12.122 Energy Strategies for both the PBSA²⁵ and Sci-tech Buildings²⁶ are submitted in support of the application.

12.123 This approach includes:

- The provision of passive measures to reduce energy demand;
- Measures to increase the energy efficiency of buildings; and
- The incorporation of low and zero carbon (LCZ) technologies to reduce GHG emissions.

²⁵ 5020993-RDG-XX-XX-RP-MEP-510001 (Ridge, 2023)

²⁶ NE2422-KJT-ZZ-XX-RP-ME-0007-Energy Strategy Report-S2-P02 (KJ Tait, 2023)

Assessment of Likely Significant Effects

Resilience of the Proposed Development to Climate Change

- 12.124 The significance of potential impacts on receptors due to climate change depends on the likelihood of them occurring and the consequence if they do occur.
- 12.125 Future climatic conditions predicted for the area under RCP 8.5, as set out in the 'Future Baseline' subsection of this Chapter, were considered when assessing the significance of climate impacts on receptors.

Construction

- 12.126 As set out in the 'Assessment Methodology and Significance Criteria' potential effects of climate change during construction have not been considered due to the construction phase only anticipated to last 7.5 years. However, mitigation measures to bolster resilience during the construction phase has been provided in the 'Additional Mitigation / Enhancement Measures' section.

The Completed and Operational Development

- 12.127 As well as consideration of future climatic conditions, the Resilience Assessment has also considered mitigation embedded into the design of the Proposed Development.
- 12.128 **Appendix 12.5** presents the outcome the Resilience Assessment with respect to the significance criteria. All impacts related to the operational phase are considered to be long-term and local.
- 12.129 As can be seen in **Appendix 12.5**, no significant effects are expected to occur on any of the identified sensitive receptors.

The Influence of the Proposed Development on Climate Change

Construction

- 12.130 At the time of undertaking the GHG Assessment, data to allow indicative calculations of GHG emissions during the construction phase were available:
- Embodied carbon within construction materials; and
 - Vehicular emissions associated with LDV and HGV road movements.
- 12.131 At the time of undertaking the GHG Assessment, data to allow accurate calculations of GHG emissions associated with on-site construction plant were unavailable. In lieu of this data, a qualitative assessment has been provided.

Embodied Carbon

- 12.132 The embodied carbon within construction materials would be the greatest contribution to GHG emissions during construction.
- 12.133 An 'Upfront Embodied Carbon Stages A1 - A5 LCA Report' was undertaken for both the Purpose-Built Student Accommodation (PBSA) and Sci-tech buildings by Carbon Climate Certified using One Click LCA. These reports will be submitted in support of

the application. The GHG emissions considered within these reports includes: the extraction, transporting and manufacturing processes associated with the construction products; transport of these elements to the Site; and the construction of the buildings. Stage A5 includes site electricity, water consumption and construction waste generated on-site.

- 12.134 The report for the PBSA buildings concluded that the associated embodied carbon would amount to 17.1 ktCO₂e, the vast majority (93%) of which is associated with Stages A1 – A3 (Materials). Stages A4 (Transportation) constitutes 3% of the total embodied carbon, whilst Stages A5 (Construction) constitutes 4% of the total embodied carbon.
- 12.135 The report for the Sci-tech buildings concluded that the associated embodied carbon would amount to 13.8 ktCO₂e, the vast majority (91%) of which is associated with Stages A1 – A3 (Materials). Stages A4 (Transportation) constitutes 4% of the total embodied carbon, whilst Stages A5 (Construction) constitutes 5% of the total embodied carbon.
- 12.136 Across all buildings, the total embodied carbon will amount to **30.9 ktCO₂e**. Of this total, 16.1 ktCO₂e is associated with residential buildings, whilst 13.9 ktCO₂e. It should be noted that the discrepancy in the totals is due to rounding up / down of figures.
- 12.137 As the construction phase would occur across the time period for both the 4th and 5th UK Carbon Budgets, the more stringent of the two (the 5th Carbon Budget [1,765,000 ktCO₂e] has been assessed against. **Table 12.18** summarises the percentage of these totals against relevant carbon budgets. It should be noted that this assumes the totals are unmitigated.

Table 12.18: Significance of Embodied Carbon Emissions

Carbon Budget	Carbon Budget Total (ktCO ₂ e)	Embodied Carbon Total (ktCO ₂ e)	Percentage of Total Carbon Budget	Effect
UK's 5 th Carbon Budget (2028 – 2032)	1,765,000	30.9	0.0018%	Temporary moderate adverse effect
UK's Residential Sectoral Budget (2024)	68,220	16.1	0.024%	Temporary moderate adverse effect
UK's Non-residential Sectoral Budget (2024)	18,370	13.9	0.076%	Temporary moderate adverse effect

12.138 As can be seen in **Table 12.18**, if unmitigated, each of the totals would result in a **temporary moderate adverse** effect. In accordance with the methodology for determining significance, this is considered to be a significant impact in EIA terms.

Road Traffic

12.139 Given the location of the Site, commuting distances for construction workers are expected to be relatively short. Furthermore, a Construction Traffic Management Plan (CTMP) will be developed for each phase of the Proposed Development, which will help to minimise GHG emissions associated with HGVs during construction.

12.140 Total vehicular GHG emissions during the construction phase are presented in **Table 12.19** for the 'Do Nothing' scenario year 2024 (i.e. the year of peak construction without the Proposed Development being built out) and the 'Do Something' scenario year 2024. A comparison of the differences between the total traffic flow and associated ktCO₂e is also provided.

Table 12.19: Significance of Vehicular Emissions for Construction

Year	Total Vehicles	Total LDV	Total HGV	Total ktCO ₂ e
2024 'Do Nothing' Scenario	133,411	130,790	2,621	129.2
2024 'Do Something' Scenario	133,853	130,952	2,901	134.8

Year	Total Vehicles	Total LDV	Total HGV	Total ktCO ₂ e
Predicted Change	442	162	280	+ 5.6

12.141 As can be seen in **Table 12.19**, under the worst-case scenario, vehicular emissions would result in a total amount of 5.6 ktCO₂e per year during the construction phase. Given that the construction phase is expected to last 7.5 years, the total amount of GHG emissions from vehicles during the construction phase would be **42.0 ktCO₂e**.

12.142 The total of 42.0 ktCO₂e represents 0.00024% of the UK's 5th Carbon Budget (1,765,000 ktCO₂e), which would result in a **temporary moderate adverse effect**. In accordance with the methodology for determining significance, this is considered to be a significant impact in EIA terms.

12.143 As these emissions will occur across 2024 – 2031, the total of 42.0 ktCO₂e was assessed against the average of the UK's 'Surface Transport' sector targets across this time period (77,499 ktCO₂e). The total of 42.0 ktCO₂e represents 0.054% of the UK's 'Surface Transport' sector target across 2024 – 2031. This would result in a **temporary moderate adverse effect**. In accordance with the methodology for determining significance, this is considered to be a significant impact in EIA terms.

Solid Waste and Water

12.144 GHG emission sources from solid waste and water are expected to be relatively minor compared to other sources. It is expected that these emissions could be largely avoided or minimised through appropriate mitigation measures recommended in the Construction Environmental Management Plan (CEMP) and Site Waste Management Plan (SWMP) for the Proposed Development. Standard measures within these documents which help to reduce GHG emissions include:

- Providing adequate capacity for the storage and disposal of recyclable materials;
- Ordering materials at appropriate times and appropriate storage of materials to avoid waste;
- Repairing any damaged items which experience water flow; and
- Providing water efficient hygiene facilities.

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Road Traffic

12.145 Given the location of the Site, travel distances for end users entering and exiting each building associated with the Proposed Development are expected to be relatively short.

12.146 Total vehicular GHG emissions during the operational phase are presented in **Table 12.20** for the 'Do Nothing' scenario year 2031 (i.e. the year the Proposed will be built

out in full) and the 'Do Something' scenario year 2031. A comparison of the differences between the total traffic flow and associated ktCO₂e is also provided.

Table 12.20: Significance of Vehicular Emissions for Operation

Year	Total Vehicles	Total LDV	Total HGV	Total ktCO ₂ e
2031 'Do Nothing' Scenario	133,411	130,790	2,621	110.7
2031 'Do Something' Scenario	140,249	137,527	2,722	115.7
Predicted Change	+ 6,838	+ 6,737	+ 101	5.0

12.147 As can be seen in **Table 12.20**, it is anticipated that GHG emissions due to vehicle movements would lead to a total of 5.0 ktCO₂e in 2031. Due to the expected increase in fuel efficiency and continued uptake in electric vehicles, it is expected that yearly emissions beyond 2031 would decrease.

12.148 This total of 5.0 ktCO₂e represents 0.002% of the UK's Carbon Budget for 2031 (293,000 ktCO₂e) and 0.009% of the UK's Surface Transport Carbon Budget for 2031 which would result in a **temporary moderate adverse effect**. In accordance with the methodology for determining significance, this is considered to be a significant impact in EIA terms.

Energy

12.149 Energy Strategies for both the PBSA²⁷ and Sci-tech Buildings²⁸ are submitted in support of the application.

12.150 The Energy Strategies set out the Building emission rate (BER) in kilogrammes of CO₂ per m² for each of the three blocks and amenity space associated with the PBSA. **Table 12.21** sets out the BER and the associated GHG emissions for these areas. The BER for Block A3 is lower than that for Blocks A1 and A2 as modelling assumed the provision of 80 m² of solar photovoltaics on the roof of Block A3. The total gross internal area of each building area accords with the schedule of accommodation at the time of writing.

²⁷ 5020993-RDG-XX-XX-RP-MEP-510001 (Ridge, 2023)

²⁸ NE2422-KJT-ZZ-XX-RP-ME-0007-Energy Strategy Report-S2-P02 (KJ Tait, 2023)

Table 12.21: Significance of Energy Emissions for Operation (PBSA)

Building Area	BER per Annum (kgCO ₂ /m ²)	Total GIA (m ²)	Total Emissions per Annum (ktCO ₂ e)
PBSA			
Block A1	8.91	26,801	0.24
Block A2	8.91	7,832	0.07
Block A3	3.7	7,834	0.03
Amenity Space	4.56	507	0.002
Sci-tech Buildings			
Building 1	6.9	20,932	0.14
Building 2	4.8	13,997	0.07
Building 3	4.7	11,632	0.05
Total			0.60

12.151 As can be seen in **Table 12.21**, it is anticipated that GHG emissions due to the energy demand for buildings would lead to a total of 0.60 ktCO₂e per annum. This total of 0.60 ktCO₂e represents 0.0002% of the UK's Carbon Budget for 2031 (293,000 ktCO₂e), which would result in a **temporary moderate adverse** effect. In accordance with the methodology for determining significance, this is considered to be a significant impact in EIA terms.

Additional Mitigation / Enhancement Measures

12.152 As discussed in the 'Embedded Mitigation' section, embedded mitigation measures and standard practice measures have been incorporated within the design of the Proposed Development, which would greatly increase its resilience to climate change. This section discusses mitigation measures additional to those set out in the 'Embedded Mitigation' section.

Resilience of the Proposed Development to Climate Change

Construction

12.153 The impacts of climate change on the Proposed Development during the construction stage would be managed through a CEMP, which would contain detailed procedures to minimise any potential impacts associated with extreme weather events. This will compliment best practice mitigation measures employed in the construction industry.

12.154 Construction contractors will use a short to medium-range weather forecasting service from the Met Office, or other approved meteorological data and weather

forecast provider, to inform short to medium-term programme management, environmental control and impact mitigation measures.

- 12.155 The lead contractor will ensure appropriate measures within the CEMP are implemented and, as appropriate, additional measures to ensure the resilience of the proposed mitigation of impacts during extreme weather events.
- 12.156 The lead contractor's Environmental Management System will consider all measures deemed necessary and appropriate to manage extreme weather events and should specifically cover training of personnel and prevention and monitoring arrangements. As appropriate, method statements should also consider extreme weather events where risks have been identified.
- 12.157 **Table 12.22** details examples of mitigation measures for each of the identified receptors during the construction phase.

Table 12.22: Mitigation Measures for Construction

Receptor	Mitigation
Substructure / Built Structures	- Stormwater management system, including water tanks to store water for drought events, to reduce risk of flooding and subsidence; - Vegetation planting to improve slope stability; - Appropriate storage of construction materials when not in use to prevent drying out; - Good design and earthwork failure monitoring; - Establish a fire safety manual; - Provision of lightning rods on built structures; and - Appropriate ventilation to reduce humidity.
Roads, Pedestrians and Cycleways	- Ensure construction activities do not increase flood risk on travel infrastructure; and - Erect temporary fencing where appropriate to protect pedestrians and cyclists from heavy winds.
Landscaping / Habitats	- Provision of guidance on ecological best practice methods to be followed in order to mitigate potential ecological effects during construction; - Ensure potential on-site flood risk does not occur near sensitive ecological receptors; and - Ensure pollutants do not migrate to sensitive areas during heavy rainfall events.
Ancillary Equipment	- Stormwater management system to stop drain blockage and water accumulation during heavy rainfall; - Provide shading for equipment during heatwaves; - Provide buffers to block heavy winds at wind-sensitive receptors; and - Ensure power supply and other linked infrastructure is appropriately located to avoid damage/disruption.
Construction Employees	The Principal Contractor will ensure that: - Adequate breaks are taken during hot weather; - Drinking water is readily available; and - Provision for areas to shelter during extreme rainfall events.

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12.158 As no significant effects have been identified for the Resilience Assessment, no monitoring of significant effects is proposed

12.159 Adaptation and resilience to climate and weather-related risks should be considered periodically through maintenance regimes. A schedule of general inspections and principal inspections of each structure should be carried out to determine their condition and identify any potential maintenance requirements. In addition, a list of extreme weather-related incidents (for example, road surface deformations, snow and ice, etc.) should be maintained by the occupant of each building to assist in identifying thresholds which, when exceeded, would require maintenance. The following should be implemented appropriately:

- Have emergency response and contingency plans in place;
- Undertake effective, essential winter maintenance;
- Regularly review and updated winter maintenance plans;
- Inspect assets regularly to detect deterioration and damage;
- Produce standard operating procedures for use in the event of necessary road closure and/or traffic diversion;
- Use construction materials with superior properties which offer increased tolerance to fluctuating temperatures;
- Provide road/site user warning systems in areas exposed to high winds;
- Undertake regular sweeping and cleaning to remove debris;
- Undertake effective vegetation maintenance;
- Undertake regular surveys, management and monitoring of lighting to ensure asset stability; and
- Undertake regular maintenance and cleaning of drainage systems.

The Influence of the Proposed Development on Climate Change

12.160 As discussed in the 'Embedded Mitigation' section, measures have been incorporated within the design of the Proposed Development, which would reduce the amount of GHGs emitted during the operational phase. This section discusses mitigation measures additional to those set out in the 'Embedded Mitigation' section.

12.161 The overarching principles for management of carbon emissions follows the process outlined in **Table 12.11** Where GHG emissions cannot be avoided, the assessment should aim to reduce the residual significance of a project's emissions at all stages – design, construction and operation.

Construction

Embodied Carbon

- 12.162 The Embodied Carbon Reports for both the PBSA and Sci-tech buildings have recommended that the design team should use these reports to review the impact of the materials which contribute significant GHG emissions and to use less impactful materials where feasible.

Vehicular Emissions

- 12.163 Implementing the mitigation measures recommended within the CTMP would help to minimise and mitigate the environmental impacts of vehicular emissions during construction.

Solid Waste

- 12.164 A Pre-Demolition Audit should be undertaken on existing buildings to be demolished to increase the re-use and recycling of materials during the demolition phase to reduce the Proposed Development's overall carbon footprint by minimising the need to extract raw materials.

- 12.165 The re-use, recycling and reduction of any construction waste should be promoted to reduce the Proposed Development's overall carbon footprint by minimising the need to extract raw materials;

- Mechanisms should be established for designing out waste, reducing waste generated on-site, assessing the value of reusing or recycling materials and for reducing construction waste, and implementing procedures to sort and reuse/recycle construction waste on and off-site. A Framework Site Waste Management Plan (SWMP) should be produced, and the measures recommended within it should be incorporated into the CEMP. Typical measures to mitigate waste in a SWMP during construction include:
- Providing adequate capacity for the storage and reuse or disposal of recyclable materials;
- Prioritise the procurement of high quality, durable, ethical and sustainable materials (from local sources where appropriate) to reduce lifetime embodied carbon emissions of the building process. Examples include:
 - Utilising a less carbon-intensive alternative to cement in concrete;
 - Increasing the use of low carbon products, such as timber, in lieu of high carbon materials such as steelwork;
 - Liaising with contractors and suppliers to engage in their research to reduce embodied carbon; and
 - Sourcing building materials from sustainable and, where practicable, local sources.

- 12.166 Excavated material should be re-used on-site wherever possible. Should excavated materials be re-used on-site, a Materials Management Plan should be produced.

12.167 By considering the effective mitigation measures, including the choice and procurement of building materials, it is expected that GHG emissions associated with the construction of the Proposed Development will be greatly reduced.

Indirect Sources

12.168 As construction will also result in indirect GHG emissions, it is important to consider further mitigation measures for the construction phase to reduce emissions associated with construction methods.

12.169 A CEMP would need to be prepared and agreed by MCC. The CEMP should include the following best practice measures to reduce GHG emissions during construction:

- Using fuel-efficient vehicles and machinery where reasonably practicable;
- Switching off machinery and vehicles when not in use;
- Reducing water consumption where possible;
- Reducing landfill waste production by increasing opportunities for recycling and planning material use; and
- Implementing the mitigation measures recommended within the CTMP, which would minimise and mitigate the environmental impacts of construction activities, including the reduction of GHG emissions.

Sustainability Credentials

12.170 The BREEAM Pre-Assessments for both the PBSA and Sci-tech buildings (486)2321-PK-PA-PBSA_UBS_R01 and (486)2320-IM-PA-LifeSciences_R01) state that a BREEAM rating of 'Excellent' is being targeted for both (77.08% targeted for the PBSA buildings and 74.47% targeted for the Sci-tech buildings).

12.171 Minimum requirements to achieve a BREEAM rating of 'Excellent' would involve achieving BREEAM credits for the following categories which are relevant to reducing GHG emissions during the construction phase:

- Man 03 – Construction Practices;
- Mat 03 – Responsible Sourcing; and
- Wst 01 – Construction Waste.

The Completed and Operational Development

Vehicular Emissions

12.172 It is expected that GHG emissions from vehicles accessing and egressing the Site will decrease gradually over the operational phase of the Proposed Development to account for Government standards and policies and industry trends as the proportion of hybrid and EVs on the road will increase and petrol and diesel vehicles are phased out²⁹. Furthermore, new vehicles will have to meet progressively tighter

²⁹ GOV.UK: Government takes historic step towards net-zero with end of sale of new petrol and diesel cars by 2030. Available at: <https://www.gov.uk/government/news/government-takes-historic-step-towards-net-zero-with-end-of-sale-of-new-petrol-and-diesel-cars-by-2030>

European type approval emissions categories, referred to as 'Euro standards'. This in turn could limit the effects on the tropospheric ozone and lead to a cooling effect, while the effect of reduced NO_x may also limit overall effects on warming. The increase in EVs may also result in a decrease of direct emissions, though it will in turn increase the demand on the national grid where indirect emissions may result, depending on the energy source.

- 12.173 A Framework Travel Plan (FTP) has been produced by the Transport Consultant for both PBSA and Sci-tech buildings. These plans will be submitted as part of the application. The FTPs include both physical measures which should be incorporated into the design of all buildings, as well as operational measures which would minimise and mitigate GHG emissions associated with vehicle movements.
- 12.174 The PBSA will provide a total of 175 cycle spaces on the ground floors or basements of the three buildings. Furthermore, it is expected that five Sheffield stands will be provided at the entrances of each building (i.e. a total of 15 across all PBSA).
- 12.175 In relation to the three Sci-tech buildings, a total of 270 cycle spaces will be provided on the ground floors and a total of 27 cycles within the external landscape of the buildings. Furthermore, a total of 23 No. showers, 5 No. accessible showers and lockers will be provided across all buildings.
- 12.176 It is understood that the Proposed Development will be car-free and, as such, no EV charging points will be provided.

Energy

- 12.177 The Energy Strategy for the PBSA buildings (5020993-RDG-XX-XX-RP-MEP-510001) proposes passive and active design measures to help reduce electricity demand during operation. Passive measures deemed suitable to include within the design of PBSA buildings include: thermal insulation and thermal bridging; natural ventilation; natural daylight; air tightness; and solar shading. Suitable active measures include: mechanical ventilation heat recovery; demand operated systems; variable speed drives on fans and pumps; LED lighting; waste water heat recovery; building management system optimisation; and low energy fit out.
- 12.178 In terms of LZC technologies, the only technologies deemed suitable for the PBSA buildings are solar PV and air source heat pumps (ASHPs). The Energy Strategy includes ASHPs within plant rooms of all three buildings and 80m² of solar PV provision on the roof of Block A3.
- 12.179 The Energy Strategy for the Sci-tech buildings also proposes passive and active design measures. Passive measures proposed include enhanced U-Values for fabric elements; and optimising the use of natural light and ventilation where appropriate. Active measures proposed include: high performance M&E equipment; centralised controls for heating and cooling systems; high efficiency LEDs for luminaires; and smart metering and controls to enable energy use to be monitored and reported.
- 12.180 As with the PBSA, the only LZC technologies deemed suitable are solar PV and air source heat pumps (ASHPs). A total of 992m² solar PV has been proposed. Heating and cooling will be generated centrally using air source heat pumps (ASHP) mounted on the roof of each building.

Solid Waste

- 12.181 An Operational Waste Management Plan would be produced to ensure that waste is managed appropriately during the operational phase so as to avoid as much waste as possible being exported to landfill.

Sustainable Credentials

- 12.182 Minimum requirements to achieve a BREEAM rating of 'Excellent' would involve achieving BREEAM credits for the following categories which are relevant to reducing GHG emissions:

- Man 03 – Construction Practices;
- Ene 01 - Reduction of energy use and carbon emissions;
- Ene 02 - Energy monitoring;
- Wat 01 - Water consumption;
- Wat 02 - Water monitoring; and
- Wst 03 – Operational waste.

Residual Effects**Resilience of the Proposed Development to Climate Change****Construction**

- 12.183 Given that the construction phase is only expected to last 7.5 years and that a CEMP would be produced for the Proposed Development which would include mitigation measures to increase resilience to climate change during construction, it is not expected that there will be significant effects due to climate change during the construction phase.

The Completed and Operational Development

- 12.184 As shown in **Appendix 12.5**, the Resilience Assessment determined that there would be no significant effects due to climate change on the identified sensitive receptors during the operational phase. Nevertheless, mitigation measures have been recommended to bolster the resilience of the identified sensitive receptors.

The Influence of the Proposed Development on Climate Change**Construction***Embodied Carbon*

- 12.185 It is assumed that the design team for both the PBSA and Sci-tech buildings will review the respective Embodied Carbon Reports and would choose materials with lower embodied carbon where feasible.

- 12.186 With due consideration for this mitigation, it is considered that GHG emissions associated with embodied carbon would result in a **temporary minor adverse** residual impact, which is not significant in EIA terms.

Vehicular Emissions

- 12.187 With due consideration for the fact that a CTMP will be produced for the Proposed Development, it is considered that GHG emissions associated with vehicular emissions during construction would result in a **temporary minor adverse** residual impact, which is not significant in EIA terms.

The Completed and Operational Development

Vehicular Emissions

- 12.188 With due consideration for the mitigation measures set out in the 'Embedded Mitigation' section in relation to operational phase vehicular emissions, it is considered that GHG emissions associated with these emissions would result in a **permanent minor adverse** residual impact, which is not significant in EIA terms.

Energy

- 12.189 With due consideration for the mitigation measures set out in the 'Embedded Mitigation' section in relation to operational phase energy demand, it is considered that GHG emissions associated with these emissions would result in a **permanent minor adverse** residual impact, which is not significant in EIA terms.

Total GHG Emissions

- 12.190** A summary of the total quantified GHG emissions associated with the Proposed Development is provided in **Table 12.23**.

Table 12.23: Total GHG Emissions

GHG Source	GHG Emissions (ktCO ₂ e)
Construction	
Embodied Carbon	30.8
Vehicular Emissions	42
The Completed and Operational Development	
Energy	0.60 (per year)
Vehicular Emissions	5.0 (per year)

12.191 As can be seen in **Table 12.23**, of the GHG emission sources quantified, the total amount of GHG emissions anticipated to be emitted during the construction phase is anticipated to be 72.8 ktCO₂e, whilst the amount of yearly emissions during the operational phase is anticipated to be 5.61 ktCO₂e.

12.192 **Table 12.24** summarises the residual effects in relation to GHG emissions. As shown in this table, no significant effects are expected to occur with respect to GHG emissions.

Table 12.24 Residual Effects Summary

Description of Effect	Embedded Mitigation	Potential Effect (inc. Significance)	Further Mitigation	Residual Effect (inc. Significance)
Construction				
Embodied Carbon	N/A	Temporary moderate adverse	Review of Embodied Carbon Reports at the detailed design stage to consider materials with less embodied carbon.	Temporary minor adverse
Vehicular Emissions	N/A	Temporary moderate adverse	Construction Traffic Management Plan	Temporary minor adverse
Solid Waste and Water Consumption	N/A	Negligible	SWMP and CEMP	Negligible
Operation				
Energy	Passive and active design measures to increase efficiency and reduce demand	Permanent moderate adverse	Provision of Solar PV and ASHPs	Permanent minor adverse
Vehicular Emissions	Cycle parking provision	Permanent moderate adverse	Measures within Travel Plans	Permanent minor adverse
Solid Waste and Water Consumption	N/A	Negligible	Operational Waste Management Plan	Negligible

Conclusions

12.193 An assessment of the following was undertaken using IEMA guidance:

- The resilience of the Proposed Development to climate change; and
- The influence of the Proposed Development on climate change.

Baseline Conditions

12.194 Information on baseline conditions were gathered from a range of sources including:

- UKCP18;
- Weather-related websites; and
- Traffic data from the appointed Transport Consultant.

Likely Significant Effects

Resilience of the Proposed Development to Climate Change

Construction Phase

12.195 No significant effects due to climate change are expected during the construction phase as it is anticipated that it will take less than ten years to complete. Furthermore, mitigation measures would be incorporated into a detailed CEMPs for each phase of the Proposed Development, which would greatly reduce potential impacts.

Operational Phase

12.196 The Resilience Assessment (**Appendix 12.5**) determined that there would be **no significant effects** during the operational phase of the Proposed Development. Additional mitigation measures have been recommended to bolster resilience.

Influence of the Proposed Development on Climate Change

12.197 Although it is accepted that all GHG emissions contribute to climate change, IEMA has set out how to determine whether GHG emissions associated with individual developments are significant in EIA terms.

Construction Phase

12.198 Quantitative assessments of vehicular emissions and embodied carbon were undertaken for the construction phase have been provided. The total amount of GHG emissions anticipated to be emitted during the construction phase is 72.8 ktCO₂e, which is considered to be a temporary, moderate adverse effect. However, the implementation of mitigation measures is expected to reduce this to a temporary, minor adverse effect, which is not considered to be significant in EIA terms and would not cause the UK Government to fail in reaching their net zero trajectory by 2050.

Operational Phase

- 12.199 Quantitative assessment of vehicular emissions and energy production were undertaken for the operational phase have been provided. The total yearly amount of GHG emissions anticipated to be emitted during the construction phase is 5.61 ktCO₂e, which is considered to be a permanent, moderate adverse effect. However, the implementation of mitigation measures such as: the provision of cycle parking; measures within the Travel Plan; and Solar PV and ASHPs is expected to reduce this to a permanent, minor adverse effect, which is not considered to be significant in EIA terms and would not cause the UK Government to fail in reaching their net zero trajectory by 2050.

Assessment of Cumulative Effects

Resilience of the Proposed Development to Climate Change

- 12.200 Projected changes to average climatic conditions, as well as an increased frequency and severity of extreme weather events, have the potential to affect the ability of the natural environment surrounding the Site and surrounding schemes to adapt to climate change. Of the climate variables included in consideration for the Resilience Assessment, only extreme precipitation events have been considered applicable due to the potential for excess surface water runoff from committed developments to enter Site or increase the demand on drainage infrastructure in proximity to the Site.
- 12.201 No significant residual cumulative effects are anticipated as it is expected that any committed developments which gain planning approval would need to demonstrate that national and local policies related to flood risk and drainage, including accounting for climate change, are met prior to the granting of planning permission by MCC.

In-Combination Climate Change Effects

- 12.202 Other ES Chapters and standalone reports were examined to determine whether any potential identified effects would be likely to increase the significance of any effects assessed within this Chapter in relation to resilience to climate change. No effects which would alter the results of the Resilience Assessment were identified within these documents. **Table 12.25** summarises effects considered.

Table 12.25: In-combination Climate Change Impact Assessment

Environmental Topic	Receptor	Potential Effect	Proposed Mitigation	Significance of Effect
Construction				
Ecology and Nature Conservation	Habitats	Loss of scattered trees and woodland reducing the capacity for flood alleviation	Widespread site-wide tree planting	Not Significant
Air Quality and Dust	Habitats and End users	Increased dust due to construction activities during drought conditions	Dust Management Plan	Not Significant
Flood Risk and Water Resources	Infrastructure, Roads, Habitats and End users	Increased flood risk during construction works	CEMP	Not Significant
Operation				
Ecology and Nature Conservation	Habitats	Degradation of habitats during extreme weather events	Implementation of maintenance measures within the Landscape Environmental Management Plan	Not Significant
Air Quality and Dust	N/A	N/A	N/A	N/A
Flood Risk and Water Resources	Infrastructure, Roads, Habitats and End users	Increased flood risk due to hardstanding	SuDS and climate change allowances in drainage infrastructure	Not Significant

The Influence of the Proposed Development on Climate Change

12.203 As stated in the 'Methodology' section of this Chapter, and in accordance with IEMA guidance³, the effects of GHG emissions from specific cumulative projects in general should not be individually assessed, as there is no basis for selecting any particular (or more than one) cumulative project that has GHG emissions for assessment over any other.

12.204 Given this, it is considered that a cumulative assessment for GHGs is not required.

Other Information

Figures

Figure 12.1: Approximate Site Location

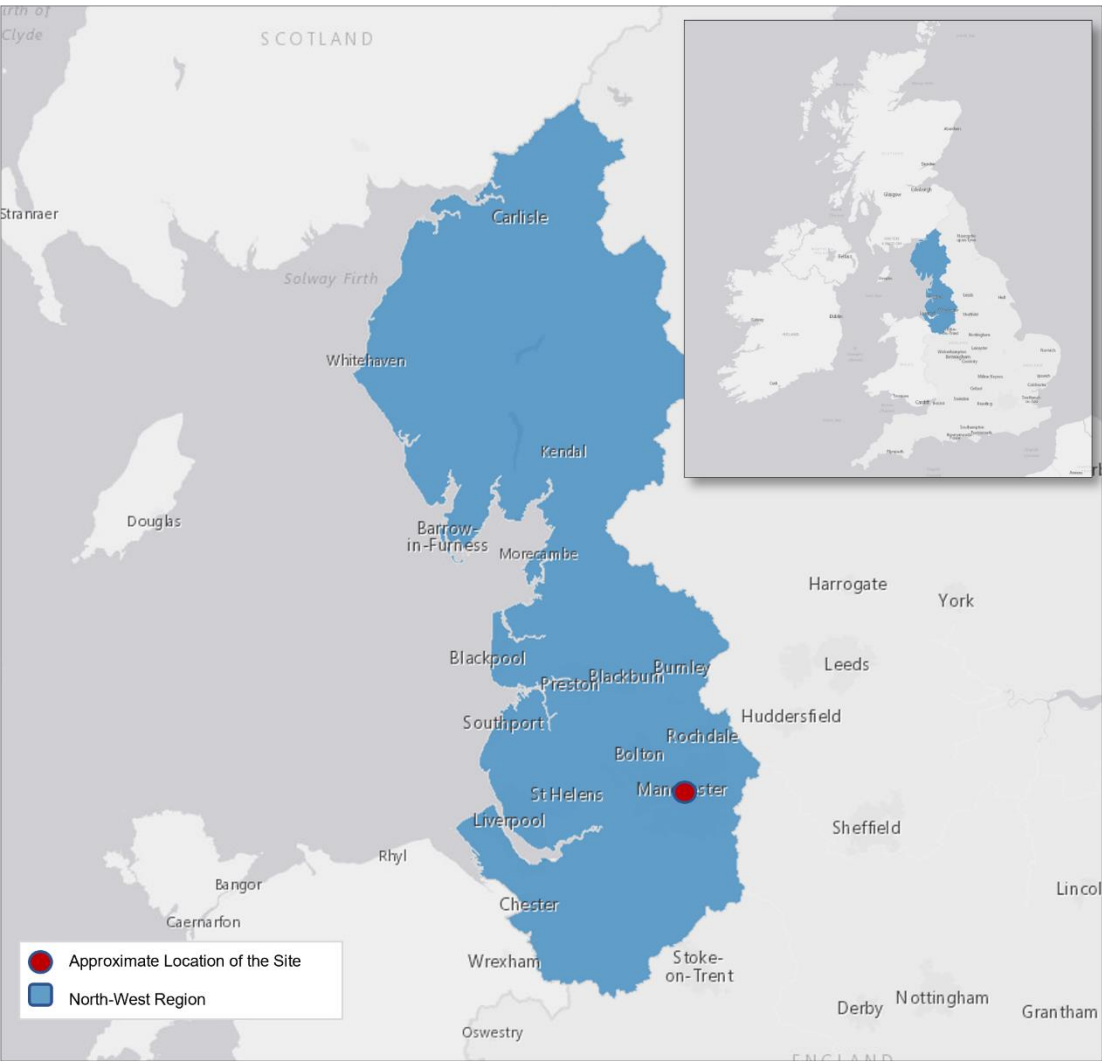


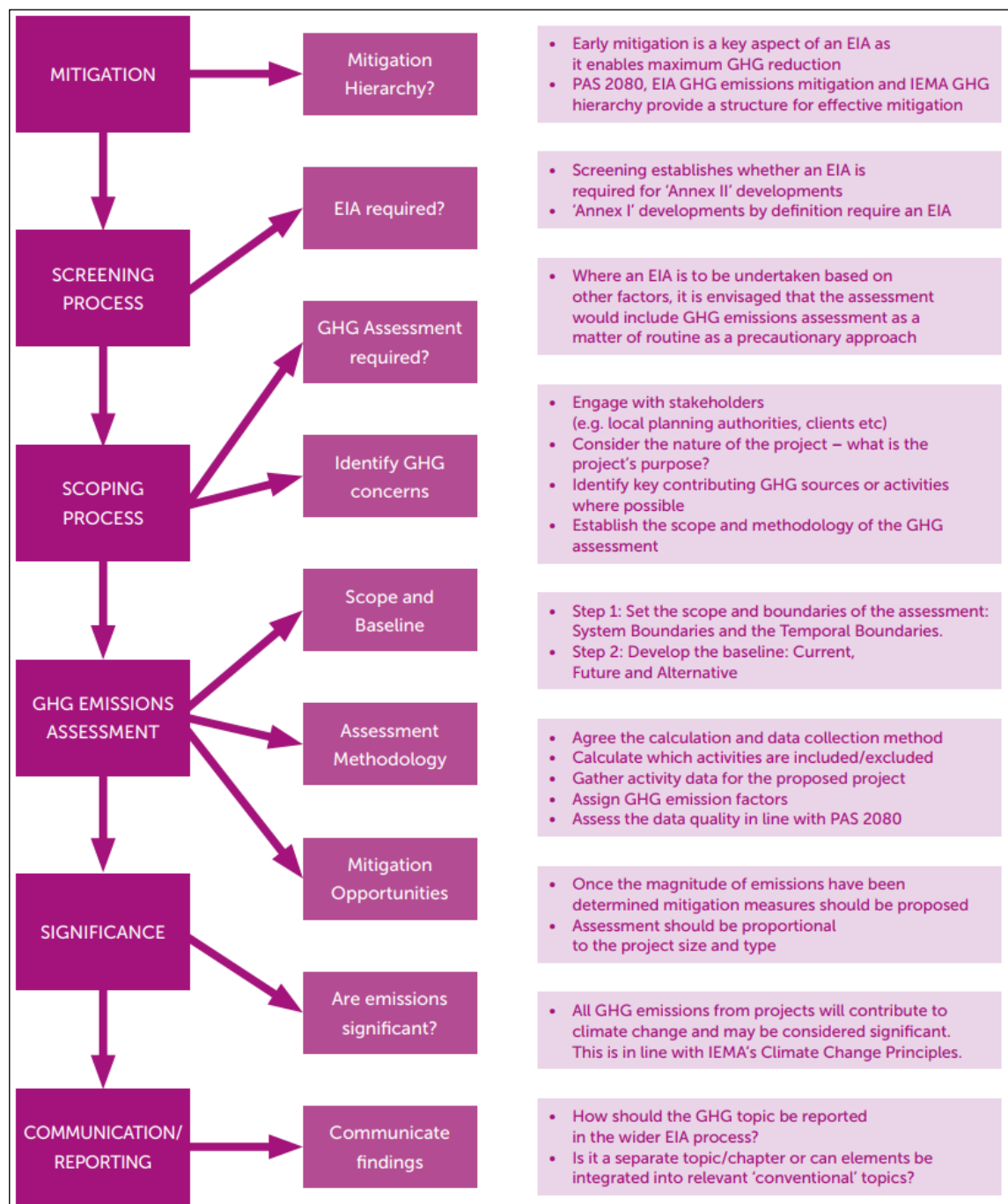
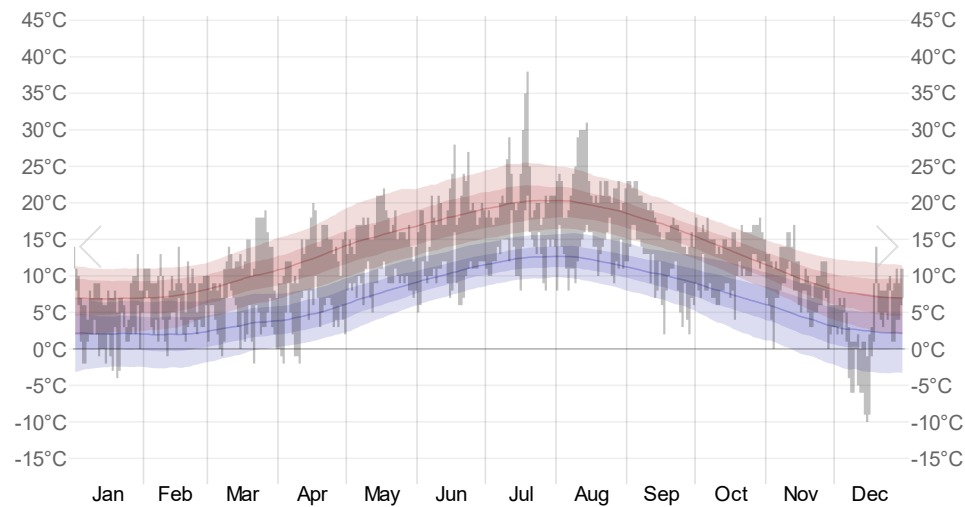
Figure 12.2: Steps Involved in a GHG Assessment

Figure 12.3: Average, Minimum and Maximum Temperatures Near the Site in 2022



13. Summary of Mitigation and Residual Effects

- 13.1 Both the EIA and the design evolution have been an iterative process. Therefore, many measures to mitigate potential adverse environmental effects have been incorporated into the design of the Proposed Development in order to avoid, reduce or offset negative changes. These measures are 'embedded mitigation' and are presented in Chapter 5: The Proposed Development. They have been accounted for in each of the technical assessments, where relevant (see Chapters 6 - 12).
- 13.2 The residual effects of the Proposed Development have been assessed as part of the EIA and can be described as the effects which remain after the implementation of the embedded and any additional proposed mitigation measures. The residual effects have been identified for each category in the preceding technical chapters (Chapters 6 - 12) and are summarised in Table 13.1. It is expected that the appropriate mitigation measures will be secured through appropriately worded planning conditions. Reference should be made to each technical chapter for the definition of the significance of the effect stated.
- 13.3 Following Table 13.1 is a discussion of the residual effects and a conclusion.

Table 13.1 Summary of Mitigation and Residual Effects

Category	Description of Effect	Embedded Mitigation	Potential Effect (inc. Significance)	Further Mitigation	Residual Effect (inc. Significance)
	Construction				
Townscape and Visual	Townscape Character Area 01 – Corridor Manchester	Incorporated into building and public realm design, as described in ‘Embedded Mitigation’ above. n/a	Minor – Moderate Adverse Not significant	Construction mitigation as described in ‘Additional Mitigation / Enhancement Measures’ above. No “applied” building or landscape mitigation proposed. n/a	Minor – Moderate Adverse Not significant
	Townscape Character Area 02 – The Village		Negligible Not significant		Negligible Not significant
	Townscape Character Area 03 – North Campus		Negligible Not significant		Negligible Not significant
	Townscape Character Area 04 – Mayfield		Negligible Not significant		Negligible Not significant
	Townscape Character Area 05 – Upper Brook Street		Moderate Adverse Significant		Moderate Adverse Significant
	Townscape Character Area 06 – New Brunswick		Moderate Adverse Significant		Moderate Adverse Significant
	Viewpoint 01 – Upper Brook Street		Moderate Adverse Significant		Moderate Adverse Significant

Category	Description of Effect	Embedded Mitigation	Potential Effect (inc. Significance)	Further Mitigation	Residual Effect (inc. Significance)
	Viewpoint 02 – All Saints Park		Minor – Moderate Adverse Not significant		Minor – Moderate Adverse Not significant
	Viewpoint 03 – Brook Street		Moderate Adverse Significant		Moderate Adverse Significant
	Viewpoint 04 – Hanworth Close		Major Adverse Significant		Major Adverse Significant
	Viewpoint 05 – Gartside Gardens		Major Adverse Significant		Major Adverse Significant
	Viewpoint 06 – Whitworth Hall		Negligible Not significant		Negligible Not significant
	Viewpoint 07 – Booth Street West		Minor – Moderate Adverse Not significant		Minor – Moderate Adverse Not significant
	Viewpoint 08 – Junction of Princess Street and Charles Street		Minor Adverse Not significant		Minor – Adverse Not significant
	Viewpoint 09 – Vimto Park		Minor – Moderate Adverse Not significant		Minor – Moderate Adverse Not significant
	Viewpoint 10 – Mayfield Park		Moderate Adverse Significant		Moderate Adverse Significant
	Viewpoint 11 – Ardwick Green		Minor – Moderate Adverse		Minor – Moderate Adverse

Category	Description of Effect	Embedded Mitigation	Potential Effect (inc. Significance)	Further Mitigation	Residual Effect (inc. Significance)
			Not significant		Not significant
	Viewpoint 12 – Sylvia Pankhurst Way		Major Adverse Significant		Major Adverse Significant
	Viewpoint 13 – Junction of Upper Brook Street and Plymouth Grove		Minor Adverse Not significant		Minor Adverse Not significant
	Viewpoint 14 – Grosvenor Street		Moderate Adverse Significant		Moderate Adverse Significant
	Viewpoint 15 – Junction of Oxford Road and Ackers Street		Negligible Not significant		Negligible Not significant
	Operational				
	Townscape Character Area 01 – Corridor Manchester	Incorporated into building and public realm design, as described in ‘Embedded Mitigation’ above.	Minor – Moderate Beneficial Not significant	Construction mitigation as described in ‘Additional Mitigation / Enhancement Measures’ above. No “applied” building or landscape mitigation	Minor – Moderate Beneficial Not significant
	Townscape Character Area 02 – The Village		Negligible Not significant		Negligible Not significant
	Townscape Character Area 03 – North Campus		Negligible Not significant		Negligible Not significant

Category	Description of Effect	Embedded Mitigation	Potential Effect (inc. Significance)	Further Mitigation	Residual Effect (inc. Significance)
	Townscape Character Area 04 – Mayfield		Negligible Not significant	proposed.	Negligible Not significant
	Townscape Character Area 05 – Upper Brook Street		Moderate Beneficial Significant		Moderate Beneficial Significant
	Townscape Character Area 06 – New Brunswick		Moderate Neutral Significant		Moderate Neutral Significant
	Viewpoint 01 – Upper Brook Street		Moderate Beneficial Significant		Moderate Beneficial Significant
	Viewpoint 02 – All Saints Park		Minor – Moderate Adverse Not significant		Minor – Moderate Adverse Not significant
	Viewpoint 03 – Brook Street		Moderate Adverse Significant		Moderate Adverse Significant
	Viewpoint 04 – Hanworth Close		Major Adverse Significant		Major Adverse Significant
	Viewpoint 05 – Gartside Gardens		Major Adverse Significant		Major Adverse Significant
	Viewpoint 06 – Whitworth Hall		Negligible Not significant		Negligible Not significant
	Viewpoint 07 – Booth Street West		Minor – Moderate Neutral Not significant		Minor – Moderate Neutral Not significant

Category	Description of Effect	Embedded Mitigation	Potential Effect (inc. Significance)	Further Mitigation	Residual Effect (inc. Significance)
	Viewpoint 08 – Junction of Princess Street and Charles Street		Minor Neutral Not significant		Minor Neutral Not significant
	Viewpoint 09 – Vimto Park		Minor – Moderate Neutral Not significant		Minor – Moderate Neutral Not significant
	Viewpoint 10 – Mayfield Park		Moderate Neutral Significant		Moderate Neutral Significant
	Viewpoint 11 – Ardwick Green		Minor – Moderate Neutral Not significant		Minor – Moderate Neutral Not significant
	Viewpoint 12 – Sylvia Pankhurst Way		Major Adverse Significant		Major Adverse Significant
	Viewpoint 13 – Junction of Upper Brook Street and Plymouth Grove		Minor Neutral Not significant		Minor Neutral Not significant
	Viewpoint 14 – Grosvenor Street		Moderate Adverse Significant		Moderate Adverse Significant
	Viewpoint 15 – Junction of Oxford Road and Ackers Street		Negligible Not significant		Negligible Not significant
	Construction				

Category	Description of Effect	Embedded Mitigation	Potential Effect (inc. Significance)	Further Mitigation	Residual Effect (inc. Significance)
Built Heritage	Impact of the Proposed Development on the significance and setting of the Former Unitarian Chapel	None	Moderate Adverse magnitude of change and a moderate significance of effect, short term and reversible. local level.	Construction management measures and CEMP	Moderate Adverse magnitude of change and a moderate significance of effect, short term and reversible. local level. Significant
	Impact of the Proposed Development on the significance and setting of the Mawson Hotel	None	Minor adverse magnitude of change and a slight significance of effect, short term and reversible. At the local level.	Construction management measures and CEMP	Minor adverse magnitude of change and a slight significance of effect, short term and reversible. At the local level. Not Significant
	Impact of the Proposed Development on the significance and setting of Oddfellows Hall	None	Minor adverse magnitude of change and a slight significance of effect, short term and reversible. At the local level.	Construction management measures and CEMP	Minor adverse magnitude of change and a slight significance of effect, short term and reversible. At the local level. Not Significant
	Impact of the Proposed Development on the significance and setting of 94-98 Grosvenor Street	None	Minor adverse magnitude of change and a slight significance of effect, short term and reversible. At the local level.	Construction management measures and CEMP	Minor adverse magnitude of change and a slight significance of effect, short term and reversible. At the local level. Not Significant

Category	Description of Effect	Embedded Mitigation	Potential Effect (inc. Significance)	Further Mitigation	Residual Effect (inc. Significance)
	Impact of the Proposed Development on the significance and setting of the Adult Deaf and Dumb Institute (Former)	None	Negligible adverse magnitude of change and a neutral significance of effect, short term and reversible. At the local level.	Construction management measures and CEMP	Negligible adverse magnitude of change and a neutral significance of effect, short term and reversible. At the local level. Not Significant
	Impact of the Proposed Development on the significance and setting of the Former Grosvenor Picture Palace	None	Negligible adverse magnitude of change and a neutral significance of effect, short term and reversible. At the local level.	Construction management measures and CEMP	Negligible adverse magnitude of change and a neutral significance of effect, short term and reversible. At the local level. Not Significant
	Impact of the Proposed Development on the significance and setting of the Whitworth Street Conservation Area	None	Negligible adverse magnitude of change and a slight significance of effect, short term and reversible. At the local level.	Construction management measures and CEMP	Negligible adverse magnitude of change and a slight significance of effect, short term and reversible. At the local level. Not Significant
	Operation				
	Impact of the Proposed Development on the	The layout, scale, mass, height, design, appearance,	Moderate adverse magnitude of change and a moderate	N/A	Moderate adverse magnitude of change and a moderate

Category	Description of Effect	Embedded Mitigation	Potential Effect (inc. Significance)	Further Mitigation	Residual Effect (inc. Significance)
	significance and setting of the Former Unitarian Chapel	materials and landscaping of the Proposed Development	significance of effect, long term and permanent. At the local level.		significance of effect, long term and permanent. At the local level. Significant
	Impact of the Proposed Development on the significance and setting of the Mawson Hotel	The layout, scale, mass, height, design, appearance, materials and landscaping of the Proposed Development	Negligible adverse magnitude of change and a slight significance of effect, long term and permanent. At the local level.	N/A	Negligible adverse magnitude of change and a slight significance of effect, long term and permanent. At the local level. Not Significant
	Impact of the Proposed Development on the significance and setting of Oddfellows Hall	The layout, scale, mass, height, design, appearance, materials and landscaping of the Proposed Development	Minor adverse magnitude of change and a slight significance of effect, long term and permanent. At the local level.	N/A	Minor adverse magnitude of change and a slight significance of effect, long term and permanent. At the local level. Not Significant
	Impact of the Proposed Development on the significance and setting of 94-98 Grosvenor Street	The layout, scale, mass, height, design, appearance, materials and landscaping of the Proposed Development	Minor adverse magnitude of change and a slight/neutral significance of effect, long term and permanent. At the local level.	N/A	Minor adverse magnitude of change and a slight/neutral significance of effect, long term and permanent. At the local level. Not Significant

Category	Description of Effect	Embedded Mitigation	Potential Effect (inc. Significance)	Further Mitigation	Residual Effect (inc. Significance)
	Impact of the Proposed Development on the significance and setting of the Adult Deaf and Dumb Institute (Former)	The layout, scale, mass, height, design, appearance, materials and landscaping of the Proposed Development	Negligible adverse magnitude of change and a neutral significance of effect, long term and permanent. At the local level.	N/A	Negligible adverse magnitude of change and a neutral significance of effect, long term and permanent. At the local level. Not Significant
	Impact of the Proposed Development on the significance and setting of the Former Grosvenor Picture Palace	The layout, scale, mass, height, design, appearance, materials and landscaping of the Proposed Development	Negligible adverse magnitude of change and a neutral significance of effect, long term and permanent. At the local level.	N/A	Negligible adverse magnitude of change and a neutral significance of effect, long term and permanent. At the local level. Not Significant
	Impact of the Proposed Development on the significance and setting of the Whitworth Street Conservation Area	The layout, scale, mass, height, design, appearance, materials and landscaping of the Proposed Development	Negligible adverse magnitude of change and a slight significance of effect, long term and permanent. At the local level.	N/A	Negligible adverse magnitude of change and a slight significance of effect, long term and permanent. At the local level. Not Significant
Transport and Access	Construction				
	Potential for temporary closure of roads / public rights	N/A	Major / moderate adverse temporary local level impact in	Minimise duration of closures. Publicise closure periods and	Minor adverse temporary local level impact in short term

Category	Description of Effect	Embedded Mitigation	Potential Effect (inc. Significance)	Further Mitigation	Residual Effect (inc. Significance)
	of way or temporary removal of on-street parking bays during construction of development units.		short term during periods of closure.	identify / sign alternative routes as agreed with LHA. Always ensure an appropriate alternative / diversion route for affected parties. Provide alternative walking route through construction site during Phase 1 to maintain link between Kincardine Road and Upper Brook Street whilst Inchley Road is closed.	during construction phase. Not Significant
	Potential for dust and dirt from construction vehicles to transfer to road and neighbouring properties	General good practice construction management procedures.	Major adverse temporary local level impact in short term during construction phase if not subject to vehicle management procedures.	Adopt industry standard wheel wash / vehicle cleansing systems to minimise dust and dirt transfer on immediate haul routes to construction sites / access points.	Minor adverse temporary local level impact in short term during construction phase. Not Significant

Category	Description of Effect	Embedded Mitigation	Potential Effect (inc. Significance)	Further Mitigation	Residual Effect (inc. Significance)
	Potential for additional construction HGV and some staff movements on immediate local streets to site and to add to local baseline peak hour traffic congestion	N/A	Moderate / minor adverse temporary local level impact in short term during construction phase if not subject to vehicle management procedures.	Adopt CTMP measures and, where practical, encourage construction HGV movements to take place outside of traditional weekday AM / PM peak periods. Minimise number of staff permitted to park on site and promote sustainable travel options or use of alternative formal off-site parking arrangements at local car parking sites.	Minor adverse temporary local level impact in short term during construction phase. Not Significant
	Operation				
	Increased in general traffic and delivery vehicle movements, with concentrations on some local distributor roads (as a consequence of	Operation of car-free development and associated local network enhancements to support delivery of new public square.	Negligible / minor adverse permanent local impacts on local distributor road routes following delivery of (potential for pedestrian	Operation of Travel Plan initiatives across the site to encourage maximum use of sustainable (non-car) travel modes. Implement	Negligible / minor adverse permanent local impacts on local distributor road routes following delivery of (pedestrian amenity, severance & driver

Category	Description of Effect	Embedded Mitigation	Potential Effect (inc. Significance)	Further Mitigation	Residual Effect (inc. Significance)
	development proposals and associated road closures / extension of one-way controls).		amenity, community severance & driver delay).	management measures including routing information to service vehicle drivers and information on available local multi-storey public car parking.	delay). Not Significant
Socioeconomics	Demolition and Construction				
	Disruption to local area due to movement of materials etc.		Moderate Adverse short-term effect on immediate area, which is Not Significant	Best practice mitigation measures implemented by way of CEMP	Negligible short-term effect on immediate area Not Significant
	Employment gain for construction industry		Moderate Beneficial short-term effect on the wider area, which is Not Significant	Nothing additional to embedded mitigation	Moderate Beneficial short-term effect on the wider area Not Significant
	Operational				
	Local population		Minor Beneficial effect rating on immediate area, which is Not Significant	Nothing additional to embedded mitigation	Minor Beneficial effect rating on immediate area Not Significant

Category	Description of Effect	Embedded Mitigation	Potential Effect (inc. Significance)	Further Mitigation	Residual Effect (inc. Significance)
	Local employment		Moderate Beneficial long-term effect on immediate area, which is Not Significant	Nothing additional to embedded mitigation	Moderate Beneficial long-term effect on immediate area Not Significant
Daylight, Sunlight & Overshadowing	Construction				
	N/A	N/A	N/A	N/A	N/A
	Daylight Amenity				
	Reduction in daylight amenity of: - Nos. 1-7 Litcham Close 1-23 Mawson Road - Elizabeth Yarwood Court - Nos. 2-8 Wadesmill Walk - Nos. 2-8 Stockland Close - Nos. 38-46 Hanworth Close - Kincardine Court	None Proposed	Negligible	None Proposed	Negligible Not Significant

Category	Description of Effect	Embedded Mitigation	Potential Effect (inc. Significance)	Further Mitigation	Residual Effect (inc. Significance)
	Reduction in daylight amenity of the Chapel Student Accommodation Building	None Proposed	Moderate Adverse impact on Daylight Amenity	None Proposed	Moderate Adverse impact on Daylight Amenity Significant
	Reduction in daylight amenity of 1/9 Justin Close	None Proposed	Minor Adverse impact on Daylight Amenity	None Proposed	Minor Adverse impact on Daylight Amenity Not Significant
	Sunlight Amenity				
	Reduction in sunlight amenity of: - Nos. 1-7 Litcham Close 1-23 Mawson Road - Elizabeth Yarwood Court - Nos. 2-8 Wadesmill Walk - Nos. 2-8 Stockland Close - Nos. 38-46 Hanworth Close - Kincardine Court	None Proposed	Negligible	None Proposed	Negligible Not Significant

Category	Description of Effect	Embedded Mitigation	Potential Effect (inc. Significance)	Further Mitigation	Residual Effect (inc. Significance)
	Reduction in sunlight amenity of 2 Stockland Close	None Proposed	Minor Adverse	None Proposed	Minor Adverse , which is not significant Not Significant
	Reduction in sunlight amenity of 1/9 Justin Close	None Proposed	Minor Adverse	None Proposed	Minor Adverse , which is not significant Not Significant
	Reduction in sunlight amenity of The Chapel Student Accommodation	None Proposed	Moderate Adverse	None Proposed	Moderate Adverse Significant
	Reduction in sunlight amenity to rear gardens of 38-46 Mawson Road	None Proposed	Major Adverse	None Proposed	Major Adverse Significant
Wind Microclimate	Construction				
	Thoroughfares & Roadways	N/A	Negligible (not significant)	N/A	Negligible Not significant
	Bus stops	N/A	Negligible (not significant)	N/A	Negligible Not significant
	Off-site entrances	N/A	Negligible (not significant)	N/A	Negligible Not Significant
	Existing amenity spaces	N/A	Negligible (not significant)	N/A	Negligible Not Significant

Category	Description of Effect	Embedded Mitigation	Potential Effect (inc. Significance)	Further Mitigation	Residual Effect (inc. Significance)
	Strong winds	N/A	Negligible (not significant)	N/A	Negligible Not Significant
	Operation				
	Thoroughfares & Roadways	N/A	Negligible (not significant)	N/A	Negligible Not significant
	Bus stops	N/A	Negligible (not significant)	N/A	Negligible Not significant
	On-site entrances	Proposed landscaping scheme and 1.5m x 3m 50% porous screens	Negligible (not significant)	N/A	Negligible Not Significant
	Off-site entrances	N/A	Negligible (not significant)	N/A	Negligible Not significant
	Proposed ground floor amenity spaces	Proposed landscaping scheme and 1.5m x 3m 50% porous screens	Negligible (not significant)	N/A	Negligible Not Significant
	Proposed terrace level amenity spaces	N/A	Negligible (not significant)	N/A	Negligible Not Significant
	Existing amenity spaces	N/A	Negligible (not significant)	N/A	Negligible Not Significant
	Strong winds	Proposed landscaping scheme and 1.5m x 3m 50%	Negligible (not significant)	N/A	Negligible Not Significant

Category	Description of Effect	Embedded Mitigation	Potential Effect (inc. Significance)	Further Mitigation	Residual Effect (inc. Significance)
		porous screens			
Climate Change	Construction				
	Embodied Carbon	N/A	Temporary moderate adverse	Review of Embodied Carbon Reports at the detailed design stage to consider materials with less embodied carbon.	Temporary minor adverse Not Significant
	Vehicular Emissions	N/A	Temporary moderate adverse	Construction Traffic Management Plan	Temporary minor adverse Not Significant
	Solid Waste and Water Consumption	N/A	Negligible	SWMP and CEMP	Negligible Not Significant
	Operation				
	Energy	Passive and active design measures to increase efficiency and reduce demand	Permanent moderate adverse	Provision of Solar PV and ASHPs	Permanent minor adverse Not Significant
	Vehicular Emissions	Cycle parking provision	Permanent moderate adverse	Measures within Travel Plans	Permanent minor adverse Not Significant
	Solid Waste and Water Consumption	N/A	Negligible	Operational Waste Management Plan	Negligible Not Significant

- 13.4 A comprehensive assessment of the potential effects of the construction and operational phases of the proposed development has been undertaken as part of this EIA to establish the environmental changes associated with the development. The Proposed Development has been designed in accordance with the findings and recommendations of the EIA. Any adverse effects identified through the assessment have been minimised as far as possible through the design process or the application of appropriate mitigation measures. Those effects associated with the construction activities will be controlled by the CMP.
- 13.5 Effects during the demolition and construction period are considered to be short term **minor adverse, negligible** or **minor-moderate adverse** for the majority of impacts and one **moderate beneficial** impact relating to socio economics, which are considered **not significant**. There are some **moderate** and **major adverse** impacts relating to the townscape and visual amenity of the site and one **moderate adverse** heritage impact during construction on the setting of the Former Unitarian Chapel. Those **major** and **moderate adverse** impacts are considered **significant** however construction related impacts are considered temporary and short term.
- 13.6 Potential environmental impacts of the completed development range from **negligible** to **major adverse**, with the majority of impacts being **negligible** or **minor adverse**, which is **not significant**. However, some significant impacts are expected. The significant effects identified in the ES are found within the Townscape and Visual, Built Heritage and Daylight and Sunlight assessments and are summarised below.
- 13.7 Upon completion of the development changes to nearby Townscape Character Areas (TCA) and visual amenity from certain viewpoints are anticipated to lead to significant impacts for the following:

Adverse

- Viewpoint 4 Hanworth Close (Major)
- Viewpoint 5 – Gartside Gardens (Major)
- Viewpoint 12 Sylvia Pankhurst Way (Major)
- Viewpoint 14 Grosvenor Street (Moderate)

Beneficial

- TCA 05 Upper Brook Street (Moderate)
- Viewpoint 1 Upper Brook Street (Moderate)

Neutral

- TCA 06 – New Brunswick (Moderate)
- Viewpoint 10 – Mayfield Park (Moderate)

- 13.8 The majority of impacts upon built heritage will remain as **not significant** once the development is completed and operational. However, a **moderate adverse**

permanent impact is expected on the setting of the Former Unitarian Chapel, which is **significant**.

- 13.9 Once the development is completed, impacts upon Daylight, Sunlight and Overshadowing will be predominantly **not significant**. However, impacts upon daylight and sunlight amenity at the Former Unitarian Chapel will result in **moderate adverse** impacts. A reduction in sunlight amenity to the rear gardens of 38-46 Mawson Road will result in a **major adverse** impact. These impacts are considered **significant**.
- 13.10 **Minor** and **moderate beneficial** impacts which are not significant are anticipated in relation to socio economics through provision of direct and indirect job creation and the development contributing to Manchester's economic prosperity building on its knowledge economy strengths to the benefit of Greater Manchester and the North West.
- 13.11 Although there are anticipated to be some significant adverse impacts as a result of the proposed development, it is important to weigh the potential direct and indirect benefits and improvements which will occur as a result of the proposals. The proposals comprise a high quality mixed-use development with active frontages offering community and commercial space which has been designed in consultation with the local community and other stakeholders and the proposed development is supported by a cohesive and extensive landscaping scheme, which will significantly boost the appearance of the currently derelict site.
- 13.12 In summary, the development is in line with the wider strategic regeneration objectives of the Council due to its sustainable location, the reuse of underutilised, previously developed land and buildings, the delivery of life science buildings which will bring about substantial economic benefits, and compliance with criteria required for new student accommodation.