



Trinity Islands

Non-Technical Summary

December 2021

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1. Introduction

- 1.1. This Environmental Statement (ES) Non-Technical Summary (NTS) has been prepared in support of a planning application submitted to Manchester City Council (MCC) for a residential led, mixed-use development on land at Trinity Islands within Manchester City Centre. The applicant is 'Renaker Build Ltd'.
- 1.2. The applicant is submitting an application for Full Planning Permission for the construction of four new residential towers between 39 and 60 storeys to provide 1,950 residential apartments, commercial and residential amenity space at podium level, underground car and cycle parking, public realm, access, servicing and other associated works.
- 1.3. The Application Site (hereafter referred to as 'the Site') comprises 1.78 hectares of previously developed land located to the south west of Manchester City Centre and falls within the St. John's and Water Street Strategic Regeneration Framework (SRF) areas. The Site is bounded by the River Irwell to the north and west, Liverpool Road to the east and Water Street and Regent Street to the south.
- 1.4. The Site is currently comprised of brownfield land in the form of a surface level car park and is split into two parcels known as Site C and Site D as per the red line boundary plan. It is understood the the surface level carpark is no longer in operation.
- 1.5. This ES NTS sets out the findings of an Environmental Impact Assessment ('EIA') carried out in respect of the development of the Site.
- 1.6. The EIA has been carried out in accordance with the Town and Country Planning (Environmental Impact Assessment) Regulations 2011 (as amended) ('the EIA Regulations') and best practice guidance.
- 1.7. The Non-Technical Summary (NTS) is a standalone document and is required under the EIA Regulations.

Purpose of the Environmental Impact Assessment and Non-Technical Summary

- 1.8. The purpose of an EIA is explained by the Government in the National Planning Practice Guidance at paragraph 002 (Reference ID: 4-002-20140306), which sets out:
"The aim of Environmental Impact Assessment is to protect the environment by ensuring that a local planning authority when deciding whether to grant planning permission for a project, which is likely to have significant effects on the environment, does so in the full knowledge of the likely significant effects, and takes this into account in the decision making process."
- 1.9. In simple terms, an EIA is an information gathering exercise in relation to the effect that the Proposed Development may have on the local environment when compared to the existing conditions. These are typically carried out on projects of a large scale.
- 1.10. Conducting an EIA is a systematic process, which leads to a final report, the ES.
- 1.11. This NTS is designed to be read on its own. It explains the environmental implications of the Proposed Development to the public, informing them, and allowing them to decide whether they would like more detail on the Proposed Development.
- 1.12. More information and greater technical detail is available in the Environmental Statement (ES). The ES is a separate document which has been submitted as part of the planning application. Please see Section 13, Availability of Environmental Statement for details on how and where to view the ES.

Environmental Impact Assessment Process

- 1.13. The first step is understanding if the Proposed Development meets the criteria set out within legislation, which means that further consideration should be given to if it comprises an EIA development. The legislation sets out different 'schedules' of projects and how the EIA should be carried out.
- 1.14. A Proposed Development may then go through a 'Screening' and/or a 'Scoping' process. This is the process whereby an Applicant may submit a request to the Local Planning Authority for a formal opinion as to

whether they consider the Proposed Development to be meet the criteria for an EIA and, if so, what technical topics it considers to be relevant to the EIA.

- 1.15. If an EIA is determined to be required, the Applicant will prepare an ES, which sets out the findings from the technical assessments undertaken. The ES is then submitted to the Local Planning Authority as part of an application for Planning Permission.

Assessment Methodology

Scoping

- 1.16. An EIA Screening and Scoping Report was prepared by Deloitte with input from the technical consultant team for the project. The EIA Screening and Scoping Report was submitted to Manchester City Council ('MCC') as the Local Planning Authority on 13 August 2021.
- 1.17. A formal EIA Scoping Opinion was issued by MCC 30 September 2021. As part of this EIA Scoping Opinion dialogue, it was agreed that Human Health would be considered as part of the ES and now forms a standalone chapter.

Technical Topics not included in the Environmental Impact Assessment

- 1.18. The Scoping process identified a number of technical topics where significant environmental effects as a result of the Proposed Development would be unlikely and would not be assessed further within the EIA process.
- 1.19. These topics are:
 - Agricultural circumstances;
 - Archaeology;
 - Aviation;
 - Ecology;
 - Ground Conditions; and
 - TV Reception, FM Radio and DAB Radio Reception.
- 1.20. Further information detailing why each of these technical topics were scoped out of the EIA can be found in Appendix 2.1 EIA Screening and Scoping Report.

Approach to Technical Studies

- 1.21. Various technical studies were commenced at an early stage in the development process. The findings of the baseline (existing) environmental studies have played an important role in the design of the Proposed Development by defining the environmental sensitivities, constraints and opportunities associated with the Site.
- 1.22. Design team reviews, attended by members of the project team, were held throughout the pre-application process. These reviews provided a valuable forum for the exchange of information and ensured that the design team was fully aware of the environmental constraints and opportunities, and of the interactions between disciplines. Meetings were also held with Manchester City Council as the Local Planning Authority, as well as pre-application discussions with technical consultees.
- 1.23. The technical studies have been undertaken in accordance with current best practice. Specific guidance used is referenced within each of the respective technical chapters, with a reference list at the end of each chapter.
- 1.24. The technical studies undertaken within the ES have been progressed in a transparent, impartial and unbiased way with equal weight attached, as appropriate, to beneficial and adverse effects. Where possible, this has been based upon quantitative and accepted criteria together with the use of value judgements and expert interpretations.

Who has been involved in the EIA process?

- 1.25. The EIA process has involved communication and collaboration between the applicant, Deloitte LLP, MCC, the project team (shown in Table 4.3), statutory consultees and the public.
- 1.26. Table 4.5 shows the project team and their roles.

Table 4.5: Project Team

Topic	Assessment carried out by
Town Planning, EIA Coordination	Deloitte LLP
Architect	Simpson Haugh and Partners
Air Quality	Ensafe
Climate Change	WSP
Daylight, Sunlight and Overshadowing	GIA
Heritage	Stephen Levrant Heritage Architecture
Human Health	Enfusion
Noise and Vibration	Matt Fisher Acoustics
Socio-Economic Issues	Ekosgen
Solar Glare	GIA
Townscape and Visual Impact	Chris Burnett Associates
Traffic and Transport	Vectos
Water Resources	Curtins Consulting
Wind Microclimate	WSP

What were the results of the EIA?

- 1.27. The following sections summarise the methodology used in determining the likely significant effects of the Proposed Development and summarise the outcomes of the EIA.
- 1.28. This section is organised into technical subjects. Greater detail can be found in the relevant chapters of the Environmental Statement (6 to 17) and their technical appendices.
- 1.29. The technical topics are those elements of the environment considered likely to experience significant effects and therefore assessed in the EIA.
- 1.30. With regard to the assessment for each topic, the subsequent sections discuss:
- Methodology and scope;
 - Baseline conditions;
 - Likely significant effects of the Proposed Development;
 - Mitigation;
 - Cumulative effects with other developments; and

- Likely ‘residual’ effects following mitigation.

1.31. A summary of proposed mitigation measures and residual effects is also included in Chapter 18 of the ES Volume 1.

Significance of Effects

1.32. The likely effects of the Proposed Development have been classified according to their significance.

1.33. Significance is determined as a function of both the scale (magnitude) of change from the existing (baseline) environment and the sensitivity of environmental receptors, such as population, fauna, flora, soil, water, air, climatic factors, material assets, including the architectural and archaeological heritage, landscape and the inter-relationship between these factors. Chapter 2 of the ES Volume 1, EIA Methodology, describes this process in greater detail.

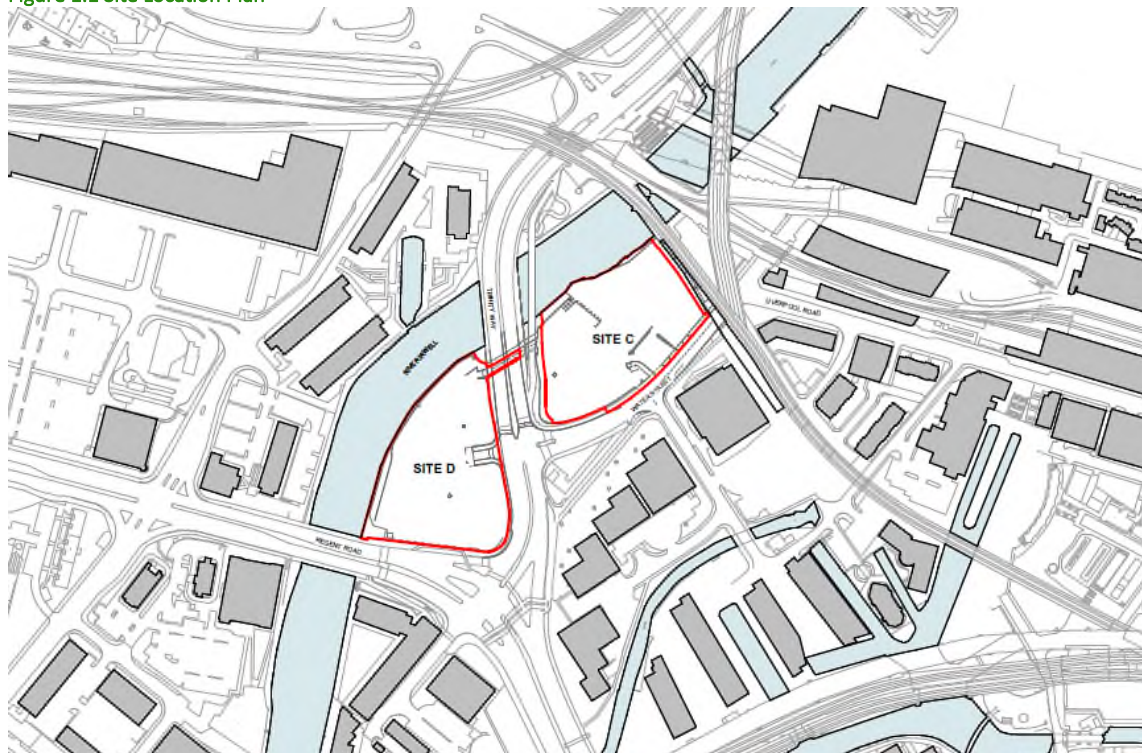
1.34. This serves as a useful guide for specialists to assess effect significance. Where discipline-specific methodology has been applied that differs from these generic criteria, this has been clearly explained within the relevant ES chapters Volume 1 (6 to 17).

2. Description of the Proposed Development

Where is the Site?

- 2.1. The ES has been submitted in order to assess the Environmental Impact of the Proposed Development. The Site is located within Manchester City Centre and has been identified for residential led development through the St. John's and Water Street Strategic Regeneration Frameworks.
- 2.2. The Site is located within Manchester City Centre. It is bounded by the River Irwell to the north and west, Liverpool Road to the east and Water Street and Regent Street to the south.
- 2.3. The Site is currently accessed from Water Street and Regent Street.
- 2.4. Figure 1.1 below shows the Site location plan.

Figure 1.1 Site Location Plan



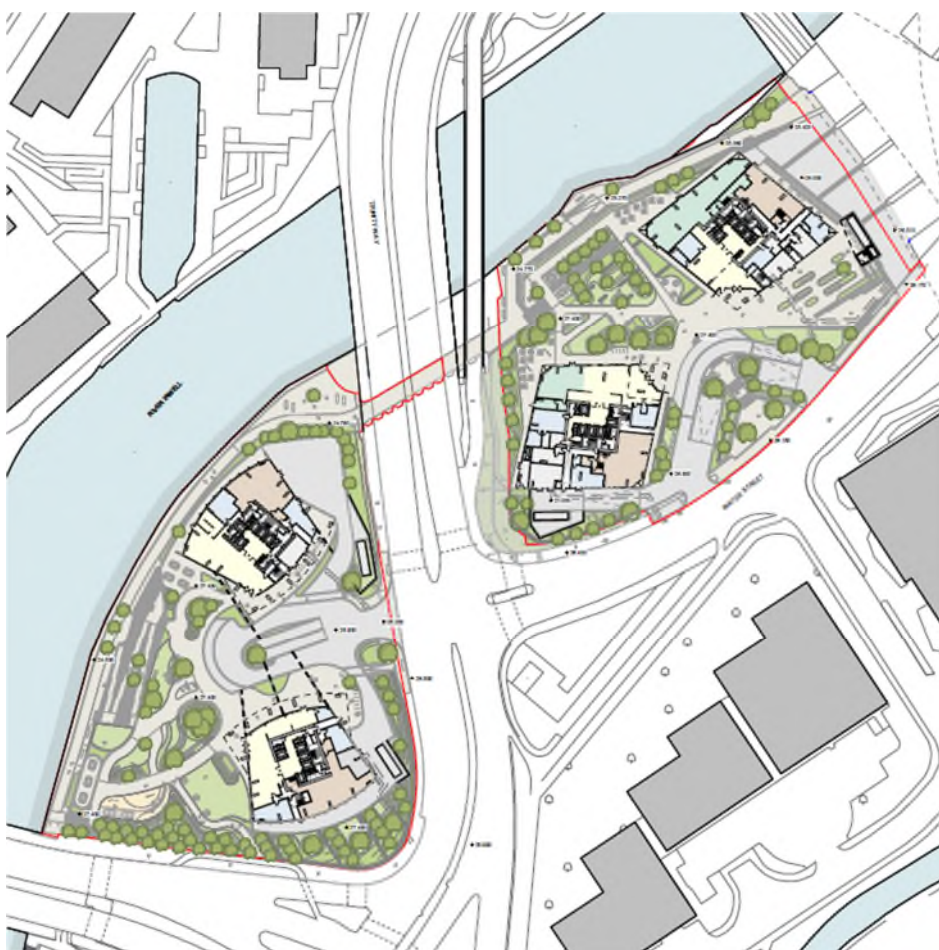
What is being proposed?

- 2.5. The description of development is as follows:
- 2.6. *“Full planning permission for the erection of a mixed-use development comprising four towers including the following uses: residential (Use Class C3) within the towers and commercial uses (Use Classes E and Sui Generis: Drinking Establishment) within podium level together with public realm, car and cycle parking, access arrangements and highway works, and other associated works.”*
- 2.7. The Proposed Development comprises the following buildings:
 - **Site C:**

- o **Building C1** – 414 apartments across 39 storeys and a mixture of commercial uses and residential amenity at lower levels.
- o **Building C2** – 521 apartments across 48 storeys and a mixture of commercial uses and residential amenity at lower levels.
- **Site D:**
 - o **Building D1** – 532 apartments across 60 storeys and residential amenity at lower levels.
 - o **Building D2** – 483 apartments across 55 storeys and a mixture of residential amenity at lower levels.

2.8. The Site is laid out as following:

Figure 1.2 Site Wide General Arrangement



2.9. The Proposed Development includes:

- 1,950 high-quality apartments delivered across four towers ranging between 39 and 60 storeys providing a mixture of 1 bed, 2 bed and 3 bed units.
- Residential amenity space and commercial uses at lower levels.
- 1.29 ha of high-quality public realm, hard and soft landscaped including newly formed access to riverside, enhanced pedestrian and cycle connections and informal child play space.

- Off-street servicing arrangements.
 - Underground car park comprising 556 car parking spaces (up to 20% demand-led electric vehicular charging (EVC) provision (7kw each). Spaces will be future proofed with containment channels that enable cable connections to be installed as and when required).
 - 100% secure cycle parking provision (1,950 spaces) and c. 70 visitor spaces in the form of Sheffield stands in the public realm.
- 2.10. The Proposed Development will transform the existing un-used brownfield site, to create a vibrant new community of residents and workers in a highly sustainable location. Upon completion, Trinity Islands will be home to a community of approximately up to 5,000 new residents, the majority of whom are expected to work within the City and make a positive contribution to the local economy, thereby directly supporting Manchester’s regeneration priorities.
- 2.11. The proposed extensive area of high quality public realm will also make a significant contribution to publicly accessible green space within the city centre. The landscaping proposals have sought to strike a balance between hard and soft landscaping to successfully deliver a scheme that enhances key connections whilst also increasing biodiversity across the Site. Overall, the redevelopment of Trinity Islands will also extend the urban fabric of the city centre, making a major positive contribution to the on-going regeneration of the St. John’s and Water Street areas.
- 2.12. The ES sets out the findings of an EIA carried out in respect of the Proposed Development.

What is located on the site at the moment?

- 2.13. The Site boundary extends to approximately 1.78 hectares in total area. The Site is currently underutilized and comprises a surface level car park providing for 645 cars.
- 2.14. The Site is located within the Greater Manchester Air Quality Management Area.
- 2.15. The Site is located within the western boundary of the Castlefield Conservation Area.
- 2.16. The Site does not contain any built heritage assets within its boundary. While there are no Listed Buildings on Site there are 11 Listed Buildings within a 250m radius, including both Grade I and II assets.
- 2.17. An Ecology Statement has been prepared by ERAP and confirms that there are no areas designated as being of ecological importance at the regional or national level on Site or in the immediate locality. There are no sensitive areas located within the vicinity of the Site. No records of protected or Priority Species are held for the Site.
- 2.18. As a surface car park, the existing Site is comprised completely of hardstanding with the exception of limited vegetation on the perimeters.
- 2.19. The Site is partly located within Flood Zone 1 (greater than a 1 in 100 year) and Flood Zone 2 (less than 1 in 100 and greater than 1 in 1000 year) according to DEFRA.

Why is this development coming forward?

- 2.20. The Site is located within the St Johns and Water Street Strategic Regeneration Frameworks that set guiding principles for the long term regeneration within this part of the City Centre which have been formally endorsed by Manchester City Council. These frameworks identify the Site as being suitable residential-led development with commercial uses that would be contained within taller buildings to create a new gateway into the City Centre.
- 2.21. Manchester has a duty to deliver a range of new homes each year in order to meet demand from a fastly growing population. The Brownfield Land Register is a schedule of previously developed land and the Site has been identified as being suitable to deliver approximately a minimum of 1,390 residential units within the next 5-10 years.
- 2.22. Additionally, the Site is suitably located for high-density development owing to its strategic City Centre location. The Site is located within the south western part of the City Centre and is therefore in close proximity to a number of key services, local amenities and economic opportunities within the regional

centre. It also benefits from access to multiple sustainable modes of transport including rail, bus, cycling and walking and the Metrolink tram system.

- 2.23. In this respect, the proposals will not only transform and enhance this Site but will also deliver major public realm improvements within St. John's, Water Street and this part of the City Centre. The scale of the investment will also serve to provide wider investor confidence in the area, incentivising other investment initiatives to come forward particularly in the Water Street SRF area which has not witnessed a significant level of regeneration activity as St. John's.

Who has been consulted?

- 2.24. Pre-application engagement has been undertaken with the Local Planning Authority, Local Ward Councillors from Deansgate, Manchester Airport Group, Historic England, Greater Manchester Police Secure by Design, Science and Industry Museum, MCC Highways, MCC Environmental Health, Manchester International Festival and Network Rail. In addition, the Proposed Development has been presented to the Places Matter! Design Review Panel.
- 2.25. For the public consultation, a website was published online that included a non-technical overview of the forthcoming proposals. The website provided visitors with the opportunity to respond to key questions and provide any additional feedback, which was then reviewed by the Applicant and project team. To ensure the website was well publicised, leaflets were posted to 3,726 addresses within the surrounding area. The consultation website provided the opportunity for feedback over a three-week period, during which time a webinar was held on the 12 August 2021. The webinar was publicised on the website and sought to provide an opportunity for attendees to be briefed on the proposals by the project team and raise questions in real time.
- 2.26. The evolution of the scheme has been influenced by the findings of public consultations. Further information on this process and the feedback gained is available in the Statement of Consultation submitted in support of the planning application.

What will the redevelopment process involve?

- 2.27. Broadly, the construction process Proposed Development will involve:
- Site clearance and enabling works;
 - Earthworks, levelling and ground compaction;
 - Laying foundations;
 - Building of the new structures;
 - External works and hard and soft landscaping;
 - Phased completion of public realm and S.278 works;
 - Phased completion of communal external space and links;
 - Completion of internal finishes to communal space; and
 - Internal fit out of the main structures.
- 2.28. Machinery used during redevelopment will consist of standard demolition and construction plant, and will include plant items such as: excavators, concrete crushing plant, mobile cranes, compacting and vibrating mechanical plant, wheel washing and road sweeping equipment.
- 2.29. The Site will be secured and surrounded with hoardings to ensure public safety and mitigate adverse environmental effects during construction.

How long will it take?

- 2.30. The total construction programme will span a period of approximately nine years within which there will be elements of ground works, foundations, frame construction, façade cladding and internal fit out. Whilst there are several issues that will determine the final programming and sequencing at the Proposed Development

the target plan is to split the development into phases subject to Planning Permission being granted the proposed key dates and durations are shown below.

- Phase 1 – Towers C1 & C2 with residents car park and public realm– construction estimated to take 4 ½ years; commencing in March 2022 and completing in September 2026
- Phase 2 – Towers D1 & D2 with Residents car park and Public Realm. construction estimated to take 4 ½ years; commencing in September 2026 and completing in March 2031
- Final public realm (for example, reinstating highway post construction and landscaping around the perimeter of the Site) and Section 278 Highways works – completion targeted for Late 2030 – Early 2031

2.31. The programme is based upon normal working hours in line with MCC Guidance of 7.30hrs to 1800hrs Monday to Friday and 0800hrs to 1400hrs on Saturdays.

3. Alternative Options

- 3.1. The EIA Regulations require the ES to identify the main alternatives that were considered during the design process.
- 3.2. The Proposed Development has been influenced by a range of factors, including location, surrounding land use and input from MCC, Statutory and Non-Statutory Consultees and other stakeholders.
- 3.3. The wider project team has also played an important part in influencing the design of the Proposed Development to ensure that likely significant environmental effects are avoided or mitigated. The resulting scheme, is described in further detail in Section 2, 'The Proposed ETA Development'.
- 3.4. The Site is currently used as a surface level car park for 645 cars. Therefore, the Site is currently not fully utilised in its current form and does not make a positive contribution to the streetscape, nor does it reinforce or complement the surrounding and emerging context.
- 3.5. The Site has the potential to make an important contribution to the regeneration of this area of the City Centre, improving the aesthetic and connections around the Site.
- 3.6. A number of alternatives have been considered in relation to the Site and Proposed Development. These include no action (the 'Do Nothing' scenario), alternative sites, alternative uses, and alternative layouts and designs.
- 3.7. The "do nothing" scenario has been discounted due to the established need for the regeneration of the Site. It has been identified within the Brownfield Land Register since 2015 to support a minimum of 1,380 dwellings.
- 3.8. The Site is considered suitable for high-density development given its highly accessible location within the City Centre and the St Johns and Water Street areas. The Site is considered suitable for residential use in terms of its urban location, close proximity to established neighbourhoods, transport links and connections with Manchester City Centre.
- 3.9. Within the above context, it is not considered appropriate to consider alternative sites.
- 3.10. The proposed use of the Site has been influenced by the St Johns and Water Street SRF which the Site is located within, alongside the context of identified need for high quality residential accommodation, viability and deliverability. The Proposed Development will help to achieve the regeneration ambitions set out within the frameworks and therefore create a 'best in class' residential neighbourhood. As such, the consideration of alternative uses was not considered to be appropriate.
- 3.11. Alternative layouts and designs have been considered throughout the design process and have been informed by consultation with stakeholders and the public and by the Project Team, as addressed within the Design and Access Statement.
- 3.12. Considerations around alternative layouts and designs reflected upon a number of options; however the Proposed Development is considered to represent the most appropriate design in respect of the various considerations influencing the design.

4. Construction Management and Phasing

- 4.1. The Construction (Design and Management) Regulations 2015 will apply to this project and all appropriate controls and systems will be in place to comply with the standards of the Regulations and associated guidance.
- 4.2. Every stage of the project will be pre risk assessed and appropriate controls applied, sub-contractors will be pre vetted and will be subject to extensive pre contract requirements of information transfer and risk assessment.
- 4.3. A fundamental aspect of the Principal Contractor's role is the development of a Construction Management Plan, which will take account of all known risks, which have been identified at pre-construction stage by the Principal Designer/CDM Consultant, the Design Team and also through site investigations.
- 4.4. The Construction Management Plan will describe arrangements and procedures for managing these key risk areas in more detail, as well as any future risk, and also the resources, including personnel, which will be applied to the scheme and which will ensure the Health and Safety of all those working on or affected by the project works.
- 4.5. Renaker Build Limited will have an on-going process of monitoring health and safety standards throughout its organisation. This is normally done directly (on site) by the site management team through regular inspections, toolbox talks etc. and also via the risk assessment process both during the completion of risk assessments and then by monitoring the effectiveness of risk control measures, which have been implemented. Site managers will also undertake regular reviews of safety on site, including any accidents or incidents and any matters raised will be dealt with accordingly.
- 4.6. Health and safety is also incorporated as a fundamental aspect of the overall project review, the Applicant has appointed Renaker Build Limited as Principal Contractor, Renaker Build Limited can demonstrate competency in the management and execution of Health and Safety. The Principal Contractor will work closely with the Principal Designer at this early stage of the project and will influence the detailed design to remove construction and residual safety risks.
- 4.7. The Main Contractor will at the earliest possible stage of the project enter into dialogue with all relevant parties, including neighbours to ensure there is effective coordination throughout all stages of construction.
- 4.8. The total construction programme will span a period of approximately nine years within which there will be elements of ground works, foundations, frame construction, façade cladding and internal fit out. Whilst there are several issues that will determine the final programming and sequencing at the Proposed Development the target plan is to split the development into phases subject to Planning Permission being granted the proposed key dates and durations are shown below.
 - Phase 1 – Towers C1 & C2 with residents car park and public realm– construction estimated to take 4 ½ years; commencing in March 2022 and completing in September 2026
 - Phase 2 – Towers D1 & D2 with Residents car park and Public Realm. construction estimated to take 4 ½ years; commencing in September 2026 and completing in March 2031
 - Final public realm (for example, reinstating highway post construction and landscaping around the perimeter of the Site) and Section 278 Highways works – completion targeted for Late 2030 – Early 2031

The programme is based upon normal working hours in line with MCC Guidance of 7.30hrs to 1800hrs Monday to Friday and 0800hrs to 1400hrs on Saturdays.

5. Air Quality

- 5.1. Ensafe was commissioned by Renaker Build Limited to undertake an Air Quality Environmental Impact Assessment in support of a planning application for a Proposed Development located at Crown Street, Manchester.
- 5.2. The Proposed Development has the potential to cause air quality impacts during both the construction and operational phases.
- 5.3. During the construction phase of the Proposed Development there is potential for air quality impacts as a result of fugitive dust emissions from the Site. These were assessed in accordance with the relevant guidance methodologies. Assuming good practice dust control measures are implemented, the residual significance of potential air quality impacts from dust generated by demolition, earthworks, construction and trackout activities was predicted to be negligible and subsequently not significant.
- 5.4. Dispersion modelling was undertaken in order to quantify pollutant concentrations at the Site and assess potential exposure of future users. Annual mean concentrations of NO₂, PM₁₀ and PM_{2.5} were predicted across the ground to fourth floor levels of Building C1 & C2 and Building D1 & D2 and were subsequently verified using local monitoring results obtained from MCC and SCC.
- 5.5. The dispersion modelling results indicated that annual mean NO₂, PM₁₀ and PM_{2.5} concentrations across proposed sensitive residential use were below the relevant Air Quality Objectives. The location is therefore considered suitable for the proposed end-use without the implementation of protective mitigation techniques.
- 5.6. In addition, dispersion modelling was undertaken in order to predict air quality impacts at sensitive receptor locations within the vicinity of the Site as a result of the additional road vehicle exhaust emission generated by the operation of the Proposed Development. This indicated that the increase in pollutant concentrations at sensitive receptor locations was deemed minor adverse. As a result, a comprehensive offsetting strategy is to be employed to reduce development generated emissions. The strategy includes provision of up to 20% demand-led Electric Vehicle Charge (EVC) provision (7kw each). Spaces will be future proofed with containment channels that enable cable connections to be installed as and when required. The Site will also provide a dedicated Cycle parking space for each dwelling.
- 5.7. Therefore, in light of the comprehensive offsetting strategy the overall significance of potential residual impacts is considered to reduce from minor adverse to not significant, in accordance with the relevant guidance criteria.

Table 6.1 Summary of Residual Impacts - Air Quality

Likely Significant Effect	Receptor(s)	Mitigation Measure	Means of Implementation of Mitigation	Post Mitigation Residual Effect – Significance and Duration (i.e Temporary/Permanent)
Construction Phase				
Negligible to Moderate Adverse	Construction Phase Fugitive Dust Emissions Dust Soiling and Human Health	Table 6.24: The Proposed Development will incorporate the specific construction phase mitigation measures outlined in the IAQM guidance.	Such measures will be included with in a Construction Phase Environmental Management Plan(CEMP).	Negligible dust impacts to property and people on a temporary basis
	Existing Residential	Sustainable construction phase travel plan to reduce		Minor Adverse impacts upon existing sensitive

Likely Significant Effect	Receptor(s)	Mitigation Measure	Means of Implementation of Mitigation	Post Mitigation Residual Effect – Significance and Duration (i.e Temporary/Permanent)
	and Educational Use	HGV movements during construction		uses on a temporary basis
Operational Phase				
Negligible to Minor adverse	Existing Baseline Road Vehicle Traffic Exhaust Emissions	Not required	Not required.	Negligible exposure to elevated pollutant concentrations on a permanent basis
	Proposed Residential Use	Best practice measures	Section 6.123 to 6.126: Proposed Development will consider a significant level of offsetting measures in the form of sustainable transport principles. The provision of EVC charging facilities (10% provision) as well as cycle parking facilities (100% provision) will secure a suitable reduction in development related road vehicle exhaust emissions	Negligible impact upon existing sensitive uses on a permanent basis

6. Climate Change

- 6.1. An assessment has been undertaken to determine the potential impacts and mitigation of greenhouse gas (GHG) emissions from the Proposed Development. These emissions arise from both buildings and traffic associated with the construction and operational stages. The assessment has been undertaken in accordance with current legislation, local and national planning policy and relevant guidance documents.
- 6.2. The potential impacts and effects of the Proposed development were assessed under three categories:
- Whole life embodied – Greenhouse gas (GHG) emissions (CO₂e) associated with product stage (A1: raw material supply, A2: Transport, A3: Manufacturing), construction process stage (A4: Transport, A5: Construction Installation Process), use stage (B4: Replacement, B5: Refurbishment) and end of life stage (C1: De-construction, Demolition, C2: Transport, C3: Waste processing, C4: Disposal);
 - Operational building – Greenhouse gas (GHG) emissions (CO₂e) associated with the energy used for heating, cooling, lighting and ventilation (operational phase); and
 - Operational transport – Greenhouse gas (GHG) emissions (CO₂e) associated with vehicles trips during the operational phase.

Whole Life Embodied emissions

- 6.3. The whole-life embodied carbon emissions of the proposed development (including the construction transport emissions) are estimated to be **708.5 kgCO₂e/m²**. This complies with the RIBA **2025** Climate Challenge target (800 kgCO₂/m²), but it doesn't reach the RIBA **2030** Climate Challenge target (625 kgCO₂/m²). Therefore, the embodied carbon emissions are likely to have an effect of **minor magnitude of impact** on climate and therefore the significance of effect of the embodied carbon emissions will be **moderate-minor (adverse)** prior to the implementation of mitigation measures set out below for the construction, operation and end of life phases.

Operational Building Carbon

- 6.4. The annual energy consumption of the proposed development is estimated to be **53.9 kWh/m² per year**. This complies with the RIBA **2025** Climate Challenge target (60 kWh/m² per year). Therefore, the operational carbon emissions is likely to have an effect of **minor magnitude of impact** on climate and therefore the significance of effect of the operational building emissions will be **moderate-minor (adverse)**, prior to the implementation of mitigation measures set out below.

Operational Transport Emissions

- 6.5. The operational transport emissions of the proposed development are estimated to be **2,949 tCO₂e/year** (this result is based on the provision of EV charging infrastructure for 10% of parking spaces). This exceeds the existing baseline of transport carbon emission associated with the current use of the Site as the site is not currently associated with transport emissions. However, when compared to the annual regional transport carbon emission data for Manchester (676 ktCO₂e), the annual transport emissions from the proposed development have a share of 0.44%.
- 6.6. There is no method to assess the significance of transport carbon emissions of the proposed development. Based on the author's professional experience, the operational transport carbon emissions are likely to have an effect of **moderate** magnitude of impact on climate and therefore the significance of effect of the operational transport emissions will be **major-moderate (adverse)**, prior to the implementation of mitigation measures set out below

Mitigation

Construction

- 6.7. Mitigation will be incorporated in the construction stage through to the operational stage of the Project. During the construction stage, the emphasis will be on minimising the use of energy intensive materials, using local suppliers where possible, reducing traffic and improving vehicle efficiency.
- 6.8. Consideration will be given to the circular economy which includes:
- Minimise the quantities of materials and resources used;
 - Specify and source materials and other resources responsibly and sustainably;
 - Design for longevity, adaptability or flexibility and reusability or recoverability
 - Design to reduce construction waste

Operation

- 6.9. The operational energy of the Proposed Development has been reduced through mitigation designed into the building. This includes a façade system which has been designed to reduce heat loss through the façade, reducing the energy required for heating etc. In addition the building will utilise LED light fixtures, electric heating, high efficiency hot water storage, and heat pumps.
- 6.10. During the operational stage of transport, mitigation is focused on active travel and encouraging the use of public transport through measures proposed in the proposed Travel Plan. Also, emphasis is given in increasing the number of EV charging points to a min of 10%. Further EV charging infrastructure will be provided throughout the lifetime of the proposed development on demand (depending on the needs of the future occupants) and up to 20% of total parking spaces.
- 6.11. To mitigate against operational energy emissions, the focus has been on improving the energy efficiency of buildings using a fabric first design approach and providing an all-electric development through the use of heat pumps and electric radiant heaters.

Residual Effects

- 6.12. The effects from whole life embodied emissions (incl. construction transport), operational building and operational transport emissions assessed are likely to have a residual minor or negligible magnitude of impact and therefore the residual significance of effects will be Minor-Moderate (adverse) or Minor (adverse). In the context of the relevant carbon budgets, this is considered to be 'not-significant' in EIA terms.
- 6.13. A summary is provided in below.

Table 6.1 – Summary of significance of effects on the climate, before and after mitigation

Environmental Effect	Sensitivity of Receptor	Nature of Impact	Impact Magnitude	Significance	Additional Mitigation	Residual Impact Magnitude	Residual Significance of Effect
Whole Life Embodied emissions (incl. construction transport)	High	Adverse	Minor	Moderate-Minor Adverse	For enhancement only: Whole life carbon and construction reduction measures and further optimisation of the construction transport schedule further explored in later design stages, where possible	Minor	Moderate-Minor Adverse

Operational Building emissions	High	Adverse	Minor	Moderate-Minor Adverse	For enhancement only: A+++ whitegoods and appliances	Minor	Moderate-Minor Adverse
Operational Transport emissions	High	Adverse	Moderate	Major - Moderate Adverse	On demand EV Charging up to 20%	Minor	Moderate - Minor Adverse

- 6.14. The total emissions during each of the Great Manchester and UK Carbon Budgets 5-year periods is presented in the Table 6. 2 below and compared in percentage terms to the respective budget, as summarised in the table below.

Table 6. 2 – Proposed Development impacts on the local and national Carbon Budgets

Carbon Budget Period	Great Manchester (GM) Carbon Budget (Mt CO _{2e})	Carbon emissions from the proposed development (Mt CO _{2e})	% share from GM Carbon budget	UK Carbon Budget (Mt CO _{2e})	Carbon emissions from the proposed development (Mt CO _{2e})	% share from UK Carbon budget
Third: 2018-2022	36	0.0007	0.0019%	2,544	0.0007	0.00003%
Fourth: 2023-2027	17	0.1024	0.6025%	1,950	0.1024	0.00525%
Fifth: 2028-2032	8	0.0179	0.2232%	1,725	0.0179	0.00104%
Sixth: 2033-2037	4	0.0162	0.4049%	965	0.0162	0.00168%

- 6.15. Overall, the Proposed Development is not expected to influence the achievement of Great Manchester or UK carbon budgets.

7. Daylight, Sunlight and Overshadowing

- 7.1. An assessment has been undertaken to establish the likely significant effects of the proposed development upon the amount of daylight and sunlight received by properties adjacent to the Site.
- 7.2. To assess the surrounding existing properties, the Building Research Establishment (BRE) Guidelines provide two main methods for assessing daylight: Vertical Sky Component (VSC) and No Sky Line (NSL). The VSC method measures the amount of light available on a vertical wall or window following the introduction of barriers such as buildings. The NSL method is a measure of the distribution of daylight at the 'working plane' within a room (i.e. a horizontal 'desktop' plane of 0.85m in height). The NSL divides those areas of working plane in a room which receive direct sky light through the windows from those areas of the working plane which cannot. Where all of the windows meet the VSC and all of the rooms meet the NSL criteria within a property the effect is considered to be negligible.
- 7.3. For the assessment of sunlight, the approach considers the Annual Probable Sunlight Hours (APSH) for a reference point on a window (i.e. if a window point can receive at least 25% APSH, then the room should still receive enough sunlight). Windows are checked to see if they are facing 90° due south, with the emphasis on main living rooms and other rooms such as the kitchen and bedrooms being less important.
- 7.4. The method for assessing overshadowing is the 'sun-on-ground indicator' (SHOG). The BRE Guidelines recommend that at least half (50%) of a garden or amenity area should receive at least 2 hours of sunlight on March 21 or the area which receives 2 hours of direct sunlight should not be reduced to less than 0.8 times its former value (i.e. there should be no more than a 20% reduction).
- 7.5. Nine receptors within the surrounding area were identified as having the potential to be impacted on by the Proposed Development. A total of 986 windows serving 758 rooms have been assessed for daylight and 156 rooms have been assessed for sunlight. One amenity area was assessed for overshadowing
- 7.6. In the Baseline Scenario, out of the 986 windows assessed for daylight, 621 (63%) meet the BRE guidelines for VSC daylight. 622 (82%) of the 758 rooms assessed meet the BRE criteria for NSL daylight. For sunlight, 141 (90%) out of the 156 rooms assessed meet the BRE criteria for both Winter and Annual APSH.
- 7.7. In the Proposed Scenario, with regard to daylight, out of the 986 windows assessed for daylight, 561 (57%) meet the BRE guidelines for VSC. 572 (76%) of the 758 rooms assessed meet the BRE criteria for NSL. The effects identified are negligible to moderate adverse in nature and are therefore considered to be not significant. Given the context of the Site, no further mitigation is considered necessary.
- 7.8. For sunlight, 139 (89%) of the 156 rooms assessed meet the BRE criteria for both Winter and Annual PSH. The effects identified are negligible to minor adverse in nature and are therefore considered to be not significant. Given the context of the Site, no further mitigation is considered necessary.
- 7.9. For overshadowing, The Factory will continue to receive in sunlight to in excess of 50% of its area on 21 March with the Proposed Development in place. The effects identified are negligible in nature and are therefore considered to be not significant. Given the context of the Site, no further mitigation is considered necessary.

Table 7.1 Summary of Residual Impacts – Daylight, Sunlight and Overshadowing

Likely Significant Effect	Receptor(s)	Mitigation Measure	Means of Implementation of Mitigation	Post Mitigation Residual Effect – Significance and Duration (i.e. Temporary/Permanent)
Construction Phase				
Daylight	Scoped Out	-	-	-
Sunlight	Scoped Out	-	-	-
Overshadowing	Scoped Out	-	-	-
Operational Phase				
Daylight	Surrounding Residential Properties	None required	-	Negligible to Moderate Permanent Adverse (Non-Significant Effect)
Sunlight	Surrounding Residential Properties	None required	-	Negligible to Minor Permanent Adverse (Non-Significant Effect)
Overshadowing	Surrounding Amenity Areas	None required	-	Permanent Negligible

8. Heritage

- 8.1. For the purposes of this assessment, consideration has been given to the relevant part of Manchester City centre that surrounds the Site within a 500m radius. The study area provides a focus for assessment but is not intended to be prescriptive; buildings outside the boundary of the study area are considered where relevant.
- 8.2. The assessment has identified 30 no. heritage assets within the study area. 22 of these were subsequently scoped in for assessment.
- 8.3. The assessment methodology for the Historic Environment is a synthesis of established guidance, best practice and professional judgement. In accordance with an adapted form of the methodology set out in the Department for Transport's Design Manual for Roads and Bridges, all receptors identified in the baseline which might be affected by the Proposed Development are given a value and the impact on them is assessed in order to give a significance of effect. Historic England guidance is also utilised for the assessment.
- 8.4. The Site is currently surface level car parking and contains no historic buildings/ structures. However, the Site is within the Castlefield Conservation Area and adjacent to numerous listed buildings.
- 8.5. The area surrounding the Site has witnessed dramatic cycles of development and decline; the area was first developed in the beginning of the 19th century into a dense industrial area before the decline of industry 100 years later saw the area become underused and derelict. Following the construction of the Mancunian Way and the associated road network in the 1960s, the area immediately surrounding the subject Site became shorn of any historic context and was redeveloped for low quality commercial uses.
- 8.6. The area surrounding the Site is distinguished by historic zones of housing, warehousing and transport. All of these zones reflect the evolving industrial character of the area: the use of brick and stone, the strong linearity of the waterways and the scale and functionality of structures such as the viaducts and bridges.
- 8.7. The Site is not considered to yield any heritage value, in built heritage terms, and does not enhance the character of the Conservation Area.
- 8.8. Heritage assets are susceptible to numerous forms of development and non development impacts both during the construction process and as a consequence of the operational life of the Proposed Development. The potential impact or effects in relation to the current Proposed Development have been deemed to relate to impacts on the setting of the identified heritage assets. It is not anticipated that the Proposed Development will result in any physical impacts.
- 8.9. In terms of mitigation, heritage considerations have been integral of the design development of the proposals. Enlisting appropriate specialists and consulting with the local authority and Historic England has informed the design and assessment process to ensure potential adverse impact on the identified heritage assets are minimised.
- 8.10. The visual impact assessment has demonstrated that the Proposed Development will result in instances of moderate and minor adverse harm. The instances of moderate adverse impact are in relation to the visual impact on the understanding and appreciation of the setting of the MSI complex (including views along Liverpool Road). However, it is not considered that this impact will affect the character and appearance of the Castlefield Conservation Areas as a whole.
- 8.11. Mitigation for any perceived instances of adverse harm will thus need to be demonstrably outweighed by the public benefits brought about by the Proposed Development as per the requirements stated within local and national planning policy.

Table 8.1 Summary of Residual Impacts – Heritage

Likely Significant Effect	Receptor(s)	Mitigation Measure	Means of Implementation of Mitigation	Post Mitigation Residual Effect – Significance and Duration (i.e. Temporary/Permanent)
Construction Phase				
Minor adverse	Castlefield Railway Viaduct (setting)	Construction methodology and programme	n/a	Minor Adverse (temporary)
Minor Adverse	Manchester South Junction and Altrincham Railway Viaduct (setting)	Construction methodology and programme	n/a	Minor Adverse (temporary)
Operational Phase				
Negligible adverse	Railway Bridge Over River Irwell to Former Liverpool Road Station	Public benefits	n/a	Negligible adverse
Minor adverse	Former Canal Flour Mills	Public benefits	n/a	Minor adverse
Negligible adverse	Colonnaded Railway Viaduct at Former Liverpool Road Goods Depot	Public benefits	n/a	Negligible adverse
Negligible adverse	Railway Viaduct Over River Irwell Leading to Lower Byrom Street Warehouse	Public benefits	n/a	Negligible adverse
Minor adverse	Former Commercial Hotel	Public benefits	n/a	Minor adverse
Negligible adverse	Railway Viaduct Linking Bridge Over Irwell to Liverpool Road Station	Public benefits	n/a	Negligible adverse
Moderate adverse	Former Liverpool Road Railway Station, Station Masters House	Public benefits	n/a	Moderate adverse
Negligible adverse	Church Of St George	Public benefits	n/a	Negligible adverse
Neutral	Churchyard Walls, Gate Piers and Gates at Church of St George	n/a	n/a	Neutral
Minor-to-moderate adverse	Power Hall of Museum of Science and Industry	Public benefits	n/a	Minor-to-moderate adverse
Minor adverse	Former Grape Street Railway Bonded Warehouse	Public benefits	n/a	Minor adverse
Negligible adverse	Castlefield Railway Viaduct From G-Mex to Dawson Street	Public benefits	n/a	Negligible adverse

Moderate adverse	Old Warehouse to North of Former Liverpool Road Railway Station	Public benefits	n/a	Moderate adverse
Minor adverse	123, Liverpool Road	Public benefits	n/a	Minor adverse
Negligible adverse	Albert Warehouse Quay on West Side Fronting River Irwell Victoria Warehouse	Public benefits	n/a	Negligible adverse
Minor adverse	Merchants Warehouse	Public benefits	n/a	Minor adverse
Minor adverse	Museum Of Science and Industry, Air and Space Museum	Public benefits	n/a	Minor adverse
Minor adverse	Manchester Museum of Science and Industry, Former Lower Byrom Street Warehouse	Public benefits	n/a	Minor adverse
Negligible adverse	Irwell Street Bridge (That Part in Salford Civil Parish)	Public benefits	n/a	Negligible adverse
Minor adverse	MSJ&AR Viaduct	Public benefits	n/a	Minor adverse
Minor adverse	Castlefield Conservation Area	Public benefits	n/a	Minor adverse
Negligible adverse	St Johns Conservation Area	Public benefits	n/a	Negligible adverse

9. Human Health

- 9.1. This Chapter of the ES has been prepared by Enfusion and assesses the likely impacts of the proposals upon human health for the site and surrounding area. This Chapter also describes the methods used to assess these impacts, the existing baseline conditions, the proposed mitigation measures required to prevent, reduce or offset any significant negative impacts and the likely residual impacts after these methods have been adopted.

Healthy Housing:

- 9.2. The Proposed Development will deliver 1,950 new homes and access to good quality housing is known to have positive effects for health and well-being. The overall design is acceptable within the context of a vibrant city centre area and the proposals complement and fit with the emerging pattern of townscape character in a consistent way, through the embedded mitigation that is integral to the design of the buildings. The development once completed was found to have negligible to positive effects for most of the local townscape character and visual impacts in the local and surrounding areas – moderate adverse effects were only identified for 4 viewpoints associated with the surrounding SIM and specific elements of Castlefield Basin. As other developments are built, the proposals will be seen in the context of a greater number of similar developments of equivalent scale such that there will be a general lowering of cumulative effects. Overall, all contributing to overall positive effects for Healthy Housing.
- 9.3. The new homes and their residents are considered to have a negligible effect on the availability of local schools and nurseries, and minor negative effects on healthcare facilities, including GP and dental practices. Impacts on the use of local open space, recreational and amenity facilities are also minor negative. The change from a site with unused carparking to a lived-in area will contribute to safety and security. Overall, the proposed development will have major positive effects for Healthy Housing.

Active Travel:

- 9.4. The proposed development is located at the heart of the City Centre that is rich in choice and accessibility to sustainable transport modes – walking, cycling, bus, Metrolink, rail – with routes and interchanges for daily movement to work, retail and leisure activities, and including easy access to wider routes for active travel such as NCR 6 on Liverpool Road and attractive routes along the Bridgewater Canal and the River Irwell. The proposals include limited car parking but significant cycle parking, and together with a Travel Plan, it is anticipated that the number of car trips will be minimised, and residents will be encouraged to use sustainable transport modes. Overall, the location of the site in an area with excellent accessibility to public transport, and with excellent varied access to pedestrian and cycle networks for employment, services, and facilities in the city centre, will encourage active travel with likely major positive effects in the local area that may be synergistic and cumulative in the longer-term.

Healthy Environment:

- 9.5. The site is a previously developed brownfield site but the risk of pollution from previously contaminated land and any associated risk to human health has been considered to not be significant and it has not been necessary to investigate this technical topic any further in this ES. The site is mostly within flood zone 2 with a medium probability of flooding (and some flood zone 1 of low probability) and therefore, there is some potential risk to human health and well-being from both fluvial flooding and a very unlikely risk from reservoir flooding due to a breach in the dam wall. During construction, potential risks of flooding for site workers, is mitigated through the implementation of a Construction Environmental Management Plan (CEMP). Risks of contaminating water resources are also controlled through the CEMP. During the operational phase, occupants are protected from flood risk through the design of the buildings with appropriate finished floor levels and flood resilient construction, and the preparation of a flood evacuation plan in the unlikely risk of flooding from the river or the reservoir. The impact assessment for water resources has taken into account the predicted effects of climate change on the water environment. Thus,

overall, the risk to human health and wellbeing through flood risk has been addressed and identified to be negligible.

- 9.6. During construction, risks to their health and safety for construction personnel and the public are minimised through the implementation of a Construction Phase Health & Safety Plan that is monitored and periodically reviewed. Site security and safety is secured through perimeter fencing and various activities to ensure that the site is safe from unauthorised access. The potential risks to health for workers and nearby residents from dust and particulates are controlled through the implementation of the CEMP such that residual effects on human health are Negligible. Waste will be segregated, and waste generated during construction will be cleared on a daily basis to a main holding skip, thus minimising risks to health and safety. The contractor will ensure that regular contact is made with local residents and community groups so that they are kept up to date with the general progress on the site and this will help ameliorate any concerns for wellbeing.
- 9.7. Air quality effects on the future residents from NO₂ and PM emissions are Negligible. Noise effects were found to be Negligible during construction through management and screening. During operation, pollution from vehicle exhausts was found to be Negligible. Noise effects are Negligible through design of building services plant, together with the design of amenity spaces and the commercial units to minimise potential noise to within guideline levels.
- 9.8. There is a risk to human health and safety from the glare of solar dazzle that can occur when sunlight is reflected from a glazed façade. This could affect road and rail drivers and users of adjacent buildings. The assessment considered a worst-case scenario and found that overall effects from solar glare on road users and tram drivers is mostly Negligible-Minor Adverse and this is Not Significant. For 6 road locations and 3 rail track locations, Moderate Adverse effects were identified, and this is significant, but it was confirmed that there are no issues for safety. It is also noted that as other developments are constructed nearby, they could obscure some viewpoints and reduce solar glare in the longer term.
- 9.9. Lack of daylight/sunlight and overshadowing can adversely affect health and well-being. In a city centre area, there is an expectation for a higher density of development and a lower sensitivity to such issues depending upon the context of the development and its surroundings. The regeneration of the St. John's area accepts that the height and density of buildings will increase at such a key gateway to the city centre. The studies investigated the surrounding residential buildings for daylight/sunlight and a nearby amenity area for overshadowing and identified that effects would not be significant within the context of a regeneration area in the city centre, and thus not significant with regard to a healthy environment.
- 9.10. The pedestrian comfort and safety for thoroughfares, pavements/walkways, bus stops, and entrances for the Site and surrounding buildings and effects were found to be Negligible for most of the receptors investigated, indicating that the wind environment is suitable for the intended uses. Localised breaches of the safety and comfort criteria occur across some of the terraced part of the Proposed Development and bespoke wind mitigation measures will be needed here. Over the 60-year life of the buildings, there will be moderate adverse but non-significant effects on climate with potential associated risks for human health with more extreme weather conditions. Mitigation measures, particularly the transition to sustainable transport, should limit such effects in the longer term and contribute to a healthier environment.
- 9.11. The proposals include up to 20% demand-led ECV provision with spaces future-proofed. GHG emissions from buildings and transport are likely to be Moderate to Minor Adverse during occupation and the whole life embodied emissions calculated to be Moderate to Minor Adverse. It was also calculated that the GHG emissions from proposed development are so small relatively that they will not influence the achievement of the Greater Manchester carbon budgets.

Vibrant Neighbourhoods:

- 9.12. The delivery of the good-quality housing on the site will contribute to the neighbourhoods developing around as other developments are completed. The proposals include 1.29 ha of new public realm and landscaping – all will contribute to Vibrant Neighbourhoods. Provision of and access to employment is known to have a positive effect on health and wellbeing – the proposals will have moderate beneficial impacts on local expenditure, supporting new jobs, and also on local authority income. The additional employment created and positive effects on the local economy will further contribute to Vibrant Neighbourhoods. The change from a site with unused car parking to a lived-in and vibrant residential area will contribute to a reduction in crime and an improvement in community safety.

Likely Significant Effect	Receptor(s)	Mitigation Measure	Means of Implementation of Mitigation	Post Mitigation Residual Effect – Significance and Duration (i.e. Temporary/Permanent)
Construction Phase				
Socioeconomics: jobs & GVA	Employment & GVA	None	None	Minor Beneficial on employment & GVA
Construction workforce local expenditure	Local expenditure	None	None	Minor Beneficial on local expenditure
Air Quality	Fugitive Dust - Dust Soiling & Human Health	Table 6.24: The Proposed Development will incorporate the specific construction phase mitigation measures outlined in the IAQM guidance.	Construction Phase Environmental Management Plan (CEMP)	Negligible dust impacts to property and people on a temporary basis
Air Quality	Existing Residential and Educational Use	Sustainable construction phase travel plan to reduce HGV movements during construction	Construction Phase Environmental Management Plan (CEMP)	Minor Adverse impacts upon existing sensitive uses on a temporary basis
Built Heritage	Settings of Railway Bridge & Viaducts	None	None	Minor Adverse
TVIA	Nearby residents & visitors	Use of hoardings & community engagement	Construction Phase Environmental Management Plan (CEMP)	Minor Adverse
Traffic & Transport – driver delay – accidents & safety	Drivers using network	Construction Transport Management Plan CTMP	CTMP to be developed & agreed with relevant consultees	Negligible Temporary
Traffic & Transport – public transport, pedestrian delay, pedestrian/cycling amenity, fear & intimidation, severance	Residential on Liverpool St & vulnerable road users	Construction Transport Management Plan CTMP	CTMP to be developed & agreed with relevant consultees	Negligible Temporary
Noise & Vibration	5 residential sensitive receptors	Solid screening around site, CEMP	CEMP	Negligible Temporary
Solar Glare	31 road user & 6 rail track locations	Embedded in design facades	None	Negligible/Minor Adverse
Solar Glare	6 road user & 3 rail track location	Embedded in design facades	None	Moderate Adverse but no issues for safety
Climate Change – whole life embodied emissions	Climate Change & carbon targets	Materials – whole life reduction Construction Traffic - CEMP	CEMP	Moderate to Minor Adverse
Water – fluvial flooding; reservoir flooding	Onsite workers	Robust flood evacuation plan	CEMP	Negligible
Water – contamination	Groundwater & surfacewater	Storage & use of materials	CEMP	Negligible
Wind Microclimate – pedestrian safety & comfort	Residents & visitors	None	None	Negligible
Operational Phase				
Socioeconomics: Housing	Housing	None	None	Minor Beneficial on Housing

Likely Significant Effect	Receptor(s)	Mitigation Measure	Means of Implementation of Mitigation	Post Mitigation Residual Effect – Significance and Duration (i.e Temporary/Permanent)
Socioeconomics: Population	Population	None	None	Moderate Beneficial on Population
Socioeconomics: Jobs & GVA	Employment & GVA	None	None	Negligible on employment & GVA
Socioeconomics: household expenditure	Local expenditure	None	None	Moderate Beneficial on local expenditure
Socioeconomics: council tax income	LA income	None	None	Moderate Beneficial on LA income
Socioeconomics: educational provision	Educational provision	None	None	Minor Adverse on educational provision
Socioeconomics: health care provision	Healthcare	None	None	Minor Adverse on healthcare provision
Socioeconomics: crime	Crime	None	None	Negligible on crime
Socioeconomics: open space & recreation facilities	Open space & recreational facilities	None	None	Minor Adverse on open space & recreational facilities
Air Quality	Road Vehicle Traffic Exhaust Emissions	None	None	Negligible exposure to elevated pollutant concentrations on a permanent basis
Air Quality	Residential Use	Best practice measures	Section 6.123 to 6.126: Proposed Development will consider a significant level of offsetting measures in the form of sustainable transport principles. The provision of EVC charging facilities (up to 20% provision) as well as cycle parking facilities (100% provision) will secure a suitable reduction in development related road vehicle exhaust emissions	Negligible impact upon existing sensitive uses on a permanent basis
Built Heritage	Setting of the MSI complex	Embedded into design	Embedded into design	Moderate – Minor Adverse
Built Heritage	Castlefield Conservation Area	Embedded into design	Embedded into design	Negligible
TVIA	Viewpoint Nos: 16, 20	Embedded into design	Embedded into design	Negligible
TVIA	Viewpoint Nos: 5, 6, 7, 8, 15, 17, 19	Embedded into design	Embedded into design	Minor Beneficial
TVIA	Viewpoint Nos: 1, 2, 9,	Embedded into design	Embedded into design	Moderate Beneficial

Likely Significant Effect	Receptor(s)	Mitigation Measure	Means of Implementation of Mitigation	Post Mitigation Residual Effect – Significance and Duration (i.e. Temporary/Permanent)
	10, 12, 13, 18			
TVIA	Viewpoint Nos: 14	Embedded into design	Embedded into design	Minor Adverse
TVIA	Viewpoint Nos: 3, 4, 11, 21	Embedded into design	Embedded into design	Moderate Adverse
Traffic & Transport – driver delay - accidents & safety	Drivers using network Public transport users	Enhancement to capacity at Trinity Way/Water St junction	Secured by condition & implemented prior to occupation of Site D	Negligible
Traffic & Transport –pedestrian delay, pedestrian/cycling amenity	Residential on Liverpool St & vulnerable road users	Provision of high quality public realm in the site & improvements to existing footways and cycleways	Publicrealm as part of proposals; improvements to pedestrian & cycle facilities to be by condition	Negligible
Traffic & Transport – fear & intimidation, severance	Residential on Liverpool St & vulnerable road users	None	None	Negligible
Noise & Vibration – building services; activity/amenity noise	5 residential sensitive receptors	Design of building services, amenity spaces & commercial units	None	Negligible
Solar Glare	31 road & 6 rail track users	Embedded into design of facades	Embedded into design	Negligible/Minor Adverse Not Significant
Solar Glare	6 road & 3 rail track users	Embedded into design of facades	Embedded into design	Moderate Adverse & Significant but no issues for safety
Building Emissions	Climate Change	Measures suggested in Energy Strategy	Energy Strategy	Moderate to Minor Adverse
Transport Emissions	Climate Change	Measures suggested in Travel Plan	Travel Plan	Moderate to Minor Adverse
Water – surfacewater flooding	Site & occupants	Development will include positive surfacewater drainage system to minimise discharge into local sewerage system	Designed into system	Negligible
Water – fluvial flooding	Site & occupants	Finished floor levels; flood resilient construction; flood evacuation plan	Designed into building Flood evacuation plan	Negligible
Water – reservoir flooding	Site & occupants	Flood evacuation plan	Flood evacuation plan	Negligible
Daylight & Sunlight	Surrounding residential properties	None	None	Negligible to Moderate Adverse
Overshadowing	Surrounding amenity areas	None	None	Negligible to Minor Adverse
Wind Microclimate – pedestrian safety & comfort	Receptors D, G, J, K, L, M	None specifically	None	Major Adverse
	Receptor 6	Section 2 Appendix 17.1	-	Moderate Adverse – Significant
	Receptors 26-30, 32-3, 48-50, 59, 72-73, 77	Section 2 Appendix 17.1	-	Moderate Adverse – Not Significant

Likely Significant Effect	Receptor(s)	Mitigation Measure	Means of Implementation of Mitigation	Post Mitigation Residual Effect – Significance and Duration (i.e Temporary/Permanent)
	Receptor 55	-	-	Major Beneficial – Not Significant
	Receptor 56	-	-	Moderate Beneficial – Not Significant
	All other receptors	Section 2 Appendix 17.1	-	Negligible

10. Noise and Vibration

- 10.1. This Environmental Statement Chapter has been prepared by Fisher Acoustics. The potential significant effects of the Proposed Development with respect to Noise and Vibration have been determined and assessed.
- 10.2. The Chapter describes the assessment methodology, the existing baseline conditions at and around the Site; and the recommended mitigation measures to avoid or minimise any significant adverse effects. The potential residual effects following the implementation of the recommended mitigation measures are described.
- 10.3. The long-term noise climate at and around the site is principally determined by Road traffic on Regent Road and Trinity Way. Train pass-bys on the viaducts to the east of the site also contribute to the external noise levels. Baseline noise levels at and around the site have been determined by the carrying out of noise surveys at various locations across the site.

Methodology

- 10.4. The potential noise levels and subsequent noise impact at noise sensitive receptors around the site during the construction phase have been calculated and compared to appropriate threshold values.
- 10.5. The impact of the prevailing levels of road and rail noise on the Proposed Development has been determined. The minimum recommended sound insulation performance of the curtain wall to apartments has been established such that applicable internal noise criteria can be achieved. The noise impact of the opening of purge vents to apartments has been established with reference to the 'Acoustics, Ventilation and Overheating, Residential Design Guide'.
- 10.6. Environmental noise limits relating to the operation of building services plant at the Proposed Development have been determined such that residential amenity can be maintained.
- 10.7. Environmental noise limits relating to potential music noise egress from the proposed amenity spaces and commercial units have been determined such that residential amenity can be maintained.

Summary of Likely Effects

- 10.8. Noise levels as a result of construction work during the construction period is expected to lead to minor to moderate adverse impact if no mitigation measures are in place. It is therefore recommended that construction noise is mitigated.
- 10.9. The impact of construction vibration on existing sensitive receptors is expected to be negligible.

Mitigation

- 10.10. Construction noise must be minimised where necessary by the mitigation methods described in BS 5228. Low noise and vibration construction methods will be used wherever practicable and appropriate acoustic screening will be implemented where necessary and practicable. If the identified mitigation methods are employed, the impact of the construction work during the construction period is expected to be negligible.
- 10.11. The principal long-term potential environmental noise source due to the operation of the Proposed Development is building services plant. Building services plant noise emissions from the Proposed Development will be controlled through careful design and specification of building services plant and by provision of acoustic screens and attenuators where required, to meet the noise emissions criteria at each noise sensitive receptor at and around the Site. As such, negligible impact is expected.

- 10.12. Compliance with the external noise criteria for activity noise egress from the proposed amenity spaces and commercial units would lead to negligible noise effects at sensitive receptors.

Residual Effects

- 10.13. Table 10.1 summarises the post-mitigation residual effects

Table 10.1 – Summary of Receptors, Likely Significant Effects, Mitigation Measures, and Residual Effects

Likely Significant Effect	Receptor(s)	Mitigation Measure	Residual Effect
<i>Construction Phase</i>			
Minor to Moderate adverse construction noise	Local residents	Para. 10.113 & 10.114: Solid screening around Site. Communication with City Council and local residents. Application of 'Best Practicable Means' and noise control guidance from BS5228.	Negligible construction noise effects
<i>Operational Phase</i>			
Negligible building services plant noise effects	Residential properties	Para. 10.104: Adherence to environmental noise limits for plant	Negligible building services plant noise effects
Negligible activity noise effects from amenity space and commercial units	Residential properties	Para. 10.110: Adherence to environmental noise limits for amenity spaces	Negligible activity noise effects from amenity spaces and commercial units

11. Socio-Economic Issues

- 11.1. The socio-economic assessment, prepared by ekosgen, assesses the socio-economic impacts of the Proposed Development during the construction and operational phases. The assessment has included:
- A review of the national and local policy context
 - Identifying an Assessment Area for the Proposed Development
 - Establishing the baseline position considering the demographic, economic and key social characteristics of the local Assessment Area and comparator geographies, drawing on published data sources
 - Assessing the scale, duration, importance and significance of anticipated impacts generated through the construction and operational phase
 - Determining the need for mitigation measures and the residual effects of the Proposed Development
 - Assessing the cumulative effects of the Proposed Development given a number of development proposals within the local area
- 11.2. The socio-economic assessment has assessed the likely effects of the Proposed Development in terms of the following issues employment and Gross Value Added (GVA); housing; population; local expenditure; local authority income; healthcare; educational provision; crime; open space and recreational facilities.

Baseline Conditions

- 11.3. The baseline assessment considers the baseline position within a local assessment area relative to the Manchester, Greater Manchester and national position, using published socio-economic data and intelligence. The local assessment area for socio-economic baseline has been defined using Lower Super Output Area (LSOA) level data covers the core Manchester City Centre and surrounding edge of city centre Salford neighbourhoods to form an appropriate radius from the Site.
- 11.4. Key features of the baseline conditions include:
- A resident population of 53,546 in the Assessment Area, 9.7% of Manchester's population, having grown by 65.3% since 2011. 94.0% of the population of the Assessment Area is of working age (aged 16 to 64), while 3.8% are under 16.
 - As of March 2020, there were 15,095 households in Manchester City Centre.
 - Unemployment (measured by the Claimant Count) is notably lower in the assessment area (2.1% of the working age population) compared to the Manchester wide (8.0%) and national rate (5.5%) as of July 2021.
 - As of 2019, there were 187,000 people employed in the assessment area, 45% of the Manchester total.
 - 11 GP's within 1 mile and 31 dental practices within 2 miles.
 - Within 1.2 miles of the Proposed Development there are 10 nurseries. There are 14 primary schools (with 288 available school places) within 1.2 miles and 53 secondary schools (with available capacity of 3,860).

Summary of Likely Effects, Mitigation and Residual Effects

- 11.5. During the construction of the Proposed Development, an estimated construction workforce of 4,180 full time equivalent job years will be supported as well as local construction workforce expenditure. The likely effects of the construction phase in terms of jobs and economic output and local expenditure from construction workers is considered to be of minor beneficial significance and temporary.
- 11.6. During the operational phase, the Proposed Development is expected to:
- Deliver 1,950 residential units, making a notable contribution toward Manchester's housing targets
 - Support a population uplift of circa 4,000 residents, 3,800 of which are expected to be of working age

- Support household spending locally on goods and services
- Support additional council tax income
- Deliver 1.29 hectares of new public realm creating a new river walkway and connections from Salford through to St Johns and the city centre
- Create additional demand for local services including nurseries, school places and healthcare facilities

11.7. The likely effects of the operational phase of are considered to be:

- moderate beneficial in terms of housing, population, local expenditure, local authority income;
- minor beneficial to negligible open space, recreation and amenity and crime
- negligible in terms of employment and GVA and educational provision; and
- minor adverse in regards to healthcare provision

11.8. There are no anticipated moderate adverse effects during the construction and operational phase in terms of the socio-economic assessment requiring mitigation measures. Therefore, the likely effects are the same as the residual effects detailed in the table below.

Table 11.1 Summary of Residual Impacts – Socioeconomics

Likely Significant Effect	Receptor(s)	Mitigation Measure	Means of Implementation of Mitigation	Post Mitigation Residual Effect – Significance and Duration (i.e Temporary/Permanent)
Construction Phase				
Minor beneficial on construction jobs and GVA	Employment and GVA	None	None	Minor beneficial on construction jobs and GVA
Minor beneficial on construction workforce local expenditure	Local Expenditure	None	None	Minor beneficial on construction workforce local expenditure
Operational Phase				
Moderate beneficial on housing	Housing	None	None	Moderate beneficial on housing
Moderate beneficial on population	Population	None	None	Moderate beneficial on population
Negligible on jobs and GVA	Employment and GVA	None	None	Negligible on jobs and GVA
Moderate beneficial on household expenditure	Local Expenditure	None	None	Moderate beneficial on household expenditure
Moderate beneficial on council tax income	Local Authority Income	None	None	Moderate beneficial on council tax income
Minor adverse on educational provision	Educational Provision	None	None	Minor adverse on educational provision
Minor adverse on healthcare provision	Healthcare	None	None	Minor adverse on healthcare provision
Negligible on incidences of crime	Crime	None	None	Negligible on incidences of crime
Minor beneficial to negligible on open space and	Open Space and Recreational Facilities	None	None	Minor beneficial to negligible on open space and recreational facilities

Likely Significant Effect	Receptor(s)	Mitigation Measure	Means of Implementation of Mitigation	Post Mitigation Residual Effect – Significance and Duration (i.e Temporary/Permanent)
recreational facilities				

12. Solar Glare

- 12.1. Solar glare assessments are considered necessary when a Proposed Development has sections of glazed façade or reflective cladding that may reflect sunlight and obstruct the vision of road users and train drivers.
- 12.2. The assessment is conducted using a 3D computer model of the area created using photogrammetry (art and science of extracting 3D information from photographs) and architectural models as a reference. Viewpoints are then chosen surrounding the development in order to give a realistic representation of potential instances of solar reflections. Viewpoints are located at a focal point such as traffic signal, pedestrian crossing or incoming traffic for major road locations within 500 metres of the Site.
- 12.3. The assessment results show the time period and months in which potential solar reflections can occur. The assessment shows a worst-case scenario, as a clear sky is necessary for solar reflections to occur, which in the UK is often not the case.
- 12.4. Whilst the assessment details the effects at various viewpoints of a junction, the receptor is a driver of a car at the road junctions or a train/tram on rail tracks, as such, the junctions or tracks are assessed as a whole, considering all potential viewpoint of a driver.
- 12.5. Solar Glare is not a comparative assessment and instead assesses any occurrences from the Proposed Development in absolute terms. Even if solar glare does occur from the existing site buildings, this does not necessarily justify its occurrence from the Proposed Development. However, it should be noted that there are no existing buildings on the Site as it is a car park, thus the likelihood of solar glare occurring from the existing site is low. Solar glare from surrounding buildings is not assessed.
- 12.6. Due to the phased nature of the Proposed Development, an assessment has been undertaken at completion of each of the phases to establish if there are solar reflections that would occur temporarily, that would then be shaded or obstructed following the full implementation of the Proposed Development. Nevertheless, the intention is for the full development to be delivered in quick succession, which would mitigate any short-term adverse effects identified as arising between phases.
- 12.7. The assessment found that one junction, the junction of Water Street with Regent Road, Egerton Street/Inner Ring Road (WS3), would require temporary mitigation should Phase C1 be completed but if Phase C2 has not commenced. Likewise, the junction of Egerton Street/Inner Ring Road with Regent Road (ES2) would require temporary mitigation should Phase D2 not commence on site by the time Phase D1 is completed. The effects reported at all other locations are the same as or less than those of the Completed Development detailed below. The temporary mitigation proposed is appropriate and has previously been accepted by the local planning authority.
- 12.8. Overall, 26 locations sensitive for road users and five rail tracks have been identified and assessed. The following 15 road locations and one train line are considered to be **‘Negligible’**, **‘Negligible to Minor Adverse’** or **‘Minor Adverse’** and are not significant in terms of solar glare:
 - Liverpool Street junction with Oldfield Road (LS);
 - Rolling Street junction with Middlewood Street (RS);
 - Hampson Street junction with Trinity Way/Inner Ring Road (HS);
 - Trinity Way/Inner Ring Road junction with Hampson Street (TW2);
 - Water Street junction within Liverpool Road (WS1);
 - Liverpool Road pedestrian crossing (LR);
 - New Elm Road junction with Water Street (NER);
 - Trinity Way/Inner Ring Road junction with Water Street (TW3);
 - Regent Road junction with Egerton Street/Inner Ring Road (RR3);
 - Ordsall Lane junction with Regent Road (OS);
 - Regent Retail Park (RP3);
 - Regent Retail Park (RP4);
 - Egerton Street/Inner Ring Road junction with Deansgate Interchange on-ramp (ES1);
 - Deansgate Interchange on-ramp with Egerton Street/Inner Ring Road junction (ES_Slip);

- Deansgate Interchange junction with Chester Road (DGI); and
- Northern Line Southbound from Salford Crescent to Deansgate (N1).

6.1 Five road locations and one train line are considered to experience ‘**Minor to Moderate Adverse**’ effects overall which are significant in terms of solar glare, these locations are:

- East Ordsall Lane pedestrian crossing (EOL1);
- East Ordsall Lane junction with Middlewood Street/Hampson Street (EOL2);
- Trinity Way/Inner Ring Road junction with Water Street (TW4);
- Regent Retail Park (RP1);
- Regent Retail Park (RP2); and
- Tram Line Eastbound from Cornbrook to Deansgate-Castlefield (T1)

6.2 The final six road locations and three train lines are considered to experience ‘**Moderate Adverse**’ effects overall which are considered significant in terms of solar glare, these locations are:

- Trinity Way/Inner Ring Road pedestrian crossing (TW1);
- Water Street junction with Trinity Way/Inner Ring Road (WS2);
- Egerton Street/Inner Ring Road junction with Regent Road (ES2);
- Water Street junction with Regent Road & Egerton Street/Inner Ring Road (WS3);
- Regent Road junction with Oldfield Road (RR1);
- Regent Road junction with Ordsall Lane (RR2);
- Northern Line Southbound from Salford Central to Salford Crescent (N2);
- Northern Line Southbound from Salford Central to Deansgate (N3); and
- Northern Line Northbound from Deansgate to Salford Crescent/Eccles (N4).

12.9. Owing to the proximity of the site to a number of sensitive road junctions and rail tracks, as well as the highly glazed nature of the Proposed Development, a comprehensive, iterative review process was undertaken to incorporate mitigation strategies within the detailed façade design. The iterative review process has run alongside the development of the façade from the early massing stages and has resulted in the inclusion of:

- Facetted facades which reflect light at different times of the day and year from smaller areas of the façade;
 - Anodised aluminium panels with a non-specular finish to break up reflections;
 - Purge ventilation panels and imitation ventilation panels to break up reflections,
 - Fins to partially shade areas of glazing;
 - Tilting glazed panels so that large areas of flat glazing are avoided;
 - Low reflectance glazing has been proposed; and
- A frit pattern has been applied to the outer surface of non-vision glazing panels in areas of greater glare risk to reduce the intensity of the reflections.

12.10. Therefore, the reflections occur from a scheme that has been fine-tuned to address potential solar glare risks as much as possible. However, as with any tall building within a low-rise context, the Proposed Development is visible from some distance and sits within the field of view for drivers at a number of nearby junctions. Solar reflections may be unavoidable at all junctions, so the façade design has sought to limit the area of reflections and their intensity to minimise the risk of solar reflections resulting in an instance of solar glare being generated by the buildings’ facades. Therefore, due to the façade design and dynamic nature of traffic and train movements, the results are not considered to present a safety concern.

Table 12.1 Summary of Residual Impacts – Solar Glare

Likely Significant Effect (Pre-Mitigation)	Receptor(s)	Mitigation Measure	Means of Implementation of Mitigation	Post Mitigation Residual Effect – Significance and Duration (i.e. Temporary/Permeant)
<i>Construction Phase</i>				

Negligible to Moderate Adverse and significant effects on Solar Glare	Road users at nearby junctions	None	N/A	Negligible to Moderate adverse and not significant effects on Solar Glare
Minor to Moderate Adverse and significant effects on Solar Glare	Train/Tram drivers on nearby tracks	None	N/A	Minor to Moderate Adverse and significant effects on Solar Glare
Operational Phase				
Negligible to Moderate Adverse and significant effects on Solar Glare	Road users at nearby junctions	Para 13.267-13.270: Mitigation is embedded in the design and no further façade design mitigation is proposed.	N/A	Negligible to Moderate and significant effects on Solar Glare
Minor to Moderate Adverse and significant effects on Solar Glare	Train/Tram drivers on nearby tracks	Para 13.267-13.270: Mitigation is embedded in the design and no further façade design mitigation is proposed.	N/A	Minor to Moderate Adverse and significant effects on Solar Glare

13. Townscape and Visual Impact

- 13.1. This Townscape and Visual Impact Assessment examines the impact that the Proposed Development will have on the townscape of Manchester and Salford City Centres and on the townscape character of the City Centre zones immediately surrounding the Proposed Development in particular. It does so in a systematic, rational and objective way using established methodologies and practices contained in Guidelines for Visual Impact Assessment 3 (GLVIA 3). The impact of the Proposed Development on its own is explored and then in conjunction with consented and committed development in a Cumulative Assessment.
- 13.2. A computer modelling process was employed to provide an accurate series of Type 4 verified accurate visual representation (AVR) images and wirelines which illustrate and inform the nature of the impact that the Proposed Development will have on a series of selected Representative Viewpoints, and on the surrounding townscape, on a 360 degree basis.
- 13.3. Although it is not possible to provide one single summary value for the impact the Proposed Development will have on Manchester City Centre it is possible to summarise the effects in general terms.
- 13.4. In this regard, the assessment records that in over half of cases, the Proposed Development will have a significant effect. In most cases the effects are recorded as beneficial, but in a proportion of cases, where the historic character is the dominant feature of the townscape character, the effects are predicted to be adverse in nature as the scale of the change is significant and inconsistent with the existing character or view. This is largely confined to the area surrounding MOSI or specific elements of Castlefield Basin. Elsewhere, the effects are recorded as not significant and beneficial. These impacts are consistent with the conclusions of the Heritage chapter, which has assessed the proposals in accordance with the NPPF. Within this context, a Public Benefits Statement has been submitted as part of the Planning Statement, which sets out the range of public benefits that the scheme will deliver to outweigh any occasional instances of perceived harm to the setting of heritage assets.
- 13.5. In terms of cumulative effects the effects are diminished in most cases due to the large amount of proposed cumulative development.
- 13.6. The visual impact assessment has been carried out based on the assumption that all the necessary mitigation measures have been accounted for in the design process. The images for selected viewpoints illustrated in Appendix 14.2 of the ES represent the accurate definition of the location and mass of the component parts of the Proposed Development. The predicted significance of effect values are therefore the same for each representative viewpoint and Townscape Character Area as the residual effect values and are illustrated in Table 13.1 below.

Table 13.1 Trinity Islands TVIA Cumulative Impact Assessment summary table

Location	Development Only	Relevant Cumulative Scheme	Cumulative Effect
1 Mancunian way			
Sensitivity (VR)	Medium	Union St Tower 1	
Sensitivity (T)	Low	Union St Tower 2	
Magnitude (VR)	Major beneficial	St Johns St Z1	
Magnitude (T)	Major beneficial		Moderate beneficial
Significance of effect	Moderate beneficial		
2 Regent Road		Irwell quays	

Location	Development Only	Relevant Cumulative Scheme	Cumulative Effect
Sensitivity (VR)	Low	Salford Central B7	Moderate beneficial
Sensitivity (T)	Low	St Johns Z3	
Magnitude (VR)	Major beneficial	Greengate PlotH&J	
Magnitude (T)	Major beneficial	Salford Central A3	
Significance of effect	Moderate beneficial	Bauer Millet Site	
3 Liverpool Road			Moderate adverse
Sensitivity (VR)	High	None	
Sensitivity (T)	High		
Magnitude (VR)	Moderate adverse		
Magnitude (T)	Moderate adverse		
Significance of effect	Moderate adverse		
4 Liverpool Road			Moderate adverse
Sensitivity (VR)	High	None	
Sensitivity (T)	High		
Magnitude (VR)	Minor adverse		
Magnitude (T)	Minor adverse		
Significance of effect	Moderate adverse		
5 Footbridge over R			
Irwell			
Sensitivity (VR)	Medium		
Sensitivity (T)	Low	Union St Tower 3	
Magnitude (VR)	Moderate beneficial	St Johns St Z1	
Magnitude (T)	Moderate beneficial	St Johns St Z3	
Significance effect (T)	Moderate beneficial	Irwell Quays	

Location	Development Only	Relevant Cumulative Scheme	Cumulative Effect
Significance effect (VR)	Minor beneficial		Negligible beneficial
6 Bridge St			
Sensitivity (VR)	Low		
Sensitivity (T)	Low	Union St Tower 1	
Magnitude (VR)	Moderate beneficial	Union St Tower 2	
Magnitude (T)	Moderate beneficial	St Johns St Z1	
Significance of effect	Minor beneficial	Irwell Quays	Negligible beneficial
7 Chapel St POS			
Sensitivity (VR)	Medium	Union St Tower2	
Sensitivity (T)	Medium	Irwell Quays	
Magnitude (VR)	Minor beneficial	Middlewood Locks	
Magnitude (T)	Minor beneficial		
Significance of effect	Minor beneficial		Negligible beneficial
8 Chapel St/ Trinity			
Way			
Sensitivity VR	Low		
Sensitivity T	Low	Middlewood Locks	
Magnitude VR	Moderate beneficial		
Magnitude T	Moderate beneficial		Minor beneficial
Significance of effect	Minor beneficial		
9 Castlefield Events			

Location	Development Only	Relevant Cumulative Scheme	Cumulative Effect
Arena Sensitivity (VR) Sensitivity (T) Magnitude (VR) Magnitude (T) Significance of effect	Medium Medium Moderate beneficial Moderate beneficial Moderate beneficial	None	Moderate beneficial
10 Castle St Sensitivity (VR) Sensitivity (T) Magnitude (VR) Magnitude (T) Significance of effect	Medium Medium Moderate beneficial Moderate beneficial Moderate beneficial	None	Moderate beneficial
11 Castlefield Basin Footbridge Sensitivity (VR) Sensitivity (T) Magnitude (VR) Magnitude (T) Significance of effect	High High Moderate adverse Moderate adverse Moderate adverse	Middlewood Locks	Moderate adverse
12 Castlefield Basin Sensitivity (VR) Sensitivity (T) Magnitude (VR) Magnitude (T)	High High Moderate beneficial Moderate beneficial	Slate Wharf	

Location	Development Only	Relevant Cumulative Scheme	Cumulative Effect
Significance of effect	Moderate beneficial		Moderate beneficial
13 Castlefield Basin			
Sensitivity (VR)	High	Slate Wharf	Moderate beneficial
Sensitivity (T)	High		
Magnitude (VR)	Moderate beneficial		
Magnitude (T)	Moderate beneficial		
Significance of effect	Moderate beneficial		
14 Bridgewater viaduct			
Sensitivity (VR)	Medium	Slate Wharf	Minor adverse
Sensitivity (T)	Medium		
Magnitude (VR)	Minor adverse		
Magnitude (T)	Minor adverse		
Significance of effect	Minor adverse		
15 Liverpool Road			
Sensitivity (VR)	Medium	None	Minor beneficial
Sensitivity (T)	Medium		
Magnitude (VR)	Minor beneficial		
Magnitude (T)	Minor beneficial		
Significance of effect	Minor beneficial		
16 Mancunian Way/ A56 Interchange			
Sensitivity (VR)	Low	Arundel St	
Sensitivity (T)	Low	St Johns Z1	

Location	Development Only	Relevant Cumulative Scheme	Cumulative Effect
Magnitude (VR)	Minor beneficial	Union St T1	Negligible beneficial
Magnitude (T)	Minor beneficial	Union St T2	
Significance of effect	Negligible beneficial		
17 Hulme Park			Negligible beneficial
Sensitivity (VR)	Medium	Blade and Circle	
Sensitivity (T)	Medium	De Trafford	
Magnitude (VR)	Minor beneficial	Salford Central B7	
Magnitude (T)	Minor beneficial	St Johns Z1	
Significance of effect	Minor beneficial		
18 Regent			Moderate beneficial
Road/Oldfield Road		Blade and circle	
Sensitivity (VR)	Low	Gt Jackson St	
Sensitivity (T)	Low	Deansgate south	
Magnitude (VR)	Major beneficial	Middlewood Locks	
Magnitude (T)	Major beneficial	St Johns Z1	
Significance of effect	Moderate beneficial	Union St T1 Union St T2	
19 Water Street			No impact
Sensitivity (VR)	Medium	Union St T1	
Sensitivity (T)	Medium	Union St T2	
Magnitude (VR)	Minor beneficial	St Johns T3	
Magnitude (T)	Minor beneficial		
Significance of effect	Minor beneficial		

Location	Development Only	Relevant Cumulative Scheme	Cumulative Effect
20 Cathedral Approach			
Sensitivity (VR)	Medium	St Johns Z1	
Sensitivity (T)	Medium	Irwell quays	
Magnitude (VR)	Negligible beneficial		
Magnitude (T)	Negligible beneficial		Negligible beneficial
Significance of effect	Negligible beneficial		
21 MOSI			
Sensitivity (VR)	High		
Sensitivity (T)	High		
Magnitude (VR)	Moderate adverse	None	
Magnitude (T)	Moderate adverse		
Significance of effect	Moderate adverse		Moderate adverse

14. Traffic and Transport

- 14.1. This Traffic and Transportation Technical Paper has set out the assessment of the Environmental implications of Traffic and Transportation on the Proposed Development. It has identified the methodology of assessment, the potential environmental receptors and assessed the severity of the environmental impacts and also the significance of the inputs.
- 14.2. The assessment methodology has been based on the Institute of Environmental Management and Assessment Guidance. The data for this assessment is set out in the Transport Assessment and Travel Plan provided as appendices.
- 14.3. While this is a large-scale development, the implications of Traffic and Transport on the environment is limited due to the following factors.
- The site is located in a sustainable location within walking distance of the Regional Centre, local amenities and is adjacent to cycle lanes and bus services.
 - The site is currently being used as a public car park for a 645 spaces.
 - The level of residential parking provided is 556 or a 29% provision compared to the number of apartments. Also, the trips from residential apartments are much lower than that for a commuter car park.
 - The trip forecasts are modest compared to the historic or extant land uses and are only a small percentage of the background traffic flows.
 - Traffic modelling has concluded that the Proposed Development will have only a marginal change in highway operation.
 - The development improves access on foot by providing a riverside walkway linking under Trinity Way and enhanced public realm both on site and on the surrounding pavements.
 - Cyclists will benefit from a new link from Trinity Way north to Water Street which allows cyclists to travel without having to dismount as they currently are required.
 - Extensive cycle parking will be provided on site
- 14.4. During construction, the effects are temporary and are mitigated by the implementation of a Construction Transport Management Plan. The assessment concluded that the environmental implications of construction traffic are negligible.
- 14.5. During the operation of the site the environmental implications are assessed as having a negligible impact. There are a wide range of mitigation measures which will be included and the residual effects are considered to remain as a negligible impact.

Table 14.1 Summary of Residual Impacts

Likely Significant Effect	Receptor(s)	Mitigation Measure	Means of Implementation of Mitigation	Post Mitigation Residual Effect – Significance and Duration (i.e Temporary/Permanent)
Construction Phase				
Negligible effects on driver delay	Drivers using study network	CTMP	CTMP to be developed prior to commencement of construction phase and agreed with relevant consultees	Negligible – Temporary
Negligible effects on public transport users	Residential Properties on Liverpool Street between junction with Water Street and Lower Byrom Street			Negligible – Temporary
	Vulnerable Road Users			
Negligible effects on pedestrian delay	Residential Properties on Liverpool Street between junction with Water Street and Lower Byrom Street			Negligible – Temporary
	Vulnerable Road Users			

Likely Significant Effect	Receptor(s)	Mitigation Measure	Means of Implementation of Mitigation	Post Mitigation Residual Effect – Significance and Duration (i.e Temporary/Permanent)
Negligible effects on pedestrian/ cyclist amenity	Residential Properties on Liverpool Street between junction with Water Street and Lower Byrom Street			Negligible – Temporary
	Vulnerable Road Users			
Negligible effects on fear and intimidation	Residential Properties on Liverpool Street between junction with Water Street and Lower Byrom Street			Negligible – Temporary
	Vulnerable Road Users			
Negligible effects on severance	Residential Properties on Liverpool Street between junction with Water Street and Lower Byrom Street			Negligible – Temporary
	Vulnerable Road Users			
Negligible effects on accidents and road safety	Drivers using study network			Negligible – Temporary
Operational Phase				
Negligible effects on driver delay	Drivers using study network	Enhancements to capacity at the Trinity Way/ Water Street junction including dedicated right-turn facilities for southbound traffic on Trinity Way. Upgrade of Flag Bus Stops to Quality Bus Stop standard	Construction of junction improvements to be secured by condition and be implemented via S278 agreement prior to occupation of Site D	Negligible – Permanent
Negligible effects on public transport users	Residential Properties on Liverpool Street between junction with Water Street and Lower Byrom Street			
	Vulnerable Road Users			
Negligible effects on pedestrian delay	Residential Properties on Liverpool Street between junction with Water Street and Lower Byrom Street	Provision of high-quality public realm on Site Riverside walkway Pavement improvements to adjacent footways. Cycle link to connect Trinity Way & Water St . Improved Signage	Public realm to be delivered as part of Proposed Development site. Improvements on the highway to be conditioned and delivered by S278 to agreed timescales.	Negligible – Permanent
	Vulnerable Road Users			
Negligible effects on pedestrian/ cyclist amenity	Residential Properties on Liverpool Street between junction with Water Street and Lower Byrom Street			
	Vulnerable Road Users			Negligible – Permanent
Negligible effects on fear and intimidation	Residential Properties on Liverpool Street between junction with Water Street and Lower Byrom Street	None	n/a	Negligible – Permanent
	Vulnerable Road Users			
Negligible effects on severance	Residential Properties on Liverpool Street between junction with Water Street and Lower Byrom Street			Negligible – Permanent
	Vulnerable Road Users			
Negligible effects on accidents and road safety	Drivers using study network			Negligible – Permanent

15. Water Resources

- 15.1. The scope of the assessment is based on the guidance set out in the National Planning Policy Framework (NPPF), Planning Practice Guidance (PPG), and the Non-statutory Sustainable Drainage Technical standards (2015). An assessment of the flood risk to and from the site has been carried out and mitigation recommended to ensure flood protection.
- 15.2. The process includes assessing the freely available flood maps from the Environment Agency, correspondence with stakeholders and purchased CCTV surveys to assess the flood risk to the development. A drainage strategy has been developed in accordance with NPPF, PPG and the Non-Statutory Sustainable Drainage Technical standards and Building Regulations Part H (Drainage and Waste Disposal), 2010. Statutory guidance for building drainage and sewerage. Correspondence with stakeholders has led to a scheme that allows a free volume discharge but a potentially limited velocity to the River Irwell.
- 15.3. Site C comprises of brownfield land is bounded by the River Irwell to the north, Trinity Way to the west, Water Street to the south and a railway viaduct to the east. The Site can be accessed by vehicle or foot via Water Street on the southern boundary. The Site slopes downwards to the north towards the River Irwell and there is a limited amount of vegetation running along this boundary.
- 15.4. Site D comprises of brownfield land is bounded by the River Irwell to the north and west, Regent Road to the south and Trinity Way to the east. The Site can be accessed by vehicle or foot via Trinity Way on the eastern boundary. The Site slopes downwards to the north and west towards the River Irwell and there is a limited amount of vegetation running along this boundary.
- 15.5. Both Sites sit in a Flood Zone 2 and at a residual risk of Reservoir flooding. The potential environmental impacts relate to flood risk to and from the site and potential for increased contamination risk in the operational and construction phase.
- 15.6. The receptors considered for the environmental statement are:
 - The Proposed Development sit and site end user
 - Wider Catchment Area
 - Local Watercourses
 - Water supply and Sewer infrastructure
 - Groundwater Quality
- 15.7. Each receptor has been assessed against the significant environmental risks identified for the proposed development and given a pre-mitigation risk status. Mitigation is then recommended for each risk and receptor to reduce the impact of the scheme on the environment.
- 15.8. The environment impacts of the scheme are higher in the construction phase. These are typically related to material storage, waste management and maintenance/refuelling activities on plant. As such the risk can be monitored and mitigated by regular maintenance and site set up. Once the scheme is in place, the risk to the water environment is reduced by design as recommended by the Environment Agency, Lead Local Flood Authorities (LLFA) and set out in the Sustainable Urban Drainage System (SuDs) guidance.
- 15.9. Following the mitigation, the risk to the environment is considered negligible for the operational phase and the maximum risk during the construction phase is Minor-Moderate adverse and will be managed through on-site monitoring and site management.

Table 15.1 Summary of Residual Impacts – Water Resources

Likely Significant Effect	Receptor(s)	Mitigation Measure	Means of Implementation of Mitigation	Post Mitigation Residual Effect – Significance and Duration (i.e., Temporary/Permanent)
Fluvial Flooding – Operation Phase Moderate-High Beneficial	Proposed development site and site end user	The finished floor levels of the building are set in excess of the 1 in 1000-year gate closed scenario	Mitigation through design	Moderate-High Beneficial Permanent Impact
Fluvial Flooding - Construction Phase Moderate adverse.	Onsite Construction staff Wider Catchment area	During construction there is a negligible chance of fluvial flooding during construction. An onsite Evacuation plan linked to the EA warning is required. Positions of the Compound, site welfare and storage should be at higher elevations on site.	An onsite Evacuation plan linked to the EA warnings. Positions of compound and site storage at higher elevations on site.	Minor-Moderate adverse. Temporary Impact
Reservoir Flooding – Operation Phase Negligible	Proposed development site and site end user	A robust flood evacuation plan developed in line with the Emergency services and future building management.	An onsite Evacuation plan linked to the EA warnings.	Negligible
Reservoir Flooding – Construction Phase Negligible	Onsite Construction Staff	A robust flood evacuation plan developed as part of the CEMP by the contractor.	Development of the Flood Evacuation Plan as part of the CEMP.	Negligible
Combined Sewer Construction Phase Minor-Low Adverse.	Local sewer network	Onsite control of silt and sediment	Monitor wider network, CCTV, and surveys Placement of storage areas away from entrances to the network	Negligible
Combined Sewer Operation Phase Minor-Low Beneficial,	Local Sewer network	None	None	Minor-Low Beneficial, Permanent Impact
Groundwater Contamination – Construction Phase Moderate	Wider Catchment area Groundwater Quality Local Watercourses	Ensuring leachate from the material stores and spillages do not enter the groundwater table by ensuring material storage is anyway from the watercourse and the monitored to ensure no runoff is seen.	Contractor led CEMP	Minor-Moderate adverse. Temporary Impact
Groundwater Contamination – Operational Phase Negligible	Wider Catchment area Groundwater Quality Local Watercourses	None	None	Negligible

Watercourse contamination – Construction Phase Moderate	Wider Catchment area Groundwater Quality Local Watercourses	Ensure the Leachate/sediment from materials storage does not enter the watercourse. To do this the material stores should be located away from the watercourse and the monitored to ensure no runoff gets to the watercourse. Care should be taken when working near the watercourse to make sure no material falls into the water	Contractor Lead CEMP	Minor-Moderate adverse. Temporary Impact
Watercourse Contamination – Operational Phase Negligible	Wider Catchment area Groundwater Quality Local Watercourses	None	None	Negligible

16. Wind Microclimate

Introduction

- 16.1. This document is the non-technical summary (NTS) of the Environmental Statement (ES) Chapter 17: Wind Microclimate, which has been submitted as part of an application for full planning permission for the Proposed Development Trinity Islands in Manchester, UK.
- 16.2. Its purpose is to summarise the content and main findings of the ES Chapter 17: Wind Microclimate in a clear and concise manner to assist the public in understanding what the environmental effects of the Proposed Development are likely to be. The full ES provides a more detailed description of the Proposed Development and the findings of the Environmental Impact Assessment (EIA) process.

Baseline

- 16.3. The Baseline has been modelled to represent the conditions in and around the site within the existing context, prior to the introduction of the Proposed Development. In the baseline scenario, one exceedance of the pedestrian safety criteria occurs, and three exceedances of the pedestrian comfort criteria are also observed.

Methodology

- 16.4. Chapter 17 of the ES reports the outcome of the assessment of likely significant effects arising from the Proposed Development on the local wind environment in the context of the Proposed Development Site and its surroundings.
- 16.5. The wind environment for the purpose of this assessment is defined as the wind flow experienced by pedestrians and the subsequent influence it has on their activities. It is concerned primarily with wind characteristics at pedestrian level. Other likely wind effects such as wind pressure loading on building facades and natural ventilation are unrelated to the pedestrian wind environment and do not fall within the scope of this assessment.
- 16.6. A 3D model of the Proposed Development and surroundings within a radius of approximately 500m around the Proposed Development Site has been constructed for the assessment. The flow around these buildings and terrain is explicitly modelled within this radius using a CFD method, whilst outside this region obstructions are accounted for using mathematical models which assign a 'roughness' depending on the terrain type.
- 16.7. A quantified assessment of the Baseline, Proposed and Cumulative Scenarios wind environments was carried out to analyse the likely significant effects of the Proposed Development on the local wind environment. An effect is considered significant if the nature of the effect is adverse and the magnitude of the effect is identified to be major (off-site receptors) or moderate and above (on-site receptors).
- 16.8. The methodology adopted for the assessment combines predicted air flow patterns and wind velocities around the Proposed Development Site, the use of wind data from Manchester Airport meteorological station and the recommended best practice comfort and safety standards (the Lawson Criteria). The Lawson Criteria provide wind speed and frequency ranges for pedestrian comfort and safety. It stipulates that for the comfort and safety assessment of wind effects, it is not only the velocity of wind that is considered but also the frequency of occurrence of these velocities.

Summary of Likely Effects

- 16.9. The results of the assessment, including the wind mitigation features incorporated in the design, indicate that the Proposed Development is likely to modify the local wind environment and create both localised improvements as well as some areas where accelerated winds could prevail.
- 16.10. Wind conditions at street level within and in the vicinity of the Proposed Development are free from breaches of the safety criteria.

- 16.11. Localised breaches of the safety criteria occur across some of the terrace's part of the Proposed Development. Bespoke wind mitigation measures will need to be introduced across these spaces to mitigate these undesirable wind conditions. Alternatively, access to these spaces should be restricted when windy conditions are forecasted in the area.
- 16.12. Wind comfort ratings at street level within and in the vicinity of the Proposed Development are suitable for the intended pedestrian uses.
- 16.13. Wind comfort ratings across some of the areas on the terraces of the Proposed Development fall short of meeting the required level of wind comfort. Bespoke wind mitigation measures will need to be introduced across these spaces to mitigate these undesirable wind conditions.

Mitigation

- 16.14. The wind mitigation measures introduced as part of the Proposed Development included: trees in soft landscape; trees in hard landscape; instant hedges; and 50% porous baffles. All these elements have been integrated within the landscaping strategy of the Proposed Development. It should be noted that, conservatively, no landscaping across the terrace spaces at the bottom of the buildings part of the Proposed Development have been taken into account in the wind simulations.

Cumulative Effects

- 16.15. The inclusion of approved cumulative schemes results in no appreciably different wind conditions from the ones assessed for the Proposed Development in the context of the existing surrounds.

Residual Effects

- 16.16. For all phases of the Proposed Development and surrounding context, with the inclusion of the proposed landscaping strategy and wind mitigation measures, the only areas where significant adverse residual effects persist are:
- 16.17. Most of the terraces of the Proposed Development, where localised breaches of the safety criteria remain.

Table 16.1 Summary of Residual Impacts

Likely Significant Effect	Receptor(s)	Mitigation Measure	Means of Implementation of Mitigation	Post Mitigation Residual Effect – Significance and Duration (i.e Temporary/Permanent)
<i>Construction Phase</i>				
Negligible	-	None	-	Negligible, Not Significant / Temporary
<i>Operational Phase</i>				
Major Adverse	'Receptors D, G, J, K, L, M'	None specifically	-	Major Adverse, Significant / Permanent
Moderate Adverse	'Receptors 26, 27, 28, 29, 30, 32, 33, 48, 49, 50, 59, 72, 73 and 77'	As described in Section 2 of the Wind Microclimate Technical Report (Appendix 17.1)	-	Moderate Adverse, Not Significant / Permanent
Major Beneficial	'Receptor 55'	As described in Section 2 of the Wind Microclimate Technical Report (Appendix 17.1)	-	Major Beneficial, Not Significant / Permanent
Moderate Beneficial	'Receptor 56'	As described in Section 2 of the Wind Microclimate Technical Report (Appendix 17.1)	-	Moderate Beneficial, Not Significant / Permanent
Negligible	All other receptors	As described in Section 2 of the Wind Microclimate Technical Report (Appendix 17.1)	-	Negligible, Not Significant / Permanent

17. Availability of Environmental Statement

Statement

- 17.1. The ES is available for public viewing online via MCC's Public Access website, and during normal office hours at the following address:
- Planning Department
Manchester City Council
Town Hall
Manchester
M2 5DB
- 17.2. The ES may be purchased in volumes, the costs for which are set out below:
- Non-Technical Summary (NTS) - £15
 - Volume 1: ES Main Text & Figures - £150
 - Volume 2: ES Appendices - £150
- 17.3. For copies of any of the above please contact the Trinity Islands Team at Deloitte:
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