

Northern Gateway (JPA 1.1)

Environmental Impact Assessment (EIA)

Scoping Report

October 2024

Applicant

Northern Gateway Development Vehicle LLP

Our reference

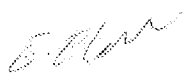
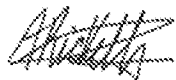
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Turley

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Glossary of Key Terms

Term	Description
Northern Gateway Development Vehicle LLP	The Applicant.
Project	The design, planning and execution of Northern Gateway JPA 1.1.
Proposed Scheme	The development for which outline planning permission is sought through the Application.
Project for Assessment	The wider, comprehensive development project including the facilitating infrastructure.
Assessment Boundary Plan	The spatial footprint of the Project for Assessment (this is shown in Figure 1.1).
High Level Development Specification	The principles which have been agreed by the project team about the Project for Assessment at this stage.
Potential off-site ecological mitigation area (POSEMA)	An area of land which may contribute to the required support to the delivery of Biodiversity Net Gain (BNG) or/and compensatory habitat.

1. Introduction

Overview

- 1.1 Northern Gateway Development Vehicle LLP (NGDV) is the Applicant preparing an application for outline planning permission for parts of JPA 1.1 with all matters reserved. The application will be for a predominately commercial project, referred to as the 'Proposed Scheme'. The application will be submitted to Bury Council (BC) and Rochdale Borough Council (RBC) as the local planning authorities (LPAs).
- 1.2 The JV has instructed Turley to lead, manage and control the Environmental Impact Assessment (EIA) process for this project in line with the Town and Country Planning (Environmental Impact Assessment) Regulations 2017 (as amended)¹ (the 'EIA Regulations').
- 1.3 The application is being prepared following the allocation of land (JPA 1.1) within Greater Manchester's Places for Everyone (Pfe) Joint Development Plan Document in March 2024.
- 1.4 To ensure that all likely significant effects are identified and assessed, the EIA considers the whole of the development project. This is considered to be the JPA 1.1 allocation (excluding the consented South Heywood development) alongside the potential supporting highways infrastructure (including the Pilsworth Road highways improvements, works to Junction 3 of the M66 and any remodelling works associated with the M62. The whole of the comprehensive development project is referred to as the 'Project for Assessment'. The spatial footprint of this is defined in **Figure 1.1** and is referred to as the 'Site'. The boundary of the Site is referred to as the 'Assessment Boundary Plan'. Further detail on this approach is provided in **Chapter 2**.
- 1.5 The EIA will assess a much wider area than the future application boundary, which is not finalised at this stage. The future Environmental Statement (ES) will need to carefully communicate the impacts and mitigation associated with the future application boundary separately to the impacts and mitigation of the whole of the development project. At this stage, and where necessary, the spatial zoning of impacts has been considered and documented. Further details regarding the approach to EIA is provided in **Chapter 2**.
- 1.6 The project team have developed a description of the Project for Assessment (referred to as a 'High Level Development Specification'), which is outlined in **Chapter 4**. Whilst the Project for Assessment continues to be refined as part of the design process, agreed development principles have been defined at this stage and provide factual and sufficient information to inform the EIA Scoping process and the preparation of this EIA Scoping Report.
- 1.7 In line with the above, the Site, represented by the Assessment Boundary Plan, is approximately 586 hectares (ha) and is shown in **Figure 1.1**. The Site is considered to represent the maximum extent of all temporary and permanent works that may be

¹ The Town and Country Planning (EIA) Regulations 2017 No. 571 (as amended).

required as part of the Project for Assessment. The exception to this is the potential off-site ecological mitigation area (POSEMA) which is also defined on **Figure 1.1**. The approach to ecological mitigation is discussed further in **Chapter 2**.

Request for Scoping Opinions

- 1.8 To inform the EIA process, in accordance with Regulation 15 of the EIA Regulations, Turley requests Scoping Opinions from BC and RBC, informed by this report. The steps undertaken in the preparation of this report and request for a Scoping Opinion are set out in more detail within **Chapter 2**.
- 1.9 In line with Regulation 15(2) of the EIA Regulations, this report contains the following:
- A plan sufficient to identify the land (**Figure 1.1**);
 - A description of the Proposed Scheme², including its nature, purpose, location, and technical capacity (**Chapter 4**);
 - An explanation of the likely significant effects of the development³ on the environment (**Technical Chapters 6 – 17**); and
 - Such other information or representations as the person making the request may wish to provide or make.
- 1.10 The Scoping Opinions are sought on the breadth of the environmental topics and associated impacts to be considered within the EIA and reported in the ES, as well as the scope and methodology for assessment.
- 1.11 In accordance with Regulation 15(4) of the EIA Regulations, it is anticipated that the statutory timescales will be met, and that Turley will be in receipt of the Scoping Opinions no later than five weeks from the date of receipt of this request.
- 1.12 Discussions have taken place with BC and RBC in August 2024 to ensure there are appropriate synergies between the two separate (but coordinated) scoping processes. This is detailed in **Chapter 2**.

Definition of EIA

- 1.13 The term 'EIA' has the meaning given by Regulation 4 of the EIA Regulations, as '*a process consisting of -*
- (a) the preparation of an environmental statement;*
- (b) any consultation, public and notification required by, or by virtue of, these Regulations or any other enactment in respect of EIA development; and*

² For the EIA Scoping Report, the wider Project for Assessment has been considered.

³ Again, for the EIA Scoping Report, the wider Project for Assessment has been considered.

(c) the steps required under regulation 26' (consideration of whether planning permission or subsequent consent should be granted)'.

- 1.14 Under Regulation 4, Paragraph 2 an EIA must *'identify, describe, and assess in an appropriate manner, in light of each individual case, the direct and indirect significant effects of the proposed development on the following factors -*

(a) population and human health

(b) biodiversity, with particular attention to species and habitats protected under Directive 92/43/EEC(1) and Directive 2009/147/EC(2);

(c) land, soil, water, air and climate;

(d) material assets, cultural heritage and the landscape; and

(e) the interaction between the factors referred to in sub-paragraphs (a) to (d)'.

- 1.15 EIA is a procedure that must be followed for certain types of projects before 'development consent' (i.e., planning permission) can be given. The procedure is a means of drawing together, in a systematic way, an assessment of a project's likely significant environmental effects. This helps to ensure that the importance of the predicted effects and the scope for reducing or mitigating them are properly understood by the public and the relevant Local Planning Authority (in this case, BC and RBC) before they make their decisions.

- 1.16 The aim of EIA, as defined by national Planning Practice Guidance (PPG), is to *'protect the environment by ensuring that a local planning authority when deciding 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....'* and *'..also to ensure that the public are given early and effective opportunities to participate in the decision making procedures'⁴.*

Stakeholder Engagement

- 1.17 Consultation is an important part of the EIA process. It is the responsibility of BC and RBC to undertake the appropriate level of consultation, including the identification of relevant and applicable statutory and non-statutory consultees, required to inform their Scoping Opinions.
- 1.18 It is anticipated that BC and RBC will consult with the following stakeholders during the preparation of their Scoping Opinions:
- BC including the following departments:
 - Traffic;

⁴ Ministry of Housing, Communities & Local Government (MHCLG), PPG, Paragraph 002 Reference ID: 4-002-20140306 [Online].

- Drainage (including lead local Flood Authority);
- Contaminated land and air quality;
- Environmental health – pollution control;
- Public rights of way;
- Conservation;
- Coal Authority;
- Environment Agency;
- Greater Manchester Archaeology Advisory Service (GMAAS);
- Greater Manchester Ecological Unit (GMEU);
- Historic England;
- National Highways;
- Natural England;
- RBC including the following departments:
 - Awaiting advice from RBC;
- Transport for Greater Manchester;
- United Utilities; and
- HSE.

1.19 In advance of preparing this report, consultation with several of the above consultees has already been undertaken and continues, to inform specifics of the design of the Proposed Scheme, baseline data collection and assessment methodologies. A summary of the consultation already taken place in connection with this report is summarised in **Appendix 1.1**.

2. Approach to EIA

Objectives

- 2.1 This report supports a formal request for Scoping Opinions from BC and RBC as to the scope and methodology for assessment to be adopted in the EIA and reported in the ES. It aims to ensure that there is a clear and agreed scope for the EIA, including the relevant baseline studies that will be required to ensure a robust assessment of likely significant effects.
- 2.2 The Scoping Opinions are sought on the technical breadth of the environmental topics considered within the EIA and the specific impacts within each of these environmental topics (**Technical Chapters 6 – 17**).
- 2.3 The Institute of Environmental Management and Assessment (IEMA) has issued guidance on the interaction of design and EIA as part of 'Shaping Quality Development'⁵ and 'Delivering Quality Development'⁶. The principles of these documents have been adopted for the EIA.

Iterative Approach to Scoping

- 2.4 Whilst this report seeks to establish the overall framework for the EIA in relation to the environmental topics and associated likely significant impacts that will be subject to detailed assessment, iterative 're-scoping' will continue as the design and strategy are refined, plans and principles are developed, and additional technical work is completed. This will enable environmental effects to be well understood and primary and tertiary mitigation developed (see 'Defining Mitigation and how this will be Controlled'). This iterative 're-scoping' process will continue up until the point when the assessments within the ES are in their first draft, in advance of the application submission.
- 2.5 Any deviation between the scope of effects considered within this report and the ES will be clearly communicated in the ES. This is in accordance with the PPG⁷, which states that *'...where it becomes evident during the assessment process...that a particular environmental factor is absent or unlikely to be significantly affected by a proposed development, there should be no need for further assessment of that factor even though it was identified in the scoping process...'*.
- 2.6 It is requested that such an approach is clearly agreed within the Scoping Opinions issued by BC and RBC.

Managing two Concurrent Scoping Processes

- 2.7 As outlined in **Chapter 1**, discussions have taken place with BC and RBC in August and October 2024 to ensure there are appropriate synergies between the two separate

⁵ IEMA (2015) EIA Guide to: Shaping Quality Development.

⁶ IEMA (2016) EIA Guide to: Delivering Quality Development.

⁷ MHCLG, PPG, Paragraph: 038 Reference ID: 4-038-20170728 [Online].

(but coordinated) Scoping processes. It is understood that the appropriate synergies will be achieved through:

- Turley will request a Scoping Opinion from both BC and RBC, and this report informs the requests;
- BC and RBC will coordinate the release of statutory consultee letters with a view of explaining that there are two statutory processes for the same project and this is necessary as the project straddles two authority boundaries. There will be a request, wherever possible, that a single individual is identified at each statutory consultees so that a coordinated statutory consultee response can be provided;
- BC and RBC will review all received statutory consultee letters with the aim of providing a coordinated Scoping Opinion with no or limited conflicts; and
- BC and RBC will each send a duplicate copy of the Scoping Opinion to Turley.

Definition of the Project for Assessment

2.8 As outlined in **Chapter 1**, the EIA must consider the direct and indirect impacts of the whole of the comprehensive development project, the Project for Assessment. This includes:

- The Proposed Scheme for which outline planning permission is sought. The future planning application boundary is not finalised at this stage;
- Residual part of the JPA 1.1 allocation excluding the South Heywood development, with the exception of potential access road which is considered part of the access strategy for the Project for Assessment;
- Potential highways infrastructure – Remodelling works associated with the M62;
- Potential highways infrastructure – Junction 3 of the M66;
- Potential highways infrastructure – local highway improvements to Pilsworth Road (from Junction 3 of the M66) / Moss Hall Road junction;
- Clean water infrastructure – likely upgrades along Pilsworth Road to the United Utilities (UU) main; and
- Additional land that may be required to deliver Biodiversity Net Gain (BNG) or compensatory habitat. This is identified as the potential off-site ecological mitigation area (POSEMA).

2.9 The Assessment Boundary Plan and the additional land for POSEMA is identified in **Figure 1.1**.

2.10 The South Heywood development (planning application reference: 16/01399/HYBR) was submitted in 2016 and received planning permission in 2020. It was supported by

an ES. Its exclusion from the Project for Assessment is justified as this was consented outside of the JPA 1.1 allocation process and benefits from an existing planning consent and has already commenced construction. Construction of South Heywood, currently includes the construction (and operation) of the Queen Elizabeth II Way link road to the M62 Junction 19 and a proportion of the proposed houses for South Heywood have also been built (and will also form part of the baseline as described below under '*Baseline Scenario for Use in the EIA*').

- 2.11 As outlined above, a potential access road through South Heywood is included as part of the Project for Assessment. However, no other part of this development is included as part of the Project for Assessment, which will allow the South Heywood to be brought forward in accordance with the current consent(s).
- 2.12 For completeness, the consented scheme will be assessed as part of the Cumulative Impact Assessment (CIA) and this is further detailed in **Chapter 18**. Much of the highways infrastructure and some housing has already been constructed. This is further discussed under '*Baseline Scenario for Use in the EIA*'.
- 2.13 The Project for Assessment will be dependent on the highways infrastructure outlined above. The location of the motorway and local road junctions are shown on **Figure 2.1**. The status of these is varied and they do not currently have planning consent. A summary of their current status is set out below:
- **Junction 3 of the M66** – this has been subject to a study by WSP to test the effectiveness of a junction improvement option by Pell Frischman and will be subject to a planning application submitted by National Highways and/or BC;
 - **Local highway improvements to Pilsworth Road (from Junction 3 of the M66) / Moss Hall Road junction** – these are referred to as the 'western links' comprising Moss Hall Road and Pilsworth Road, and including the Three Arrows (Pilsworth Road – South) and Fowler Welch (Pilsworth Road - North) junctions. These links and junctions are the subject of a highways operational study being carried out by Pell Frischmann, commissioned by BC; and
 - **Remodelling works associated with the M62** – National Highways are undertaking preliminary investigations to understand the case for the delivery of significant motorway remodelling works from Birch Services and Junction 19. This will be subject to a Development Consent Order (DCO) by National Highways.
- 2.14 These are included in the Assessment Boundary Plan (**Figure 1.1**) and identified by navy blue and azure quarters on the Spatial Referencing Plan (**Figure 4.1**). Further highways infrastructure is also proposed but do not form part of the Project for Assessment:
- The 'eastern links' – these comprise Queen Elizabeth II Way (QEII Way) and Hareshill Road. These links are the subject of a JV commissioned study, which is being carried out by Focus Transport Planning (FTP) to establish the capacity effects of including the JPA1.1 development on the existing junctions. This highways infrastructure was delivered as part of the South Heywood

development and form part of the current baseline (this is further discussed under 'Baseline Scenario for Use in the EIA'); and

- M62 Junction 18, Simister Island – this junction is the subject of a committed improvement scheme (subject to receiving Development Consent Order) which is to be delivered by National Highways.

- 2.15 As outlined above, the 'eastern links' are already delivered and the M62 Junction 18, Simister Island will be delivered by National Highways. Therefore, these fall outside of the Project for Assessment but for completeness the M62 Junction 18, Simister Island will be assessed as part of the CIA and this is further detailed in **Chapter 18**.
- 2.16 We appreciate there is uncertainty around the highways infrastructure, particularly the remodelling works around the M62, Junction 19. However, for the purposes of the EIA, we can only include a 'snapshot' of the highways infrastructure at the time the ES is being prepared. The assessment within the ES will be based on reasonable assumptions on the highways infrastructure. This is further discussed under *'Information to Inform the Assessments within the ES'*.
- 2.17 The existing clean water network (operated by UU) will be upgraded along Pilsworth Road to the new main that UU installed at the corner of Pilworth Road / QEII Way. These upgrades may be delivered by the JV and therefore have been considered as part of the Project for Assessment. However, this is not the case for the foul water network upgrades (again operated by UU) which will be extended along Pilsworth Road to the M66 and onwards to Pilsworth Way in the west. This is because this will not be delivered by the JV but by UU. For completeness, the foul water network upgrades will be assessed as part of the CIA and this is further detailed in **Chapter 18**.
- 2.18 The Biodiversity Net Gain (BNG) strategy is currently under development alongside fundamental design parameters of the project such as earthworks. Therefore, the extent of the delivery of BNG within the Project for Assessment is not finalised at this stage. There remains the potential for compensatory ecological habitat, which again has not been finalised at this stage.
- 2.19 Therefore, together with Tyler Grange, who are providing ecological advice on the project; additional land has been identified which may be required to ensure that the requirement for 10% Biodiversity Net Gain (BNG) and wider ecological mitigation can be achieved. As outlined above, this is identified on **Figure 1.1** as POSMA.
- 2.20 Should parts of all of the POSMA be required, the primary habitat type required will be grassland and the 'development' proposed would be minimal with no requirement to manage or change the existing hydrological regime. It is also understood that some existing agricultural production will still be possible within this area post habitat creation, such as hay and silage production and keeping cattle.
- 2.21 Birch Business Park is included within the Assessment Boundary. However, it is assumed that Birch Business Park will remain in-situ and operational, with only limited works associated with access and the alignment of Moss Hall Lane / Whittle Lane. Birch Business Park will therefore form part of the baseline.

- 2.22 As outlined above there remains uncertainty with regard to the remodelling works associated with the M62. Therefore, for the purposes of the EIA Scoping Report it has been necessary to assume that the existing Motorway Service Area (M62) Eastbound and Westbound may be demolished and replaced (see **Table 4.1** in **Chapter 4**) and this may form part of the Project for Assessment.
- 2.23 There are two zones of existing properties to the north of the M62, shaded white on the Spatial Referencing Plan (**Figure 4.1**). These are included within the Assessment Boundary. However, it is assumed that they will remain in-situ and operational, with only limited works associated with access.
- 2.24 A High-Level Development Specification, providing a description of the Project for Assessment including the relevant components above, is provided in **Chapter 4**.

The Extent of Data Collection

- 2.25 The Site, upon which baseline data has been collected is defined by **Figure 1.1**. As noted in **Chapter 4**, this is considered to be the maximum extent of all permanent and temporary works associated with the components of the Project for Assessment set out above (see '*Managing two Concurrent Scoping Processes*')
- 2.26 As outlined in **Chapter 1**, discussions have taken place with BC and RBC in August and October 2024 to ensure there are appropriate synergies between the two separate (but coordinated) Scoping processes. It is understood that the appropriate synergies will be achieved through:
- Turley will request a Scoping Opinion from both BC and RBC, and this report informs the requests;
 - BC and RBC will coordinate the release of statutory consultee letters with a view of explaining that there are two statutory processes for the same project and this is necessary as the project straddles two authority boundaries. There will be a request, wherever possible, that a single individual is identified at each statutory consultees so that a coordinated statutory consultee response can be provided;
 - BC and RBC will review all received statutory consultee letters with the aim of providing a coordinated Scoping Opinion with no or limited conflicts; and
 - BC and RBC will each send a duplicate copy of the Scoping Opinion to Turley.
- 2.27 Definition of the Project However, due to the nature of the limited 'development' potentially proposed in the POSMA (also identified on **Figure 1.1**), it has not been considered necessary to collect the same level of baseline data in this area.
- 2.28 Where required, technical specific study areas (informed by relevant best practice and guidance) will be based upon the Site, defined by the Assessment Boundary Plan. They are generally defined as a radius from the Site.

2.29 As described above under ‘*Definition of the Project for Assessment*’, the Project for Assessment includes areas which will not form part of the future planning application. Therefore, access to some of the residual parts of the JPA 1.1 allocation has not been possible, which has created limitations for some survey data collection, albeit this is generally limited. Where access has not been possible for survey data, the approach to assessment will be as follows:

- **Arboriculture** – the use of aerial mapping alongside observations from publicly accessible areas;
- **Ecology** – data has been or will be obtained for the spatial footprint defined in **Figure 10.1**. Where this is not the case, worst case assumptions on habitat value and protected species will be defined, also informed by third party data collection. We met with the Greater Manchester Ecological Unit (GMEU) in March 2024 to identify any concerns with the approach. We have not received any response on the intended approach set out;
- **Hydrology and Water Quality** – access to the brooks across the Site is considered sufficient to inform a robust hydrological model. There are areas where parts of the brook could not be accessed due to overgrown areas, however, this limitation has been considered reasonable;
- **Ground Conditions** – it is considered that desk based studies will be sufficient for the Project for Assessment with site investigations being undertaken as a planning condition to the Proposed Scheme;
- **Agricultural Land** – Agriculture Land Classification surveys will be undertaken for much of the Site. The data collected can be extrapolated across other areas of the Site where access is not possible (through analysis of soil profiles); and
- **Built Heritage** – Access to Egypt Farm has not been possible and due to the enclosed character of the farm, an assessment of its significance and setting has been limited to historic mapping and the HER data.

2.30 In relation to the above, the level of information obtained is considered to be sufficient to inform assessments detailed within the ES.

Consideration of Off-Site Improvements / Secondary Mitigation

2.31 Off-Site improvements / mitigation to be delivered outside of the Assessment Boundary (with the exception of the POSEMA), if required, will be considered as ‘secondary mitigation’ (refer to ‘*Defining Mitigation and how this will be Controlled*’). Should these give rise to impacts, this will be appropriately considered within either the assessment of residual effects within the ES or potentially within Chapter 2: Approach to EIA of the ES. This is likely to be a qualitative assessment.

2.32 Secondary mitigation treated in this way, is considered to be limited to further highways improvements outside of the Assessment Boundary that may be required and known when junction modelling has been completed. At this stage, it is assumed that such works will be relatively minimal (e.g. lane widening or junction improvements) within the existing highways boundaries.

Baseline Scenario for Use in the EIA

- 2.33 Likely significant effects as a result of the Project for Assessment will be described in the ES in relation to the deviation from the baseline environment within the Site and / or relevant technical study areas.
- 2.34 For most environmental topics and associated effects, the baseline environment will comprise the existing environmental characteristics and conditions based on surveys undertaken and information / data available at the time of the technical assessments. Deviation from this approach is noted under 'Assessment Scenarios' below.
- 2.35 The data used to inform the baseline conditions for the technical assessments reported in the ES (for those environmental topics 'scoped in', see **Technical Chapters 6 – 17** for more details) will vary depending upon the timing of the survey or the date when data sources will have been accessed. It is anticipated that the baseline conditions will largely be based on data accessed or surveys / studies completed between November 2022 to October 2024. Where relevant other data obtained from third parties may be older than 2022, though may still be relevant to the baseline scenario if there have been no notable changes or is the latest available information.
- 2.36 A consolidated list of baseline data sources will be provided as part of the ES. The origin of all data, the dates of surveys and the dates when data sources have been accessed will be clearly outlined alongside any limitations and assumptions.
- 2.37 As outlined above under '*Definition of the Project for Assessment*', much of the highways infrastructure and some housing associated with South Heywood has already been constructed. Across the ES, the delivered highways infrastructure and completed housing will be considered as part of the baseline scenario. The exception to this is in relation to traffic related effects where the completed housing will be considered as part of the 'development log' of other projects. This is explained further under '*Assessment Scenarios*' below.

Identification of Sensitive Receptors

- 2.38 Informed by baseline information and data, a series of receptors or receptor groups have been identified. Those which are subject to likely significant effects arising from the Project for Assessment have been identified. These receptors will then be subject to detailed assessment within the ES, unless impacts are unlikely to be considered significant in the intervening period.
- 2.39 As well as baseline information data, the receptors associated with the Project for Assessment have also been considered in terms of future receptors, for example, residential receptors associated with the proposed housing. This will ensure that all effects of the Project for Assessment are considered throughout all stages. This is particularly important where future receptors may experience construction related effects associated with later development.
- 2.40 Details of the receptors which are considered likely to be affected at this stage of the EIA are set out in **Technical Chapters 6 – 17**.

Defining Mitigation and how this will be Controlled

2.41 Schedule 4, Part 7 of the EIA Regulations states that an ES should include:

‘a description of the measures envisaged to avoid, prevent, reduce or, if possible, offset any identified significant adverse effects on the environment and, where appropriate, of any proposed monitoring arrangements (for example the preparation of a post-project analysis). That description should explain the extent, to which significant adverse effects on the environment are avoided, prevented, reduced or offset, and should cover both the construction and operational phases’.

2.42 Through the EIA process different types of mitigation have been / will be identified and developed and these are defined as:

- **Primary mitigation** – modifications to the location or design of the Project for Assessment made during the pre-application phase that are an inherent part of the project;
- **Secondary mitigation** – actions that will require further activity in order to achieve the anticipated outcome and secured by planning condition / and or obligation; and
- **Tertiary mitigation** – actions that would occur with or without input from the EIA feeding into the design process. These include actions that will be undertaken to meet other existing legislative requirements or actions that are considered to be standard practices used to manage commonly occurring environmental effects.

2.43 The assessment of the effects of the Project for Assessment within the ES will be based on the information contained within a ‘Development Specification’, which will include primary and tertiary mitigation. Examples of primary mitigation include the retention of brooks and the associated corridors or the surface water drainage strategy. Examples of tertiary mitigation include the adoption of best practice measures that can be controlled via a Construction Environmental Management Plan (CEMP), or measures required by legislative requirements (e.g., the Construction (Design and Management) Regulations 2015⁸)).

2.44 Primary and tertiary mitigation known at this stage is presented in **Chapter 4**. This is also set out in the Preliminary Environmental Management Plan (PEMP) provided as **Appendix 2.1**.

2.45 Within the ES, following the conclusion of the likely significant effects based on the Project for Assessment (inclusive of primary and tertiary mitigation), any further mitigation (secondary mitigation) to reduce an adverse effect or enhance a beneficial one will be identified.

⁸ Construction (Design and Management) Regulations 2015 No. 51.

- 2.46 Secondary or tertiary mitigation measures are only considered appropriate if there is a high level of confidence in their mechanism for implementation (by NGDV or third party).
- 2.47 The ES will be supported by an Environmental Management Plan (EMP) which will detail all mitigation identified within the EIA process (including through this report) and will form Volume 3 of the ES (see '*Format of the ES*')
- 2.48 This document will define all the environmental requirements of the Project for Assessment and the Proposed Scheme to ensure that the impacts concluded through the EIA process can be relied upon. The EMP can be extracted by BC and RBC to support the preparation of appropriate planning conditions / obligations attached to any planning permission, where necessary.

Reporting Effects and Mitigation for the Proposed Scheme, Separately from the Project for Assessment

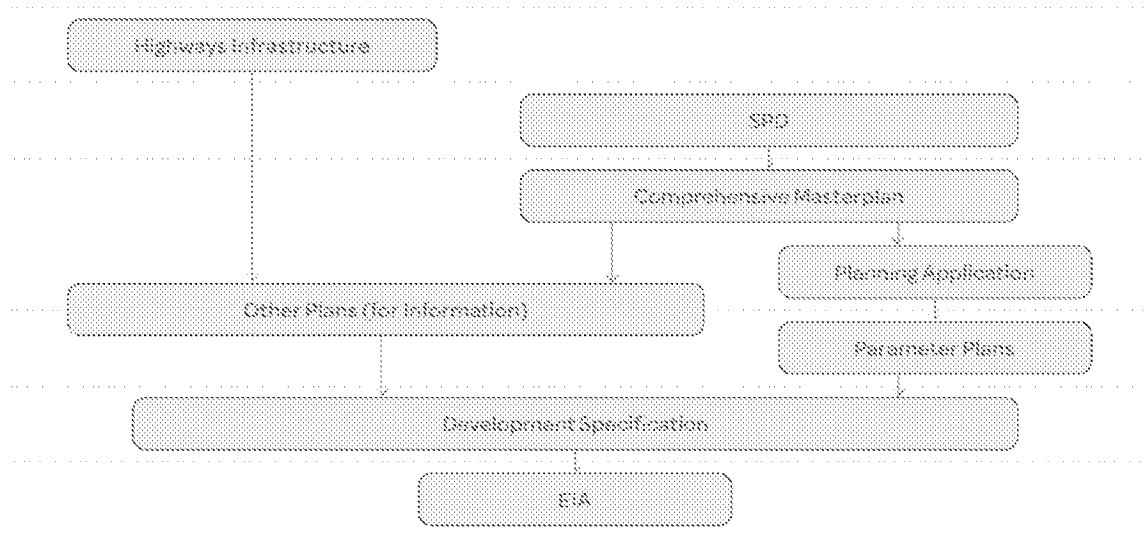
- 2.49 As outlined above under '*Definition of the Project for Assessment*', the Project for Assessment is different to the Proposed Scheme, for which outline planning permission is sought.
- 2.50 The decision-making for the planning consent will need to be linked to the residual effects and mitigation defined for the planning application. The ES will need to make this clear and transparent, albeit avoiding unnecessarily complex reporting or further scenarios.
- 2.51 To achieve this, the ES will:
- Focus on the assessment of the Project for Assessment, but acknowledge any effects which may not be relevant to the Proposed Scheme. To assist this, this report starts to identify any likely significant effects specific to any part of the Site (see **Chapter 4**);
 - Identify and describe the Proposed Scheme in isolation clearly (alongside its primary and tertiary mitigation);
 - Conclude on the level of effects for the Proposed Scheme in isolation and well as together as part of the Project for Assessment. This will be consistent for each environmental topic and as part of the summary of effects; and
 - Identify any specific secondary mitigation that is triggered by the Proposed Scheme in isolation separately to secondary mitigation that is triggered by the residual parts of the Project for Assessment, unless secondary mitigation is identical.
- 2.52 It is the secondary mitigation, triggered by the Proposed Scheme which can be controlled by planning condition or other mechanism and this will be clearly defined as part of the Environmental Management Plan, see '*Format of the ES*' below. The mitigation associated with the residual part of the Project for Assessment will be 'for information purposes only' and cannot be the responsibility of the JV.

Information to Inform the Assessments within the ES

- 2.53 The technical assessments reported in the ES will be based on a series of plans and a description of the Project for Assessment, captured as part of the 'Development Specification' to be provided as part of the ES. The Development Specification will be an expanded version of **Chapter 4**. Where necessary this will be coordinated with the committed aspects of the Design Code.
- 2.54 As outlined above under '*Definition of the Project for Assessment*', outline planning permission is only sought for part of the Project for Assessment.
- 2.55 The plans associated with the planning application will be a series of fixed plans (such as retention plan/s) and a series of parameter plans which will be developed to provide a careful balance between flexibility and managing environmental impacts.
- 2.56 The footprint of the residual part of the Project for Assessment will be defined on a series of 'Other Plans'. These will dovetail with the parameter plans. Their purpose will be to allow the assessment of the whole of the comprehensive development project, but have no standing in terms of the planning consent.
- 2.57 The Development Specification will carefully define which aspects relate to the planning application and which relate to the wider Project for Assessment. Some of the aspects (such as construction methodology) are likely to remain the same, whilst it will be important to separately define other aspects such as quantum.
- 2.58 It is anticipated that both the Other Plans and the parts of the Development Specification that relate to the wider Project for Assessment may be based on a greater number of assumptions. This is because it will remain a challenge for the NGDV to define the final spatial footprints and description of development for the aspects that sit outside of their control. Nevertheless, for such spatial footprints and description, assumptions and limitations will be carefully set out. It is also likely that that spatial footprints and assumptions will largely align with the emerging Northern Gateway Development Framework (NGDF) Supplementary Planning Document (SPD). When completed this will be the best available information to inform the ES.
- 2.59 As outlined above under '*Definition of the Project for Assessment*', we appreciate there is uncertainty around the highways infrastructure, particularly any remodelling works associated with the M62 and that this is as a result of their current status in advance of planning/development consent, for which their current status is outlined under '*Definition of the Project for Assessment*'.
- 2.60 For the purpose of the ES and again to ensure that the assessment of the whole of the comprehensive development project, a 'snapshot' of the highways infrastructure will be set out. This will be at the point at which the plans are fixed for the purpose of the EIA. This snapshot is likely to include assumptions on road layout and levels which are informed by indicative, draft or agreed layouts. When completed this will be the best available information to inform the ES.
- 2.61 The above approach will provide sufficient information to meet the requirements of the EIA Regulations and to inform the technical assessments undertaken as part of the

EIA and reported in the ES. The structure of the information to inform the ES is outlined in **Extract 2.1** below.

Extract 2.1: Structure of Information to Inform the ES



Assessment Scenarios

- 2.62 The EIA will assess the likely effects arising from the Project for Assessment, taking account of demolition, site preparation / enabling works, earthworks, remedial works and construction (collectively referred to as 'construction') and operational stages.
- 2.63 The following scenarios will be assessed where relevant to each environmental topic (and likely significant effects):
- Peak construction – this will vary across environmental topics and will not be attributed to a specific year, rather it will be determined at what point the worst-case effect could occur. This will be clearly defined within the technical assessments reported in the ES; and
 - Operation – this will consider the environmental effects associated with the full operation of the Project for Assessment, once completed.
- 2.64 The phasing of the Project for Assessment will in part be led by the highways infrastructure, however, the two key phases will be:
- Spatial footprint for which outline planning permission is sought (the future planning application boundary is not finalised at this stage); and
 - Residual part of the JPA 1.1 allocation, excluding South Heywood.
- 2.65 These will not necessarily be chronological phases as aspects of the residual part of the JPA 1.1. allocation may be constructed earlier should planning consent for such an element be progressed by a third party. Different phases of the Project for Assessment may also be brought forward concurrently.

2.66 In terms of the highways infrastructure, a key milestone for the Project for Assessment will be the implementation of any remodelling works associated with the M62. This is currently assumed to be implemented in 2032 based on best available advice from stakeholders.

2.67 All scenarios will be considered against the existing baseline conditions unless set out above (see '*Baseline Scenario for Use in the EIA*').

Traffic Assessment Scenarios

2.68 Transport Assessments and EIA have different purposes. Transport Assessments report the overall transport strategy for development sites to maximise accessibility for non-car modes of transport, but also assess the traffic impact of the proposals based on an assessment of conditions on the highway network in peak periods. The assessment of traffic within EIA reports the greatest impact or degree of change from the baseline conditions.

2.69 These different purposes are emphasised in PPG, which states that '*it is unlikely that a Transport Assessment...in itself could fulfil the specific role required for a transport element of an EIA*'.

2.70 However, all technical documents should be based on common principles. The priority is that traffic data and scenarios that are reported in the TA are consistent with those used in the assessment of traffic related effects within the EIA.

Assessment Footprint

2.71 The TA will mimic the approach to the EIA as set out above, in that it will assess the Project for Assessment (**Figure 1.1**).

Quantum

2.72 The TA and EIA will both consider the impacts of the maximum extent of development across the Project for Assessment, which is approximately 1,034,500m². This is the residual balance of JPA 1.1 excluding development already consented at South Heywood.

Cumulative Impact Assessment

2.73 The TA has a different set of criteria for the selection of 'cumulative projects' or 'committed development' to that of the EIA.

2.74 A development log has been created to inform the Transport Assessment and this is based on assumptions about when such projects will happen and when. This is the most reliable assumptions available. Therefore, traffic related effects in the EIA will be based on a greater number of cumulative projects than those specifically required as part of the EIA. None of the cumulative projects currently identified for assessment in the EIA are additional to those in the development log or if they are, they are unlikely to generate cumulative impacts. The only cumulative project considered as a separate cumulative scenario (outside of the development log) is a site known as JPA 1.2⁹. JPA 1.2 is allocated within the PFE and has the potential to be under determination at the

⁹ Policy JP Allocation 1.1: Heywood / Pilsworth (Northern Gateway) within Greater Manchester's Places for Everyone (PFE) Joint Development Plan Document in March 2024

same time as JPA1.1 and is being progressed by the NGDV. Further information is provided in **Chapter 18**.

Scenarios for Assessment

- 2.75 For traffic related effects, the following scenarios will be prioritised within the EIA:
- 2024;
 - 2032; and
 - 2039.
- 2.76 The scenarios will include a 2024 baseline year which include an apportionment of the development log¹⁰ at the selected year, capped to assumptions on strategic growth.
- 2.77 2024 is likely to include a with development scenario. This will be a sensitivity test for the EIA to ensure that development impacts reported in the EIA are not watered down as a result of assuming that other development is already in place and part of the baseline. This responds to the requirements for the EIA to consider the worst case % change against the baseline. This scenario will need to make assumptions on highways infrastructure in the same way that other scenarios do.
- 2.78 The 2032 with development scenario will make an assumption on the JPA 1.1 development delivered at this time. The 2039 with development scenario will assume the completion of the Project for Assessment. As set out in **Chapter 4**, the timescales for the implementation of JPA 1.1 extend beyond 2039. However, 2039 has been identified due to the alignment with the PfE plan period and is considered, in transport terms, to represent a 'worst-case' in terms of allocation build-out.
- 2.79 The 2032 and 2039 scenarios will also test a scenario with and without any remodelling works associated with the M62 and a link through South Heywood. These scenarios also assume the implementation of the works at J3 of the M66; the Western Junction (Fowler Welch and Three Arrows); and the NH Simister Island works.
- 2.80 The scenarios will ensure it is clear what the traffic generation is for JPA 1.1, separately to JPA 1.2. Further information on the consideration of JPA 1.2 is provided in **Chapter 18**.
- 2.81 A 2047 scenario will also be required, driven by the need to meet guidance on the assessment of operational traffic noise. This scenario will be considered for this purpose only, assuming a quantitative assessment be prepared. For further information on the methodology for operational traffic noise, please refer to **Chapter 8**.

¹⁰ A development log has been created to inform the Transport Assessment and this is based on assumptions about when such projects will happen. This is the most reliable assumptions available.

- 2.82 A separate construction scenario will not be undertaken as it is considered that the operational traffic scenarios described above would represent the worst case of any combined construction and operational scenario.

Approach to Defining Level of Effect and Significance

- 2.83 The method for the assessment of effects (i.e. assessment criteria) will vary somewhat across environmental topics, owing to the presence of specific technical guidance prepared in isolation. However, the assessment of likely significant effects (and specifically the conclusions) will be based on a singular common approach.
- 2.84 A four step approach will be adopted to define effects for the construction and / or operational stages of the Project for Assessment and the Proposed Scheme, as outlined below.
- 2.85 The method for assessing the level of effect varies between environmental topics but in principle will be based on:

Step 1: The environmental sensitivity (or value, importance, etc.) of a receptor

- 2.86 The sensitivity includes aspects such as adaptability, tolerance to change or recoverability from a change.
- 2.87 Sensitivity (or value, importance, etc.) will be assessed on a scale of high, medium, low and negligible.

Step 2: The magnitude of change (or impact) from the baseline conditions

- 2.88 Includes aspects such as probability / likelihood of occurrence, geographical extent, complexity, duration, frequency and reversibility (i.e. temporary or permanent).
- 2.89 The magnitude of change (or impact) will be assessed on a scale of large, medium, small and negligible.
- 2.90 Where relevant, other factors such as feedback from stakeholders, relevant legislation, international / national / regional / local standards and guidance and the inter-relationship between effects will also be considered.
- 2.91 The interpretation and use of Step 1 and 2 will be set out within the assessment methodology of each environmental topic within the ES.

Step 3: Assignment of the level of effect

- 2.92 The assignment of the level of effect will be based on professional judgement with the support of the matrix below (**Table 2.1**), which is seen as a tool to assist with the process. Whilst the matrix within **Table 2.1** provides ranges, this is to guide the competent expert and a definitive level of effect will be provided, where possible, for each effect.

Table 2.1: Matrix to support determining the level of effect

Magnitude of change (or impact)	Sensitivity (or value, importance, etc.)				
		High	Medium	Low	Negligible
	Large	Major	Moderate to Major	Minor to Moderate	Negligible
	Medium	Moderate to Major	Moderate	Minor	Negligible
	Small	Minor to Moderate	Minor	Negligible to Minor	Negligible
Negligible	Negligible	Negligible	Negligible	Negligible	

2.93 The terms set out in **Table 2.1** used to define the level of effects identified are described as follows and these can be 'beneficial' or 'adverse':

- **Major effect** – where the Project for Assessment / Proposed Scheme is likely to cause a considerable change from the baseline conditions and the receptor has limited adaptability, tolerance or recoverability or is of the highest sensitivity;
- **Moderate effect** – where the Project for Assessment / Proposed Scheme is likely to cause either a considerable change from the baseline conditions at a receptor that has a degree of adaptability, tolerance or recoverability or a less than considerable change at a receptor that has limited adaptability, tolerance or recoverability;
- **Minor effect** – where the Project for Assessment / Proposed Scheme is likely to cause a small, but noticeable change from the baseline conditions on a receptor that has limited adaptability, tolerance or recoverability or is of the highest sensitivity or a considerable change from the baseline conditions at a receptor which can adapt, is tolerant of the change and / or can recover from the change; and
- **Negligible** – where the Project for Assessment / Proposed Scheme is unlikely to cause a noticeable change at a receptor, despite its level of sensitivity or there is a considerable change at a receptor that is not considered sensitive to a change.

2.94 For some environmental topics, relevant guidance or the nature of the effect requires that differing criteria or scales for determining the level of effect be used. For consistency within the ES, the final 'level of effect' will be reported using the terminology and conclusions set out above. This enables the conclusions of assessments across all environmental topics to be understood for the decision-making process, along with allowing robust analysis and appraisal as part of the assessment of cumulative effects.

Step 4: Determination of Significance

- 2.95 For each effect, a binary judgement will be made as to whether the effect is 'Significant' or 'Not Significant'. This determination will be based on professional judgement and / or relevant guidance and standards, where applicable. Significance will only be concluded for residual effects (i.e. following the identification of secondary mitigation or enhancement).
- 2.96 Summary of effect tables that outline the likely significant effects, receptors, residual level of effect and whether this is considered to be 'Significant' or 'Not Significant' will be provided at the end of each Technical Chapter within the ES.
- 2.97 Effects will also be described in line with the requirements of the EIA Regulations (i.e. as direct or indirect; short (<1 year), medium (1 – 10 years) or long-term (10+ years); permanent or temporary).
- 2.98 Cumulative effects will be considered as a single co-ordinated assessment as outlined in **Chapter 18**.

Approach to the Assessment of Alternatives

- 2.99 Schedule 4, Paragraph 2 of the EIA Regulations states that an ES should include:
- “a description of the reasonable alternatives (for example in terms of development design, technology, location, size and scale) studied by the developer, which are relevant to the proposed project and its specific characteristics, and an indication of the main reasons for selecting the chosen option, including a comparison of the environmental effects”.*
- 2.100 The PPG¹¹ states that where “...alternative approaches to development have been considered, the Environmental Statement should include a description of the reasonable alternatives studied which are relevant to the proposed development and its specific characteristics and provide an indication of the main reasons for the choice made, including a comparison of the environmental effects”.
- 2.101 The EIA Regulations and PPG do not require an Applicant to consider alternatives but instead where reasonable alternatives have been considered by the Applicant, these should be described and an indication of the main reasons for selecting the chosen option, including a comparison of the environment effects, should be provided.
- 2.102 The EIA Regulations and the PPG do not identify a specific methodology for the assessment of alternatives nor the criteria to be used to inform the assessment of reasonable alternatives. Therefore, the methodology to be adopted will be based on professional experience of similar projects and an understanding of the Project for Assessment and its characteristics as well as a focus on the delivery of a proportionate report, in line with PPG.

¹¹ DLUHC and MHCLG, PPG, Paragraph 041 Reference ID: 4-041-20170728 [Online].

2.103 The consideration of alternatives has followed a two-step approach, with Step 1 completed as part of this report:

- **Step 1:** Consideration of 'factors' that constitute alternatives based on the EIA Regulations (i.e., alternative sites, alternative designs, alternative technologies and the 'do nothing' scenario) and justification / discussion of their inclusion / exclusion from further assessment; and
- **Step 2:** Qualitative appraisal of the 'factors' brought forward from Step 1 and, where appropriate, a comparison of the environmental effects.

Step 1 – Consideration of Factors

2.104 The relevant factors have been considered to determine the need for further assessment:

- Alternative sites – Alternative sites have not been considered by the Applicant as the Project for Assessment is an allocated site within the Places for Everyone development plan document (adopted 21 March 2024). Part of the Site is under the Applicant's control and it is this that will therefore largely define the Project for Assessment;
- Alternative designs – The design of the Project for Assessment will evolve in response to stakeholder engagement; technical studies; and environmental constraints and opportunities alongside the development of the emerging Northern Gateway Development Framework (NGDF) SPD'. Therefore, 'Alternative designs' will be taken forward to Step 2;
- Alternative technologies – Whilst alternative technologies are available in terms of the construction of the Project for Assessment these, are largely dictated by 'build-ability' and cost exercises rather than environmental-focused considerations. Furthermore, the Project for Assessment is B2/B8 led (refer to **Chapter 4**). Given this, alternative 'technologies' are not considered to be applicable as they would be for other types of development (i.e. industrial processes or energy generation). As a result of these factors, Alternative technologies will not be taken forward to Step 2; and
- 'Do Nothing' Scenario – Schedule 4, Paragraph 3 of the EIA Regulations requires an ES to include a description of the relevant aspects of the current baseline environment which are likely to evolve without the implementation of development, subject to the availability of environmental information and scientific knowledge. The assessments of environmental effects presented in the ES will include the determination the Site's 'Future Baseline', being the likely condition of the Site in the absence of development. As such, sufficient environmental information and scientific knowledge will be available to inform an appraisal of the natural changes likely to be observed in the 'Do Nothing' Scenario and this will be taken forward to Step 2.

2.105 As set out above, alternative designs and the 'Do Nothing' scenarios will be taken forward from Step 1 into Step 2 and reported in the ES.

Format of the ES

2.106 The ES will comprise four volumes:

- **Volume 1: Primary Report and Supporting Graphics;**
- **Volume 2: Technical Appendices to the Primary Report;**
- **Volume 3: Environmental Management Plan; and**
- **Volume 4: Non-Technical Summary.**

Competent Expertise



2.107 Regulation 18, Paragraph 5(a) of the EIA Regulations requires the ES to be prepared by competent experts.

2.108 The EIA will be led by Turley. IEMA has awarded Turley the EIA Quality Mark in recognition of our technical quality and commitment to improvement in practice.

2.109 All technical assessments within the EIA will be undertaken by a suitably qualified project team, inclusive of a thorough technical review to assure technical credibility, followed by a subsequent procedural review by the EIA co-ordination team and EIA Project Director.

2.110 In line with the EIA Regulations, all contributors to the EIA are competent experts in EIA. This is demonstrated by an overview of each key expert's qualifications, professional accreditations, and experience as provided in **Appendix 2.2**.

Interaction of the ES with Other Application Documents

2.111 The Application will be accompanied by a number of documents, some of which will inform the ES and be appended to the ES as supporting technical evidence (included as part of Volume 2), whilst others will form standalone 'Application Documents', which provide a greater level of detail of how the Proposed Scheme is likely to come forward or how it complies with relevant policy.

2.112 At this stage, the following documents are anticipated to be included as appendices to the ES in Volume 2:

- Archaeological Desk-Based Assessment;
- Agricultural Land Classification and Soil Resources Report;
- Heritage Statement;
- Landscape and Visual Impact Assessment;

- Photomontages / Visualisations;
- Preliminary Ecological Appraisal;
- Ecological Species Surveys Reports;
- Tree Survey & Preliminary Arboricultural Impact Assessment; and
- Geo-Environmental and Geotechnical Desk Study (including the Coal Mine Risk Assessment);

2.113 As explained above, other documents and plans will provide a greater level of detail on how the Proposed Scheme is likely to come forward, how the Proposed Scheme complies with policy or provide assessments for technical topics for which no likely significant effects are considered to arise (i.e., 'scoped out' of the ES). Where information from these documents will inform the Project for Assessment upon which the ES will be based (see '*Information to Inform the Assessments within the ES*'), this will be clearly stated within the Development Specification as part of the ES.

Co-ordination with Habitats Regulation Assessment

2.114 Regulation 27 of the EIA Regulations states:

'Where in relation to EIA development there is, in addition to the requirement for an EIA to be carried out in accordance with these Regulations, also a requirement to carry out a Habitats Regulation Assessment, the relevant planning authority or the Secretary of State, as the case may be, must, where appropriate, ensure that the Habitats Regulation Assessment and the EIA are co-ordinated'.

2.115 A Habitats Regulation Assessment¹² of the PfE has scoped the Site in for further assessment regarding air quality impacts (nitrogen deposition) and recreational pressure on three internationally designated sites within a 20km Zone of Influence. These are:

- Rochdale Canal Special Area of Conservation (SAC) 3.5 km east of the Site;
- South Pennine Moors SAC, 17 km east of the Site; and
- Peak District Moors Special Protection Area (SPA) 11 km east of the Site.

2.116 In addition, Holcroft Moss Site of Special Scientific Interest (SSSI) (part of the Manchester Mosses SAC) will be included. The SAC sits beyond the 20 km Zone of Influence, but is considered due to its proximity to the M62 and sensitivities regarding pollution principally from Heavy Goods Vehicle movements associated with the Project for Assessment.

2.117 The EIA and HRA processes will be co-ordinated in relation to:

¹² Habitat Regulations Assessment of Places for Everyone 2022

- Baseline data collection, specifically surveys that have been ongoing within the Site (further details are provided in **Chapter 10**);
- Scope – degradation through nitrogen deposition and recreational pressure to the above SACs, SPAs and SSSI being considered in **Chapter 10**;
- Consultation, with respect to Natural England, for which an application for pre-application support was submitted in September 2024;
- Assessment, in terms of the approach and methodology for the impacts considered in **Chapter 10**; and
- Mitigation development, e.g. contributions to local nature recovery schemes (either for nitrogen deposition or recreational pressure).

2.118 A shadow Habitat Regulations Assessment will be an appendix to the ES.

2.119 With regards to assessment of cumulative effects, as detailed above (and in **Chapter 18**), the Transport Assessment has included a range of cumulative projects within a development log which is based on assumptions about when such projects will happen and when. This is considered to meet the requirements for HRA¹³. However, this will only inform traffic related effects within the HRA, e.g. nitrogen deposition.

Co-ordination with Water Framework Directive Assessment

2.120 A Water Framework Directive (WFD) Assessment will be prepared, the purpose of which is to ensure that the Project for Assessment is in compliance with the objectives set out in the Water Framework Directive and to consider the potential impacts to a waterbody. The WFD Assessment will review the opportunities for the Project for Assessment to contribute to the achievement of the environmental objectives, or at a minimum, prevent any deterioration in status.

2.121 The relevant waterbody is the Whittle Brook (Irwell). This catchment includes, Whittle Brook, Hollins Brook, Castle Brook, Brightley Brook, Pilsworth Clough and the other ordinary watercourses within the Site. Impacts that may alter the status of identified receptors within the waterbody as a whole will be considered. In addition, an assessment will be carried out on the impacts on receptors in the downstream waterbody, the Roch (Spodden to Irwell). This begins approximately 1.6 km downstream from the Site where Hollins Brook confluences with the River Roch. The downstream catchment is included to ensure the Project for Assessment will not have significant impacts on this catchment. The groundwater catchment beneath the Site is the Northern Manchester Carboniferous Aquifers and the WFD Assessment may also assess impacts on this waterbody.

¹³ As Regulation 63(1)a of The Conservation of Habitats and Species Regulations requires effects of the project ‘*alone or in combination with other plans or projects to be considered*’.

2.122 The WFD Assessment will be informed by surveys and assessments outlined in **Chapter 11**. No additional survey work is required over and above this. The WFD Assessment will be an appendix to the ES.

3. Site Context

Overview

- 3.1 This Chapter summarises the location of the Site and its wider setting. Technical baseline information is provided in **Chapter 5** (for those topics for which no likely significant effects are identified) and in **Technical Chapters 6 – 17** (for those environmental topics for which likely significant impacts have been identified).

Location and Setting

- 3.2 The Site (**Figure 1.1**) is approximately 586 ha, located in the administrative areas of BC and RBC.
- 3.3 The Site is largely formed of a number of agricultural land parcels in addition to areas of woodland, grassland, ponds, watercourses including Hollins Brook, Whittle Brook, Castle Brook, Brightly Brook, Pilsworth Clough and an unnamed watercourse.
- 3.4 Pike Fold Golf Club is located to the west of Whittle Brook and Birch Industrial Park is located centrally. Birch Services straddles the M62 corridor to the South. Farm and residential buildings are scattered throughout the Site.
- 3.5 The Site also includes Hareshill Road and Pilsworth Road, Junction 3 of the M66 and a section of the M62 from Birch Services to Junction 19 (of the M62).
- 3.6 The two major highways corridors, the M62 to the south and the M66 to the west, largely form the Site boundaries to west and south (with the exceptions as described above).
- 3.7 The Site is bound to the north by Hollins/Brightley Brook, Kingfisher Park, a limited number of residential properties (Pilsworth Cottages), Pilsworth fishing lake, a sewage works and agricultural fields. To the east the Site is bound by agricultural fields which is part of the consented South Heywood development for which the majority of the highways infrastructure and some housing has already been constructed. The Site is then bound to the south by the M62 and the village of Birch. As outlined above, the Site is bound to the west by the M66.
- 3.8 Within the wider area to the north is the Pilsworth landfill and Heywood Distribution Park. To the east (and north east), beyond the consented South Heywood development is the residential area of Heywood. Beyond the M62 to the south are agricultural fields and the villages/towns of Bowlee, Simister and Middleton. To the west the wider area comprises of the predominantly residential area of Unsworth.
- 3.9 The area in the vicinity of the Junction 3, M66 are the Pilsworth Industrial Estate, agricultural fields and the Pilsworth Landfill.

Topography

- 3.10 The Site has an undulating topography which is most pronounced around the various water courses. The topography ranges between 85m AOD in the north-west corner of the Site to 134m AOD towards the centre of the Site adjacent to Birch Industrial Park. Surrounding the Site the landform is sculpted by the presence of a number of watercourses, notably sloping into the valley landform associated with the River Irwell to the east and south-east, and the River Irk to the south-west.

4. High Level Development Specification

- 4.1 This Chapter sets out a high level summary of the development specification for the Project for Assessment as currently proposed. This includes some primary and tertiary mitigation, which is committed to and will be secured through the PEMP.

Site Boundary

- 4.2 The Site includes for all temporary and permanent works which will take place within the boundary as defined on the Project for Assessment Boundary Plan (**Figure 1.1**).
- 4.3 The Site extends to approximately 586ha and is inclusive of a number of agricultural land parcels in addition to areas of woodland, grassland, ponds, watercourses (notably Pilsworth Clough, Brightly Brook, Hollins Brook, Castle Brook and Whittle Brook), Pike Fold Golf Club, Birch Industrial Park, Birch Services and other farm and residential buildings.

Spatial Referencing

- 4.4 Due to the scale of the Site, terminology and a supporting Spatial Referencing Plan (**Figure 4.1**) has been developed in order to apportion elements of the Project for Assessment into distinct areas, and aid the identification of location-specific impacts, design and mitigation strategies. Whilst the planning application boundary cannot be defined at this stage, the spatial mapping set out below gives consideration to the likely planning application boundary. This will assist with concluding (where necessary) which impacts are attributable to the planning application in isolation¹⁴.

Potential Outline Application Areas

- **Orange Quarter: East of Moss Hall Road** – The area to the east of Moss Hall Road, south of Pilsworth Road and north of Birch Industrial Estate;
- **Yellow Quarter: West of Moss Hall Road (north)** – The area to the east of Whittle Brook, west of Moss Hall Road and north of the Primary Access Route;
- **Brown Quarter: West of Moss Hall Road (south)** – The area to the east of Whittle Brook, west of Moss Hall Road and north of the M62; and
- **Purple Quarter: Area around Lower Whittle Farm** – The area to the east of Whittle Lane, north of the M62 and east / south of Birch Industrial Estate and including the access road to Hareshill Road / Queen Elizabeth II Way.

Residual Supplementary Planning Document (SPD) Areas

- **Peach Quarter: West of Whittle Brook** – The area to the west of Whittle Brook and north of the M62;

¹⁴ It is currently assumed that many impacts will be relevant to the Project for Assessment but we are yet to understand any 'tipping point' for significant impacts (i.e. an impact may not be significant for the eventual planning application but would be for the Project for Assessment).

- **Grey Quarter: East of the M66** – The area to the east of the M66; and
- **Pink Quarter: South of Hollins Brook** - Area around Castle Road west of Castle Brook.

Highways Infrastructure Areas

- **Azure Quarter: Pilsworth Road Improvements and M66 Junction** – The area at the junction of Pilsworth Road / Moss Hall Road required for access / junction improvements, Pilsworth Road improvement works extending to the M66 Junction 3 and the area of potential M66 Junction 3 improvement works.
- **Navy Blue Quarter: M62 Junction** – The area north and south of the M62 which is required for the remodelling/improvement works.
- **Turquoise Quarter: Potential Flexible Access Options** – The area within the consented South Heywood development site where the potential access road is being considered as part of the access strategy for Northern Gateway JPA 1.1.

Potable Water Infrastructure

- **Blue Quarter:** likely upgrades along Pilsworth Road to the United Utilities (UU) water main.

Off Site Ecological Mitigation

- **Green Quarter:** Potential area for Off Site Ecological Mitigation. Additional land that may be required to deliver Biodiversity Net Gain (BNG) or compensatory habitat.

Overview of Site Preparation and Construction Stage

Construction Sequencing

- 4.5 The construction of the Project for Assessment will be progressed in a phased manner, although the phasing is not known at this stage. It is assumed that enabling works and earthworks are likely to occur over one or more spatial zones at the same time; and construction over one or more spatial zone may occur concurrently.
- 4.6 It is also assumed that the highways infrastructure works associated with the M66 Junction 3 and highways improvement works to Pilsworth Road will occur within an early phase of development. Any highways infrastructure works associated with the M62 are assumed to be the final part of the highways infrastructure but assumed to be operational prior to completion of the Project for Assessment.

Overview of Construction Activities

- 4.7 The key activities to be undertaken in each work area during the construction stage are summarised below:
- Site securement;
 - Formation of construction access(es) and set up of temporary construction compounds/site accommodation;

- Implementation of protective measures around features to be retained;
- Enabling works, site clearance and removal of hardstanding/buildings as required;
- Site preparation and appropriate surveys (including ground/archaeological investigations and any remedial works, as required);
- Earthworks and site preparation, including installation/diversion of any utilities, formation of drainage features, re-profiling to create development plateau levels and lighting;
- Construction of infrastructure, including internal accesses and secondary/tertiary road networks, mains utilities, drainage and public open space; and
- Construction of the Project for Assessment, including implementation of public realm and hard/soft landscaping (including new/enhanced ecological habitats and footpaths/cycleways through key open spaces).

Construction Access and Routing

- 4.8 Construction access will be from either the existing access off Moss Hall Road/Pilsworth Road to the north or from the access road through the approved South Heywood development off Hareshill Road to the east.
- 4.9 It is assumed that the primary access roads within orange, yellow, purple and brown quarters will be constructed early in the construction stage for use as a haul roads to facilitate construction. The exact routing of vehicles during construction is under determination. However, the routing of construction traffic, principally Heavy-Duty Vehicles (HDVs), is assumed to utilise the primary road network to Hareshill Road via either the M66 and Pilsworth Road or via the M62 and Queen Elizabeth II Way.
- 4.10 Access to peach, pink and grey quarters (which are likely to be built out after the orange, yellow, purple and brown quarters) are likely to be accessed by the primary and secondary access corridors constructed within the orange, yellow, purple and brown quarters. Construction access to the residual areas of the SPD will also be from the existing Castle Road.
- 4.11 Access to navy blue and azure quarters (i.e. the highways infrastructure works) are assumed to have their own, independent and secure construction access points.

Site Securement and Compounds

- 4.12 It is assumed that temporary fencing and hoarding will be erected around the perimeter of work areas, as opposed to entire Areas. This is likely to be with the exception of the Junction 3 of the M66 and any remodelling works associated with the M62 for which the perimeter of works are likely to be secured for each area under construction.
- 4.13 Temporary secure access gates will be provided to manage the movement of vehicles, plant, equipment and personnel required for the construction of the Project for

Assessment. Welfare facilities and other temporary infrastructure (e.g. construction compounds, material laydown areas, storage areas etc.) will be set up at designated locations within work areas, as determined by the appointed contractor and subject to sequencing of development. Where required, smaller satellite compounds will be provided around work areas, as required.

Features for Retention and Protection

- 4.14 It is currently not possible to identify all specific features across the Site for retention and protection. For example, it is not yet known exactly how the Site will need to be reprofiled to provide for the development requirements. To ensure that all potential impacts are identified, it is necessary to assume a 'worst case'.
- 4.15 Birch Business Park is included within the Project for Assessment. However, it is assumed that Birch Business Park will remain in-situ and operational, with only limited works associated with access and the alignment of Moss Hall Lane / Whittle Lane.
- 4.16 There are two zones of existing properties (as shown as the white/unshaded areas in **Figure 4.1**) located to the north of the M62. These are included within the Project for Assessment. However, it is assumed that they will remain in-situ and operational, with only limited works associated with access.

Vegetation

- 4.17 Two trees subject to a Tree Preservation Order within the Site (W1 - TPO 124 and G1 - TPO 157) will be retained on Site. Protective fencing/hoarding will be installed around these features, in accordance with BS5837:2012. There are no veteran or ancient trees within the Site. It is currently assumed that all other trees and hedgerows on Site (including all Category A and B trees) will be removed.

Water Features

- 4.18 The alignments of Hollins Brook, Whittle Brook, Castle Brook and Brightly Brook / Pilsworth Clough will be retained in their existing alignments within the Site. No buildings are likely to be built within a minimum distance of 50m to Whittle Brook. There will also be limited intervention within the defined flood risk zone. It is likely that a section(s) of all Brook(s) may need to be culverted to allow primary and secondary access routes across the Site.
- 4.19 All other linear water features will be removed to allow for reprofiling of the Site.

- 4.20 Where water features are to be retained, they will be afforded protection throughout the construction stage with adherence to best practice measures set out by Pollution Prevention Guidance (PPG)^{15;16}.

Historical Features

- 4.21 Built heritage features within the Site include two Listed Buildings which will be retained. These include:
- Brick Farmhouse Grade II Listed Building (located in pink quarter); and
 - Lower Whittle Farmhouse Grade II Listed Building (located in purple quarter).
- 4.22 In addition to the Listed Buildings, five Non Designated Heritage Assets will also be retained. These include:
- Bridge at Whittle Brook (located on the boundary of the pink and yellow quarters);
 - Birch Hotel (located within area of existing properties adjacent to purple quarter);
 - Gardeners Arms (located within area of existing properties adjacent to purple quarter);
 - Whittle Farm (located within the brown quarter); and
 - Egypt Farm (located within the peach quarter).

Existing Utilities

- 4.23 The following existing utilities will be retained:
- Potable and foul water to Birch Business Park and existing buildings; and
 - Two gas mains.
- 4.24 Further information is provided under the '*Utilities Connections*' section below.

Features for Removal

- 4.25 Based on a worst case, with the exception of the features outlined above, all other features will be removed. This includes trees, hedgerows and vegetation (and other ecological habitats); water features (including ponds); non-designated heritage assets; buildings / commercial premises / residential properties; and other track/road

¹⁵ Environment Agency (2014) Pollution Prevention Guidelines: Works in, near or over watercourses, PPG5. Available at: <https://assets.publishing.service.gov.uk/media/5a758f5aed915d6faf2b3eed/pmho1107bnkg-e-e.pdf> [Accessed 26/03/2024].

¹⁶ It is acknowledged that PPG5 was withdrawn by the Environment Agency in 2015, however its recommended pollution prevention measures are still considered to deliver best practice construction methods.

infrastructure (with the exception of Moss Hall Lane / Whittle Lane (which will be subject to minor realignments).

- 4.26 Whilst there are currently no plans to re-provide for the Birch Motorway Service Area, however, the potential for this has been considered as a worst case (see **Table 4.1**).

Earthworks, Ground Investigations and Remediation

- 4.27 There is potential for presence of contamination and ground gas due to presence of areas of made ground in pink and grey quarters across the Site. Five mineshafts have also been identified associated with Sand Rock Mine around Coal Pit Farm, Higher Barn Farm, Higher Fields, Meadowcroft Fold and Reservoir (yellow and orange quarters). In addition, there is a potential for mine entry collapse located around Higher Barn Farm and Coal Pits Farm.
- 4.28 Excavations of near surface mineworking's and grouting of deeper mineworkings are likely to be required. Mineshafts will be treated and capped prior to construction. Structures over mineshafts will be avoided where possible; where this is not possible build over agreements will be sought from the Coal Authority¹⁷.
- 4.29 Ground investigations will be undertaken to determine the absence/presence, type and distribution of any forms of ground contamination and ground gas and establish the groundwater conditions within the Site. The outcomes of these investigations will determine the requirements for any remediation prior to the commencement of construction activities. A remediation strategy will be submitted and agreed with BC and RBC in advance of works taking place. This will also identify the requirement for any construction specific method statements (e.g. if the need for dewatering is identified).
- 4.30 To achieve appropriate development plateau levels, it is anticipated that there will be areas where levels will both substantially reduce (areas of cut) and areas where levels will increase (area of fill). In general it is expected that material will be cut from the east and placed in the west due to the general Site topography which slopes towards the west by approximately 23m.
- 4.31 Preliminary cut and fill balance analysis has been undertaken for the Site (excluding road junction improvements on the M62, M66 and Pilsworth Road junction) which indicates a net area of cut will be required resulting in a net surplus of approximately 212,203m³ of material.

Foundation Design

- 4.32 Foundation design across the Site is likely to be variable dependent on the structure loading as well as the compressibility of superficial deposits, depth to bedrock and depth to mineworkings.
- 4.33 Piled foundations are likely to be required in areas where mine workings are within depth of influence of shallow foundations.

¹⁷ Build over agreements are subject to detailed design and consultation with the Coal Authority. Build over agreements may not be given by the Coal Authority.

Utilities Connections

- 4.34 Existing utilities across the Site include a water mains which crosses the far north of the Site under Moss Hall Lane east towards Pilsworth Road. This is operated by United Utilities.
- 4.35 Existing potable and foul water connections occur across the Site, servicing the existing Birch Business Park and residential properties.
- 4.36 Two gas mains are also located within the Site; one of which is located north – south between Castle Brook and Whittle Brook. The second gas main crosses the Site from the M66 and broadly follows the southern alignment of Brightly Brook.

Temporary Drainage

- 4.37 Temporary surface water drainage will be installed as necessary to mitigate flood risk and sediment loading and, where possible will align with the permanent drainage solution (discussed below). Temporary drainage will be subject to good site working practices and adherence to best practice guidance such as CIRIA's Control of water pollution from construction sites¹⁸.

Construction Material and Waste Strategy

- 4.38 A Site Waste Management Plan will be prepared to plan, implement, monitor and review waste minimisation and management on construction sites.
- 4.39 All construction waste arisings will be separated into allocated skips to maximise material re-use/recycling and removed from Site. A mini 'recycling centre' will be established in working areas where appropriate. Areas of hard standing will be fenced and used for storage of all vehicles, containers, waste equipment and collected waste. Two manual sort lines will be established to screen and sub-sort recycling in accordance with relevant guidance, such as Waste Classification: Guidance on the classification and assessment of waste¹⁹.
- 4.40 Waste will be held on-site for the shortest amount of time that is practical. Control measures will be available including spill kits and bunds for liquid run-off, fencing and tarpaulins for wind-blown debris.
- 4.41 Where sand and gravel deposits are encountered and are required to be 'cut' the material will be recovered for reuse as appropriate.
- 4.42 Sustainable sourcing of materials, specifically sustainable materials with a high recycled content will be considered.
- 4.43 Specification of sustainable timber (FCS certified, or similar) will be implemented.

Construction Environmental Management Plan

- 4.44 A CEMP will be developed and implemented by the appointed contractor and sub-contractors to set out all of the relevant environmental management measures and

¹⁸ CIRIA (2001) Report C532: Control of water pollution from construction sites.

¹⁹ Waste Classification: Guidance on the classification and assessment of waste (1st edition v.1.1 GB).

controls. All construction activities will be in accordance with the Considerate Constructors Scheme.

- 4.45 The proposed construction works will be carried out by a competent contractor that will comply with current legislation²⁰.
- 4.46 All construction works will be undertaken in line with the requirements set out in the Construction (Design and Management) Regulations 2015 and appropriate levels of security (personnel/CCTV) will be provided.
- 4.47 Appropriate management measures/controls will be adopted for works in proximity to the on-site utilities and groundwater abstraction locations during construction.

Site Working Hours and Days

- 4.48 Unless otherwise agreed with BC and RBC, construction working hours would be 07:30 to 18:00 Mondays to Friday; 07:30 to 13:00 on Saturday. There will be no construction on Sundays, Public and Bank Holidays. This is with the exception of the infrastructure works associated with the M66 and M62, the construction of which is likely to require some works outside of these periods including during the nighttime periods.

Development Principles

Land Use and Quantum

- 4.49 The Project for Assessment will include the following land uses and quanta (**Table 4.1**). These will in part be offset by the replacement of existing uses, although this quantum is not known at this stage. The Land Use and Quantum for the Proposed Scheme is still under consideration at this stage.
- 4.50 It is worth noting that the existing Motorway Service Area will be replaced by a new Motorway Service Area which would be captured under sui generis in **Table 4.1** below.

Table 4.1: Land Uses and Quantum (for the Project for Assessment)

Use Class	Use	Maximum quantum
B2 ²¹	General industrial	307,362m ²
B8 ²²²¹	Storage and distribution	717,178m ²
C3	Dwellings	200 dwellings
C1	Hotels, boarding and guest houses where no significant element of care is provided (excludes hostels)	10,000m ²

²⁰ This includes the Health and Safety at Work etc. Act 1974; the Control of Pollution Act 1974; and Construction (Design and Management) Regulations 2015.

²¹ Excludes 135,000m² of B2/B8 from the 1,200,000 m² already consented through South Heywood.

²² Excludes 175,460m² of B2/B8 from the 1,200,000 m² already consented through South Heywood.

Use Class	Use	Maximum quantum
E(a)	Display or retail sale of goods, other than hot food	
E(b)	Sale of food and drink for consumption (mostly) on the premises	
E(c)(ii)	Professional services (other than health or medical services)	
E(c)(iii)	Other appropriate services in a commercial, business or service locality	
E(d)	Indoor sport, recreation or fitness (not involving motorised vehicles or firearms or use as a swimming pool or skating rink)	
E(e)	Provision of medical or health services (except the use of premises attached to the residence of the consultant or practitioner)	
E(f)	Creche, day nursery or day centre (not including a residential use)	
E(g)(i)	Offices to carry out any operational or administrative functions	
E(g) ²³ E(g)(ii)	Research and development of products or processes	
E(g)(iii)	Industrial processes	
F1(a)	Provision of education (this will not include schools)	
F2(a)	Shops (mostly) selling essential goods, including food, where the shop's premises do not exceed 280 square metres and there is no other such facility within 1000 metres	
F2(b)	Halls or meeting places for the principal use of the local community	
F2(c)	Areas or places for outdoor sport or recreation (not involving motorised vehicles or firearms)	
Sui generis	Including: • fuel stations; • 'Alkali work' (any work registerable under the Alkali, etc. Works Regulation Act 1906 (as amended)); • retail warehouse clubs;	

²³ Uses which can be carried out in a residential area without detriment to its amenity.

Use Class	Use	Maximum quantum
	- public houses, wine bars, or drinking establishments – from 1 September 2020, previously Class A4; - drinking establishments with expanded food provision – from 1 September 2020, previously Class A4; and - hot food takeaways (for the sale of hot food where consumption of that food is mostly undertaken off the premises) – from 1 September 2020, previously Class A5.	
Total Maximum Quantum		1,034,540 m ² 200 dwellings

Heights

- 4.51 The heights of buildings (including dwellings) will vary by location, with finished floor levels (FFLs) anticipated to be (+/-15m) from existing ground levels.
- 4.52 Maximum building heights will be 50m; therefore in areas where a maximum cut depth of 15m is required, the total maximum height is assumed to be 65m.
- 4.53 However, the heights to the south of the M62 will be restricted to 16m.
- 4.54 The Energy Strategy set out below, includes rooftop wind, however, this will be within the 65m maximum height.

Operational Access

Vehicular Access

- 4.55 Primary access corridors will be delivered through the Site from two primary access points and one potential primary access point, providing connectivity across the Site. Primary access will be suitable for all vehicular traffic. The primary access points will provide access to the Site, which are as follows:
- Moss Hall Lane: Utilising an existing access point from the north of the Site, a primary access point will be provided from Moss Hall Lane/Pilsworth Road junction. Access to the Birch Industrial Estate will be maintained and provide connection to a primary access corridor to the west of the Site.
 - M62: The access to the south of the Site will be from the M62 which will be remodelled to provide direct access to the M62 and surrounding motorway network. The primary access corridor will connect to the east/west corridor.
 - Potential flexible access option from Hareshill Road: Utilising an existing access point off Hareshill Road to the east. This will use the prepared access from Hareshill Road, through the proposed South Heywood (Turquoise area on **Figure 4.1**). This primary access corridor will provide connection from the east

of the Site across to the west of the Site, connecting with north/south primary access corridors.

- 4.56 Bus services will be provided along primary access corridors through the Site providing connection through the Site and to / from the surrounding areas.
- 4.57 Three secondary access points will also be provided, suitable for all road-based traffic with the exception of HGV's and employment traffic. Secondary access points will be provided from the south off the existing Whittle Lane and from the west and from the north utilising the existing Castle Road providing access to the western area of the Project for Assessment. Secondary access points will provide active travel routes connecting to primary access corridors.
- 4.58 Secondary roads will in due course lead off the primary access corridors to service localised Areas.

Pedestrian/Cycle Access

- 4.59 Two pedestrian and cycle only access points from the west will use an existing PROW and Hills Lane. Pedestrian and cycle access from the south of the Site will also be provided from existing access lanes / PROW from the south of the M62.
- 4.60 Pedestrian and cycleway access will be made available through the Site from these access points in the alignment of access corridors, via a combination of segregated routes, routes divorced from roads and shared routes.
- 4.61 A network of footpaths/cycleways (including retained PROWs, realigned PROWs and new footpaths/cycleways) will connect new and existing Areas.
- 4.62 Approximately four active travel hubs are to be incorporated along primary access routes across the Site.
- 4.63 Pedestrian and cycle provision will be incorporated into the design of the Pilsworth Road junction improvement works along its length from Moss Hall Lane, along Pilsworth Road to the west of the M66.

Landscape and Biodiversity Strategy

- 4.64 The strategy is under development at the moment and will have objectives to:
- Protect and enhance existing features;
 - Avoid development within areas of higher landscape value/biological, where possible;
 - Ensure that green and blue assets across the Site are connected to enable the greater mobility and movement of species between habitats.
- 4.65 However, at this stage, it is assumed that the retained features will be limited to those outlined above under '*features for removal*'.

Public Realm

- 4.66 New public realm will be implemented with a strong consideration of principles related to inclusive design, taking account of Planning Practice Guidance (PPG) which outlines best practice for ensuring that developments can be accessed and used by all in a way that effectively fosters social connections, recognising and accommodating differences in the way people use the built environment as a result of factors such as age and disability²⁴.

Flood Risk Strategy

- 4.67 The Site is largely within Flood Zone 1 and in an area classified as being at 'low' or 'very low' risk of flooding from surface water. This is with the exception of the immediate surrounding land of Whittle Brook and Hollins Brook and Brightly Brook (to the west of Pilsworth Fishery) which is within Flood Zone 3 and in an area classified as being at 'high' probability of flooding.
- 4.68 Development will be steered to areas of low or very low flood risk within Flood Zone 1, with flood alleviation measures to reduce flood risk associated with Whittle/Hollins/Brightly Brooks to be incorporated where appropriate. The flood alleviation measures will ensure there no increased risk from flooding downstream.

Surface Water Drainage Strategy

- 4.69 The design of the surface water drainage system will be undertaken to suit the site phasing strategy, as such, as the design develops there may be a requirement to utilise temporary drainage features / outfalls to facilitate the required phasing arrangements.
- 4.70 Surface water is proposed to discharge at a rate equivalent to the existing greenfield runoff, with an ultimate outfall into the designated main rivers or tributaries within the Site: Whittle Brook, Castle Brook and Brightly Brook. There will be multiple points of outfall for the surface water system throughout the Site due to scale of the Project for Assessment and the complexity of the catchment analysis.
- 4.71 Through the retention of the main Brooks, the surface water drainage strategy will aim to provide a corridor of green / blue infrastructure within the Site with the principle SuDS²⁵ attenuation features being located close to the river corridor but outside the extent of the current and future flood zones. The spatial extent of this is unknown at this stage. The future proposed development plots will provide a suitable level of water quantity and quality management, the principles of which will be agreed with the contributing statutory undertakers. A strategy to control flood risk to and from the development will be agreed with the relevant stakeholders including the Environment Agency and the Bury and Rochdale Lead Local Flood Authorities. The surface water system will be designed to adoptable standards to allow maintenance responsibilities to transfer to United Utilities or other approved authority at an appropriate point in the development build out.

²⁴ Department for Levelling Up, Housing and Communities (2019) Planning Practice Guidance: Housing for older and disabled people – Inclusive Design (para 017)

²⁵ The Surface Water Drainage Strategy will incorporate Sustainable Drainage Systems (SuDS) and be developed in accordance with the CIRIA 753 – The SuDS Manual where practical.

Foul Water Drainage Strategy

- 4.72 The design of the foul water drainage system will be undertaken to suit the site phasing strategy, as such, as the design develops there may be a requirement to utilise temporary drainage features / outfalls to facilitate the required phasing arrangements.
- 4.73 Outfalls for foul water have been identified during early consultations with United Utilities. Foul water is proposed to drain to either the Bury Wastewater treatment works or to existing public sewers in Hareshill Road. Primary pumping stations will be required to achieve the connection points that are agreed in principle with United Utilities. Further pumping stations will be required throughout the development to accommodate the phasing strategy and to limit the maximum depth of the foul sewer system to an acceptable design standard for United Utilities. The foul water system will be designed to adoptable standards to allow maintenance responsibilities to transfer to United Utilities or other approved authority at an appropriate point in the development build out.

Operational Waste Strategy

- 4.74 Waste streams generated by the Project for Assessment during operation will include industrial, residential, commercial and green waste. It will include appropriate facilities for the storage, handling and collection of these waste types in line with the Waste Management Strategy which will set out the principles, strategy and targets for the management and storage of waste and maximise recycling, in accordance with BC and RBC established policy.

Energy and Sustainability Strategy

- 4.75 The Project for Assessment will meet the requirements of the forthcoming Building Regulations 2025, including the Future Homes Standard (whereby at least a 75% carbon reduction beyond Part L 2013 will be achieved) and the Future Buildings Standard (with similar standards to be achieved for non-residential buildings).
- 4.76 The Site will be all-electric, (although there may be certain processes that require gas or oil). The source of electricity will likely be from a mix of sources, predominantly provided by on-Site solar energy utilising the expansive roof areas of B2/B8 development. There is potential for the Site to generate renewable energy through roof mounted wind power as well as potential for micro-hydrogen.
- 4.77 To ensure glint and glare is minimised, the implementation of photovoltaic panels will consider the type, location and orientation of buildings, and the angle at which solar photovoltaic panels are positioned on the roofs of proposed buildings.
- 4.78 Homes will be designed to achieve a water consumption rate of 105l/p/d, exceeding the Building Regulations higher water efficiency rate.

Façade / Building Design

- 4.79 Façade materials will be considered during detailed design with regard to solar glare. It is assumed that façade materials such as large areas of glazing are unlikely to be used for the B2/B8 buildings.

4.80 All buildings will be constructed in line with current building regulations²⁶.

Climate Resilience

4.81 The Project for Assessment will include the following climate resilience measures:

- Foundation design and potential for ground movement to include consideration to climate change in relation to ground movement as a result of future changes to temperature and precipitation;
- All green and blue infrastructure and compensatory habitat will enhance the biodiversity of the Site, mitigating the anticipated impacts of climate change in accordance with the England Biodiversity Strategy and Natural England Climate Change Adaptation Manual. This will include a wide diversity of species tolerant to a range of conditions;
- The Project for Assessment will include flood attenuation measures and drainage discharge rates taking into account the appropriate climate change allowances (as described above);
- Buildings of the Project for Assessment will achieve the equivalent of 2 Wat01 water efficiency BREEAM credits; and
- Proposed buildings will undergo an overheating assessment, in line with the requirements of Part O of the Buildings Regulations²⁷ utilising CIBSE TM52²⁸ (or similar) to assess and reduce the risk of summer overheating, taking into account future climate scenarios. Where measures are provided to reduce the risk of overheating this will be done in accordance with the cooling hierarchy.

Utilities

Electricity

4.82 Electricity for the Project for Assessment will be sourced from on-site renewable energy (see above) with the remainder being sourced from Rochdale Local Grid Supply Point which provides 200MVA of power and will provide a 132kva connection. Approximately 8km of cabling from the Site to the off-Site supply point will be required. It is assumed that 4 primary sub stations (two 30 MVA and two 23 MVA) will be required. The cabling works will be the responsibility of a third party provider and therefore will not form part of the Project for Assessment.

Gas

4.83 The existing gas mains will be utilised to serve the Site and allow for future connections to this supply should they be necessary. There is capacity within the current gas supply to supply the Site. No further works outside the assessment boundary are anticipated.

²⁶ <https://www.gov.uk/housing-local-and-community/building-regulation>

²⁷ <https://www.gov.uk/government/publications/overheating-approved-document-o>

²⁸ Chartered Institution of Building Services Engineers (2013) TM52: Comfort Analysis

Clean Water

- 4.84 The existing clean water network (operated by United Utilities [UU]) will be upgraded along Pilsworth Road to the new main that UU installed at the corner of Pilsworth Road / QEII Way. These upgrades will be the part of the Project for Assessment.

Foul Water

- 4.85 The foul water network (again operated by UU) will be extended along Pilsworth Road to the M66 and onwards to Pilsworth Way in the west. It is assumed that this will be delivered by UU and therefore is not part of the Project for Assessment.

Telecoms

- 4.86 Ultra-fast broadband, up to 1 gigabyte per second (GBPS), will be delivered. The installation will be fully compliant with BT Openreach specification, the industry standard. Any diversion or reinforcement of utilities will happen as part of the preparation works. Any works outside of the Site will be the responsibility of a third party and not part of the Project for Assessment.

Lighting Strategy

- 4.87 All external lighting installations will meet Institute of Lighting Professionals (ILP) Guidance Notes for the Reduction of Obtrusive Light 2021²⁹.
- 4.88 External lighting, where provided on dwellings, commercial/industrial and or sensitive ecological receptors will be undertaken in line with measures set out by ILP Guidance Note 9³⁰, ILP Guidance Note GN08³¹, CIE 150, CIE 126³², CIBSE LG6³³, CIBSE LG21,³⁴ BS EN 12464 Part 2³⁵, NPPSA³⁶, Statutory Nuisance from Insects and Artificial Light³⁷ and Artificial Lighting and Wildlife Interim Guidance³⁸.

²⁹ Institute for Lighting Professionals (2021). Guidance Note 01/21 for the Reduction of Obtrusive Light.

³⁰ Institution of Lighting Professionals (2019), Guidance Note 9 Domestic exterior lighting: getting it right. Available at: <https://theilp.org.uk/publication/guidance-note-9-domestic-exterior-lighting-getting-it-right>

³¹ ILP Guidance Note GN08 (2023): Bats and artificial lighting in the UK; Bats and the Built Environment series

³² CIE 126: Guidelines for Minimising Sky Glow (1997)

³³ Chartered Institute of Building Services Engineers (CIBSE) LG6: The Exterior Environment (2016)

³⁴ Chartered Institute of Building Services Engineers (CIBSE) LG21: Protecting the night-time environment (2021)

³⁵ BS EN 12464 Part 2: Outdoor Lighting (2014)

³⁶ National Protective Security Authority (NPSA), Security Lighting

³⁷ DEFRA (2006) Statutory Nuisance from Insects and Artificial Light, Guidance on Sections 101 to 103 of the Clean Neighbourhoods and Environment Act 2005,

³⁸ Bat Conservation Trust (2014) Artificial Lighting and Wildlife Interim Guidance: Recommendations to Help Minimise the Impact of Artificial Lighting.

- 4.89 Operational lighting for highways will be provided based upon an identified need and risk assessment. Where highways lighting is required, lighting installations will be provided in accordance with BS EN 13201-4³⁹; and BS 5489⁴⁰.

Site Security

- 4.90 The design of the Project for Assessment will be informed by 'Secure by Design' principles and appropriate design and site management measures (including appropriate lighting and passive surveillance of public spaces) will be implemented to ensure that the potential for crime and anti-social behaviour is minimised.

Operational Hours

- 4.91 The Project for Assessment will be operational 24 hours a day/7 days a week.

Timescales

- 4.92 Site preparation and construction of the Project for Assessment is anticipated to commence in 2026, with the construction being completed over 19 years. The Project for Assessment will be fully operational in 2045⁴¹.

³⁹ BS EN 13201-4: Road Lighting – Methods of Measuring Lighting Performance, 2003

⁴⁰ BS 5489-1 (2020), Design of road lighting Part 1: Lighting of roads and public amenity areas

⁴¹ We note that that timescales for PfE run to 2039, although it is noted within PfE that the delivery of Northern Gateway will go beyond this, currently assumed to be the mid-2040's.

5. Environmental Topics which are Not Significant

Introduction

- 5.1 As part of the EIA process and based on the information available to date, there are some environmental topics for which a further detailed assessment as part of the EIA is not justified and these topics (and related effects) will not be reported within the ES (i.e., 'scoped out').
- 5.2 The environmental topics for which no likely significant environmental effects have been identified are:
- Lighting;
 - Waste;
 - Minerals;
 - Major Accidents and/or Disasters; and
 - Microclimate:
 - Daylight, Sunlight, Overshadowing,
 - Glint and Glare; and
 - Wind.
- 5.3 The environmental topics listed above are considered in turn below in this Chapter, with a factual evidence base provided. Where mitigation has been used to inform this judgement, the identified mitigation has been captured within the Preliminary Environmental Management Plan (PEMP) provided in **Appendix 2.1**.
- 5.4 The other environmental topics outlined within this EIA Scoping Report also identify effects that are unlikely / not significant. These are reported in **Technical Chapters 6 – 17**.

Lighting

Technical Baseline

- 5.5 The study area encompasses the Site itself and the surrounding areas that may be sensitive to the light impact, particularly local residents who may experience nuisance. Ecological receptors are considered in **Chapter 10**. The impacts on the nightscape are considered in **Chapter 16**.
- 5.6 Baseline lighting conditions were determined during a lighting survey of the Site and surrounding area. A visual assessment of the existing artificial lighting was undertaken in order to identify the locations of lighting sources.

- 5.7 A baseline lighting survey was undertaken on the 26th and 27th June 2024, with additional measurements taken along Pilsworth Road on 17th July 2024. Due to the time of year, the survey was undertaken after 23:00 to establish the existing post curfew lighting conditions.
- 5.8 Light monitoring was undertaken at a number of survey locations to determine variations in baseline light levels within the vicinity of the Site. Where possible, monitoring at the boundary of the receptor locations were undertaken to provide the best possible representation of existing light obtrusion. Where this was not possible, monitoring was undertaken at the most appropriate representative location.
- 5.9 The existing light sources within the Site and surrounding areas are minimal. They are primarily limited to street lighting which is mainly located around the boundaries of the Site.
- 5.10 Following the environmental lighting survey, it was concluded that the Site should be classified as 'Environmental Zone E2 – Low district brightness' in the centre of Site where the baseline conditions consist of agricultural or open grassland without pre-existing lighting. The areas towards the boundary of the Site and the surrounding area are more urban in nature, with greater presence of lighting and pedestrian or traffic movement, and should be classified as 'Environmental Zone E3 – Medium district brightness', in accordance with the ILP guidance limits.
- 5.11 The data from the lighting survey will also inform the assessment of impacts to relevant ecological receptors as set out in **Chapter 10** and visual receptors as set out in **Chapter 16**.

Effects Unlikely/Not Significant

Increase in lighting levels during construction and risk of statutory nuisance

- 5.12 During the construction stage of the Project for Assessment, it is highly likely that temporary illumination will be required for the purpose of site safety and security during the hours of darkness, for both site operatives and the general public. Typically, this may include bulkhead type luminaires mounted to fencing and hoardings around the perimeter of the Site, together with building or column mounted area floodlights lighting the main site area/s.
- 5.13 The Construction Industry Research and Information Association (CIRIA) provide established practice guidance documents noting that lighting on construction sites is typically required as part of on-site health and safety requirements. The document also highlights the potential negative impacts upon surrounding sensitive receptors and the need to minimise these effects through the controlled application of lighting, in accordance with current standards.
- 5.14 BS EN 12464-2 provides the British standards to be achieved for construction lighting in outdoor spaces. The lighting required are based on visual comfort, visual performance and safety.
- 5.15 The temporary lighting will be treated as a permanent installation, with regards to the design process and adopted design guidance, to ensure that potential obtrusive light

related issues are avoided. In general, the ILP GN01:2021 guidance on obtrusive light will be adhered to, thereby limiting the amount of upward light (ULR) to prevent sky glow, spill light into neighbouring properties and to avoid light trespass.

- 5.16 The type of equipment employed, including lamp type and optics, will be carefully selected to provide a controlled distribution of light, within the Site boundary, whilst limiting the luminous intensity to below 7,000 cd, as required for a medium brightness district (Zone E2).
- 5.17 In general, site floodlights will be mounted around the perimeter of the Site or parts of the Site, directed inwards to avoid direct light being projected outside of the boundary. The type of floodlights employed will have Type C asymmetric reflectors (GN01:2021), with a flat glass lens, and be mounted with the glass parallel to the ground (zero-degree tilt). Wide angle, symmetric floodlights mounted at low level, with a high tilt angle will not be used as the majority of the light is at or above the horizontal creating excessive glare and obtrusive light within the environment.
- 5.18 The implementation of the above mitigation is defined in the PEMP (**Appendix 2.1**). This will ensure the controlled application of lighting. As detailed under '*Defining Mitigation and how this will be Controlled*' in **Chapter 2**, the effectiveness of these common tertiary mitigation measures are known and on this basis, the increase in lighting levels during construction and risk of statutory nuisance to local residents is unlikely to be considered significant and will not be considered further in the EIA or reported in the ES.

Changes in lighting levels during operation and risk of statutory nuisance to residents or/and users of public rights of way

- 5.19 During the site survey, key residential properties surrounding the Site were identified to determine the potential for them to be affected by obtrusive light from the Project for Assessment.
- 5.20 The closest potential off-Site residential receptors are located to the west and north-east of the Site. Residents to the west are separated by the M66 motorway and a tree line, greatly reducing the potential for light spillover. Due to their distance from the site boundary, residential receptors to the north-east are not anticipated to be impacted by lighting within the Project for Assessment.
- 5.21 Recommended obtrusive light limits for exterior lighting installations are outlined in the Institution of Lighting Professionals' 2021 'Guidance Notes for the Reduction of Obtrusive Light'. For Environmental Zone E3, maximum allowable illuminance in the vertical plane is 10 lux for pre-curfew (07:00 – 23:00 hours) and 2 lux for post-curfew (23:00 – 07:00 hours) scenarios. Given the distance between the Site and the receptors to the west and northeast, it is unlikely that off-Site residential receptors will experience any light spill, thus ensuring compliance with the specified illuminance limits.
- 5.22 Lighting design and installations will adhere to:
- Guidance Notes for the Reduction of Obtrusive Light, The Institution of Lighting Professionals, 202129;

- Planning Practice Guidance on Light Pollution, Ministry of Housing, Communities & Local Government, 1st November 2019⁴²;
- The Conservation of Habitats and Species Regulations, as amended, 2017⁴³;
- Environmental Protection Act, 1990⁴⁴;
- Statutory Nuisance from Insects and Artificial Light⁴⁵,
- Artificial Lighting and Wildlife Interim Guidance³⁸::;
- BS EN 12464-2³⁵ and BS EN 13201-4³⁹;
- BS 5489-1: Design of road lighting⁴⁰;
- Bats and artificial lighting in the UK³¹; and
- Rochdale Adopted Core Strategy (Adopted October 2016).

- 5.23 To mitigate light spill and ensure compliance with the specified illuminance limits for residential receptors retained within the Site (see **Chapter 4**), the proposed lighting design will adhere to best practices outlined in the lighting design and installations guidance. By maintaining appropriate distances from light sources and implementing standard mitigation measures, it is anticipated that any residential receptors on-Site will not experience any significant obtrusive light impact. This consideration also extends to the proposed residential receptors within the north-west of the Site.
- 5.24 The operational lighting design will carefully consider public rights of way to ensure adequate illumination of these areas while minimising any potential impact on the surrounding environment and residential properties. As a result, the integration of lighting in these areas is unlikely to lead to any significant impact at any receptor.
- 5.25 The implementation of the above mitigation is defined in the PEMP. This will ensure the controlled application of lighting. On this basis, changes in lighting levels during operation and risk of statutory nuisance to residents or/and users of public rights of way is unlikely to be considered significant and will not be considered further in the EIA or reported in the ES.

Waste

Technical Baseline

- 5.26 Consideration has been given to relevant local and national waste policy and guidance, these include:

⁴² <https://www.gov.uk/guidance/light-pollution>

⁴³ The Conservation of Habitats and Species Regulations, as amended, 2017 No 1012

⁴⁴ Environmental Protection Act, 1990 c.43

⁴⁵ Statutory Nuisance from Insects and Artificial Light, Guidance on Sections 101 to 103 of the Clean Neighbourhoods and Environment Act 2005, DEFRA 2006

- Greater Manchester, Joint Waste Development Plan Document (2012)⁴⁶;
- Rochdale Borough Council, Waste Management Strategy 2015-2020⁴⁷
- Bury Council, Zero Waste Strategy⁴⁸
- The Landfill Directive (1999/31/EC)⁴⁹;
- The Waste Framework Directive (2008/98/EC)⁵⁰;
- The Waste (England and Wales) Regulation (2011)⁵¹
- National Planning Policy for Waste (2014)⁵²
- The Resources and Waste Strategy for England (2018)⁵³;
- Government response to the Consistency in Household and Business Recycling in England Consultation⁵⁴; and
- IEMA guide Materials and Waste in Environmental Impact Assessment (2020)⁵⁵.

5.27 IEMA guidance has been adopted, which provides a methodology for preparing a proportionate assessment of materials and waste in relation to new development.

Baseline Waste Capacity

5.28 Baseline waste capacity has been drawn from the Greater Manchester Joint Waste Development Plan which sets out the waste management strategy for the Greater Manchester area, including Bury and Rochdale. Published in 2012 it covers the period up to 2027.

5.29 The Plan notes that provided the targets of the Municipal Waste Management Strategy are met, then there will be no capacity gap through the plan period for municipal waste (i.e. capacity for everyday waste items).

5.30 The strategy identifies the following capacity, or capacity need for Commercial and Industrial Waste.

- Recycling Capacity – Capacity available through 2012-2028, with c.500,000 tonnes of available capacity in 2028;

⁴⁶ https://www.greatermanchester-ca.gov.uk/media/1994/greater_manchester_waste_plan_opt.pdf

⁴⁷ [Waste Management Strategy 2015-2020 \(rochdale.gov.uk\)](https://www.rochdale.gov.uk/media/1994/waste_management_strategy_2015-2020.pdf)

⁴⁸ [Waste Strategy - final version.pdf \(bury.gov.uk\)](https://www.bury.gov.uk/media/1994/waste_strategy_final_version.pdf)

⁴⁹ <https://www.legislation.gov.uk/eudr/1999/31/contents>

⁵⁰ <https://www.legislation.gov.uk/eudr/2008/98/contents>

⁵¹ [The Waste \(England and Wales\) Regulations 2011 \(legislation.gov.uk\)](https://www.legislation.gov.uk/uksi/2011/1326/contents/made)

⁵² [National planning policy for waste - GOV.UK \(www.gov.uk\)](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/264842/national_planning_policy_for_waste.pdf)

⁵³ <https://www.gov.uk/government/publications/resources-and-waste-strategy-for-england>

⁵⁴ [Government response - GOV.UK \(www.gov.uk\)](https://www.gov.uk/government/consultations/consistency-in-household-and-business-recycling-in-england)

⁵⁵ <https://www.iema.net/resources/reading-room/2020/03/30/materials-and-waste-in-environmental-impact-assessment>

- Composting Capacity – Capacity available through 2012-2028, with c.40,000 tonnes of available capacity in 2028;
- Treatment Capacity – Capacity available through 2012-2028, with c.1,200,000 tonnes of available capacity in 2028⁵⁶;
- Energy Recovery Capacity – Capacity deficit through 2012-2028, with c.400,000 tonnes of capacity required in 2028. The Plan identifies the need for 5.2million tonnes of energy recovery capacity will be required⁵⁷;
- Non-hazardous Waste Disposal – Capacity deficit through 2012-2028 with additional capacity required from 2024. The Plan identifies an additional 7.8million tonnes of landfill capacity will be required. The Government Remaining Landfill Capacity statistics for 2022 show there is currently 8.6million m³ of landfill capacity in the Greater Manchester area⁵⁸, exceeding the required shortfall; and
- Hazardous Waste Capacity - Capacity available through 2012-2028, with c.272,000 tonnes of capacity in 2028.

5.31 The Plan shows available capacity for the recycling, reuse and disposal of construction, demolition and excavation waste.

5.32 The Greater Manchester Joint Waste team is now part of the Greater Manchester Combined Authority (GMCA).

Waste Estimates

5.33 Baseline waste totals have been established based on the information provided below.

Site Clearance and Construction

5.34 The Site comprises 586ha of predominantly agricultural land including areas of woodland, grassland, ponds, watercourses, Pike Fold Golf Club, Birch Industrial Park, Birch Services and other farm and residential buildings.

5.35 Due to historic site use there is the potential for ground contamination and presence of mine shafts which will be treated and capped.

5.36 As part of the enabling works, an element of site clearance and removal of hardstanding/buildings as required.

5.37 The Site is undulating in nature but generally slopes down from the northeast to the south west. To achieve appropriate development plateau levels, it is anticipated that there will be areas where levels will both substantially reduce (areas of cut) and areas where levels will increase (area of fill). In general it is expected that material will be cut

⁵⁶ Treatment of Commercial and Industrial Waste includes processes such as Anaerobic Digestion, Mechanical Biological Treatment etc.

⁵⁷ Energy Recovery can include processes such as conventional and advanced thermal treatment, mechanical heat treatment, gasification etc.

⁵⁸ [Remaining Landfill Capacity - data.gov.uk](https://data.gov.uk)

from the east and placed in the west due to the general Site topography which slopes towards the west by approximately 22m.

- 5.38 A cut and fill balance analysis is underway, however, the results are not currently available. In this context consideration has been given to the potential need to remove material from the Site as a worst case scenario. Construction waste estimates have been established using the entry level performance metrics for new build projects set out in the Home Quality Mark (HQM) standard ⁵⁹ (for residential elements of the Project for Assessment) and from BREEAM ⁶⁰ (for the non-residential elements). HQM and BREEAM are developed and operated by the Building Research Establishment (BRE). Benchmarks are based on a range of quality and performance standards combined with the latest scientific research.
- Residential, 02 Construction resource efficiency – 2 credits – which equates to $\leq 13.9\text{m}^3$ or ≤ 8.5 tonnes of waste per 100m^2 floor area; and
 - Non-residential, Wst01, Construction resource efficiency – 2 credits - which equates to $\leq 7.5\text{m}^3$ or ≤ 6.5 tonnes of waste per 100m^2 floor area.
- 5.39 The diversion of non-hazardous construction and site clearance waste from landfill has been established based on HQM and BREEAM entry-level benchmarks.
- Diversion of demolition/site clearance waste from landfill of 80% by volume or 90% by tonnage; and
 - Diversion of construction waste from landfill of 70% by volume or 80% by tonnage.
- 5.40 Whilst hazardous material may be generated through demolition and construction it is likely that the amount of material requiring landfill on an annual basis from demolition and construction will be small.
- 5.41 **Table 5.1** sets out the estimated construction waste arising from the Project for Assessment.

⁵⁹ [HQM Resources - BRE Group](#)

⁶⁰ https://www.breeam.com/NC2018/content/resources/output/10_pdf/a4_pdf/print/nc.uk_a4_print_mono/nc.uk_a4_print_mono.pdf

Table 5.1: Estimated Construction Waste Arisings

Use	Floor Area (m ²) (approx.)	Waste (m ³)	Waste Quantity (tonnes)	Diversion from landfill (m ³)	Residual waste (m ³)
Site Clearance	116,200	105,580	8,715	84,464	21,116
Residential C3 Dwellinghouses Residential (200 homes)	18,000	2,502	1,530	1,751	751
Non-residential E(a-d) Commercial, Business and Service	1,034,540	77,591	77,591	54,313	23,277
Total			79,121	56,065	24,028

Operational Waste

5.42 Operational waste benchmarks have been established based on British Standard BS 5906:2005 Waste management in buildings Code of practice⁶¹ which provides typical waste arisings for different building use types:

- Domestic: Number of dwellings × {(volume arising per bedroom [70 l] × average number of bedrooms) + 30};
- B2/B8: Industrial unit = volume per m² of floor area (5l) * floor area; and
- Other uses (retail assumed as a worst case): Volume per m² of sales area [100l] x sales area.

5.43 The diversion of operational municipal waste from landfill has been established based on waste management statistics from the Greater Manchester Combined Authority, where in 2022/23, 98.7% of municipal waste diverted from landfill, and 1.3% sent to landfill. The majority of waste was sent to the Runcorn Energy from Waste plant to generate electricity.⁶²

5.44 The diversion of commercial and industrial waste from landfill has been established based on UK Government waste management statistics which for 2018 shows a c.76% diversion of waste from landfill, and c.24% of waste sent to landfill.⁶³

5.45 **Table 5.2** sets out the estimated operational waste arisings from the Project for Assessment.

⁶¹ BS 5906:2005 | 30 Dec 2005 | BSI Knowledge (bsigroup.com)

⁶² <https://www.greatermanchester-ca.gov.uk/who-we-are/accounts-transparency-and-governance/council-tax/waste-levy/>

⁶³ UK statistics on waste - GOV.UK (www.gov.uk)

Table 5.2: Estimated Operational Waste Arisings

Use	Equation for weekly waste arisings	Project for Assessment	Waste arisings (litres/week)	Diversion from landfill (m ³ /year)	Residual waste (m ³ /year)
Residential	Number of dwellings × {(volume arising per bedroom [70 l] × average number of bedrooms) + 30}	200 dwellings	41,000	2,104	27.72
B2/B8	Volume per m ² of floor area (5l)	1024540m ²	5,122,700	202,449	63,931.30
Other (retail)	Volume per m ² of sales area [100l] x sales area	10,000m ²	5,325,000	39,520	12,480
Total			6,163,700	244,073	76,439

Effects Unlikely/Not Significant

Generation and disposal of waste during demolition, construction, and operation on local landfill capacity

- 5.46 The generation of waste from demolition, cut and fill, construction and operation has the potential to impact on the capacity of local landfill and recycling facilities.
- 5.47 It is estimated that the Project for Assessment will generate 79,121 tonnes of waste through site clearance, and construction, and 320,512m³/year waste during operation.
- 5.48 At this stage the cut and fill exercise is still in progress which is aiming to minimise the need for material to be transported off site or onsite in line with good practice.
- 5.49 The impact of waste generation will be minimised during the construction and operational lifecycle stages of the Project for Assessment in accordance with the Waste Hierarchy, which gives top priority to preventing waste in the first instance, followed by re-use, recycling, then recovery, and disposal (e.g. landfill) as a last resort.
- 5.50 To manage site clearance and construction waste, the site waste strategy will set targets to minimise waste sent to landfill in line with the following entry-level targets from BREEAM/ HQM:
- Residential development: ≤ 13.9m³ or ≤ 8.5 tonnes of waste per 100m² floor area;
 - Non-residential development: ≤ 7.5m³ or ≤ 6.5 tonnes of waste per 100m² floor area;
 - Diversion of non-hazardous demolition/site clearance waste from landfill: 80% by volume or 90% by tonnage; and

- Diversion of non-hazardous construction waste from landfill: 70% by volume or 80% by tonnage of waste be diverted from landfill.

- 5.51 These targets will be included as a minimum requirement. Government statistics on the recovery rate from non-hazardous construction and demolition waste note that potentially over 92% of waste can be recovered (2018)⁶⁴.
- 5.52 To promote reuse, recycling, and diversion from landfill, hard-core materials will be processed and crushed on-Site within designated zones. Crushed material will be stockpiled within the Site for further processing, reuse or removal, as required. All waste arisings will be separated into allocated skips to maximise material re-use / recycling where achievable. A mini 'recycling centre' will be established in working areas where appropriate. Areas of hard standing will be fenced and used for storage of all vehicles, containers, waste equipment and collected waste. These tertiary mitigation measures are considered standard practice and will be included in the in the Site Waste Management Strategy during construction and the operational Site Waste Strategy and are therefore considered to be integral to the Project for Assessment.
- 5.53 Operational waste (for both commercial and residential) will be managed through a Waste Management Strategy in accordance with local policy.
- 5.54 It is assumed municipal operational recycling rates will be at least in line with an average of the targets (55%) set by Bury and Rochdale in their respective waste strategies. Residual municipal waste is based on the Greater Manchester diversion from landfill rate of 98.7%.
- 5.55 Commercial waste diversion from landfill is based on the UK waste statistics which gives a diversion from landfill of all waste as c.76%.
- 5.56 **Table 5.3** out anticipated waste totals and diversion from landfill rates.

Table 5.3: Estimated Operational Waste Arisings

	Site clearance and construction (m ³)	Operational (m ³ / year)
Total waste	79,121	320,512
Diverted from landfill	56,065	244,073
Residual Waste to landfill	24,028	76,439

- 5.57 In relation to local landfill capacity, the current landfill capacity for Greater Manchester as of the end of 2022 sits at 8,638,953m³. The site clearance and construction of the development represents <0.003% of the available landfill capacity and the operation waste represents <0.009% of the available landfill capacity.
- 5.58 While additional material may be generated through the cut and fill exercise to be exported offsite and treated or disposed of, it is anticipated that material which may

⁶⁴ <https://www.gov.uk/government/statistics/uk-waste-data/uk-statistics-on-waste#recovery-rate-from-non-hazardous-construction-and-demolition-cd-waste>

need to be disposed of will be very small and will not significantly impact on landfill capacity given the current availability.

5.59 In addition to the available landfill capacity, the Energy from Waste plant at Runcorn receives the majority of household municipal waste from Greater Manchester to generate electricity.

5.60 Across Greater Manchester there are the following waste facilities:⁶⁵

- 20 Household Waste and Recycling Centres;
- 7 Transfer Loading Stations where council vehicles deliver household waste and recycling;
- A Materials Recovery Facility where mixed recycling is sorted;
- 5 Mechanical Treatment and Reception Facilities where general waste is prepared and delivered to the Energy Recovery Facility in Runcorn;
- A Thermal Recovery Facility;
- 3 Renew retail shops; and
- 1 Renew Hub.

5.61 While capacity figures for these facilities are not immediately available it is considered the level of waste infrastructure available will provide sufficient capacity to accommodate the waste generated by the Project for Assessment.

5.62 In this context, waste generated from the Project for Assessment should be able to be accommodated within existing local and nearby provision.

5.63 Therefore, the generation and disposal of waste during site clearance, construction and operation of the Project for Assessment on local landfill capacity is unlikely to be considered significant and will not be considered further in the EIA or reported in the ES.

Consumption of resources on the immediate and long-term availability of materials

5.64 The Project for Assessment may make use of a range of materials and resources in construction which has the potential to impact on the immediate and long-term availability of natural resources and result in the temporary or permanent degradation of the natural environment.

5.65 The consideration of minerals is considered separately below under 'Minerals'.

5.66 As part of the Project for Assessment, a number of mitigation measures are included which aim to minimise resource use, including:

⁶⁵ [Waste levy - Greater Manchester Combined Authority \(greatermanchester-ca.gov.uk\)](http://www.greatermanchester-ca.gov.uk/waste-levy)

- The recycling and reuse of materials on the Site;
- Sustainable sourcing of materials, specifically sustainable materials with a high recycled content; and
- Specification of sustainable timber (FCS certified, or similar).

5.67 A Site Waste Strategy Framework will be prepared which will include the targets set out here, and guidance measures to maximise the recycling and reuse of waste to minimise resource loss. A detailed Site Waste Strategy will be included as part of future Reserved Matters applications to confirm how the targets will be met. These measures are outlined as part of the PEMP.

5.68 It is considered that the use of materials will be small in relation to resource availability.

5.69 Therefore, consumption of resources on the immediate and long-term availability of materials is unlikely to be considered significant and will not be considered further in the EIA or reported in the ES.

Limitations and Assumptions

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

- The baseline data on waste management capacity is based on the Greater Manchester Joint Waste Development Plan prepared in 2012 which only runs to 2028. Given the Project for Assessment will predominantly be constructed and operated beyond this date the predicted capacity beyond 2028 is not known. By reviewing the anticipated available capacity for 2028 a determination has been made based on professional judgement;
- Data currently available for the cut and fill exercise to identify if material needs to be imported or exported from the Site for treatment or disposal, is preliminary only. Consideration has been given to the available landfill capacity in case material is exported from the Site which requires disposal;
- Benchmarks have been used to calculate anticipated construction and operational waste. It should be noted these are benchmarks and the actual waste generated through construction and operation may vary;
- It is recognised that some landfill operators do not release information for reasons of commercial confidentiality. The resulting data gaps may reduce the value of the data that is made publicly available; and
- It is also recognised that there is a general delay in materials, landfill and waste processing capacity data in the UK, which impacts the ability to present a 'current picture' of waste and material processing capacity.

Minerals

Technical Baseline

- 5.71 'Map 21 Bury' of the adopted Greater Manchester Joint Minerals Plan (JMP), which was adopted in 2013, shows that the Site coincides with Mineral Safeguarding Areas (MSAs) for Brick Clay and for Coal.
- 5.72 Parts of the Site, also coincides with MSAs for Sand and Gravel and Sandstone. Approximately 10% of the Site, (60 hectares) is within MSAs for Sand and Gravel. This is split over four separate areas. Approximately 20 hectares of the Site is within an area that contains several smaller MSAs for sandstone.
- 5.73 A Minerals Safeguarding Assessment (September 2024) has been produced, and Figures 2 and 4, provide extracts from 'Map 21 Bury', showing the MSAs. The Minerals Safeguarding Assessment (and supporting figures) is provided in **Appendix 5.1**.
- 5.74 The Minerals Safeguarding Assessment provides a detailed review of the Site's geological setting, site location and setting, planning policy considerations, and high-level analysis of potential minerals management methods. Land within the Site has been previously disturbed, for example, through previous minerals extraction, restoration, and landfilling, built and recreational development, roads, and the installation of utility infrastructure. Much of the land in the north of the Site is within an area where there is known coal mining activity as well as a large sandstone quarry. There are also records of numerous other quarries across the Site. There are also numerous streams, brooks, and areas of woodland within the Site.
- 5.75 This section of the EIA Scoping Report focuses on Minerals Safeguarding only, and assessments regarding other minerals matters, for example matters posed by previous mineral workings, are considered in **Chapter 12**.

Effects Unlikely/Not Significant

Sterilisation of Mineral Resources

- 5.76 When built, the Project for Assessment would sterilise underlying minerals, if they were proven, on a permanent basis. However, a Minerals Safeguarding Assessment (**Appendix 5.1**) has been produced and has considered that a commercial or full-scale minerals extraction is unlikely to be viable across the majority of the Site. Policy 8 of the JMP states that '*proposals for non-mineral development within the Mineral Safeguarding Areas that do not allow for the prior extraction of minerals will only be permitted where... It can be clearly demonstrated that it is not environmentally acceptable or economically viable to extract the mineral prior to non-mineral development taking place*'. It is considered there are environmental and economic reasons why minerals could not be extracted prior to the Projection for Assessment on a commercial scale. This is summarised below for each mineral that is reported to underly the Site.
- 5.77 Regarding coal, the Minerals Safeguarding Assessment concludes the following: -

The JMP was adopted in 2013 and much has changed in the intervening period regarding coal mining/ extraction. It is considered unlikely that the Greater Manchester authorities will seek coal extraction at the Site.

The environmental impact of coal mining is contentious, and it is considered highly unlikely that the Greater Manchester Combined Authority, or BMBC and RBC, would expect the Site to be worked for any coal should any reserves be identified.

If any coal is encountered during the Site's preparatory earthworks and, for example, needs to be cut out, it is recommended that it is exported off site for use as appropriate.

- 5.78 Regarding clay, the Minerals Safeguarding Assessment explains that there are constraints across the Site that would rule out extraction across the entire footprint. The assessment refers to the JMP's statement that there is no evidence to suggest an interest in extracting Brick Clay and there is no landbank for clay in Greater Manchester. The assessment proceeds to state:

'Another important consideration is that the geological environment at the two operational clay quarries, that provide material to Denton Brickworks, are different to that at this site. It is considered unlikely that the underlying clays will be compatible. The Diamicton that underlies the Site is highly variable in composition. Lignite is also present within the superficial deposits recorded at the Site, as shown in numerous historical borehole records. This would be a further complicating factor at a brickworks or processing facility, which are likely to require pure clays to use in their brick making moulds.

Given the nature of the underlying materials, and the seeming lack of economic viability, it is not considered the Site could be worked commercially, say to any targeted depth.

Due to the constraints, past activities and ground conditions, the Site would also not be straight forward to be worked for minerals. Clay workings generally require significant open areas to be commercially viable. It is clear from the High Level Analysis Plan that there are not significantly sized unconstrained open areas within the site.

It is however likely to be possible to use any underlying clays, that for example, are incidentally encountered in the preparatory earthworks, as general fill material around the Site. This could prevent the need of importing material into the site, which would have sustainability benefits.'

- 5.79 Regarding sand and gravel, the Minerals Safeguarding Assessment states: -

There are three Sand and Gravel MSAs in the main body of the Site. The largest of which is within the centre of the Site and historical borehole records, available through the BGS, indicate that this material has been previously assessed for its suitability for mineral extraction. The borehole records show the encountered strata contained high quantities of clay. There were comments on the records in which the strata were described as 'barely workable' and 'not workable.'

Furthermore, this MSA is partly located within and around Birch Industrial Park. The retention of the Industrial Park as well as any buffer zones will constrain this area from future extraction. The southern area of this MSA has already been worked for minerals and has been backfilled, as shown on the appended geology plan.

The Sand and Gravel MSA to the west of the Site coincides with Pike Fold Golf Club. The land will have been disturbed to create the golf course and material may have been imported. A historical borehole record in this area of the Site recorded a 2.5m band of sand and gravel, below 3m of overburden. A large area of infilled ground is also located in the southwest corner of the Site. The appended Geology Map, which has been informed by a variety of sources, as described in section 2, also shows that the reported area of sand and gravel in the west of the Site is quite small, much smaller than the MSA.

The sand and gravel MSA in the northeast of the Site is around the M62, Manchester Road, and Doctor Fold Lane. Much of the land in this MSA has also been disturbed, and for example, currently comprises, roads, houses, and commercial buildings. There is a Grade II Listed Building in this area which will be retained.

On a worst-case basis that most of this area would be cleared, this MSA represents the best opportunity for sand and gravel extraction, although it should be noted there are no historical borehole records in this area of the Site, so little is confirmed in terms of geology. Three small former quarries and a sand pit is however within the MSA so at least some of this area has been worked. The exact extent of some of these workings are unknown.

Tetra Tech's professional opinion is that these sand and gravel deposits may be further north of this MSA and are around Stock Nook Farm. Please see the Geology Plan appended to the Minerals Safeguarding Assessment. Part of this area has already been worked for minerals, but there are potentially unconstrained areas east and west of the farm. Based on the available information, it is considered that these areas represent the best opportunity for any targeted prior extraction, although further site investigation works would need to be completed to ensure this is viable. Further information is required to learn the extent (quality and quantity), the depth of any resource and groundwater levels. The BGS show that this area of the Site is mainly underlain by Lacustrine Deposits. The BGS state these deposits 'includes fine-grained sediments (i.e. clay and silt)'. It is also potentially telling that the part of this area that has been previously worked is within a different area of geological classification (Glaciofluvial Ice Contact Deposits Devensian Sand and Gravel).

The tested sand and gravel deposits in the centre of the Site is also seemingly low quality and the deposits in the west of the Site are constrained and have been previously disturbed. It is not considered these deposits could be worked for minerals on a commercial scale prior to the proposed development. Site investigation works are required to gain an understanding on the extent (quality and quantity) of the reported sand and gravel in the northeast of the Site, although, as above Tetra Tech anticipate these minerals will contain clays and silts.

An area of Hummocky Glacial Deposits is in the northwest of the Site, south of Pilsworth Quarry and adjacent to the M66 and western boundary of the Site. These

deposits comprise sand and gravel and this is the same strata that underlay Pilsworth Quarry, although this area is not within an MSA. This area of the Site is however very constrained. Two gas mains cross through the centre of the area. An area of infilled ground is in the south of this area of Glacial Deposits. Castle Brook flows along the eastern edge of the Glacial Deposits. This Brook will be retained as part of the development and could require a protective buffer. Furthermore, this area is adjacent to the M66, and a buffer zone is assumed to be required from the motorway. It is not considered feasible that an extensive minerals extraction could take place in this area.

5.80 Regarding sandstone, the Minerals Safeguarding Assessment states:-

The MSAs for sandstone is in the very north of the Site, immediately south of the existing Heywood Distribution Park. Birch Industrial Park is located to the south of this MSA and Coal Pits Farm is located within this area. The Industrial Park will be retained. This hard rock would likely require techniques such as blasting to achieve its recovery. A large buffer zone from existing premises would likely be required for amenity reasons. It is not considered that it would be acceptable in this local environment to recover sandstone prior to the development on a commercial scale...

...Pilsworth Clough partially flows through the MSAs. The gas and water mains shown on the appended High Level Analysis Plan also partially goes through the MSAs. It is understood that the watercourses will be retained...

The BGS has recorded six former mineral sites across the Site for sand and sandstone. Two small former sandstone quarries, a former sand pit and a mineshaft are also located west and east of Coal Pits Farm. A large sand rock mine is also located within the MSA for Sandstone. Therefore, it would seem that at least some of this area has already been worked for sandstone.

It is not considered viable for any of the remaining sandstone resource to be extracted to any targeted level, but if any sandstone is encountered during the preparatory earthworks and for example needs to be cut out, it is recommended that this material is recovered for reuse as appropriate.

- 5.81 In summary, it is considered the prior extraction of minerals on a commercial scale across the Site, is largely unviable. There is potentially an unconstrained area in the northeast of the Site, where sand and gravel deposits may lie. This is to the east and west of Stock Nook Farm (see Figure 5 of **Appendix 5.1**). There may also be other pockets of sand and gravel around the Site, but not in open, potentially accessible areas such as this.
- 5.82 The area of these sand and gravels is approximately 17ha, although it is known that sand and gravel has already been worked to some extent in this area (reducing this footprint). On the presumption that workable sand and gravels are present, it is not considered that the reserves would be a highly sensitive receptor, and for example, would not be nationally important.
- 5.83 It is not considered that the prior extraction of significant quantities of minerals, which would be of commercial interest, is viable at the Site on a commercial scale. Therefore, the sterilisation of safeguarded minerals is not considered to be significant in this

instance and will not be considered further in the EIA or reported in the ES. The Minerals Safeguarding Assessment will be updated and submitted as part of the planning application, giving the Mineral Planning Authority opportunity to respond to the proposals and agree a means of minerals management. Detailed arrangements could be conditioned through a Material Management Plan.

Limitations and Assumptions

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

- Whilst previous site investigation data is available within the Site, further site investigation works is still to take place (see **Chapter 12**).

Major Accidents and/or Disasters

Technical Baseline

- 5.85 The Site falls within two inner Health, Safety and Environment (HSE) Consultation Zones⁶⁶ in relation to the following:

- Pipeline: 6787_1068 Cadent Gas Ltd – located within the Site from the M62 located along a largely north / south alignment through Unsworth Farm and Brick House towards the west of the Site within the Pink Quarter of the Spatial Referencing Plan (**Figure 4.1**). Cadent Gas Ltd confirmed that the pipeline is subject to an easement of 6m either side of the pipeline; and
- Pipeline: 6790_1071 Cadent Gas Ltd – located within the Site located along a largely west / east alignment within the Pink, Yellow, and Orange Quarters of the Spatial Referencing Plan (**Figure 4.1**). Cadent Gas Ltd confirmed that the pipeline is subject to an easement of 12m either side of the pipeline.

- 5.86 A review of the HSE Control of Major Accident Hazards (COMAH) 2015 Public Information Record⁶⁷ confirmed that there are no COMAH sites within the Site. There are 6 COMAH sites within 3km of the Site. These sites are:

- Tetrosyl Limited, a lower tier COMAH site: located approximately 1.5km north of the Site. Activities at this site include general manufacture and/or Storage and/or Distribution (not otherwise specified);
- Robert McBride Limited, an upper tier COMAH site: located approximately 2.8km south east of the Site. Activities at this site include chemicals manufacture/production and/or disposal - general (not otherwise specified in the list);
- Holchem Laboratories Limited, an upper tier COMAH site: located approximately 200m north west of the Site. Activities at this site include chemicals manufacture/production and/or disposal - general (not otherwise specified in the list);

⁶⁶ <https://www.hse.gov.uk/landuseplanning/planning-advice-web-app.htm>.

⁶⁷ <https://notifications.hse.gov.uk/COMAH2015/Search.aspx>

- Fragrance Oils (International) Limited, a lower tier COMAH site: located approximately 2.6km west of the Site. Activities at this site include chemicals manufacture/production and/or disposal - general (not otherwise specified in the list);
 - Vita Cellualr Foams (UK) Limited, an upper tier COMAH site: located approximately 3km south-east of the Site. Activities at this site include general engineering, manufacturing and assembly / storage and distribution (not otherwise specified) and plastic and rubber manufacture; and
 - Tetrosyl Limited, a lower tier COMAH site: located approximately 2.9km north east of the Site. Activities at this site include Chemical installations, storage/warehousing.
- 5.87 Existing utilities across the Site include a water mains which crosses the far north of the Site under Moss Hall Lane east towards Pilsworth Road. This is operated by United Utilities.
- 5.88 Existing potable and foul water connections occur across the Site, servicing the existing Birch Business Park and residential properties.
- 5.89 As set out above, the two gas mains are also located within the Site. A further gas pipeline (the Phillips Park 7 bar IP gas pipeline) is aligned from the Pipeline: 6790_1071 to the west and is subject to an easement of 9m either side of the pipeline.
- 5.90 The gas mains pipelines and water mains will be retained in-situ, within an appropriate easement (as detailed above). Other utilities may be diverted, as required.
- 5.91 As noted in **Chapter 12**, ground stability hazards from historic quarries and pits are considered to be limited. However, further assessment in relation to the risk of mining and ground collapse is required.
- 5.92 The Site has been identified as being at low risk from UXO.
- Effects Unlikely / Not Significant**
- 5.93 Whilst there is the potential for a wide range of major accidents and disasters that could occur, the probability, likelihood and frequency is considered very low, often due to the management of a risk under established legislative requirements or during the design process.
- 5.94 The EIA Regulations do not specify the need for the consideration of natural disasters, however, for completeness this has been considered.
- 5.95 The probability, frequency and likelihood of natural disasters arising from climatic occurrences (i.e. hurricanes) are considered to be very low due to the natural climatic condition of the UK within the global climate system. Specific geological events (i.e. earthquakes, tsunamis, volcanic incidents, etc.) are also considered to be very low due to the general absence of required geological conditions (i.e. area of tectonic plate interaction) within or in close proximity to the UK. Although earthquakes have occurred within the UK, the magnitude of such events has generally been low.

- 5.96 As noted above, there are 6 COMAH sites located 3km of the Site, the closest of which is located within 200m of the Site. Given the requirement for management and mitigation of COMAH sites the risk is reduced to as low as reasonably practicable.
- 5.97 The Project for Assessment will comprise primarily employment uses and therefore will be subject to necessary building regulations and standards in order to be classified as safe for use, inclusive of fire safety standards.
- 5.98 It is assumed that each of the future occupiers of the Project for Assessment would either have risk or operational management plans in place which would set out the response process to unlikely events occurring such as industrial/ technological accidents; terrorism incidents or cyber-attacks, minimising any impacts should an unlikely event occur.
- 5.99 A qualitative appraisal of major accidents and/or disasters that were considered relevant to the Project for Assessment is presented in **Table 5.4** below. Based on the evidence provided within **Table 5.4**, effects related to the risk of major accidents and/or disasters are considered to be reduced to as low as reasonably practicable and will not be assessed within the EIA, albeit greater detail on the control measures in place will be provided in the ES.

Table 5.4: Appraisal of Major Accidents and/or Disasters

Major Accidents and/or disasters	Appraisal
Major accidents associated with utility strikes	During the construction stage, working areas will be secured with restricted access so only suitably qualified personnel are present. Appropriate disconnection works will be undertaken prior to the commencement of activities in liaison with the relevant operators. As part of the CEMP good practice working measures will be put in place in accordance with the Construction (Design and Management) Regulations and other health and safety regulations, such as the preparation of specific method statements and making workers aware of the location of utilities and their easements. These measures are defined in the PEMP. With such measures in place, the risk is considered to be very low / as low as reasonably practicable.
Major accidents associated with utility diversions	Any required diversions of utilities during construction will be undertaken by the relevant Distribution Network Operator (DNO) (or a third party contractor appointed by the DNO), who will operate in line with standard good practice working measures, including accordance with the Construction (Design and Management) Regulations and other health and safety regulations. Any such works would include

Major Accidents and/or disasters	Appraisal
	appropriate isolation of utilities as required. With such measures in place, the risk is considered to be very low / as low as reasonably practicable.
A major accident caused by ground subsidence and associated structural/building collapse (non-mining related)	All earthworks and foundation design will be in accordance with relevant industry guidance, including but not limited to: CIRIA Report C572: Treated ground engineering properties and performance; British Research Establishment document FB75: Building on Fill – Geotechnical Aspects, BS 6031:2009: Code of Practice for Earthworks and SHW Series 600 Earthworks, 2017 thereby reducing the risk to With such measures in place, the risk is considered to be very low / as low as reasonably practicable. Effects associated with mining and ground collapse are considered within Chapter 12. Further investigation to ensure suitable secondary mitigation measures are effective and implemented will be undertaken.
Major flood event caused by an extreme weather event or failure of infrastructure	The majority of Site is located within Flood Zone 1 of the Environment Agency's Flood Map for Planning which is land considered at Low Probability of flooding from rivers and sea. This exception is the immediate surrounding land of Whittle Brook and Hollins Brook and Brightly Brook (to the west of Pilsworth Fishery) which is within Flood Zone 3 and in an area classified as being at 'high' probability of flooding. There are areas of surface water flooding across the Site and there are areas identified as at risk of reservoir flooding in the north western corner of the Site. Groundwater flooding is considered to be unlikely in this area, therefore the risk of groundwater flooding is considered to be low. Flood risk has been identified as a potential significant effect as detailed within Chapter 11.
Major accidents on the local road network	The management of the road network and the enforcement of stringent national safety standards reduce the risk of major accidents, both in terms of the frequency and likelihood to a low level. With respect to non-motorised users of the local road network, where new pedestrian /cycle infrastructure is anticipated as part of the Project for Assessment, these too will accord with relevant standards. As

Major Accidents and/or disasters	Appraisal
	such, pedestrian safety is considered to be well defined and controlled in line with standard highways requirements. On this basis, the risks are very low / as low as reasonably practicable.
A major accident as a result of fire	It is assumed that the final end-users/building management company will have in place the required emergency producers/practices (i.e. Fire Emergency Evacuation Plan (FEED)) or apparatus/instruments (i.e. smoke detectors/sprinklers) required by law for commercial occupation. In addition, buildings will be designed with appropriate fire preventative measures (i.e. fire doors, extinguishers etc.) and all external façades and materials will meet the necessary fire resistance standards set out within Building Regulations and by law. On this basis, the risks are very low / as low as reasonably practicable.
Malicious attacks caused by war, crime and terrorism	The Project for Assessment is unlikely to attract an increased interest of warfare or terrorist activities above baseline conditions. Whilst targeted acts of vandalism or arson cannot be fully mitigated, the adoption of appropriate safety and security measures at the construction and operational stages (such as security lighting, CCTV and on-Site security personnel) will help to deter criminals and minimise the likelihood of such events occurring. It is also assumed that appropriate emergency planning has been undertaken by BC / RBC and local emergency services. Given this, the potential risks are considered to be very low / as low as reasonably practicable.
Major accidents associated with storage / stockpiling on-Site	The storage / stockpiling of waste (arising from construction etc.) will be managed appropriately and maintained safely in locations away from sensitive receptors. This will be set out as part of the CEMP. Therefore, the risk is considered to be very low / as low as reasonably practicable.

- 5.100 Based on the evidence provided within **Table 5.1**, the risks related to major accidents and/or disasters are very low / as low as reasonably practicable and will not be assessed within the EIA or reported on in the ES, albeit greater detail on the control measures in place will be provided.
- 5.101 This is with the exception of flood risk and mining related ground collapse. Such risks are detailed in **Chapter 11** and **Chapter 12** respectively and will be considered with the ES.

Microclimate (Daylight, Sunlight, Overshadowing, Glint and Glare, and Wind)

Technical Baseline

- 5.102 There are scattered residential properties across the Site and in close proximity to the Site. There are several PROWs within the Site as defined on **Figure 16.1**. Apart from PROW's there are no publicly accessible greenspaces within or adjacent to the Site. A school playing field is located within the far north west of the Site and Pilsworth fishing lake is located on the northern boundary of the Site. There are no other sensitive properties or external amenity spaces within or in close proximity to the Site.
- 5.103 The prevailing winds are from the west / south-west. Given the low number of buildings, it is not considered that unusually windy conditions in the area are likely.

Effects Unlikely / Not Significant

Changes in local daylight and sunlight amenity and levels of overshadowing from built form during construction and/or operation

- 5.104 The Project for Assessment will introduce built form to the Site that has the potential to influence on daylight and sunlight amenity levels and levels of overshadowing, where massing is located in close proximity and in the correct orientation to an existing receptor. Any effect would be its worst when the maximum massing / height is reached (towards the end of the construction stage and at operation).
- 5.105 As outlined in **Chapter 4**, the maximum building heights of the Project for Assessment are likely to be up to 65m (to ridge). As part of the design, consideration will be given to appropriate set back distances from retained properties as well as proposed residential properties, PROW and retained habitats with ecological value. This will be informed by qualitative professional advice. A Daylight, Sunlight and Overshadowing Assessment will be undertaken to support the outline planning application for buildings above 4 storeys.
- 5.106 As detailed in **Chapter 4**, the majority of the Project for Assessment will comprise of B2/B8 development which is not considered to be sensitive to daylight/sunlight. The distances between proposed buildings over 4 storeys and existing residents properties is considered to negate any significant deviation from the levels of daylight / sunlight received by the existing residents.
- 5.107 In the northern hemisphere, the sun rises in the east, travels to the south and sets in the west. Any shadows cast by the Project for Assessment will, therefore, fall within approximately 180° of due north. As the only evident area of outdoor amenity space is to the far north west of the Site, increased overshadowing to surrounding areas of outdoor amenity space is unlikely. For retained habitats with ecological value a combination of appropriate height and set back distances will reduce any overshadowing.
- 5.108 Therefore, changes in local daylight and sunlight amenity and levels of overshadowing are unlikely to be significant and will not be considered further in the EIA or reported within the ES.

Solar Glint and Glare from solar photovoltaic panels and glare from the facades of proposed building

- 5.109 There is potential for glint and glare from solar photovoltaic panels on the roofs of the proposed buildings which may affect users of the local road network in terms of driver visibility and safety.
- 5.110 The potential for glint and glare will be minimised through consideration of the following:
- The type of solar photovoltaic panels;
 - The location and orientation of buildings with solar photovoltaic panels; and
 - The angle at which the solar photovoltaic panels are positioned on the roofs of proposed buildings (subject to the roof pitch).
- 5.111 Façade materials will be considered during detailed design with regard to solar glare. It is assumed that façade materials such as large areas of glazing are unlikely to be used for the B2/B8 buildings.
- 5.112 Therefore, changes in glint and glare on road users are unlikely to be significant and will not be considered further in the EIA or reported within the ES.

Changes in the local wind environment from built form during construction and operation

- 5.113 The Project for Assessment will introduce built form to the Site that has the potential to result in changes to the local wind environment. Any perceived possible effect would be at its worst when the maximum massing / height is reached (towards the end of the construction stage and at operation).
- 5.114 However, given the proposed maximum heights of any built form (as outlined in **Chapter 4**) and the fact that there would be spacing between built form, means there are unlikely to be notable changes to the existing wind environment in terms of safety and comfort for existing and future users of the Site and its surrounds (e.g. construction workers, residents, employees, visitors and users of nearby PRow).
- 5.115 Therefore, changes in the local wind environment are unlikely to be significant and will not be considered further in the EIA or reported in the ES.

6. Socio-Economics and Human Health

Technical Baseline

Socio-economic and Human Health Impact Areas

- 6.1 The Site spans the administrative boundaries of BC and RBC. The combined boroughs are therefore considered to be the suitable 'local impact area' with regard to socio-economic and human health-related effects, with the Greater Manchester Combined Authority (GMCA) area serving as the defined 'wider impact area'. Therefore, the technical baseline is primarily presented on this basis (see 'Assessment Methodology of Effects Likely/Significant' section in relation to this topic for further details).

Working-age Population and Travel to Work

- 6.2 The 2021 Census⁶⁸ recorded the resident population of Bury and Rochdale as c. 417,600, equating to around 15% of the GMCA's total population of c. 2.87 million. The working-age cohort of the local population (residents aged 16 to 64 years) accounts for 62% of the Bury and Rochdale population, which is slightly lower than the 64% recorded across the GMCA as a whole, as well as the rates across the wider North West region and nationally (both 63%).
- 6.3 The 2021 Census⁶⁹ recorded that c. 54% of people working in Bury and Rochdale who do travel outside of the home to a workplace (i.e. do not mainly work from home) also resided in the boroughs. Of those people travelling to a workplace in Bury and Rochdale, 89% lived within the wider GMCA area.

Economic Activity and Employment

- 6.4 There are an estimated 249,500 economically active people of working age living in Bury and Rochdale⁷⁰. The economic activity rate amongst the combined Boroughs' working-age population is slightly lower (at 74%) in comparison with that recorded across the GMCA as a whole (75%), which in turn is lower than regional (77%) and national (79%) levels. It is, however, noted that, at the scale of the individual Boroughs, Bury's economic activity rate (76%) actually exceeds that of the wider GMCA, with Rochdale's being lower (73%).
- 6.5 Similarly, the working-age employment rate across Bury and Rochdale combined (71%) is lower than across the GMCA as a whole (72%), the North West (74%) and nationally (76%). As with economic activity rates, it is noted that Bury's employment rate (73%) is in fact higher than the GMCA, with Rochdale's again being lower (70%).
- 6.6 As of May 2024, approximately 14,600 people aged 16 and older in Bury and Rochdale (5.7% of working-aged residents) were recorded as claiming benefits associated with being out of work⁷¹. The number of residents claiming-out-of-work benefits across the GMCA expands to c. 96,400 (equating to 5.3% of working-age residents). These proportions are higher than the rates recorded in the wider North West region (4.4%)

⁶⁸ ONS via Nomis (2022) 2021 Census

⁶⁹ ONS via Nomis (2022) 2021 Census: Origin-destination data, England and Wales

⁷⁰ ONS via Nomis (2024) Annual Population Survey: January 2023 – December 2023

⁷¹ ONS via Nomis (2024) Claimant Count: May 2024

and nationally (4.0%). In line with the economic activity and employment rates, the claimant count as a proportion of the working-age population is lower in Bury (at 4.6%) than in Rochdale (6.6%).

- 6.7 It is additionally noted that c. 325 people in Bury and Rochdale are registered as claiming Jobseekers Allowance⁷² (JSA, a sub-set of the overall claimant count) and seeking roles specifically in the construction sector, with the number expending to just over 2,300 across the GMCA and c. 5,400 at the regional North West scale.
- 6.8 The ONS Business Register & Employment Survey⁷³ (BRES) recorded c. 151,900 employee jobs in Bury and Rochdale as of 2022, accounting for c. 10% of the total c. 1.45 million across the GMCA.
- 6.9 The 9,500 jobs supported in the construction sector represents 6.3% of employment locally in Bury and Rochdale, which is slightly higher than the rates in the GMCA (4.9%), the North West (5.2%) and nationally (4.9%).
- 6.10 Industrial employment sectors (transport & storage and manufacturing) account for c. 25,500 jobs in the boroughs (17% of total employment), exceeding the sectors' representation in the GMCA (12%), regionally (14%), and nationally (12%). It is, however, also noted that industrial sectors' strong representation locally is primarily driven by high rates of transport & storage and manufacturing jobs in Rochdale (where they account for 20% of employment), with a comparatively lower representation in Bury (13%).

Housing

- 6.11 In 2022/23 Bury and Rochdale respectively delivered 280 and 594 new homes⁷⁴. This exceeds both the respective boroughs' annual housing targets of 246 and 568 as established within the Places For Everyone (PfE) Joint Development Plan Document⁷⁵ for the period 2022 – 2025⁷⁶. However, across PfE local authorities, delivery of 8,855 homes in 2022/23 fell below the annual target of 9,063 homes.

Social Infrastructure

Education

- 6.12 A wide range of early years education facilities are located in the Site's surrounding settlements⁷⁷, and provision includes both those operated by private providers and those co-located with primary schools.

⁷² ONS via Nomis (2024) Jobseekers Allowance by Occupation: May 2024

⁷³ ONS via Nomis (2023). Business Register and Employment Survey: 2022

⁷⁴ Department for Levelling Up, Housing and Communities (2023). Live tables on housing supply: net additional dwellings (Table 122: housing supply; net additional dwellings, by local authority district, England)

⁷⁵ Greater Manchester Districts (Bolton, Bury, Manchester, Oldham, Rochdale, Salford, Tameside, Trafford and Wigan) (2024) Places For Everyone Joint Development Plan Document

⁷⁶ It should be noted that annual housing targets step up in subsequent years: Bury (2025-2030: 452; 2030-2039: 520); Rochdale (2025-2030: 616; 2030-2039: 632). All PfE local authorities (2025-2030: 10,305; 2030-2039: 10,719).

⁷⁷ Including: Unsworth, Hollins, Whitefield and Prestwich (to the west/south-west of the Site); Heywood, Heap and Hopwood (to the north/north-east of the Site); and Langley and Middleton (to the south/south-east of the Site).

6.13 Local primary education provision accessible from the Site⁷⁸ includes schools in the settlements of:

- **Unsworth, Hollins, Whitefield and Prestwich** (to the west/south-west of the Site), including Mersey Drive Community Primary School; Unsworth Primary School; Bury and Whitefield Jewish Primary School; Hollins Grundy Primary School; St Michael's Roman Catholic Primary School; Ribble Drive Community Primary School; and Hollins Grundy Primary School;
- **Heywood, Heap and Hopwood** (to the north/north-east of the Site) including Heap Bridge Village Primary School; Our Lady & St Paul's RC Primary School; St Margaret's Church of England Primary School; Woodland Community Primary School; St Joseph's Roman Catholic Primary School; and Hopwood Community Primary School; and
- **Langley and Middleton** (to the south/south-east of the Site), including Bowlee Park Community Primary School; St Mary's Roman Catholic Primary School, Middleton; Hollin Primary School; and Middleton Parish Church School.

6.14 Local secondary education provision accessible from the Site⁷⁹ includes schools in the settlements of:

- **Unsworth and Prestwich** (to the west and south-west of the Site), including Unsworth Academy and Parrenthorn High School;
- **Heywood and Hopwood** (to the north and north-east of the Site) including Holy Family Roman Catholic and Church of England College and Newhouse Academy; and
- **Langley and Middleton** (to the south/south-east of the Site), including St Anne's Church of England Academy, Edgar Wood Academy and Cardinal Langley Roman Catholic High School.

Primary Healthcare

6.15 Local GP provision⁸⁰ includes Unsworth Medical Centre, located to the eastern edge of the settlement of Unsworth, c. 0.2 miles from the Site's western boundary. GP surgeries to the north of the Site include the Argyle Street Medical Centre (Heywood Health) and Hopwood Medical Centre in Heywood, which respectively lie c. 0.6 miles and 0.7 miles from the Site's northern boundary. Local GP provision to the south

⁷⁸ The 1996 Education Act states that the maximum travel distance that a child under the age of 8 should travel to school is 2 miles. Due to the size of the Site, the primary schools identified above do not represent an exhaustive list of those that could potentially be accessed within this travel distance from various points within the Site. As such, any primary education provision relevant to consider as part of the assessment of the Site's impacts would be dependent of the location of new homes within the Site and the subsequent travel distances to schools.

⁷⁹ The 1996 Education Act states that the maximum travel distance that a child over the age of 8 should travel to school is 3 miles. As with primary education, the identified secondary schools are not exhaustive list, and any secondary education provision relevant to consider as part of the assessment of the Site's impacts would be dependent of the location of new homes within the Site.

⁸⁰ In addition to those facilities identified in the text, further GP provision is available in the identified settlements and surrounds, and will therefore also be accessible from the Site.

includes Woodside Medical Centre and The Family Practice in Langley, which respectively lie c. 1.0 miles and 1.1 miles from the Site's southern boundary.

Open Space and Recreation

- 6.16 A wide range of open space and recreation infrastructure and facilities are accessible from the Site. This includes large parks, such as Heaton Park to the south-west of the Site (which alongside open space also accommodates children's play areas and formal sports and recreation facilities, such as football pitches and grass bowls). Pike Fold Golf Club is also located within the Site boundary.
- 6.17 Parrenthorn Sports Centre also provides built sports provision to the south of the Site, and other general and more activity-specific sports and recreation provision is available in surrounding settlements and neighbourhoods, including Unsworth Tennis & Cricket Club and Whitefield Sport For All Arena (both to the west of the Site), Heywood Sports Village (to the north) and Middleton Area and Hopwood Sports Park (both to the east).

Public Health Profile

- 6.18 The Office for Health Improvement & Disparities' (OHID) Public Health Outcomes Framework⁸¹ (PHOF) provides an overview of health outcomes in Bury, Rochdale and the GMCA⁸². Key indicators are presented at **Table 6.1** and summarised as follows:
- Average male and female life expectancies in Bury respectively exceed and are in line with those across the GMCA as a whole. However, lower life expectancies than the GMCA average for both males and females are recorded in Rochdale.
 - Whilst the adult obesity rate in Bury is only slightly higher than in the wider GMCA, the rate in Rochdale is notably higher than both comparator geographies. Childhood (Year 6) is similar across all geographies.
 - Similarly, adult physical activity rates in Bury and the GMCA are broadly aligned, whilst in Rochdale they are significantly lower than in both comparator geographies.

Table 6.1: Public Health Profile Indicators

Indicator	Bury	Rochdale	GMCA
Life expectancy at birth (Male)	77.2	75.7	76.7
Life expectancy at birth (Female)	80.9	80.4	80.9
Adult obesity	67%	73%	66%
Childhood (Year 6) obesity	39%	39%	39%
Adults physically active	66%	55%	64%

Source: OHID, 2023

⁸¹ Office for Health Improvement & Disparities (2024) Public Health Outcomes Framework

⁸² Comparative aggregate data unavailable at the scale of the combined boroughs of Bury and Rochdale for these indicators. Therefore data is presented for each of Bury and Rochdale individually.

- 6.19 Approximately 6.0% of residents across Bury and Rochdale reported themselves to be in 'Bad' or 'Very Bad' health at the 2021 Census, which is broadly in line with the equivalent figure for the GMCA (5.9%) and regionally (6.2%), albeit higher than England as a whole (5.0%)⁸³. Aligning with other baseline findings, the rate of people who consider themselves to be in bad health is higher in Rochdale (6.4%) than in Bury (5.6%).
- 6.20 The 2021 Census records 19% of Bury and Rochdale residents as being disabled under the Equality Act and being limited to some extent in their day-to-day activities, which is slightly higher than in the GMCA (18%) and nationally (17%) albeit in line with the regional rate⁸⁴.

Proposed Scope of Assessment

- 6.21 The below sets out the proposed scope of assessment based on an understanding of the characteristics of the Site, surrounding area and the Project for Assessment (**Chapter 4**). Where environmental effects are considered unlikely to be 'significant', an appropriate evidence base has been provided to justify the 'scoping out' of these effects ensuring the EIA and ES only assess those effects considered 'likely' to be significant, at this stage.

Effects Unlikely/Not Significant

- 6.22 The following effects are considered unlikely to be significant and therefore will not be considered further within the EIA or reported in the ES. A factual evidence base has been provided below to support this. Where mitigation has been used to inform this judgement, the identified mitigation has been captured within the PEMP provided in **Appendix 2.1**.

Provision of new housing

- 6.23 A person's ability or otherwise to access housing which is of good quality, affordable, and which meets their needs can have a significant impact on their socio-economic potential, as well as their physical and mental health.
- 6.24 The 200 new homes to be delivered at the Project for Assessment will increase local provision for those requiring housing in the local impact area, thereby generating a beneficial effect. By way of an illustration, over the total duration of the construction period (c. 19 years), this would equate to an annual average of c. 10 homes per annum, (albeit it is assumed that the new housing would be delivered over a shorter -term period. Local annual housing requirements as defined by PfE are for between 452 and 520 homes (Bury) and between 616 and 632 homes (Rochdale) over the period 2025-3039 (the final year of the plan period)⁸⁵, and Bury and Rochdale's requirements sum to 16,860 homes over this period. In this context, it is considered that the scale of effect generated by 200 homes as part of the Project for Assessment (equating to c. 1.2% of requirements over the period to 2039) will be relatively small in magnitude.

⁸³ ONS via Nomis (2021) 2021 Census

⁸⁴ ONS via Nomis (2021) 2021 Census

⁸⁵ PfE housing targets in Bury and Rochdale for the period 2025-2039 equate to c. 7,460 and c. 9,400 respectively, summing to 16,860.

- 6.25 Therefore, whilst beneficial, provision of new housing for people requiring housing in the local impact area is not considered to be significant and will not be considered further in the EIA or reported in the ES.

Access to education facilities (early years, primary, secondary)

- 6.26 Strong, vibrant, sustainable and cohesive communities require good quality, accessible public services and infrastructure. Access to education facilities has a direct positive effect on human health and is vital towards ensuring employment prospects, personal and social development and strong communities.
- 6.27 The new homes to be delivered at the Project for Assessment will generate a new demand for all phases of education infrastructure (early years, primary and secondary). Based on pupil yields published by the Department for Education (DfE)⁸⁶, it is estimated that 200 homes could generate education demand for each phase of education as follows:
- Early Years: 12 – 14 places;
 - Primary: 50 – 70 places; and
 - Secondary: 24 – 33 places
- 6.28 It is noted that the above ‘worst-case’ (i.e. highest education demand) scenarios equate to a small uplift in education demand in the context of identified existing supply of education infrastructure in the locality of the Site (as identified in the baseline section). The number of additional primary school places generated would equate to 0.33 primary ‘forms of entry’ (FE), whilst the secondary demand would equate to an additional 0.22 FE⁸⁷.
- 6.29 Given the relatively small scale of demand generated for education and the existing provision in the locality, it is considered that the impacts of the Project for Assessment with regard to education can be accommodated within existing supply and that there would therefore be minimal impact on local capacity.
- 6.30 Furthermore, as set out in **Chapter 4**, the Project for Assessment maintains flexibility to deliver primary on-site mitigation as required through provision of land that could accommodate a range of non-residential and non-industrial uses. This potentially includes provision of early years (Use Class E[f]) infrastructure of a scale that is sufficient to accommodate the demand for these phases of education generated by the Project for Assessment in full. This could also possibly contribute towards meeting any identified need for these uses in the surrounding locality.
- 6.31 The specific nature and scale of any early years education provision required at the Site will be determined through ongoing consultation with BC and RBC (as the Local

⁸⁶ Department for Education (2024) ‘Pupil Yield Data Dashboard’ [Online]. Available at: <https://department-for-education.shirvapps.io/pupil-yields-dashboard/>. Note that the lower and upper end of the presented range accounts for the differing pupil yields estimated for Bury and Rochdale respectively.

⁸⁷ Forms of Entry refers to the number of pupils accommodated within one class of 30 pupils per year-group for each phase of education. Therefore one primary FE equates to 210 places (i.e. 7 year-groups of 30 pupils) and one secondary FE equates to 150 places (i.e. 5 year-groups of 30 pupils).

Education Authorities, LEAs), local communities and other local stakeholders (e.g. privately-operated early years providers already located in the area who express interest in occupying space and delivering on-site services).

- 6.32 Therefore, access to education facilities (early years, primary, secondary) for pupils residing on-Site and in existing local communities is not considered to be significant and will not be considered further in the EIA or reported in the ES.

Access to primary healthcare facilities

- 6.33 Strong, vibrant, sustainable and cohesive communities require good quality, accessible public services and infrastructure. Access to primary healthcare facilities (e.g. GP services) has a direct beneficial effect on human health and is vital towards ensuring that health outcomes and priorities are achieved.
- 6.34 Based on average household sizes established by the 2021 Census⁸⁸, it is anticipated that 200 homes delivered at the Project for Assessment could accommodate between c. 475 and 490 residents⁸⁹.
- 6.35 As outlined within NHS Healthy Urban Development Unit (HUDU) guidance⁹⁰, the Royal College of GPs recommend that a ratio of 1,800 registered patients per (assumed full-time equivalent, FTE) GP is suitable for the planning and commissioning of primary healthcare services. This therefore suggests that the Project for Assessment could generate an uplift in demand for 0.3 FTE GPs in the locality.
- 6.36 Given the relatively small scale of demand generated for primary healthcare infrastructure and the existing provision in the locality (as identified in the baseline section), it is considered that the impacts of the Project for Assessment with regard to healthcare facilities can be accommodated within existing supply and that there would therefore be minimal impact on local capacity.
- 6.37 Furthermore, as set out in **Chapter 4**, the Project for Assessment maintains flexibility to deliver primary on-site mitigation as required through provision of land that could accommodate a range of non-residential and non-industrial uses. This potentially includes provision of a healthcare facility (Use Class E[e]) of a scale that is sufficient to accommodate the demand for these uses generated by the Project for Assessment. This could also possibly contribute towards meeting any identified need for these uses in the surrounding locality.
- 6.38 The specific nature and scale of any healthcare provision required at the Site will be determined through ongoing consultation with BC and RBC (as the Local Planning Authorities, LPAs) and NHS Bury and NHS Heywood, Middleton & Rochdale Integrated Care Boards (ICBs, as the bodies responsible for the planning and commissioning of healthcare services in the area).

⁸⁸ ONS vis Nomis (2022) 2021 Census: TS001 - Number of usual residents in households and communal establishments / TS003 - Household composition

⁸⁹ Note that the lower and upper end of the presented range accounts for the differing average household sizes recorded for Bury and Rochdale respectively.

⁹⁰ NHS Healthy Urban Development Unit (2009) Planning Contribution Model: Guidance Notes

- 6.39 Therefore access to primary healthcare facilities for on-site residents and patients at existing local healthcare facilities will not be considered further in the EIA or reported in the ES.

Access to healthy food during construction and operation

- 6.40 Access to healthy and nutritious food can improve diet and prevent chronic diseases related to obesity. Healthy food options should be available and easily accessible to those using and working at new developments to enable and promote healthy lifestyles.
- 6.41 Numerous existing healthy food options will be accessible from the Project for Assessment; a wide range of options in terms of supermarkets and foodstores are located in surrounding settlements and neighbourhoods, such as Morrisons and Aldi in Whitefield and Asda in Pilsworth to the west of the Site, Sainsbury's (Heaton Park) in Blackley to the south of the Site, and Morrisons and Aldi in Heywood, to the north of the Site.
- 6.42 It is also noted that up to 10,000m² flexible commercial floorspace (which could include Use Class E[a]/F2[a] retail space) to be delivered as part of the Project for Assessment (as set out in **Chapter 4**) could make an additional contribution towards meeting local needs for access to healthy food, albeit any uses accommodated within this floorspace would be subject to eventual occupiers.
- 6.43 Therefore, access to healthy food for on-site residents and workers are unlikely to be significant and will not be considered further in the EIA or reported in the ES.

Access to open space and recreation facilities

- 6.44 The provision of high-quality secure, convenient and attractive open / green space, public amenity space and facilities for sports and leisure activities can lead to increased levels of physical activity and reduce levels of heart disease, strokes and other ill-health problems that are associated with both sedentary occupations and stressful lifestyles. There is also a growing body of evidence to suggest that access to open spaces and recreation facilities for exercise is important in helping to maintain and / or improve mental health and can be an important means of supporting social interaction within communities⁹¹.
- 6.45 The Project for Assessment's residents will generate a new demand for open space and recreation facilities; it is, however, considered that the uplift in demand generated, up to c. 490 residents will be relatively small in the context of existing provision in the locality (as identified in the baseline section). As such, it is considered that the impacts with regard to open space and recreation facilities can be accommodated within existing supply and that there would therefore be minimal impact on local capacity.
- 6.46 Furthermore, as set out in **Chapter 4**, the Project for Assessment maintains flexibility to deliver primary on-site mitigation as required through provision of land that could accommodate a range of non-residential and non-industrial uses. This potentially includes provision of indoor sport, recreation or fitness areas and/or places for outdoor sport or recreation (respectively Use Classes E[d] and F2[c]) of a scale that is sufficient

⁹¹ NHS Healthy Urban Development Unit (2019). Rapid Health Impact Assessment Tool (4th Edition)

to accommodate the demand for these uses generated by the Project for Assessment in full. This could also possibly contribute towards meeting any identified need for these uses in the surrounding locality.

- 6.47 The specific nature and scale of any open space and recreation provision required at the Site will be determined through ongoing consultation with BC and RBC (as the LPAs).
- 6.48 It is also important to note that the existing Pike Fold Golf Club is located within the Site boundary, and may not be retained as part of the Project for Assessment. Whilst this will remove golfing uses at the Site and reduce overall provision in the wider locality – and therefore would constitute an adverse effect in terms of access to this type of recreation infrastructure; it is considered that the scale of this effect will impact a relatively limited number of people and organisations.
- 6.49 It is also noted that there are numerous other golf courses which serve the locality around the Site, including: Heaton Park Golf Course; North Manchester Golf Club (located in Middleton); Bury Golf Club (located to the west of Unsworth); Whitefield Golf Club and Stand Golf Club (both in Whitefield); and Castle Hawk Golf Club (located between Heywood and Rochdale).
- 6.50 As such, it is concluded that adverse effects related to the loss of the existing on-Site golf course will be small in magnitude and not significant.
- 6.51 Therefore, access to open space and recreation facilities for on-site residents and existing local communities is not considered to be significant and will not be considered further in the EIA or reported in the ES.

Access to active travel and sustainable transport options

- 6.52 Active travel and sustainable travel options should be accessible to those living and working at and otherwise using new developments to enable and promote healthy and sustainable lifestyles, through facilitating physical activity and zero / low emissions transport, such as walking, cycling and public transport options.
- 6.53 Pedestrian and cycleway access within the Project for Assessment will be made available through the Site along the alignment of access corridors, via a combination of segregated routes, routes divorced from roads and shared routes. A network of footpaths/cycleways (including retained PRoWs, potentially realigned PRoWs and new footpaths/cycleways) will connect new development at the Project for Assessment with adjacent neighbourhoods and settlements external to the Site. Pedestrian and cycle provision will also be incorporated into the design of the Pilsworth Road junction improvement works along its length from Moss Hall Lane, along Pilsworth Road to the west of the M66.
- 6.54 The existing public transport (bus) network serving adjacent neighbourhoods and settlements will also integrate with the Project for Assessment once operational, enabling onward travel to connect to other public transport options in the locality (e.g. the Metrolink tram network) that serve wider areas of Greater Manchester, as well as to rail services to the wider region and beyond.

- 6.55 Given the primary mitigation delivered on-site and existing provision outlined above, it is considered that residents and workers at the Project for Assessment and existing local communities will have satisfactory access active travel and sustainable transport choices, and in doing so will be able to pursue healthy and sustainable lifestyles in relation to transport options.
- 6.56 The active travel and sustainable transport measures set to be implemented by the Project for Assessment will therefore be beneficial to those working and residing at and otherwise accessing the Site, and are likely to improve uptake of these modes, potentially improving people's physical and mental health and wellbeing.
- 6.57 The Project for Assessment's impact on access to active travel and sustainable transport options are considered under the topic of Transport and Access within this EIA Scoping Report (see **Chapter 7**) and will be subsequently assessed in the ES.
- 6.58 Access to active travel and sustainable transport options is, however, not considered to be significant in relation specifically to the topic of Socio-economics and Human Health and will not be considered further in the EIA or reported in the ES. Whilst beneficial, the effect of the Project for Assessment's enhancements specifically in terms of health and wellbeing outcomes for local residents, workers and existing local communities are anticipated to be limited in scale in comparison to the baseline. The assessment of active travel and sustainable transport options as part of **Chapter 7** will focus on effects related to access and changes to journey times.

Social cohesion, inclusive design and access to community facilities

- 6.59 Developments should connect with existing communities (for example through layouts and access points which avoid physical barriers and severance), whilst land use and spaces should encourage social interaction, taking into account principles of inclusive and age-friendly design.
- 6.60 The Site is currently predominantly agricultural land (plus areas of woodland, grassland, ponds and watercourses), albeit is occupied by a small number of homes and businesses. Whilst some structures, existing utilities and some buildings with some built heritage value will be retained (see **Chapter 4**), it is assumed as a worst-case scenario that all other built features may be removed. As such, the Project for Assessment may result in displacement of existing uses and their residential and commercial occupiers.
- 6.61 Whilst this will impact a relatively limited number of people and organisations, displacement of residential and commercial occupiers could constitute an adverse effect in terms of social cohesion if not effectively mitigated. As such, the Applicant will undertake consultation with BC and RBC (as the LPAs) and other key stakeholders (e.g. affected residents and businesses) on an ongoing basis as the Project for Assessment progresses to determine suitable mitigation measures to minimise and/or compensate for the impacts of any displacement.
- 6.62 The impacts on the small number of affected residents and businesses will be notable at the individual level, and, as such, the Applicant will seek to mitigate displacement impacts through the measures outlined above. It is, however, considered that the number of people and businesses impacted by displacement associated with the

Project for Assessment is not of a magnitude that will result in significant socio-economic and human health effects in the context of the residential and business populations in the neighbourhoods and settlements surrounding the Site.

- 6.63 Once complete, the mixed-use nature of the Project for Assessment means that there will be opportunities for social interaction between residents and workers whilst accessing the potential mix of public infrastructure, leisure facilities and commercial services on-site.
- 6.64 New public realm will be implemented with a strong consideration of principles related to inclusive design, taking account of Planning Practice Guidance (PPG) which outlines best practice for ensuring that developments can be accessed and used by all in a way that effectively fosters social connections, recognising and accommodating differences in the way people use the built environment as a result of factors such as age and disability⁹².
- 6.65 Community facilities are also important in fostering social cohesion and strong communities. As such, as set out in **Chapter 4**, the Project for Assessment maintains flexibility to deliver primary on-site mitigation as required through provision of land that could accommodate non-residential and non-industrial uses. Alongside other social infrastructure uses referenced in other sections of this Chapter (e.g. education, healthcare, open space and recreation), this also potentially includes provision of halls or meeting places for the local community (Use Class F2[b]) of a scale that is sufficient to accommodate the demand for these uses generated by the Project for Assessment in full. This could also possibly contribute towards meeting any identified need for these uses in the surrounding locality.
- 6.66 Overall, it is considered that the Project for Assessment's effects in terms of social cohesion, inclusive design and access to community facilities are likely to impact only a relatively small number of the people living and/or otherwise conducting activities in the local impact area (including existing residents and businesses, as well as those living and working at and otherwise accessing the Site once complete). This will represent only a small change in terms of the existing baseline provision of community services in the locality.
- 6.67 Therefore, social cohesion and access to community facilities for on-site residents, workers and existing local communities is not considered to be significant and will not be considered further in the EIA or reported in the ES.

Crime reduction and community safety

- 6.68 Sites should be kept secure during construction to ensure that potential for crime and anti-social behaviour is minimised. Once operational, developments should incorporate design elements and site management measures to help 'design out' crime, to help people feel secure, again minimising the potential for crime and anti-social behaviour.
- 6.69 Site security arrangements during the construction stage will be in line with the requirements set out in the Construction (Design and Management) Regulations

⁹² Department for Levelling Up, Housing and Communities (2019) Planning Practice Guidance: Housing for older and disabled people – Inclusive Design (para 017)

2015⁹³. The design of the Project for Assessment will be informed by ‘Secure by Design’ principles and appropriate design and site management measures (including appropriate lighting and passive surveillance of public spaces) will be implemented to ensure that the potential for crime and anti-social behaviour is minimised.

- 6.70 Therefore, crime reduction and community safety for on-site residents and workers and existing local communities is not considered to be significant and will not be considered further in the EIA or reported in the ES.

Other human health-related effects

- 6.71 Health ‘determinants’ are the social, economic and environmental conditions which determine the health and wellbeing of a local population. While there is no definitive list that is applicable to every development, guidance published by the NHS HUDU⁹⁴ and the Wales Health Impact Assessment Support Unit (WHIASU)⁹⁵ provides an assessment matrices that identify broad determinants of health.
- 6.72 A number of these health determinants have been considered above. It should, however, be noted that several other health determinants relevant to the Project for Assessment will be considered through other chapters of the EIA, which are addressed as necessary through the technical topics of Air Quality (see **Chapter 9**), Noise and Vibration (see **Chapter 8**) and Climate Change (see **Chapter 17**) within this EIA Scoping Report.
- 6.73 Furthermore, it should be noted that a standalone Health Impact Assessment (HIA) will be prepared and submitted as part of the outline planning application. The HIA will be prepared in line with NHS HUDU guidance, and will provide detailed consideration of all relevant health determinant, including those scoped out of the EIA at this stage.

Effects Likely/Significant

- 6.74 **Table 6.2** outlines the impacts (and associated receptor[s]) that are considered to be likely and significant and therefore will be assessed within the EIA and reported in the ES. An indication of which spatial zone the impact is relevant to is also provided.

Table 6.2: Potential Likely Significant Effects and Sensitive Receptors

Effect	Receptor(s)	Applicable Stage(s)	Spatial Zone
Employment generated	Labour force	Construction/Operation	All Spatial Zones
Access to skills and training	Labour force	Construction/Operation	All Spatial Zones

⁹³ Secretary of State (2015) Construction (Design and Management) Regulations 2015

⁹⁴ NHS Healthy Urban Development Unit (2019) Rapid Health Impact Assessment Tool (4th Ed.)

⁹⁵ Wales Health Impact Assessment Support Unit (2020) Health Impact Assessment: A Practical Guide

Assessment Methodology of Effects Likely/Significant

6.75 The following background surveys/studies have been/will be completed.

Table 6.3: Background Surveys/Studies

Survey/Study/Analysis/ Evaluation	Overview	Date of Completion
Completed		
Desk-based study of publicly accessible socio-economic and human health data	Data obtained to understand prevailing socio-economic and human health conditions	July 2024
Pending		
Further desk-based study of publicly accessible socio-economic and human health data related to effects scoped into the assessment	Data obtained to understand prevailing socio-economic and human health conditions	Autumn/Winter 2024
Economic impact modelling	Exercise to determine net additional economic impact, thereby informing the magnitude of relevant effects	Autumn/Winter 2024

6.76 In the absence of formal guidance, appropriate study areas will be defined, which will be based on an understanding of relevant local and wider economic geographies and a consideration of the extent to which socio-economic and human health effects are likely to be contained therein. A local impact area will be defined to cover the combined administrative areas of Bury and Rochdale (given that the Site spans the boundaries of both local authorities), with a wider impact area then defined to draw in the surrounding GMCA area. These are established geographical areas that also reflect existing patterns of labour force containment⁹⁶.

6.77 Best practice and methodological guidance will be drawn upon as appropriate to inform key elements of the assessment, including the Homes and Communities Agency's (HCA, now known as Homes England) Additionality Guide⁹⁷ and Employment Density Guide⁹⁸ and IEMA guidance for the effective scoping of human health⁹⁹. Net additional economic impacts of employment will be presented, accounting for a range

⁹⁶ ONS via Nomis (2022) Census 2021

⁹⁷ Homes & Communities Agency (2014) Additionality Guide (4th Edition)

⁹⁸ Homes & Communities Agency (2015) Employment Density Guide (3rd Edition)

⁹⁹ IEMA (2022) Effective Scoping of Human Health in Environmental Impact Assessment

of economic additionality factors such as leakage¹⁰⁰, displacement¹⁰¹ and multiplier effects¹⁰².

- 6.78 The sensitivity of receptors will be determined by way of observed change in receptors locally compared to local, regional and national trends. Through observation of a receptor's capacity for change relative to wider comparator areas and/or national standards, the sensitivity of receptors locally will be observed. Consideration will also be given to the priority attributed to specific receptors in strategy and policy terms, particularly in the case of qualitative receptors and those where quantitative evidence is not available. The assignment of sensitivity will be based on professional judgement.
- 6.79 Once the sensitivity of the receptor has been identified, the change attributable to the Project for Assessment will be benchmarked against the observed rate of change in the corresponding social, economic or health-related baseline. This will allow a relative assessment of the magnitude of change that is attributable to the Project for Assessment to be conducted.
- 6.80 The assessment of likely significant effects to sensitive receptors will consider the sensitivity of the receptor (on a scale of high, medium, low and negligible) and the magnitude of change (on a scale of large, medium, small and negligible) to determine the level of effect on a scale of major, moderate, minor and negligible. Significant effects will be determined following this through professional judgment.

Limitations and Assumptions

- 6.81 To ensure transparency within the EIA process, the following limitations and assumptions have been identified:
- The assessment is desk-based and therefore reliant on data and information obtained from a variety of official published sources (such as the ONS's 2011 and 2021 Censuses and Business Register and Employment Survey¹⁰³). No further verification of these sources will be undertaken (unless otherwise stated in the ES). Each data source has methodological limitations related to data collection and surveys only represent the socio-economic context at a specific point in time.
 - The future baseline will draw upon employment forecasts produced by Experian¹⁰⁴. There are known uncertainties to using such trend-based forecasts (especially in the current context of economic uncertainty caused by factors such as inflationary pressures, the cost-of-living crisis and global conflict. However,

¹⁰⁰ The measure of the extent to which impacts (such as employment) will occur outside of the defined local and wider impact areas.

¹⁰¹ The measure of the extent to which the Project for Assessment will lead to existing businesses or employees within the defined local and wider impact areas relocating activities to the Project for Assessment, as opposed to the attraction of new investment and employment arising from the Project for Assessment.

¹⁰² The measure of further economic activity (such as employment, expenditure or income) associated with supply chain expenditure, additional local income (from employment) and longer-term expenditure effects.

¹⁰³ ONS via Nomis (2023) Business Register and Employment Survey: 2022

¹⁰⁴ Experian (2024). Local Market Forecasts Quarterly: December 2023

the use of such forecasts is considered appropriate for drawing conclusions about how the economy and labour market might change in the future.

- Where necessary, professional and realistic assumptions will be made and applied, such as those relating to the economic additionality factors of leakage, displacement and multiplier effects.

7. Transport and Access

Technical Baseline

Highways

- 7.1 The Site and surrounding area is situated in the strategically important intersection of the M60, M62 and M66 motorways.
- 7.2 The Site is located to the north east of Junction 18 of the M60 motorway extending east to Junction 19 of the M62 and north to Junction 3 of the M66.
- 7.3 The Site is also well-connected to the local and regional highways networks, lying along a series of arterial routes connecting the Site with Manchester city centre and the strategic road network. To the east, the Site boundary straddles Hareshill Road and the A6045 Manchester Road. To the north, it borders directly onto Pilsworth Road and Heywood Distribution Park.
- 7.4 A new link road from Junction 19 of the M62 to Pilsworth Road (Queen Elizabeth II Way) opened in November 2022. This provides an alternative route for traffic to access the area avoiding Heywood town centre.
- 7.5 The wider immediate local highway network is currently not of a standard that could accommodate strategic development without appropriate infrastructure upgrades.
- 7.6 As part of the evidence base submitted in support of the PfE plan¹⁰⁵, 'Locality Assessments' were produced for each allocation. These Locality Assessments forecast the likely level and distribution of traffic generated by each Allocation and assessed its impact on the transport network.
- 7.7 The Strategic Road Network impacts are expected to be concentrated at M66 Junction 3 and M62 Junction 19, while the local road network impacts mostly impact on the Pilsworth Road corridor.

Active Travel (Walking, Cycling, Wheeling and Horse Riding)

- 7.8 The Pilworth Road / Moss Hall Lane / Harehill Road / Queen Elizabeth Way corridor provides a combined footway / cycleway to one side of the road throughout. Additionally, along some sections of the corridor, a footway is also provided on the opposite side of the road.
- 7.9 Pilsworth Road between Hareshill Road and Bury Street (i.e., extending north towards Heywood), has footways to both sides of the road.
- 7.10 Moss Hall Road, to the south of the Three Arrows Public House, features a footway on one side of the road as far as the Birch Business Park. Whittle Lane, to the north west of its junction with Heywood Old Road, has a footway on one side of the road for

¹⁰⁵ Greater Manchester's Places for Everyone (PfE) Joint Development Plan Document in March 2024

approximately 900m. There is a 600m stretch of the Moss Hall Lane / Whittle Lane corridor where footways are absent.

- 7.11 There are a number of additional connections to the Site for non-motorised users (NMU's) (**Figure 16.1**), which are for pedestrians, cyclists and horse riders. This includes:
- Bury PRoW: Simons Lane, Footpath, 8WHI, providing connection from Heywood Old Road, across the M62 to Whittle Lane;
 - Bury PRoW: Footpath 60PRE, which extend north from Simister Lane, across the M62 to connect with Egypt Lane;
 - Bury PRoW: Hills Lane, Footpath, connecting to 9WHI;
 - Bury PRoW: 101BUR;
 - Bury PRoW: Castle Road, Restricted byway, 85BUR, crossing the M66 provides connections to Giffre Lane and other footpaths within the Site and Bridleway 79BUR;
 - Bury PRoW: Aviation Road, Bridleway 79BUR, connecting Pilsworth Road west and east of the M66 via Aviation Road; and
 - Rochdale PRoW: Dr Fold Lane, footpath, connecting to Manchester Road.
- 7.12 The connections are of varying standards, the access points are mainly via low trafficked surfaced routes with no footways, which then become unsurfaced routes through the Site. These routes are notably undeveloped or rural in character.
- 7.13 Access into the Site for NMUs is constrained to the south and west by the M62 and M66 motorways. Existing crossing points are available as shown on **Figure 16.1**.
- 7.14 The River Irwell, River Roch, and River Irk create severance across the study area.
- 7.15 Various railway and Metrolink lines impact permeability across the study area. The heritage railway line through Heywood and the Metrolink line to the west of the Site particularly limit permeability with pinch points at some crossing locations limiting opportunity for safe active travel routes.

Public Transport

- 7.16 Transport for Greater Manchester (TfGM) produce a Greater Manchester Accessibility Levels (GMAL) score which provides a detailed and accurate measure of a location's public transport accessibility, taking into account walk access time and service availability. This is a score of 1 to 8, with 1 representing the lowest level of accessibility and 8 the highest level.
- 7.17 Based on this measure, much of the Site sits in an area with a score of 1 to 3, which reflects the largely undeveloped nature of the Site and the subsequent limited demand for public transport services in this area at present.

- 7.18 The surrounding town centres of Heywood, Bury, Rochdale and Middleton have higher levels of accessibility.
- 7.19 The map highlights the role which public transport has in improving accessibility along key corridors such as the corridor to Bury via Whitefield which has multiple bus services along the A56 as well as the Metrolink Line.

Bus, Rail and Metrolink

- 7.20 The key centres that neighbour the Site (Heywood, Bury, Rochdale, Middleton) are relatively well served by frequent bus routes serving the main town centres. However, the Site itself is not current served well.
- 7.21 Bus travel is the most frequently used mode of non-car travel in the wider area, due to an absence of other public transport modes.
- 7.22 However, the communities closest to the Site (Simister, Heywood, Bamford and Norden) have relatively poor service connections with Manchester City Centre.
- 7.23 As a result, they do not benefit from the same level of fast and frequent public transport connectivity as other nearby centres such as Prestwich, Radcliffe or Failsworth. Many residents therefore rely on the car. The services that do exist have bus stops near/in the part of the Site that is adjacent to Heywood. This is where services are to be improved as part of the S106 contribution for South Heywood.
- 7.24 The key as outlined above, have limited direct rail connections, with only Rochdale benefitting from both a Metrolink and heavy rail line. There are currently no rail options directly serving the area with which the Site sits.
- 7.25 The Altrincham to Bury Metrolink line runs to the west of the Site, with stops at Radcliffe and Whitefield nearest to the Site. It is one of the busiest lines on the Metrolink network with high levels of demand and capacity constraints resulting in over-crowded peak services. Currently, several bus services provide access to Metrolink stops on the Bury Line from neighbouring centres.
- 7.26 The East Didsbury - Rochdale Metrolink Line is to the east of the Site, though this is some distance away. At present, the 415 service provides access from Middleton to Freehold and Westwood stops, and 471 service provides access from Heywood to the stop in Rochdale Town Centre.
- 7.27 The Calder Valley Line (heavy rail) lies to the east of the Site, with Mills Hill and Castleton stations within the closest proximity. No existing bus services provide a connection to these stations from the vicinity of the Site.

Proposed Scope of Assessment

- 7.28 The below sets out the proposed scope of assessment based on an understanding of the characteristics of the Site, surrounding area and the Project for Assessment (**Chapter 4**). Where environmental effects are considered unlikely to be 'significant', an appropriate evidence base has been provided to justify the 'scoping out' of these

effects ensuring the EIA and ES only assess those effects considered 'likely' to be significant, at this stage.

Effects Likely/Significant

- 7.29 **Table 7.1** outlines the effects (and associated receptor[s]) that are considered to be likely and significant and therefore will be assessed within the EIA and reported in the ES. An indication of which spatial zone the impact is relevant to is also provided.

Table 7.1: Potential Likely Significant Effects and Affected Users

Effect	*Receptor	Applicable Stage(s)	Spatial Zone
Increase in severance	Vehicle drivers	Construction and Operation	**The Study Area
Increase in driver delay	Vehicle drivers	Construction and Operation	
Increase in NMU delay	NMUs	Construction and Operation	
Reduction in NMU amenity	NMUs	Construction and Operation	
Increase in fear and intimidation	Vehicle drivers / NMUs	Construction and Operation	
Increase in accidents and reduction in safety	Vehicle drivers / NMUs	Construction and Operation	
Increased demand on Public Transport	Public Transport	Operation	

*For Non-Motorised Vehicles (NMU), such as pedestrians, cyclists, horse riders, etc. Assessors will use judgement on which NMUs are applicable for receptor assessment.

** The study area is based on that considered by the Transport Assessment which identifies 23 junctions in the vicinity of the Site (**Figure 7.1**).

Assessment Methodology of Effects Likely/Significant

- 7.30 The following background surveys/studies have been/will be completed.

Table 7.2: Background Surveys/Studies

Survey/Study/Analysis/Evaluation	Overview	Date of Completion
Completed		
Locality Assessment Report	Traffic Assessment to support the allocation of the area in PfE	July 2021

Survey/Study/Analysis/ Evaluation	Overview	Date of Completion
Draft Transport Strategy, Arup	Baseline Study of Transport Conditions and overview of potential mitigation	November 2022
TfGM Active Travel Study, Stage 1 – Draft	Review of Active Travel Provision in the vicinity of the area	November 2022
Model Agreement Statement	A summary of the Transport Steering Group Meeting and the agreed methodology for the preparation of the NGTM	April 2024
Pending/Emerging		
Production of the Northern Gateway Traffic Model (NGTM)	See below	August 2024 onwards
Review of Public Rights of Way	On-site review of Public Rights of Way	August and September 2024
Active Travel Strategy – TfGM	A strategy for active travel	Under determination
Public Transport Strategy – TfGM	A strategy for public transport	Under determination
M66 J3 Improvement	Assessments being undertaken by Pell Frischmann on behalf of the districts	Under determination
Transport Assessment	An assessment of the transport, accessibility and highways.	December 2024
Travel Plan	Management plan designed to encourage safe, healthy and sustainable travel options.	December 2024

NGTM Traffic Model & Derivation of Traffic Volumes for ES Assessment

7.31 The baseline traffic data to be used within the assessments will be derived from the Northern Gateway Transport Model (NGTM) model, which is being prepared in the SATURN modelling package. The model is still being prepared and interrogated, and comprises inputs from the following stakeholders who comprise the Transport Steering Group:

- Transport for Greater Manchester;
- National Highways;
- RC and RBCs; and

- NGDV and all their respective transport consultants:
 - WSP;
 - Pell Frischmann;
 - Focus Transport Planning; and
 - Tetra Tech.
- 7.32 The following data sets will be extracted from the model and used as the basis for the assessment of the study area:
- Without Development Traffic Volumes; and
 - With Development Traffic Volumes.
- 7.33 The EIA is likely to consider the following four assessment years:
- 2024;
 - 2032;
 - 2039; and
 - 2047 (+15 Year Scenario from 2032 i.e. 15 years following any remodelling associated with the M62).
- 7.34 Further details regarding the traffic assessment scenarios are provided in **Chapter 2**.
- 7.35 Full details of the derivation of traffic volumes are set out in the Transport Assessment Scoping Note Update (TASNU) and the TASNU Addendum.
- Overview of Methodology**
- 7.36 The Study Area for the EIA Chapter is based on the study area considered by the Transport Assessment, which is set out in the TASNU. The TASNU identifies 23 junctions in the vicinity of the Site (**Figure 7.1**) where the Site would have the most significant vehicular impacts. The ES requires the assessment of Links (or Roads), rather than junctions. Therefore, the links on approach to the 23 junctions identified in the TASNU will form the study area.
- 7.37 Assessments will be conducted according to the Institute of Environmental Management (IEMA) Guidance: Environmental Assessment of Traffic and Movement (2023). The IEMA Guidelines for the Assessment of Road Traffic relate to evaluating the environmental impact of road traffic associated with major new developments. This provides the basis for the systematic, consistent, and comprehensive coverage for the appraisal of traffic effects for a wide range of development projects.
- 7.38 The guidelines indicate that:

- The environmental effects of traffic will be dependent on existing conditions and adjacent land uses as well as changes in traffic levels;
 - Assessments should consider the period at which the effect is greatest and the period at which the effects exhibit the greatest change;
 - Peak environmental impacts may occur at other times than the 'peak' hour;
 - Environmental assessments may need to be undertaken separately for different scenarios; and
 - Assessment should be undertaken in the year of opening (or first year of a scenario) when, generally, the perceived environmental impact is the greatest.
- 7.39 The assessments will therefore take account of daily traffic volume changes (18 and 24 hour), as well as peak hour. The assessments include a scenario which tests the level of impact associated with a partial build out in 2032 and the assessment will be undertaken in the year of opening.
- 7.40 This section sets out the methodology adopted in the assessment of the likely significant transport and accessibility effects of the Proposed Scheme, in relation to the changes on the local highway network traffic flows.
- 7.41 The assessment of the Project for Assessment's likely significant transport and accessibility effects will comprise a combination of both quantitative and qualitative assessments.
- 7.42 The IEMA document identifies that as a guide, two broad rules should be applied to identify the links (roads) for assessment. Those are:
- Links that experience a 30% increase in daily traffic or HGV flow; and
 - Highly Sensitive Links that experience a 10% to 30% increase in traffic.
- 7.43 For the links within the Study Area, the above two broad rules will be applied through a Net Impact Assessment (comparing the Without Development scenario against the With Development Scenario). The Net Impact Assessment will be undertaken based on the 2-way Annual Average Daily Traffic flow (AADT) on a link (carriageway) in accordance with IEMA guidelines. The net impact assessment will provide a provisional list of "Links for Assessment". Following completion of the net impact assessment, each link will be subject to a qualitative assessment to establish whether it should be included in the assessment, for example, a link may be forecast to be subject to 2 HGV's a day in the Without Development Scenario, and 4 HGV's a day in the With Development scenario, which is a 100% increase and therefore the broad rules would capture this link in the Links for Assessment. However an increase of 2 HGV's a day is clearly not a significant impact and therefore this link would be removed from the Links for Assessment. On completion of the quantitative review, a final list of "Links for Assessment" will be established and those links will be taken forward in the Assessment within the ES.

- 7.44 The effect of traffic flows during the construction of the Project for Assessment will be temporary and lower than those in the operational period, particularly with the implementation of tertiary mitigation measures such as a Construction Environmental Management Plan (CEMP) and Construction Traffic Management Plan (CTMP), which will be defined in the ES. The assessment of construction traffic effects will therefore be represented by the operational traffic assessment and will be reported as part of a qualitative assessment.
- 7.45 The IEMA Guidelines for the Environmental Assessment of Road Traffic sets out the broad principles of how to assess the magnitude of change/impact for each of the effects. The assessment principles are summarised below.

Severance

- 7.46 The IEMA guidance states that severance is the perceived division that can occur within a community when it becomes separated by a major traffic artery. However, the guidance acknowledges that the measurement and prediction of severance is extremely difficult. The assessment of severance pays full regard to specific local conditions, in particular the location of pedestrian routes to key local facilities and whether crossing facilities are provided.
- 7.47 The IEMA guidance references that the LA 112 'Population and Human Health' of the Design Manual for Roads and Bridges (DMRB) provides further guidance on this aspect of severance within a community. LA 112 provides criteria against which the magnitude of change shall be reported and the LA 112 is quoted in the IEMA Guidance, as shown in **Table 7.3**.

Table 7.3: Severance Thresholds¹⁰⁶

Magnitude of Impact (Change)	Typical Description
Large	90% or more Change in traffic flow
Medium	60% to 89% Change in traffic flow
Small	30% to 59% change in traffic flow
Negligible	29% or lower change in traffic flow

Driver Delay

- 7.48 Driver Delay is likely to be significant when the traffic on the network surrounding the Site is already at, or close to, the capacity of the system. Driver delay is a result of the net impact generated by a development when compared to the baseline.
- 7.49 The guidance suggests that assessors use their judgement and modelling forecast software to determine whether driver delay is a significant effect.

¹⁰⁶ Thresholds reproduced from the suggestions provided by Institute of Environmental Management (IEMA) Guidance: Environmental Assessment of Traffic and Movement, paragraph 3.16.

- 7.50 The Junction Modelling Results in the Transport Assessment will be used to establish which of the “Links for Assessment” are operating at, or close to capacity. Any arms of junctions which are forecast to operate at or over 90% of its theoretical capacity will be assessed in terms of driver delay.
- 7.51 The links of interest will then be assessed against the magnitude of impact/change and shall be reported, as shown in **Table 7.4**, which are Tetra Tech’s in house threshold which have been used on ES assessments previously.

Table 7.4: Driver Delay Thresholds

Magnitude of Impact (Change)	Change in delay
Large	Over 180 seconds
Medium	>120 to <180 seconds
Small	>60 to <120 seconds
Negligible	<60 seconds

Pedestrian Delay

- 7.52 Pedestrian delay refers to the changes in the volume, composition or speed of traffic that may affect the ability of people to cross a road. The IEMA guidance suggests that assessors use their judgement to determine whether pedestrian delay is a significant effect.
- 7.53 The links of interest will be assessed against the magnitude of change/impact and shall be reported, as shown in **Table 7.5**, which are Tetra Tech’s in house threshold which have been used on ES assessments previously.

Table 7.5: Pedestrian Delay thresholds

Magnitude of Impact (Change)	Total vehicles: peak hour two-way hourly flow (frequency)
Large	Greater than 720 (1 vehicle every 5 seconds)
Medium	360-720 (1 vehicle between 5 to 10 seconds)
Low	120-360 (1 vehicle between 10 and 30 seconds)
Negligible	Less than 120 (less than 1 vehicle every 30 seconds)

Pedestrian Amenity

- 7.54 Pedestrian amenity is broadly defined as the relative pleasantness of a journey. It is affected by traffic flow, traffic composition and pavement width / separation from traffic. The guidance suggests that assessors use their judgement to determine whether change to pedestrian amenity is a significant effect. The IEMA guidelines suggest a tentative threshold for judging the significance of a change in pedestrian amenity where traffic flow (or its HGV component) is halved or doubled. They note that the assessment of amenity should pay full regard to local conditions. Based on this, the impact magnitude thresholds are set out in **Table 7.6**.

Table 7.6: Pedestrian Amenity thresholds

Magnitude of Impact (Change)	Increase in vehicles per hour (peak hour)
Large	Greater than 150%
Medium	100%-150%
Low	50%-100%
Negligible	Less than 50%

Fear and Intimidation

- 7.55 Fear and intimidation are dependent upon the volume of traffic, the level of HGV's, the proximity of traffic to people and the lack of protection caused by such factors as narrow pavement widths. The guidance states that there are no commonly agreed thresholds for estimating this from known traffic and physical conditions, but it does nevertheless suggest some thresholds which could be used, based on previous research, and these are shown in **Table 7.7**.

Table 7.7: Fear and Intimidation Thresholds¹⁰⁷

Magnitude of Impact (Change)	Average Hourly Traffic Flow over 18hr Day (vehicles per hour)	18hr HGV Flow (vehicles per hour)	Average vehicle speed ¹⁸ (c)
Large	1,800+	3,000+	40+
Medium	1,200 – 1,799	2,000 – 2,999	30-40
Small	600 – 1,199	1,000 – 1,999	20-30
Negligible	599 or less	999 or less	20 or Lower

Accidents and Safety

- 7.56 The guidance suggests that professional judgement is used to assess the implications of local circumstances or factors which may elevate or lessen risks of accidents. The safety information will be contained within the Transport Assessment with the magnitude of change for accidents and safety to be assessed qualitatively, using professional judgement.

Public Rights of Way

- 7.57 The public rights of way will be subject to a review as part of the Transport Assessment. Once that review is complete, the effects on Public Rights of Way will be reported as part of a qualitative assessment.

¹⁰⁷ Thresholds reproduced from the suggestions provided by Institute of Environmental Management (IEMA) Guidance: Environmental Assessment of Traffic and Movement, Table 3.1.

Demand for Public Transport

- 7.58 According to the IEMA guidelines, assessments should focus on road traffic associated with major new developments. Whilst road traffic effects impact upon active travel modes, the guidelines do not extend to public transport movement impacts of development projects.
- 7.59 However, given the scale of the Project for Assessment, there is potential for increased demand on public transport facilities in the area from/to the Site. Therefore, the effects on public transport (users of buses, tram and rail) will be reported as part of a qualitative assessment within the ES. The qualitative assessment will consider the existing public transport available in the vicinity of the Site and provide an estimate of the increased demand as a result of the Project for Assessment and the Proposed Scheme.
- 7.60 Consideration will be given to secondary mitigation and the potential alignment with the public transport strategy being prepared by TfGM for the area surrounding the Site. This is likely to create a net benefit for both the Site and the surrounding areas, through enhanced public transport connectivity and service frequency. This will offer a viable alternative for accessing both the local and wider areas by car, whilst also providing a practical option for those who do not own a car. The Applicant is working with TfGM through providing public transport trip generation figures for the Project for Assessment to TfGM, to tie into the strategy for the area. The proposals will contribute apportionately to the TfGM strategy. The alignment with the wider TfGM strategy will bring benefits over those which would be derived from the applicant carrying out separate and un-aligned assessment of public transport.

Determining the Level of Effect and Significance

- 7.61 The significance of potential effects has been determined using criteria developed from best practice techniques and expert knowledge. Significance has been derived from measures of the sensitivity of the receptor affected and the impact magnitude (scale of the change).
- 7.62 The sensitivity of a road can be defined by the vulnerability of the groups who may use it, such as elderly people or children. A more sensitive area may be where pedestrian activity is high, such as in the vicinity of a school, or where there is already an existing safety issue. It should be noted that receptor sensitivity is judged on the sensitivity of road users (primarily pedestrians). It also takes account of the nature of the road; for example, an 'A' road is likely to have lower sensitivity than a minor residential road. The sensitivity of receptors is shown in **Table 7.8**.
- 7.63 The receptor sensitivity will be used for two purposes:
- Identifying which of the links subject to traffic increases of 10-30% are Highly Sensitive and therefore to be included in the "Links for Assessment" and
 - For the links included in the "Links for Assessment", which are subject to a 30% or more increase in vehicles or HGV, a Receptor Sensitivity level will be assigned.

Table 7.8: Receptor Sensitivity

Receptor Sensitivity	Receptor Type
High	Schools, colleges, playgrounds, accident blackspots, retirement homes, urban/residential roads without footways that are used by pedestrians
Medium	Congested junctions, doctors' surgeries, hospitals, shopping areas with roadside frontage, roads with narrow footways, un-segregated cycleways, community centres, parks, recreation facilities.
Low	Places of worship, public open space, nature conservation areas, listed buildings, tourist attractions and residential areas with adequate footway provision
Negligible	Any with low sensitivity to traffic flows and those sufficiently distant from affected roads and junctions.

- 7.64 The assessment of likely significant effects to sensitive receptors will consider the sensitivity of the receptor (on a scale of high, medium, low and negligible) and the magnitude of change (on a scale of large, medium, small and negligible) to determine the level of effect on a scale of major, moderate, minor and negligible. Significant effects will be determined following this through professional judgment.

Limitations and Assumptions

- 7.65 Assessments will be derived from NGTM Saturn Model and materials contained within the associated Transport Assessment. The Transport Assessment will be prepared in accordance with national and local policy. Traffic flow data derived from the Transport Assessment will be derived from the NGTM Saturn Model. The assessments provided are reliant on the robustness of the data sources used by the Transport Assessment, which will be policy compliant, audited by the Highway Authorities and therefore will be robust and fit for purpose.
- 7.66 The above methodology is subject to on-going consultation with stakeholders, the Highway Authority, and a review of the outputs from the NGTM Model.

8. Noise and Vibration

Technical Baseline

- 8.1 In advance of the noise survey, a site visit has been undertaken and observations made at various publicly accessible locations in and around the Site.
- 8.2 Road traffic noise was observed to be the dominant noise source across the Site and surrounding area. As would be expected, higher levels of noise were present in areas closer to the M66 and M62 as well as on the local road network including Pilsworth Road, Moss Hall Lane and Hareshill Road / Queen Elizabeth II Way.
- 8.3 Further into the Site, noise was primarily influenced by the distant road traffic. Whilst no prominent noise was observed during the site visit from existing premises within Birch Industrial Estate, it is expected that there would be localised industrial and commercial noise present.
- 8.4 Industrial and commercial noise sources were observed to be present to the north east of the Site beyond Pilsworth Road and Hareshill Road.

Proposed Scope of Assessment

- 8.5 The below sets out the proposed scope of assessment based on an understanding of the characteristics of the Site, surrounding area and the Project for Assessment (**Chapter 4**). Where environmental effects are considered unlikely to be 'significant', an appropriate evidence base has been provided to justify the 'scoping out' of these effects ensuring the EIA and ES only assess those effects considered 'likely' to be significant, at this stage.

Effects Unlikely/Not Significant

- 8.6 The following effects are considered unlikely to be significant and therefore will not be considered further within the EIA or reported in the ES. A factual evidence base has been provided below to support this. Where mitigation has been used to inform this judgement, the identified mitigation has been captured within the PEMP provided in **Appendix 2.1**.

Operational Vibration

- 8.7 It is assumed that any new or replacement highways infrastructure will include maintained road surfaces and these would be free of irregularities.
- 8.8 Based on the types of proposed end-uses anticipated at the Site as defined within **Table 4.1 of Chapter 4**, it is not considered likely that vibration will arise from premises once operational. This includes vibration from sources such as vehicle movements in service yards.
- 8.9 Therefore, operational vibration to existing or future receptors is not considered to be significant and will not be considered further in the EIA or reported in the ES.

Effects Likely/Significant

- 8.10 **Table 8.1** outlines the effects (and associated receptor[s]) that are considered to be likely and significant and therefore will be assessed within the EIA and reported in the ES. An indication of which spatial zone the impact is relevant to is also provided.

Table 8.1: Potential Likely Significant Effects and Sensitive Receptors

Effect	Receptor(s)	Applicable Stage(s)	Spatial Zone
Noise from construction works	Surrounding existing and, potentially, future residential receptors	Construction	All Spatial Zones
Vibration from construction works			
Construction traffic noise on the road network			
Noise from proposed commercial and industrial uses		Operation	
Noise from proposed energy infrastructure			
Noise from development generated road traffic and potential highway infrastructure			
Noise from existing and reasonably foreseeable future noise sources	Future residential receptors	Operation	Pink

Assessment Methodology of Effects Likely/Significant

- 8.11 The following background surveys/studies have been/will be completed.

Table 8.2: Background Surveys/Studies

Survey/Study/Analysis/Evaluation	Overview	Date of Completion
Completed		
Initial site visit	Observations made of the existing noise environment in and around the Site	19 th March 2024
Pending		
Baseline noise survey	A baseline noise survey has been undertaken to establish baseline conditions at positions	Survey undertaken August / September

Survey/Study/Analysis/ Evaluation	Overview	Date of Completion
	representative of groups of existing residential receptors around and across the Site. The results of the survey are currently being analysed. Consultation has been undertaken with the Environmental Health Officer (EHO)'s at BC and RBC to agree the scope of the survey including provisional monitoring locations (Figure 8.1). The scope included a series of unattended measurements undertaken over a minimum four day period including both weekday and weekend periods (subject to access) and sample attended measurements. The results of the noise survey will be reported in the ES.	2024 with analysis progressing

Evaluation of Sensitive Receptors

- 8.12 The baseline noise survey results are in the process of being analysed. The scope of the noise survey including provisional monitoring locations (subject to access and micro-siting) has been agreed with the EHO at BC and RBC. A provisional noise monitoring location plan is presented in **Figure 8.1**.
- 8.13 Generally, there are a limited number of noise sensitive residential receptors within and around the Site. A noise receptor location plan is presented in **Figure 8.2** which shows the location of individual and groups of identified receptors sensitive to noise sources.
- 8.14 As outlined in **Chapter 4**, some existing buildings may need to be demolished and this is subject to further evaluation as part of the design process. Nevertheless, all existing residential receptors within the Site are to be included as sensitive receptors until demolition is fully understood. For residential premises on the opposite side of the M62 and M66 to the Site, it is unlikely that effects which are Significant would occur due to noise attributable to the intervening motorways. However, for completeness these have also been included on the noise receptor location plan. The receptor locations presented in **Figure 8.2** represent both isolated and clusters of residential receptors as well as future residential receptors within South Heywood to the east of the Site.
- 8.15 In the wider study area (corresponding to the Study Area defined for the Transport Assessment), receptors would include residential premises located adjacent to the local road and highways network.

- 8.16 In addition to residential receptors, a school is proposed to be located beyond Queen Elizabeth Way to the north east of the Site as part of South Heywood. A proposed development¹⁰⁸ for a new (relocated replacement) school building and games areas is also proposed adjacent to the M66. A games area is located within the site boundary with the new school building located on the western side of the M66. Consideration of other noise sensitive receptors such as educational and healthcare facilities within the wider traffic Study Area around the Project for Assessment would also be considered with regard to effects of development generated road traffic noise.

Construction Phase

- 8.17 With regard to noise and vibration generating activities during the construction phase, in the absence of mitigation, adverse effects which could be Significant could potentially occur. Such activities could include, but are not limited to:

- Noise from site preparation / enabling works, construction of site substructures and infrastructure, site compounds and mini recycling centre;
- Noise from highway infrastructure construction such as site clearance, earthworks, landscaping, structures works, road surface works and site compounds;
- Vibration from compacting and piling; and
- HGV movements on the local road network and on haul roads within the Site.

- 8.18 As detailed in **Chapter 2** it has been assumed that the operational traffic scenarios would represent the worst case of any combined construction and operational scenario.

- 8.19 Typically, through the use of industry standard noise and vibration control measures it is considered that likely residual effects would be not Significant. However, the detail (and therefore confidence) in these control measures is not yet known. Therefore, a qualitative assessment of such effects will be established and necessary mitigation measures and these would form part of the EMP. This would include consideration of potential highway works which may be undertaken outside of standard construction working hours. Reference to the guidance provided within BS 5228¹⁰⁹ would be provided. This approach has been verbally agreed with the BC and RBC EHO's.

Operational Phase

Noise from Proposed Commercial and Industrial Uses and Energy Infrastructure

- 8.20 As the Project for Assessment is outline in nature, there are no fixed details of buildings or exact locations of operational noise generating sources. On this basis, it has been verbally agreed with the BC and RBC EHO's that a quantitative assessment would not be feasible or provide a meaningful assessment.

¹⁰⁸ Bury Council, Planning Application Reference: 61515

¹⁰⁹ BS 5228:2009+A1:2014: Code of practice for noise and vibration control on construction and open sites – Part 1: Noise & Part 2: Vibration

8.21 However, at this stage, effects are considered likely and potentially significant. Therefore, a qualitative assessment will be undertaken. The noise generating activities assumed to be included are:

- Servicing of, for instance, B2 / B8 units such as loading and unloading of goods;
- Waste recycling facilities including the processing of waste;
- External building services plant equipment;
- Breakout noise of plant or machinery from buildings;
- Vehicle movements on internal access roads (including HGVs);
- Potential replacement motorway service area such as vehicle movements and building service plant equipment; and
- Proposed energy infrastructure.

8.22 Consideration of relevant guidance, such as that provided within BS 4142¹¹⁰, would be taken into account. The assessment would be based on the range of proposed end-uses anticipated at the Site as defined in **Chapter 4** within the context of the existing and reasonably foreseeable future baseline and location of sensitive receptors to proposed employment development areas.

8.23 Secondary mitigation measures will be developed as part of the ES. These may include noise limits at existing and future receptors if there is the confidence that these can be implemented and effective. The way in which these will be met will be detailed at a later planning stage. This will provide the key control measures for the management of proposed noise sources in the future.

Noise from Development Generated Road Traffic and new Highways Infrastructure

8.24 An assessment of off-site road traffic noise would be undertaken with reference to the guidance provided within CRTN¹¹¹ and DMRB¹¹². Basic noise level calculations would be undertaken to establish the change in noise level on all links within the Study Area defined for the Transport Assessment. As outlined in **Chapter 2**, potential new highways infrastructure forms part of the Project for Assessment which would be delivered by 3rd parties and subject to separate consenting processes. For the assessment of road traffic noise associated with potential highway infrastructure, both qualitative and quantitative assessments are currently under consideration. If feasible, it is proposed to undertake noise modelling based on assumptions relating to design details available at this time, again see **Chapter 2**. Consideration would be given to the closest noise sensitive residential receptors to the proposed works. Further

¹¹⁰ British Standards Institution [BS] 4142:2014+A1:2019, Methods for rating and assessing industrial and commercial sound

¹¹¹ Department of Transport, Welsh Office (1988) Calculation of Road Traffic Noise

¹¹² Highways Agency (2020) Design Manual for Roads and Bridges, Sustainability & Environment Appraisal, LA 111, Revision 2

consultation would be undertaken with regard to the assessment approach with both BC and RBC EHO's if considered necessary as the assessment progresses.

8.25 **Chapter 2** details the traffic scenarios which are to be considered as part of the ES. For noise, the following scenarios are proposed to be assessed:

- Short-term: 2032 Do Minimum against 2032 Do Something;
- Long-term: Do Minimum in the 2032 opening year against Do Minimum in the 2047 future assessment year. The future assessment year has been defined as 15 years after opening;
- Long-term: Do Minimum in the 2032 opening year against Do Something in the future 2047 assessment year; and
- Long-term: Do Minimum in the 2032 opening year against Do Something in the future 2047 assessment year. This includes JPA 1.2.

8.26 As outlined in **Chapter 4**, the Project for Assessment will commence construction in 2026 with full build out by 2045. Assumptions on when highways infrastructure would be in place are set out in **Chapter 2**. For particular aspects of highways infrastructure, an assessment of with and without such infrastructure will be assessed as part of the scenarios identified above. Therefore, the scenarios detailed above are considered to represent a proportionate series of key stages and assessment years.

8.27 The inclusion of the 2047 assessment year corresponds to the future assessment year defined in DRMB (15 years after opening).. It is considered that this would enable an assessment of the long term cumulative impact of the Project for Assessment along with other cumulative projects considered within the Transport Assessment. There is the potential that the consideration of the 2047 assessment year may over-state the impacts. As the assessment progresses, if deemed to present additional meaningful analysis, other assessment scenarios as defined in **Chapter 2** would be considered. Where any limitations of are identified, further to those presented within this Chapter, these will be stated within the ES.

8.28 Vehicle movements associated with the proposed residential element of the Project for Assessment will be included within the traffic data provided by Tetra Tech.

8.29 With regard to the impact of noise from existing and proposed end uses on the residential element of the Project for Assessment, assessments that would inform the suitability of that part of the Site would be undertaken as part of separate studies and planning applications. As such, a high level qualitative assessment would be presented as part of the ES. Secondary mitigation, would define the method for the subsequent suitability analysis and design advice.

8.30 The assessment of likely significant effects to sensitive receptors will consider the sensitivity of the receptor (on a scale of high, medium, low and negligible) and the magnitude of change (on a scale of large, medium, small and negligible) to determine the level of effect on a scale of major, moderate, minor and negligible. Significant effects will be determined following this through professional judgment.

- 8.31 A Noise and Vibration ES Chapter would be provided with an accompanying noise technical report. In addition to relevant technical guidance, regard will be given to local and national planning policy including supplementary national planning practice guidance.

Limitations and Assumptions

- 8.32 To ensure transparency within the EIA process, the following limitations and assumptions have been identified:
- Specific details of construction works are not currently available as the Contractor who would finalise the detailed design work has not yet been commissioned. Where such details are unknown, the assessment undertaken will be based on the previous experience or professional judgement of the assessor with regard to similar types of development.
 - The design of buildings and other features would be a matter to be considered in detail at the reserved matters stage for each plot or phase of development including appropriate noise design mitigation measures. Where such details are unknown, the assessment undertaken will be based on the previous experience or professional judgement of the assessor with regard to similar types of development. This assessment would inform Secondary mitigation measures which would act as a control mechanism to ensure subsequent detail at a later planning stage.
 - Road traffic impacts will be based on data provided by Tetra Tech and will be limited by the same limitations as set out in **Chapter 7**. Any road traffic noise modelling of any potential highway infrastructure would be based on indicative details such as highway alignments and proposed ground levels which are available at the time of assessment.

9. Air Quality

Technical Baseline

- 9.1 The Site is partly located within the Greater Manchester Combined Authority (GMCA) Air Quality Management Area (AQMA), which has been declared due to exceedances of the annual mean Air Quality Objective (AQO) for nitrogen dioxide (NO₂). The M62 to the south and the M66 to the west of the Site are the principal sources of atmospheric emissions around the Site.
- 9.2 BC undertake diffusion tube monitoring of NO₂ concentrations at a number of locations throughout the Borough. Review of recent results indicated NO₂ levels at all but two positions were below the AQO over the period 2020 to 2022, inclusive. The exceedances were recorded at Rochdale Road, approximately 2.6km north-west of the Site, and Bury New Road, approximately 2.1km south-west of the Site.
- 9.3 RBC also carry out air quality monitoring throughout the Borough. NO₂ levels at all positions were below the AQO over the period 2020 to 2022, inclusive.
- 9.4 A review of the background mapping software produced by the Department for Environment, Food and Rural Affairs (DEFRA) indicated that background NO₂, particulate matter with an aerodynamic diameter of less than 10µm (PM₁₀) and 2.5µm (PM_{2.5}) concentrations at the Site are also below the relevant AQOs and Interim Target.
- 9.5 Based on the initial studies, baseline pollution levels at the Site and in the surrounding area are considered to be relatively low, with large increases required to cause AQO exceedances. The exception is within close proximity to the local motorway network, where elevated concentrations are expected.
- 9.6 There are a number of residential, commercial and educational receptors within the vicinity of the Site. The largest settlements are located approximately 70m west and 100m east of the Boundary, respectively.
- 9.7 The following ecological designations which may also be affected by atmospheric emissions from the Site:
- Blackley Forest Local Nature Reserve (LNR), 1.9km south east.
 - Alkrington Woods LNR, 1km south east.
 - Rochdale Canal Special Area of Conservation (SAC) and Site of Special Scientific Interest (SSSI), 3.5km east.
 - South Pennine Moors SAC, 17km east.
 - Peak District Moors Special Protection Area (SPA), 11km east.
 - Holcroft Moss SSSI (part of the Manchester Mosses SAC), 20km south-west.

- 9.8 The Pilsworth South Landfill Site, approximately 600m north-west of the Site, has been identified as a potential odour source.

Proposed Scope of Assessment

- 9.9 The below sets out the proposed scope of assessment based on an understanding of the characteristics of the Site, surrounding area and the Project for Assessment (**Chapter 4**). Where environmental effects are considered unlikely to be 'significant', an appropriate evidence base has been provided to justify the 'scoping out' of these effects ensuring the EIA and ES only assess those effects considered 'likely' to be significant, at this stage.

Effects Unlikely/Not Significant

- 9.10 The following effects are considered unlikely to be significant and therefore will not be considered further within the EIA or reported in the ES. A factual evidence base has been provided below to support this. Where mitigation has been used to inform this judgement, the identified mitigation has been captured within the Preliminary Environmental Management Plan (EMP) provided in **Appendix 2.1**.

Nuisance and disturbance as a result of dust from construction activities

- 9.11 Construction activities have the potential to result in nuisance and or adverse health effects due to dust deposition arising from on- and off-Site construction activities such as demolition, earthworks, construction and trackout, resulting in the soiling of surfaces; visible dust plumes and elevated PM₁₀ concentrations as a result of dust generating activities. This has the potential to effect residential, commercial and educational properties within 250m of the Site and 50m from the access route/s up to 250m from the entrance/s.
- 9.12 Dust and particulate matter emissions produced during construction activities would be controlled through the implementation of a Construction Environmental Management Plan (CEMP). This CEMP will be informed by Institute of Air Quality Management (IAQM) Guidance¹¹³ and would include prevention measures, such as screening stockpiles of materials, deployment of windbreak netting and dampening of exposed soils as appropriate and set out requirements for ongoing monitoring and liaison with the local community, RBC and BC. These tertiary mitigation measures would be considered an integral part of the Project for Assessment and considered part of the Preliminary EMP (**Appendix 2.1**).
- 9.13 Therefore, nuisance and disturbance as a result of dust from construction activities to existing residential, commercial and educational properties is not considered to be significant and will not be considered further in the EIA or reported in the ES.

Nuisance and disturbance as a result of odour from the Pilsworth South Landfill Site

- 9.14 Activities at the Pilsworth South Landfill Site have the potential to generate odour emissions for future residents of the Project for Assessment. However, these will be mitigated through measures outlined within their Environmental Permit, which is

¹¹³ IAQM (2024). Guidance on the Assessment of Dust from Demolition and Construction v2.2. Available at: <https://iaqm.co.uk/wp-content/uploads/2013/02/Construction-Dust-Guidance-Jan-2024.pdf> [Accessed 28/06/2024].

enforced by the Environment Agency (EA). Information provided by RBC¹¹⁴ indicates the EA have active measures in place to reduce potential odour emissions. These include the following:

- Capping over 50,000m² of exposed waste.
- Drilling additional wells to capture landfill gas from decomposing waste.
- Repairing damage to equipment from recent storms.
- Increasing site visits to monitor odours in the area.

9.15 The above measures and the distance between Pilsworth South Landfill Site and future residents of the Project for Assessment are predicted to minimise any odour emissions experienced.

9.16 Therefore, nuisance and disturbance as a result of odour from the Pilsworth South Landfill Site to future residents of the Project for Assessment is not considered to be significant and will not be reported further in the EIA.

Effects Likely/Significant

9.17 **Table 9.1** outlines the effects (and associated receptor[s]) that are considered to be likely and significant and therefore will be assessed within the EIA and reported in the ES. An indication of which spatial zone the impact is relevant to is also provided. Reference should be made to **Chapter 10** for specific detail of the ecological receptors to be considered within the assessment.

Table 9.1: Potential Likely Significant Effects and Sensitive Receptors

Effect	Receptor(s)	Applicable Stage(s)	Spatial Zone
Changes to concentrations of NO ₂ , PM ₁₀ and PM _{2.5} as a result of emissions from development generated traffic	Existing sensitive receptors, such as residential properties, schools, medical practices and any ecological designations within 200m of any roads experiencing increases in traffic flow as a result of the Project for Assessment	Construction/ Operation	All Spatial Zones
Exposure to elevated NO ₂ , PM ₁₀ and PM _{2.5} concentrations	Future residents of the Project for Assessment	Operation	Pink Quarter and Purple Quarter

¹¹⁴

RBC (n.d). Pilsworth South Landfill Site. Available at: <https://www.rochdale.gov.uk/environment-pests/pilsworth-south-landfill-site> [Accessed 28/06/2024].

Effect	Receptor(s)	Applicable Stage(s)	Spatial Zone
associated with vehicle exhaust emissions on the local road network			

Assessment Methodology of Effects Likely/Significant

9.18 The following background surveys/studies have been/will be completed.

Table 9.2: Background Surveys/Studies

Survey/Study/Analysis/Evaluation	Overview	Date of Completion
Completed		
Air Quality Constraints Report	A review of potential impacts associated with the development. This included review of the 'Northern Gateway: Area GMA 1.1 - Noise & Air Quality High Level Constraints Review' produced by WYG and subsequent comments from BC.	12 th August 2021
Pending		
Air Quality Monitoring	A 3-month programme of Air Quality Monitoring in order to quantify baseline NO ₂ concentrations within the vicinity of the Site.	September 2024

9.19 The study area for the assessment of vehicle exhaust emissions will be within 200m of all roads where:

- There is a change of more than 100 Annual Average Daily Traffic (AADT) Light Duty Vehicle (LDV) movements within an AQMA or more than 500 AADT elsewhere.
- There is a change of more than 25 AADT Heavy Duty Vehicle (HDV) movements within an AQMA or more than 500 AADT elsewhere.

9.20 This will be specifically determined upon receipt of the traffic data and the extents of the network considered to be relevant for air quality for both the construction and operational stages (the maximum extent of the highway network to be considered within the traffic modelling is provided in **Chapter 7**). A summary of the traffic assessment scenarios is provided in **Chapter 2**.

- 9.21 The assessment of vehicle exhaust emissions will be undertaken in accordance with the methodology outlined within the IAQM document 'Land-Use Planning & Development Control: Planning for Air Quality'¹¹⁵ and DEFRA guidance 'Local Air Quality Management Technical Guidance (TG22)'¹¹⁶.
- 9.22 For the construction stage, it is anticipated that effects will be assessed qualitatively. For the operational stage, effects will be assessed quantitatively using ADMS-Roads dispersion modelling software. This will include the development of a verification model using traffic data and monitoring results for 2022.
- 9.23 The assessment of likely significant effects to sensitive receptors will consider the sensitivity of the receptor (on a scale of high, medium, low and negligible) and the magnitude of change (on a scale of large, medium, small and negligible) to determine the level of effect on a scale of major, moderate, minor and negligible. Significant effects will be determined following this through professional judgment.
- 9.24 Effects associated with potential exposure of future occupants of the Project for Assessment to poor air quality will be determined based on the results of the previously described dispersion modelling. Where pollutant concentrations are below the relevant AQOs at the residential areas then the effect would be classified as not significant in accordance with the IAQM document 'Land-Use Planning & Development Control: Planning for Air Quality'¹¹⁷. If concentrations were above the AQO these would be considered significant and appropriate mitigation would be required.

Limitations and Assumptions

- 9.25 To ensure transparency within the EIA process, the following limitations and assumptions have been identified:
- The meteorological data used for the assessment is representative of the conditions at the Site. Records will be obtained from Manchester Airport, which has been selected based on a review of available observation locations to ensure the most representative records were selected.
 - Background pollutant concentrations used for the assessment are representative of baseline annual mean pollutant concentrations at the Site. These values will be obtained from the DEFRA background mapping study, an industry standard database produced on behalf of the UK Government, to

¹¹⁵ IAQM (2017). Land-Use Planning & Development Control: Planning for Air Quality. Available at: <https://iaqm.co.uk/text/guidance/air-quality-planning-guidance.pdf> [Accessed 28/06/2024].

¹¹⁶ DEFRA (2022). Local Air Quality Management Technical Guidance (TG22). Available at: <https://iaqm.defra.gov.uk/wp-content/uploads/2022/08/LAQM-TG22-August-22-v1.0.pdf> [Accessed 28/06/2024].

¹¹⁷ IAQM (2017). Land-Use Planning & Development Control: Planning for Air Quality. Available at: <https://iaqm.co.uk/text/guidance/air-quality-planning-guidance.pdf> [Accessed 28/06/2024].

ensure the most accurate representation of background pollutant concentrations.

- The traffic data obtained for the purpose of the assessment is accurate. This will provided TetraTech for the project based on relevant traffic modelling of the local area, and is therefore considered suitable for an assessment of this nature.
- The monitoring data used in the assessment is accurate. The results will be obtained from BC and RBC. These will have been ratified by DEFRA and are therefore considered valid. Site specific data will be collected in accordance with the requirements of DEFRA guidance LAQM.TG(22).
- There will be a number of potential sources of error within the modelling due to the complexities of pollutant dispersion and atmospheric chemistry. However, conservative estimates will be applied as relevant to ensure uncertainty is minimised and robust results predicted.

9.26 The above assumptions are similar to those required for any project of this nature. The adoption of worst-case parameters, where necessary, will ensure the assessment results can be considered sufficiently robust.

10. Biodiversity

Technical Baseline

- 10.1 The study area for the identification of designated sites follows best practice guidelines¹¹⁸. Sites of International importance were considered at 20 km from the Assessment Boundary, with National, County and Locally designated sites being considered at 2 km from the Site.

Statutory Designated Nature Conservation Sites

- 10.2 A number of sites of international importance are present within a 20 km Zone of Influence from the Site (**Figure 10.2**). These are the Rochdale Canal Special Area of Conservation (SAC), 3.5 km east; South Pennine Moors SAC, 17 km east; and the Peak District Moors Special Protection Area (SPA), 11 km east. Holcroft Moss Site of Special Scientific Interest (SSSI) (part of the Manchester Mosses SAC) sits beyond the 20 km Zone of Influence, but is considered due to its proximity to the M62 and sensitivities regarding pollution principally from Heavy Goods Vehicle movements.
- 10.3 No sites of national importance are identified within a 2 km Zone of Influence from the Site. The nearest site is the Rochdale Canal Site of Special Scientific Interest (SSSI), 3.5 km from the Site, which is wholly coincident with the Rochdale Canal SAC designation.
- 10.4 The Site is identified within a SSSI Impact Risk Zone for the type and scale of development proposed. The HRA of the Places for Everyone (PfE) has scoped the Site in for further assessment regarding air quality impacts and recreational pressure on the three internationally designated sites outlined above.
- 10.5 Four Local Nature Reserves (LNR) of statutory designation are located within 2 km of Site, which are Hollins Vale 60 m west; Hopwood Woodlands LNR 390 m east; Alkington Woods, 1 km SE and Blackley Forest 1.9 km south east; illustrated on **Figure 10.3**.

Non-statutory Designated Nature Conservation Sites

- 10.6 A number of Sites of Biological Importance (SBIs) of county importance are located both adjacent and within 2 km of the Site. Most significant is 'Pilsworth' SBI, which is located directly adjacent to the northern boundary of the Site.
- 10.7 **Table 10.1** below provides a summary of the non-statutory designated sites, and illustrated on **Figure 10.3**.

¹¹⁸ <https://cieem.net/resource/guidelines-for-ecological-impact-assessment-ecia/>

Table 10.1: Non-statutory Designated Nature Conservation Sites within the 2km Study Area

Designation	Sites within Study Area	Ecological Importance
Non statutory	Pilsworth Site of Biological Importance (SBI); 0km north. The site includes a number of water bodies of differing character, of value for their marginal vegetation and bird interest. Other habitats include broadleaved woodland, scrub and tall ruderal.	Local
Non statutory	Railway cutting at Heywood (SBI); 661m north east.	Local
Non statutory	Hollins vale (SBI); 473m north west.	Local
Non statutory	Hollins plantation (SBI); 336m west.	Local
Non statutory	Parr Brook (SBI); 1.2km west.	Local
Non statutory	Heaton Park Reservoir (West and East) (SBI); 941m south west.	Local
Non statutory	Hazlitt Wood (SBI); 900m south west.	Local
Non statutory	Streams and Flushes Nera Bradley Hall Farm (SBI); 1.5km south.	Local

Habitats

- 10.8 The Site is dominated by species-poor agricultural grassland, which is generally considered to be of negligible importance. The more important habitats are associated with the Whittle Brook corridor, which comprise the brook itself (county importance), species-rich acid-neutral grassland (local importance), deciduous woodland (local importance) and hedgerows (local importance).
- 10.9 Several ponds are also scattered around the Site and are generally in poor condition but would be considered to be of local importance.
- 10.10 Invasive floral species are present across the Site, which are of negligible ecological importance, but require mitigation.
- 10.11 The Site's existing tree stock consists of a range of single trees, collective groups of trees, pocket areas of woodland and widespread hedgerows of largely good to moderate quality. The majority of tree cover is situated within undisturbed arable fields, which are segregated by established field boundary hedgerows. As detailed in **Chapter 4**, there are two TPO's towards the west of the Site. **Figure 10.4** shows the indicative habitat features plan; please note that at this stage of the assessment, there

are areas which have not been fully assessed and linear habitats such as hedgerows are not featured on the plan currently.

Fauna

10.12 Based on the habitats so far recorded at the Site, there is the potential for the Site to support the following species/species groups:

- Amphibians;
- Badgers;
- Bats;
- Birds (non-breeding and breeding);
- Brown hare;
- Hedgehog;
- Invertebrates;
- Otter;
- Water Vole; and
- Reptiles

Proposed Scope of Assessment

10.13 The below sets out the proposed scope of assessment based on an understanding of the characteristics of the Site, surrounding area and the Project for Assessment (**Chapter 4**). Where environmental effects are considered unlikely to be 'significant', an appropriate evidence base has been provided to justify the 'scoping out' of these effects ensuring the EIA and ES only assesses those effects considered 'likely' to be significant, at this stage.

Effects Unlikely/Not Significant

10.14 The following effects are considered unlikely to be significant and therefore will not be considered further within the EIA or reported in the ES. A factual evidence base has been provided below to support this. Where mitigation has been used to inform this judgement, the identified mitigation has been captured within the PEMP provided in **Appendix 2.1**

Loss of potential invertebrate habitat resulting from construction phase affecting invertebrate populations

10.15 Construction activities have the potential to result in the loss of habitat which may be used by invertebrate populations. However, much of the habitat across the Site is of very limited botanical diversity and intensively farmed with insecticides, thus reducing the importance of the Site for invertebrate populations. Primary mitigation measures comprise the retention of the watercourse corridors within the Site (principally Whittle Brook, considered to be of greatest importance for invertebrate populations) which

will retain the most valuable habitats for invertebrates and avoid the majority of impacts. These habitats can be safeguarded during construction through best practice sensitive working methods which can be controlled through Construction Environmental Management Plans, to be secured through planning conditions. These retained habitats can be safeguarded during the operational phase of the development through targeted species planting to act as natural screening/ barriers (i.e. hedgerows) and fencing-off. For this reason, impacts on invertebrates are not considered significant and will not be considered further within the EIA. Non-significant impacts on invertebrates will, however, be considered as part of a wider Ecological Impact Assessment.

Effects Likely/Significant

- 10.16 **Table 10.2** below outlines the effects (and associated receptor[s]) that are considered to be likely and significant and therefore will be assessed within the EIA and reported in the ES. An indication of which spatial zone the impact is relevant to is also provided.

Table 10.2: Potential Likely Significant Effects and Sensitive Receptors

Effect	Receptor(s)	Applicable Stage(s)	Spatial Zone
Degradation through nitrogen deposition and recreational pressure	Rochdale Canal SAC and SSSI Holcroft Moss SAC SSSI South Pennine Moors SAC Peak District Moors SPA	Construction and Operation	All spatial zones
Degradation through air quality, dust pollution and recreational pressure	Non-Statutory nature conservation sites (all SBI's listed in Table 10.1)	Construction and Operation	All spatial zones
Overall loss of habitat and degradation of retained habitat	Deciduous woodland (loss) Hedgerows (loss) Neutral grassland (loss) Ponds (loss) Degradation (Whittle Brook corridor)	Construction and Operation	All spatial zones
Risk of killing/injury/ loss of habitat and disturbance to populations of wildlife	Amphibians, badgers, bats, birds [non breeding and breeding], brown hare, hedgehog, otter, water vole and reptiles within the Site and +250m surrounding Site in the case of Great Crested Newt/Amphibians	Construction and Operation	All spatial zones

Assessment Methodology of Effects Likely/Significant

- 10.17 The following background surveys have been/will be completed. For clarity, detailed species surveys have been / will be undertaken within the areas which access was permitted, which is illustrated by the light-green shading on **Figure 10.1**. The remaining areas, shaded in yellow, **Figure 10.1** are areas of no access and were therefore subject to 'high level' assessment (a combination of desk-based data; ecological and arboricultural records, coupled with review of aerial imagery, and field data views from Public Rights of Way; further details on this methodology are described in the 'Inaccessible land' section below.

Table 10.3: Background surveys pending/ completed

Survey/Study/Analysis/ Evaluation	Methodology	Date of Completion
Statutory nature conservation sites ¹¹⁹	Statutory nature conservation sites are assessed in line with CIEEM EIA Guidelines ¹¹⁸ , where a Zone of Influence (Zoi) from the Site is assessed at geographical ranges from 20 km for Internationally designated sites, and 2 km for National, County and locally designated sites.	Ongoing
Non-statutory nature conservation sites	An assessment of impacts on non-statutory sites and identification of appropriate mitigation offered.	Ongoing
Amphibians (including Great Crested Newt)	Surveys for great crested newt have been undertaken at all ponds within the areas of accessible land and in adjacent land within 250 m, where access permits (see Figure 10.5 for the surveyed ponds). Data received from Highways England and RBC has also been included in the aforementioned plan. All accessible ponds were subject to eDNA analysis. The need for the population estimate surveys will be determined by the perceived impact to great crested newts and chosen licence route (traditional vs. district level licence). It is the intention to opt into the District Level Licence Route, and enquiries have already been made with Natural England to this end.	June 2022 & June 2024

¹¹⁹ Impacts on the internationally important nature conservation sites will also be addressed through a Habitat Regulations Assessment. Initially, this will comprise a Stage 1 screening assessment, followed by a Stage 2 Appropriate Assessment if Likely Significant Effects are anticipated.

Survey/Study/Analysis/ Evaluation	Methodology	Date of Completion
Birds (non-breeding and breeding)	Detailed bird surveys have been undertaken within the accessible areas (Figure 10.1). A full suite of breeding bird surveys, comprising a minimum of three early-morning visits have been undertaken, including a fourth nocturnal visit, to assess for nocturnal and crepuscular species, in line with best practice guidance A full suite of non-breeding bird surveys have been undertaken, comprising five early morning surveys and one nocturnal survey in the appropriate season, to establish presence of overwintering bird species.	Breeding Birds: April 2021 – June 2021 & March 2024 - July 2024 Non-Breeding Birds: November 2020 – December 2020 & October 2023 – March 2024
Invertebrates	A desk-based review has been undertaken, whereby records of notable invertebrates for the area were collated and analysed to assess their likely presence within the Site. Common and widespread invertebrate species were largely present within the 2 km buffer. The majority of the Site comprises intensely managed modified grassland which is largely unsuitable for protected and notable invertebrates, with areas of better quality, such as Whittle Brook being retained. Therefore impacts on invertebrates are not considered significant and will not be considered further within the EIA. Non-significant impacts on invertebrates will, however, be considered as part of a wider Ecological Impact Assessment.	August 2022
Badger	Badger surveys across the accessible areas (Figure 10.1) have been completed in 2022, with update surveys ongoing in 2024. Surveys undertaken in the appropriate season to identify setts and areas of foraging. Further bait-marking surveys may be considered if it is apparent that different badger territories occupy the Site.	June 2022 – October 2022 & June 2024 - Ongoing
Bats (roosting and foraging)	Preliminary roost assessment surveys of all buildings within the accessible land (Figure 10.1) have been undertaken, along with surveys of trees which will either be directly or indirectly affected by development (i.e.	May 2022 – September 2022 & May 2024 – Ongoing

Survey/Study/Analysis/ Evaluation	Methodology	Date of Completion
	through lighting). Subsequent to this, further nocturnal surveys have been undertaken in line with the building/tree's suitability for bats. An alternative approach of climbed assessments will be used for trees where this is deemed necessary or a more accurate/proportionate approach due to the transient nature of tree roosts. In addition, the accessible land is generally perceived to offer moderate habitat quality for bats owing to its predominant agricultural use. Certain areas (i.e. the Whittle Brook corridor) offer higher value, but in the general context of the wider Site's suitability, an assessment of overall moderate habitat quality is considered proportionate. In line with this assessment, seasonal transect surveys of the Site have been undertaken in the appropriate season (Spring, Summer, Autumn) and supplemented by static automated detector deployments per month.	
Brown hare	Desk based records for this species will be included in the assessment, along with visual evidence noted during other protected species surveys such as wintering and breeding bird surveys and badger surveys, where the Site is being covered during daytime and evening walkovers.	Ongoing – as part of other protected species surveys
Habitats	A full extended phase one habitat survey/UK Habs survey will be undertaken of the accessible land (Figure 10.1), along with a hedgerow assessment of each hedgerow, to inform Biodiversity Net Gain calculations.	June 2022 & Update surveys Partially complete (as of August 2024)
Hedgehog	Desk based records for this species will be included in the assessment, along with visual evidence noted during other protected species surveys such as wintering and breeding bird surveys and badger surveys, where the site is being covered during daytime and evening walkovers.	Ongoing – as part of other protected species surveys
Otter/Water Vole	Although it is acknowledged that Brightley Brook, Castle Brook and Whittle Brook	June 2022, September 2022

Survey/Study/Analysis/ Evaluation	Methodology	Date of Completion
	within the accessible land will be retained in any event, proximate development or crossings could incur adverse impacts. For this reason, two repeat surveys (one early season April – June and a second late season July – September) will be undertaken on Castle Brook, Brightley Brook and Whittle Brook within and adjacent to the Site.	& June 2024, September 2024
Reptiles	Targeted surveys for reptiles in a small number of suitable habitats across the accessible land, in areas which are likely to be affected. Surveys will not apply to the majority of the Site, which is predominantly species-poor agricultural land, creating unsuitable reptile habitat.	Ongoing (May 2024 – September 2024)
Trees	A full BS5837 Tree Quality Survey is currently being undertaken of the accessible land (Figure 10.1), capturing trees measuring over 75mm at 1.3m, in addition to all hedgerows on site.	Ongoing

- 10.18 The assessment of likely significant effects (defined below) to sensitive receptors will consider the sensitivity of the receptor (on a scale of high, medium, low and negligible) and the magnitude of the change (on a scale of large, medium, small and negligible) to determine the level of effect on a scale of major, moderate, minor and negligible. The effects are expressed in terms of a geographical scale, e.g. from significant at the local scale up to significant at the international scale. However, the geographical scale at which an effect is assessed as being significant may differ in comparison to the geographical importance of the ecological feature being assessed. The CIEEM guidelines¹²⁰ state that ‘an effect on a species which is on a national list of species of principal importance for biodiversity may not have a significant effect on its national population’.
- 10.19 The CIEEM guidelines¹²⁰ define a significant effect as ‘an effect that either supports or undermines biodiversity conservation objectives for important ecological features of biodiversity in general’. A significant effect is therefore an effect that is ‘sufficiently important to require assessment and reporting so that the decision maker is adequately informed of the environmental consequences of a project’. Therefore significant effects will be determined by assessing any deviation from the baseline

¹²⁰ Chartered Institute for Ecology and Environmental Management: Guidelines for Ecological Impact Assessment: <https://cieem.net/resource/guidelines-for-ecological-impact-assessment-ecia/>

conditions of a feature of ecological importance that may occur as a result of impacts arising from the construction or operational phases of the Project for Assessment.

- 10.20 In accordance with CIEEM guidelines, the assessment will comprise an Ecological Impact Assessment (EclA) report which shall be included as an Appendix to the ES. The EclA will describe the baseline habitat conditions and protected and notable species present at the Site; it will also outline mitigation for impacts which are not significant (as defined above).

Limitations and Assumptions

- 10.21 To ensure transparency within the EIA process, the following limitations and assumptions have been identified.

Inaccessible land

- 10.22 There will be certain parcels of the Site which are inaccessible to directly survey to determine the presence/likely absence of protected/notable species and to accurately record habitats (**Figure 10.1**). In these instances, a combination of desk-based data (purchased ecological records, review of relevant consented schemes such as South Heywood (16/01399/HYBR), coupled with a review of aerial imagery) and field data (views from Public Rights of Way) will be utilised to inform the likely presence of protected/notable species and habitats. For the avoidance of doubt, unless there is clear evidence which would suggest a given species/habitat is *not* present within the inaccessible land, presence will be assumed and mitigation proposed on a precautionary basis.
- 10.23 In knowledge of this, consultation with Greater Manchester Ecology Unit (GMEU) is ongoing to agree on the extent of survey effort/assessments in these parcels. The current approach for survey effort across the 'accessible' against the 'inaccessible' land is outlined below.

Table 10.4: Survey Scope for Accessible and inaccessible land

Receptor	Survey Scope for Accessible Land	Survey Scope of Inaccessible Land (Including Highways land)
Amphibians	eDNA samples taken from all accessible ponds on the Site and within 250 m (see Figure 10.5).	Utilising data search records and desk based analysis. Ponds likely to be assumed as positive for GCN presence under District Level Licencing by Natural England.
Badger	Detailed surveys of the accessible parts of the Site (Figure 10.1) including walkover recording badger field signs and setts.	Utilising data search records and desk based analysis. Badger setts found using publicly accessible areas to be recorded.
Bats (roosting and foraging)	Roosting: detailed bat emergence surveys of accessible buildings onsite	Roosting: buildings to be assessed for their bat roosting potential where possible from public access.

Receptor	Survey Scope for Accessible Land	Survey Scope of Inaccessible Land (Including Highways land)
	(Figure 10.1). A representative sample of trees which may be lost, with bat roosting potential, to be surveyed. Due to the extensive timescales of the Project for Assessment (including phasing works) and the ecology of bat tree-roosts (tree roosts often used sporadically by bats), it is considered disproportionate to undertake detailed surveys of all trees with bat roosting potential across the accessible parts of the Site. Foraging: Detailed nocturnal walkovers of the accessible parts of the Site, following best practice guidelines.	Where public access is not possible, desk-based data to be utilised to establish likelihood of bat roost presence. Foraging: desk-based data utilised to categorise habitat suitability for bats in inaccessible areas.
Birds	Detailed wintering and breeding bird surveys for accessible parts of the Site (Figure 10.1) in accordance with best practice guidelines.	Utilising desk-based data and reviews of habitats from publicly accessible land to determine likely suitability of habitats for protected and notable bird species.
Brown hare	Records of this species to be gathered during other protected species surveys across the accessible parts of the Site.	Utilising desk-based data and reviews of habitats from publicly accessible land to determine likely suitability of habitats for brown hare.
Invertebrates	Targeted species surveys for accessible parts of the Site where deemed appropriate (should there be habitats of suitability).	Utilising desk-based data to form an understanding of likely presence of protected and notable invertebrates within inaccessible land.
Habitat	Detailed Extended Phase 1 / UK Habitats for accessible parts of the Site (Figure 10.1).	Utilising desk-based data and review of habitats from publicly accessible land to form an understanding of habitats and their condition in inaccessible land.
Otter/Water Vole	Detailed surveys of Castle Brook, Brightley Brook and Whittle Brook (Figure 10.1).	Utilising desk-based data and review of habitats from publicly accessible land to understand likely presence/absence of otter and water vole

Receptor	Survey Scope for Accessible Land	Survey Scope of Inaccessible Land (Including Highways land)
		within inaccessible watercourses and their immediate bankside habitat.
Reptiles	Targeted reptile surveys within a small number of habitats of suitability on accessible land (Figure 10.1).	Utilising desk-based data and review of habitats from publicly accessible land to understand likely presence/absence of reptiles at inaccessible land.
Trees	A full BS5837 Tree Quality Survey is currently being undertaken of the accessible land (Figure 10.1), capturing trees measuring over 75mm at 1.3m, in addition to all hedgerows on site.	Utilising desk-based data and review of trees from publicly accessible land to undertake a high level appraisal of existing tree stock and hedgerows to flag any principle constraints and opportunities, in accordance with BS5837 criteria.

11. Hydrology, Flood Risk and Water Quality

Technical Baseline

Water Features

- 11.1 In the north of the Site, Brightley Brook and Pilsworth Clough¹²¹ flow east to west and confluence within the Site to form Brightley Brook. In the east of the Site, an unnamed Ordinary Watercourse flows from the Site, south and then off Site where it confluences with Whittle Brook before flowing northward back through the centre of the Site. Castle Brook is located within the west of the Site flowing northwards. Castle Brook confluences with Whittle Brook, which then further downstream confluences with Brightley Brook within the Site boundary to form Hollins Brook, which flows west off Site.
- 11.2 South of the Site is an additional Ordinary Watercourse, Mere Brook (alternatively named Langley Brook), which flows into the Whittle Brook. The location of these watercourses can be seen in **Figure 11.1**.
- 11.3 During Site surveys, lateral inflows from drainage structures were observed at Moss Hall Road on Brightley Brook, the origin of these is currently unknown. Outside of the Site there are a few ponds adjacent to northern boundary of the Site.

Flood Risk

- 11.4 The ground levels around the Site range from approximately 85mAOD to 134mAOD. The generalised topography of the Site is higher elevations in the north east with the lower areas in the north west. Throughout the west of the Site there are areas of elevations of approximately 90 – 99mAOD between which the valleys for Whittle Brook and Castle Brook fall.
- 11.5 The Site has areas of Flood Zone 2 and 3 located along Hollins Brook, Whittle Brook and Brightley Brook. The extent of these designated Flood Zones can be seen in **Figure 11.1**. The extent of Flood Zone 2 is considered to be the floodplain.
- 11.6 There are areas of surface water flooding indicated in mapping¹²² throughout the Site.
- 11.7 There are areas identified as at risk of reservoir flooding¹²²²⁰ during dry and wet days in the north western corner of the Site. These extents are along Hollins Brook, Brightly Brook and the northernmost reaches of Whittle Brook.
- 11.8 A review of Defra's online 'Magic' mapping¹²³ indicates the Site is underlain by Unproductive Superficial deposits and by bedrock deposits which are classified as Secondary A. A review of the Long-Term Flood Risk website¹²²²⁰ indicates that

¹²¹ This is the assumed name at this stage.

¹²² Check Your Long Term Flood Risk, 2024, Environment Agency, [Accessed 04/07/2024], <https://check-long-term-flood-risk.service.gov.uk/risk>

¹²³ MAGIC map, 2024, DEFRA, [Accessed 04/07/2024], <https://magic.defra.gov.uk/MagicMap.aspx>

groundwater flooding is considered to be unlikely in this area, therefore the risk of groundwater flooding is considered to be low.

- 11.9 There are areas of industrial and commercial use (less vulnerable) within and adjacent to the Site boundary, and residential areas (more vulnerable) adjacent to the Site boundary that are considered receptors of flood risk.

Water Quality

- 11.10 The Site is located within a Water Framework Directive (WFD) surface body catchment, the Whittle Brook (Irwell) catchment. This has an ecological WFD classification of moderate.
- 11.11 The Site is located within the Northern Manchester Carboniferous Aquifers WFD groundwater catchment. This has an overall classification of Poor status.

Drainage

- 11.12 The existing surface water infrastructure within the Site is unknown. It is suspected that a highway drain is present beneath Moss Hall Road, however there are no drainage records available. It is anticipated the existing developments within the Site, including Birch Industrial Park, have their own dedicated surface water network, however their details and outfalls are unknown. Two existing culverts have been recorded adjacent to Moss Hall Road with an outfall into Brightley Brook, however the nature of these is not confirmed at this time.
- 11.13 There are existing foul treatment plants located across the Site, however details of these are currently unknown. It is anticipated the existing developments within the Site, including Birch Industrial Park, have their own dedicated foul water infrastructure and treatment system, however their details and outfalls are unknown at this time. There are no other known foul water assets recorded within the public highways nor within the Site.
- 11.14 Bury Wastewater Treatment Works is located to the west of the Site, whilst the sewer network is along Hareshill Road to the north.

Water Availability

- 11.15 There are potable water connections servicing the Pike Fold Golf Club and Castle Brook Farm located in the west of the Site. These connections flow from the west, crossing the M66 and following the route of existing access roads. There is a further potable water connection to the north of the Site boundary that flows in a westerly direction and connects to Pilsworth Cottages within the northwest of the Site footprint.

Proposed Scope of Assessment

- 11.16 The below sets out the proposed scope of assessment based on an understanding of the characteristics of the Site, surrounding area and the Project for Assessment (**Chapter 4**). Where environmental effects are considered unlikely to be 'significant', an appropriate evidence base has been provided to justify the 'scoping out' of these effects ensuring the EIA and ES only assess those effects considered 'likely' to be significant, at this stage.

Effects Unlikely/Not Significant

- 11.17 The following effects are considered unlikely to be significant and therefore will not be considered further within the EIA or reported in the ES. A factual evidence base has been provided below to support this. Where mitigation has been used to inform this judgement, the identified mitigation has been captured within the Preliminary Environmental Management Plan (EMP) provided in **Appendix 2.1**.

Decrease in water quality as a result of runoff during construction activities

- 11.18 Construction activities have the potential to result in silt deposition, chemical runoff and/or cement pollution arising from runoff from on-site construction activities, resulting in the decrease in water quality of receiving waterbodies. It is anticipated that runoff produced during construction activities would be controlled through the implementation of a CEMP. This CEMP would include prevention measures and set out requirements for ongoing monitoring. These tertiary mitigation measures would be considered an integral part of the Project for Assessment and considered as part of the Environmental Management Plan and are already defined in the Preliminary EMP (**Appendix 2.1**).

- 11.19 Therefore, a decrease in water quality as a result of runoff during construction activities to waterbodies within and downstream of the Site and aquifer are not considered to be significant and will not be considered further in the EIA or reported in the ES.

Increase in flood risk as a result of runoff during construction activities on the Site

- 11.20 Increased areas of hardstanding, compaction of ground and changes in topography during construction activities have the potential to result in increased flood risk both on and off the Site arising from increased volumes of runoff resulting in a risk to infrastructure classified as 'less vulnerable' (e.g. Birch Industrial Park, Heywood Distribution Park, industrial units on Castle Road and the service station) and areas classified as 'more vulnerable' (e.g. residential areas north of the M62, Pilsworth Cottages and within Simister to the south). It is anticipated that runoff produced during construction would be managed through the implementation of a CEMP. The CEMP will include measures such as the installation of a temporary surface water drainage system to manage and direct runoff during construction. These tertiary mitigation measures would be considered an integral part of the Project for Assessment and considered as part of the Environmental Management Plan and are already defined in the Preliminary EMP (**Appendix 2.1**).
- 11.21 Therefore, an increase in flood risk as a result of runoff during construction activities to 'less vulnerable' and 'more vulnerable' infrastructure on Site and adjacent to Site is not considered to be significant. This will not be considered further in the EIA or reported in the ES.

Increased demand on water supply as a result of water use during construction activities

- 11.22 There is expected water use during construction activities e.g. dust suppression and high pressure cleaning. If uncontrolled, this has the potential to result in a negative impact on the water availability in the area, increasing the demand on local supplies. It is anticipated that water use during construction activities will be controlled through

the implementation of a CEMP. This CEMP would stipulate good practice guidance for water efficiency on the Site. These tertiary mitigation measures would be considered an integral part of the Project for Assessment and considered as part of the Environmental Management Plan and are already defined in the Preliminary EMP (**Appendix 2.1**).

- 11.23 Therefore, an increase in demand on water supply as a result of water use during construction activities is not considered to be significant and will not be considered further in the EIA or reported in the ES.

Effects Likely/Significant

- 11.24 **Table 11.1** outlines the effects (and associated receptor[s]) that are considered to be likely and significant and therefore will be assessed within the EIA and reported in the ES. An indication of which spatial zone the impact is relevant to is also provided.

Table 11.1: Potential Likely Significant Effects and Sensitive Receptors

Effect	Receptor(s)	Applicable Stage(s)	Spatial Zone
Decrease in water quality as a result of runoff	All watercourses and waterbody receptors such as ponds within the Site Downstream waterbodies within the area of interest (including Hollins Brook and River Roch)	Operation	All Spatial Zones
Increase in surface water flood risk as a result of increased overland flows from changes to topography and increased areas of hardstanding	Less Vulnerable and More Vulnerable infrastructure	Operation	All Spatial Zones
Increase in fluvial flood risk as a result of areas of hardstanding within the floodplain	Less Vulnerable and More Vulnerable infrastructure	Construction and Operation	All Spatial Zones adjacent to waterbodies
Increase in flood risk due to potential filling of existing drainage channels	Less Vulnerable and More Vulnerable infrastructure	Operation	All Spatial Zones adjacent to waterbodies
Flood risk as a result of flooding from Off-Site reservoirs	Less Vulnerable and More Vulnerable infrastructure	Construction and Operation	All Spatial Zones within reservoir flood extents

Effect	Receptor(s)	Applicable Stage(s)	Spatial Zone
Flood risk as a result of flooding from failure of On-Site reservoirs installed as part of drainage strategy	Less Vulnerable and More Vulnerable infrastructure	Construction and Operation	All Spatial Zones
Increased demand on existing drainage networks and Waste Water Treatment Works	Waste Water Treatment Works	Operation	All Spatial Zones
Increased demand on water resources and associated infrastructure	Aquifer, reservoirs and existing potable water infrastructure	Operation	All Spatial Zones
Decrease in groundwater quality as a result of infiltration of surface waters through SuDS	Aquifers	Operation	All Spatial Zones
Changes to the groundwater hydrological regime as a result of changes to hardstanding areas	Aquifers and retained peat resources	Operation	All Spatial Zones

Assessment Methodology of Effects Likely/Significant

11.25 The following background surveys/studies have been/will be completed.

Table 11.2: Background Surveys/Studies

Survey/Study/Analysis/Evaluation	Overview	Date of Completion
Completed		
Site Walkover	A Site walkover was undertaken for a visual inspection of the watercourses to inform where further surveys are required. Areas of the channel could not be viewed due to the extent of vegetation, however, it is considered that the resultant model and assessments will	May 2024

Survey/Study/Analysis/ Evaluation	Overview	Date of Completion
	provide an appropriate level of accurateness without the need for further survey in these areas	
Pending		
Channel survey	Channel topography surveys are planned to inform the fluvial model	September 2024
Structures survey	Surveys of instream structures are planned to inform the fluvial model	September 2024
Fluvial Modelling	A 2D hydraulic model will be produced to determine the extents and depths of flooding on Site in both present day and in future climate scenarios. The extent of the model will cover Whittle Brook, Castle Brook and Brightley Brook including Hollins Brook up to a downstream boundary	Autumn 2024
Flood Risk Assessment	A Flood Risk Assessment will be produced to determine the risk to the Site from flooding in both the present scenario and following implementation of the Proposed Scheme. Off-site risks of flooding will also be considered as part of the assessment. This assessment will consider the compliance of the Proposed Scheme with relevant policy.	Autumn 2024
Drainage Strategy	A separate Surface Water and Foul Drainage Strategy for the Site will be produced detailing how the proposed drainage will manage surface water and foul flows in compliance with local and national policy.	Autumn 2024
Water Framework Directive Assessment	A WFD Assessment will be produced to determine whether the construction and implementation of the Proposed Scheme will cause changes to the	Autumn 2024

Survey/Study/Analysis/ Evaluation	Overview	Date of Completion
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ecological, chemical and morphological WFD status of the receiving watercourses on the Site. Risks to off-Site waterbody receptors will also be considered as part of the assessment. This assessment will consider the compliance of the Proposed Scheme with relevant legislation.

- 11.26 Desk based studies will be used to inform the residual parts of the assessment boundary. This is considered to be appropriate and provide the required level of detail to inform the assessment.
- 11.27 The following guidance will be used to inform the supporting reports for this ES Chapter:
- National Planning Policy Framework (NPPF) (2023);
 - Water Environment (Water Framework Directive) (England and Wales) Regulations 2017;
 - Flood and Water Management Act 2019;
 - DEFRA Sustainable Drainage Systems Non-statutory technical standards for sustainable drainage systems 2015;
 - Rochdale Borough Council (RBC) Local Plan Adopted 2016;
 - Bury Borough Council (BC) Local Plan (Consultation closed May 2024);
 - RBC Flood Risk Management Strategy;
 - BBC Local Flood Risk Management Strategy;
 - Oldham and Rochdale Urban Design Guide Supplementary Planning Document;
 - North West SuDS Pro-forma Guidance for completing your pro-forma; and
 - 2015 CIRIA SuDS Manual (C753F).
- 11.28 The study area will be defined as the Assessment Boundary with the addition of downstream watercourses and infrastructure receptors adjacent to and downstream of the Site. The downstream extent included within the assessment will be defined by the extent of the fluvial modelling to be agreed with the EA.
- 11.29 The assessment within the ES will be informed by the following studies:

- Assessment of baseline hydrology;
 - Site-specific fluvial hydraulic modelling to establish the extent and depth of fluvial flooding across the Site including allowance for climate change; and
 - Modelling Report.
- 11.30 Further standalone documents that are being produced in support of the planning application and that are required to satisfy another consenting regime will also be used to inform the ES and are as follows:
- Drainage calculations;
 - A Flood Risk Assessment;
 - Water Framework Directive Assessment;
 - A Surface Water and Foul Drainage Strategy; and
 - Utilities Assessment – for potable water.
- 11.31 The assessment will be based on the available plans and the studies mentioned above. Design principles applied during the assessments for the Planning Application will be assumed to apply to the Project for Assessment within the ES.
- 11.32 Assumptions based on current industry best practice will be used to determine the proportion of hardstanding areas within the Site for the drainage calculations.
- 11.33 The sensitivities of the identified receptors will be determined using professional judgement and will be clearly justified within the ES Chapter.
- 11.34 The hydrological model prepared for the Project for Assessment will inform the FRA and the ES through defining in further detail the current flood risk to the Site in a 1% Annual Exceedance Probability (AEP) event including the surveyed in channel structures. The future flood risk in a 1% AEP event when accounting for climate change will be modelled and will inform the FRA and ES. The methodology of this modelling will be agreed with the EA prior to its use in the assessment.
- 11.35 The FRA for the Planning Application will compare the Proposed Scheme to Local Planning Authority documents and national policy to ensure compliance.
- 11.36 The surface water drainage strategy will be developed to utilise relevant design guidance and code, in accordance with the requirements of the CIRIA SuDS Design Guidance, North West SuDS Pro-forma Guidance, the DEFRA Sustainable Drainage Systems Non-statutory technical standards, Design and construction guidance (Codes for adoption), Building regulations Part H and any requirements from the local adopting sewerage authority. It is anticipated that surface water will be managed using SuDS management train before discharging into the existing on-site watercourses at a greenfield discharge rate.

- 11.37 It is anticipated that the foul sewer will discharge to the Bury Wastewater Treatment Works located to the west of the Site and to the Hareshill Road sewer network to the north. This will be achieved via pumped systems operating at a flow rate agreed upon with United Utilities. The foul drainage strategy will be developed in accordance with Design and construction guidance (Codes for adoption), Building regulations Part H and any requirements from the local adopting sewerage authority.
- 11.38 For the assessment of potable water, pre-development enquiries with the water authority will be carried out. An assessment on the availability of potable water and demand of the Project for Assessment will be undertaken
- 11.39 The assessment of likely significant effects to sensitive receptors will consider the sensitivity of the receptor (on a scale of high, medium, low and negligible) and the magnitude of change (on a scale of large, medium, small and negligible) to determine the level of effect on a scale of major, moderate, minor and negligible. Significant effects will be determined following this through professional judgment.
- 11.40 Further consultation regarding any queries raised by the Environment Agency, utilities provider and LLFA regarding the Proposed Scheme and proposed surface water drainage strategy will be carried out to inform the design.

Limitations and Assumptions

- 11.41 To ensure transparency within the EIA process, the following limitations and assumptions have been identified:
- There are assumptions on channel / pipe sizing within the fluvial modelling where surveys cannot be completed due to overgrown vegetation and associated safety concerns. Therefore, the modelled sizing will be based on other pipes within the vicinity and the width the channel shown in the LiDAR. These and any other assumptions and limitations of the modelling will be detailed within the modelling report submitted with the ES Chapter. These will be based on best practices and industry standards and the methodology will be agreed with the EA. Therefore the resultant model can be considered acceptable and appropriate to inform this assessment.
 - The assessment will be based on the information available at the time of writing. A Site Investigation will not be completed prior to submission. The limitations of this will be discussed within the Drainage Strategy however, reasonable assumptions will be made based on available data that can be considered acceptable to inform this assessment.
 - The Site-specific fluvial hydraulic modelling which informs the ES will be limited to the baseline position which considers the extent and depth of fluvial flooding across the Site including allowance for climate change at 35%.
 - There are no significant limitations to the other data availability for the assessment or the impact assessment. The assessment is a subjective and qualitative assessment based on experience and presented as value judgements.

- The water environment and flood risk receptors have been defined using a combination of published data sources and project-specific assessments. The availability of published data with which to inform this assessment is considered robust and therefore this approach is considered acceptable.

12. Ground Conditions and Contamination

Technical Baseline

Site History

12.1 A Geo-environmental and Geotechnical Desk Study and Coal Mining Risk Assessment¹²⁴ has been completed for the Site and provides a full discussion of the contamination and geotechnical risks to the Site. A summary of the findings are presented below. The locations of features described in this Chapter are in line with **Figure 4.1: Spatial Referencing Plan**.

- The historical mapping reviewed indicates that the Site was primarily in agricultural land use from at least 1848 with farmsteads and multiple sand/sandstone, gravel quarries recorded across the Site. However, there was no evidence of the majority of gravel/sand pits and quarries during the Site walkover conducted in November 2023. It is anticipated that these have been infilled. The Whittle Lane Sand Pit was noted as having been infilled though the nature of the fill material is unknown;
- There are coal pits recorded in the north of the Site from as early as 1848 around Coal Pits Farm, Orange Quarter, though there are no records about the type of mining undertaken or details about their present condition. A former brickfield has been recorded in the Peach Quarter, adjacent to Brick House located north of the golf course, Grey Quarter. The brickfield is assumed to have been infilled as it was not visible during the walkover conducted in November 2023;
- Pilsworth Clough Mill and associated tanks and settling tanks were recorded from 1890 to 1992 on the northern boundary of the Yellow Quarter. The current location of the Pilsworth cottages and Garic Depot, located on the northern boundary of the Pink Quarter, was historically referred to as Morris' Mill, later named Pilsworth Bleachworks from 1848;
- Birch Services including petrol filling stations are located to the south onsite, Purple and Navy Quarters. The M66 and M62 Motorways are recorded from the 1970s, and are located at the western and southern boundaries respectively. Birch Industrial Park is recorded from the 1980s to the centre of Site, located between the Purple, Orange, and Yellow Quarters.
- To the north, of the Pink, Yellow and Orange Quarters is Pilsworth South Quarry (named Pilsworth South landfill). It is recorded from the 2010 mapping but is recorded as opening in 2006 and was observed as being present today.
- The potential contaminative features, detailed above, have been identified and are shown in **Figure 12.1** (drawing B048805-TTE-00-XX-DR-U-1003-02

¹²⁴ Tetra Tech (April 2024) Northern Gateway: Geo-environmental and Geotechnical Desk Study and Coal Mining Risk Assessment, Version 1

Contaminant Constraints Plan) which include Pilsworth Clough Woollen Mill and a former Bleach Works.

- Assessment of the Turquoise Quarter has been undertaken as part of the South Heywood application as outlined in **Chapter 2**. It is known that the area is underlain by landfill. Based upon the information supporting the planning application, the waste permit for the facility is EPR/CB37 38AC. This allowed for the importation of inert waste engineering fill. The location of the landfill is shown on **Figure 12.1** (drawing B048805-TTE-00-XX-DR-U-1003-02 *Contaminant Constraints Plan*).

Geology

- 12.2 The geology for the Site is shown in **Figure 12.2** (drawing B048805-TTE-00-XX-DR-U-1002-02 *Geology Plan*) and records evidence for made ground (infilled ground) related to infilling of sand pits. Worked ground is likely present around the Birch Industrial Park, as well as on the southern and western boundaries associated with the M62 and M66 respectively. Made ground (infilled ground) is likely present locally across Site associated with the recorded pits/quarries on-site though is not recorded by the British Geological Survey (BGS). To the north of the Site boundary beyond the Yellow, Pink and Orange Quarters is the Pilsworth South Landfill which comprises infilled ground. Made ground is known to be present beneath the Turquoise Quarter where landfill is present.
- 12.3 Superficial deposits are recorded across Site on the BGS geological map, although are likely to be thin to the northeast around Higher Barn Farm, Yellow and Orange Quarters. The superficial strata comprise Glacial Till with more localised strata consisting of:
- Ice contact deposits (mainly sand with some gravel);
 - Glaciofluvial Deposits (sand and gravel with lenses of clay and stony clay);
 - Head deposits (rock fragments and pebbles within a clay and sand matrix) which follow the Brooks: Whittle Brook; Brightley Brook and Castle Brook;
 - Morainic deposits (poorly sorted sand, gravel, and silty clay); and
 - Peat deposits are indicated in the southwest, Grey and Peach quarters, on the BGS geological map. Two ground investigations have been undertaken to investigate the Peat which have since been reviewed by Tetra Tech and are shown on B048805-TTE-00-XX-DR-U-1005-03 (Peat Investigation - Superficial Geology) **Figure 12.3**.
- The M60/M62/M66 Simister Island Interchange, 2021 ground investigation describes 22no. exploratory hole logs within the Peach Quarter. Of the 22no. exploratory holes only 4no. locations, recorded peat within the descriptions where it occurs as a secondary to a main constituent and typically described as “small pockets”, such as within WS-N04, where it is recorded as; Between 0.70 - 1.20m: Soft grey mottled

brown slightly gravelly slightly sandy slightly clayey SILT with occasional fibrous peat.

- The Ground Investigation at Unsworth Moss Farm, Bury, M24 4SH, November 2023, describes 31no. window sample boreholes to 3.00m bgl, undertaken within the Peach and Grey Quarters. All of which, did not record Peat.
- The exploratory holes from the Simister Island Interchange and Unsworth Moss Investigations and the records of any Peat are shown on **Figure 12.3: Peat Investigation – Superficial Geology** (drawing B048805-TTE-00-XX-DR-U-1005-02).

- 12.4 The Coal Mining Risk Assessment¹ completed for the Site includes boreholes undertaken for the Pilsworth Opencast Prospecting Scheme carried out in the northeast of the Site, around and to the north of Birch Industrial Park. These boreholes indicate the superficial strata to be variable in thickness across the Yellow, Orange, and Purple Quarters. The superficial strata were recorded between 1.40m thick at Coal Pits Farm, Orange Quarter and 31.70m thick at Meadowcroft Fold, Yellow Quarter. The borehole locations are shown in **Figure 12.4** (drawing B048805-TTE-00-XX-DR-U-1004-02).
- 12.5 The Bedrock comprises primarily Pennine Lower Coal Measures (mudstone, siltstone and sandstone) in the Yellow, Orange, Brown, Purple, Navy, Pink, Azure and part of the Peach Quarters and Pennine Middle Coal Measures (mudstone, siltstone and sandstone) to the west in the Peach, Pink and Grey Quarters. To the north in the Azure and Orange Quarters, the bedrock locally comprises the Rossendale Formation of Rough Rock and Rossendale Formation.
- 12.6 There are four coal seams recorded within the Site in the Yellow and Orange Quarters, comprising:
- Lower Mountain Coal Seam approximately 1.30m thick;
 - Bassey Coal Seam approximately 1.20m thick;
 - Subcrenatum Marine Band 0.15m thick; and
 - Sand Rock Coal Seam approximately 0.70m thick.
- 12.7 No records describe the depth of the Lower Mountain Coal and Bassey Coal Seams however, the BGS records for the NCB Pilsworth Opencast Prospecting works have identified that:
- The Subcrenatum Marine Band was encountered from the shallowest depth of 4.60m and a deepest depth of 52.65m bgl; and
 - The Sand Rock Coal Seam was encountered from the shallowest depth of 3.20m bgl and a deepest depth 57.70m bgl.

Hydrogeology and Hydrology

- 12.8 The bedrock strata, the Glaciofluvial Ice Contact Deposits and the Hummocky Glacial Deposits are classified as a Secondary A Aquifer. The Glacial Till, Glaciofluvial Sheet Deposits, Head, Alluvium and River Terrace Deposits are classified as a Secondary Undifferentiated Aquifers, with Peat and Glaciolacustrine Deposits classified as Unproductive Strata.
- 12.9 The Groundwater vulnerability is considered to be generally low. The superficial aquifers are described as being unproductive, low and of high vulnerability with a low recharge potential whilst the bedrock is described as low vulnerability.
- 12.10 The Site is not located within a Source Protection Zone (SPZ) for the protection of groundwater resources. The desk study indicates that there are three groundwater abstractions licences recorded as being on-site, however two relate to Pilsworth Landfill for dewatering and are located to the north off-Site, between the Yellow and Azure Quarters. The remaining licence present on-Site is attributed to Pike Fold Golf Club which is used for spray/ irrigation located in the Grey Quarter.
- 12.11 The watercourse within the Site are defined in **Chapter 11** and on **Figure 11.1**. The rivers on-Site are all part of the Whittle Brook (Irwell) Water Body Catchment as part of the Roch Irk Medlock Operational Catchment with a chemical rating of 'fail' and an ecological of 'moderate' (as of 2019).
- 12.12 The groundwater body underlying the Site is the Northern Manchester Carboniferous Aquifer with a chemical rating of 'poor,' and a quantitative rating of 'good' with an overall rating of 'poor' (as of 2019).

Coal Mining

- 12.13 The Site falls within a Coal Mining Reporting Area with areas of the Yellow, Orange, Azure, Purple and Navy Quarters falling within Development High Risk Areas as detailed in **Figure 12.5** (B048805-TTE-00-XX-DR-U-1001-03). These are areas where the Coal Authority consider that there is an unacceptable land stability risk posed by past coal mining activities to future development.
- 12.14 The Preliminary Coal Mining Risk Assessment produced by WYG, A117337/PCMRA_V2, (November 2020), was undertaken for South Heywood planning application, Turquoise Quarter. This incorporated the findings of the E3P Phase 2 Site Assessment (dated July 2019). The Coal Mining Report indicates that the southwestern area of the South Heywood application falls within a Development High Risk Area with respect to shallow coal from five subcropping seams; the Bassey Seam, Lower Foot Seam, Lower Mountain Seam, Sand Rock Seam and Six Inch Seam. The Coal Mining Risk Assessment describes that the E3P investigation targeted the coal seams and found intact bedrock to 30m bgl however, the targeted Coal Seams were not identified in the ground investigation. Therefore, it was considered that there was still a residual risk attributed to the potential underlying coal seams.
- 12.15 Therefore, a Revised Coal Mining Risk Assessment was undertaken by WYG to locate and determine the condition of the underlying seams, reported under A117337/RCMRA_V2 dated November 2020, (**Appendix 12.1**). The works identified thin coal seams recorded from 9.00m bgl to a depth of 30.00m bgl, with the drilling

recording as being intact to the depth of the exploratory holes with no loss of flush recorded. As such, the risk of shallow workings was reduced to low for the Turquoise Quarter.

12.16 The Desk Study and Coal Mining Risk Assessment Risk has assessed the Site's Coal Mining History. There are five records for mine entries on-Site and one "located" potential unrecorded mine entry located within the Yellow Quarter as shown on **Figure 12.4** (BGS record Borehole 267, B048805-TTE-00-XX-DR-U-1004-02) recorded on-Site, as well as four records for mine entries located off-Site to the north of the Yellow Quarter, with one of those shafts identified as being approximately 40m deep sunk to the Sand Rock Mine by the BGS records.

12.17 The BGS records for the NCB Pilsworth Opencast prospecting boreholes, identified mine workings within the Sand Rock Coal Seam across the northeast of the Site in the Yellow and Orange Quarters, as shown in **Figure 12.5** (drawing B048805-TTE-00-XX-DR-U-1001-02) at the recorded depths described below:

- 3.20 – 8.90m bgl to the west of Coal Pits Farm (Yellow Quarter);
- 10.83 – 20.90m bgl to the northeast of Higher Barn Farm (Yellow Quarter) and west of Higher Fields (Orange Quarter);
- 23.20 – 29.70m bgl to the north and southeast of Higher Barn Farm (Yellow Quarter);
- 32.00 – 40.50m bgl to the northeast of Meadowcroft Fold (Yellow Quarter);
- 40.20 – 51.00m bgl to the northwest of Higher Barn Farm and north of Meadowcroft Fold (Yellow Quarter); and
- 56.70 – 57.70m bgl north of Meadowcroft fold (Yellow Quarter);

12.18 The two *main* ground risks at the Site comprise:

- High risk of shallow mine workings within the Yellow and Orange Quarters; and
- Mineshaft collapse associated with mine entries recorded around Higher Barn Farm.

Non-Coal Mining

12.19 The historic OS maps show numerous historic quarries and pits across the Site, where the commodity has been one or a combination of the following: clay, sand, sand & gravel, sandstone and coal. The quarries *and* pits are anticipated to have been backfilled as there was no evidence of them on-Site during the November 2023 walkover. The specification of any backfill is unknown. The backfill may include arisings from the excavation and/or waste materials.

Proposed Scope of Assessment

12.20 The below text sets out the proposed scope of assessment based on an understanding of the characteristics of the Site, surrounding area and the Project for Assessment (**Chapter 4**). Where environmental effects are considered unlikely to be 'significant,' an

appropriate evidence base has been provided to justify the 'scoping out' of these effects ensuring the EIA and ES only assess those effects considered 'likely' to be significant, at this stage.

Effects Unlikely/Not Significant

- 12.21 The following effects are considered unlikely to be significant and therefore will not be considered further within the EIA or reported in the ES. A factual evidence base has been provided below to support this. Where mitigation has been used to inform this judgement, the identified mitigation has been captured within the PEMP provided in **Appendix 2.1**.

Potential Risk of Exposure to Contamination

- 12.22 Parts of the Site are or have been in commercial/industrial use, including recorded petrol stations, dye works, infilled sand pits/quarries as well as former mining areas located onsite. In addition to these there is a landfill, Pilsworth South Landfill, and bleach works located beyond the northern boundary that could potentially impact the Site.
- 12.23 The level of risk will be further determined as part of ground investigation works to be undertaken to assess potential on-site and off-site sources of contamination (to include investigation and analysis of soils, groundwater, surface waters and ground/landfill/mine gas). The Geo-environmental and Geotechnical Desk Study and Coal Mining Risk Assessment produced for the Site considers the risk from potential contamination sources to be summarised as below.
- *High* risk for ground gas associated with the infilled land, mine shafts and mine workings and peat;
 - *Moderate/Low* risk to future site users and construction and maintenance workers from made ground on-site;
 - *Low* risk to controlled waters (underlying aquifers) from made ground on-site; and
 - *Moderate/Low* risk to the surface water courses from the potential made ground on site.
- 12.24 Following ground investigations, factual and interpretative ground investigation report will be prepared and will include a Conceptual Site Model and Generic Quantitative Risk Assessment to appraise risks to the identified receptors. This will inform a remediation strategy that will set out the works required to mitigate the identified risks to sensitive receptors, such as future site users by way of soil remediation, provision of clean cover etc, which is established mitigation which is reliable. Remediation will be undertaken as part of the enabling works and development works as required. Remediation as part of the enabling works will include the removal of hotspots of contaminated soils, if required. Remediation during the development works will include any measures relating to the development such as cover layers in landscaped areas, gas protection measures or the protection of water supply pipes, if assessment following ground investigation establishes that these are required.

12.25 Exposure to contamination, including any sources associated with the construction process itself will be controlled through the implementation of a CEMP, which will detail how the potential risks will be managed and provide details of:

- Vehicle access;
- Working hours;
- Potential contamination of land and groundwater;
- Communication with the public; and
- Monitoring the CEMP.

12.26 These tertiary mitigation measures will be considered an integral part of the Project for Assessment and considered as part of the PEMP (**Appendix 2.1**).

12.27 There is the potential for significant effects from exposure to contamination to human health during the construction, but the likelihood of this occurring following the mitigation outlined above is considered to be low. Therefore, potential effects from exposure to contamination to human health are not to be considered further in the EIA or reported in the ES.

12.28 The risk to human health from exposure to contamination during the operational phase is considered to be low due to any potential sources being removed or remediated (e.g. by a cover layer in landscaped areas) as part of the construction phase. The majority of the Project for Assessment is B2/B8 land uses and as such will incorporate extensive hardstanding which will remove/treat the pathway between the underlying potential sources and receptors. Therefore, the risk to human health during the operational phase is not considered to be significant and will not be considered further in the EIA or reported in the ES.

Potential Risks from the Release/Migration of Contamination to Controlled Waters

12.29 As detailed in the previous effect, there is the potential for contamination to be present at the Site in shallow soils and groundwater that could impact controlled waters. Ground investigation to be undertaken will include assessment of contamination. A subsequent Remediation Strategy, if required, will set out any mitigation required to protect controlled waters. Measures to prevent the release of any contamination to controlled waters during construction activities will be controlled through the implementation of a CEMP and in line with CIRIA C532: Control of Water Pollution from Construction Sites - Guidance for Consultants and Contractors (2001) and may be informed by a Piling Risk Assessment if significant contamination is encountered. These tertiary mitigation measures will be considered an integral part of the construction of the Project for Assessment and considered as part of the PEMP (**Appendix 2.1**).

12.30 Therefore, risks from the release/migration of contamination to controlled waters (the aquifers and surface waterbodies outlined above during the construction are low. This is not considered to be significant and will not be considered further in the EIA or reported in the ES.

- 12.31 The risk of migration of contamination to controlled waters during the operational phase is also considered to be low. Any potential sources will be removed / treated as part of the construction phase. Further, the majority of the Project for Assessment is for B2/B8 land uses and as such will comprise concrete hardstanding which will remove/reduce infiltration from the Site. Therefore, it is not considered to be significant and will not be considered further in the EIA or reported in the ES.

Potential Risks from Ground, Landfill and Mine Gas to Human Health and the Built Environment

- 12.32 Ground, landfill and mine gas have the potential to migrate into and accumulate within built development, representing a risk from asphyxiation and explosion. Gas monitoring from dedicated monitoring boreholes will form part of ground investigation works, and any mitigation required to prevent ground/landfill and mine gas migrating into the new development will be set out within the remediation strategy. Exposure to ground/landfill and mine gas during construction activities will be controlled through the implementation of a CEMP. These tertiary mitigation measures will be an integral part of the construction of the Proposed Scheme.
- 12.33 The Turquoise Quarter is underlain by landfill. Based upon the desk study and ES documents supporting South Heywood planning application, it is understood that the landfill was for inert engineering waste only. If any significant contamination presenting a risk to human health or the environment is present within the landfill material at that Site, it is assumed that it will be remediated and therefore appropriately mitigated as part of that site's enabling / remediation works.
- 12.34 Any works associated with the Project for Assessment would only occur following the implementation of such mitigation which is subject to the responsibility of the Applicant for South Heywood.
- 12.35 Therefore, the potential risks from ground, landfill and mine gas to human health and the built environment during the construction phase is low. This is not considered to be significant and will not be considered further in the EIA or reported in the ES.
- 12.36 The potential effects from exposure during operational phase are considered to be low due to any potential sources being removed / treated as part of the construction phase. The requirement for any gas protection measures will be determined by post-ground investigation assessment in line with CIRIA C665 Assessing Risks Posed by Hazardous Ground Gases to Buildings (2007). Any required gas protection measures will be installed as part of the construction works. Therefore, this risk is not considered to be significant and will not be considered further in the EIA or reported in the ES.

Potential Risks from the Presence of Unstable and Compressible Ground (non-mining related) on Human Health and the Built Environment

- 12.37 There are historic quarries and pits noted within the Site on the historical OS plans¹ that may have been backfilled with un-engineered materials. This may result in areas of unstable or compressible areas on the Site that could impact human health and the built environment. These areas of the Site will be targeted during ground investigation and any mitigation designed into the earthworks strategy and specification and foundation design. These tertiary mitigation measures would be considered an integral

part of the Proposed Scheme and would likely comprise excavation and replacement with suitable engineered fill or re-engineering of the fill material if deemed suitable in line with SHW Series 600 Earthworks, 2017.

- 12.38 The Turquoise Quarter is located on landfill. This forms part of a separate planning application for South Heywood. It is assumed that as part of the enabling works for this area, tertiary geotechnical mitigation will be implemented which will address to risk of unstable and compressible ground.
- 12.39 Any works associated with the Project for Assessment would only occur following the implementation of such mitigation which is subject to the responsibility of the Applicant for South Heywood.
- 12.40 Therefore, the risks from the presence of unstable and compressible ground (non-mining related) on human health and the built environment is low. This is not considered to be significant and will not be considered further in the EIA or reported in the ES.
- 12.41 Further analysis of minerals is provided in **Chapter 5**.

Effects Likely/Significant

- 12.42 **Table 12.1** outlines the effects (and associated receptor[s]) that are considered to be likely and significant and therefore will be assessed within the EIA and reported in the ES. An indication of which spatial zone, is also provided.

Table 12.1: Potential Likely Significant Effects and Sensitive Receptors

Effect	Receptor(s)	Applicable Stage(s)	Spatial Zone
Potential risk of mining and ground collapse	Existing and proposed buildings and infrastructure	Construction	Orange, Yellow, Purple, Azure
	Construction workers		
	Existing and proposed buildings and infrastructure	Operation	
	Maintenance workers		
	Future residents, workers, and visitors		

Assessment Methodology of Effects Likely/Significant

- 12.43 The following background studies have been completed / are pending.

Table 12.2: Background Surveys/Studies

Survey/ Study/ Analysis/ Evaluation	Overview	Date of Completion
Completed		
Geo- environmental and Geotechnical Desk Study and Coal Mining Risk Assessment	The report concluded that: High risk for ground gas associated with the infilled land, mine shafts and mine workings and peat. Moderate/low risk to future site users and construction and maintenance workers from made ground on-site. Low risk to controlled waters (underlying aquifers) from made ground on-site. Moderate/low risk to the surface water courses from the potential made ground on-site. The Coal Mining Risk Assessment for the Site describes a High risk of shallow mine workings, as well as a High risk from potential mine entry collapse. Foundations are likely to be variable across the Site based on strength and compressibility of superficial deposits, depth to bedrock and depth to mine workings. Piled foundations can be expected to be required in some areas subject to depth, mine workings and design loads. Un-engineered made ground may be present in former quarries and presents a risk of different settlement. Areas of peat in the southwest of the Site can be expected to require settlement assessment and mitigation and deep foundations are likely to be required in these areas.	April 2024
Pending		
Updated Geo- environmental and Geotechnical Desk Study and Coal Mining Risk Assessment	To be updated to include areas now forming part of the Site which were not incorporated into the above listed desk study report.	Autumn 2024

- 12.44 The information within the Geo-environmental and Geotechnical Desk Study and Coal Mining Risk Assessment and other already existing ground investigation information undertaken at the Site will be reviewed.
- 12.45 The assessment of the Potential risk of mining and ground collapse will be based upon the assumption that there is the potential for development within these areas.
- 12.46 The assessment of likely significant effects to sensitive receptors will consider the sensitivity of the receptor (on a scale of high, medium, low and negligible) and the magnitude of change (on a scale of large, medium, small and negligible) to determine the level of effect on a scale of major, moderate, minor and negligible. Significant effects will be determined following this through professional judgment.
- 12.47 The data, conclusions on risks and required secondary mitigation determined from the above will inform the assessment of the risk of mining and ground collapse across the Site.

Limitations and Assumptions

- 12.48 To ensure transparency within the EIA process, the following limitations and assumptions have been identified:
- The Desk Study was produced for a slightly different boundary and as such the residual part of the Site will require review as part of the ES Chapter;
 - The information reviewed for the Turquoise Quarter is that which is available on the RBC planning portal for application number 16/01399/HYBR;
 - The ground investigation is expected to be undertaken during drier months in 2025 and therefore will not be submitted as part of the planning application.
 - The assessment will be based on the interpretation and assessment of some data provided by third parties, and the conclusions and findings of the assessment may change if the data is amended or updated after the date of consultation;
 - The findings of the preliminary ground investigation and any supplementary ground investigations or works required as part of any planning conditions will be incorporated into the CEMP such that an appropriate level of mitigation is provided; and
 - The Applicant does not have reliance on the existing historic ground investigation works undertaken to date and as such will require further works in these areas.

13. Agriculture and Soils

Technical Baseline

- 13.1 The Site extends to around 586ha of mostly agricultural grassland. Non-agricultural land includes Pike Fold Golf Club in the south west, Birch Industrial Park, the Moto Birch Eastbound and Westbound service areas and a number of residential properties, farm yards and wooded areas.
- 13.2 The topography across the Site is variable. The highest altitude is around Whittle Fold at around 130m above Ordnance Datum. The central portion of the Site has irregular slopes including some of moderate steepness which fall to the south-west to around 90m AOD at Whittle Brook and to the north to around 120m AOD. The north-east of the Site is largely level at 120m AOD. To the south of Whittle Brook, the topography is gently sloping across the golf course between around 90m and 100m AOD.
- 13.3 Drainage of the Site is via the slopes as well as Whittle Brook, Castle Brook, Hollins Brook and Brightly Brook, and numerous ponds in the south.
- 13.4 The climate at the Site is cool and very wet. The climate has an overarching effect on agricultural land quality.
- 13.5 The Provisional Agricultural Land Classification (ALC) mapping¹²⁵ shows the Site as undifferentiated Grade 3 with some poor quality Grade 4 mapped around Lower Whittle and New Gap Farm in the north-east. There is no detailed ALC data available within the Site, although land in close proximity beyond the Site to the north has been classified as Subgrade 3a (12ha) and Subgrade 3b (24.5ha).
- 13.6 The bedrock geology mapped by the British Geological Survey¹²⁶ comprises interbedded mudstone, siltstone and pale grey sandstone belonging to the Pennine Lower Coal Measures Formation across most of the Site, and the Pennine Middle Coal Measures Formation in the south of the Site. Superficial deposits of glacial till cover most of the Site. There are pockets of sand and gravel of lacustrine and glaciofluvial origin mapped throughout, head deposits mapped in conjunction with Whittle Brook, and an area of peat mapped in the south around Egypt Lane and Simon Lane.
- 13.7 The mapped soil information¹²⁷ shows three soil associations to be present. The most prevalent is the Brickfield 3 association which is characterised by fine loamy, fine loamy over clayey and clayey soils. The profiles are usually seasonally waterlogged (Wetness

¹²⁵ Natural England (2010). Agricultural Land Classification Map North West Region (ALC002). Available at:
<https://publications.naturalengland.org.uk/publication/144015?category=5954148537204736>.
[Accessed 07 2024]

¹²⁶ British Geological Survey (2024). Geology Viewer. Available at:
<https://geologyviewer.bgs.ac.uk/> [Accessed 07 2024]

¹²⁷ Soil Survey of England and Wales (1984). Soils of Northern England (1:250,000), Sheet 1.

Class (WC) IV). Under the climatic conditions of the Site, such profiles would be classified as Subgrade 3b or Grade 4 (depending on the specific topsoil texture).

- 13.8 In the north and east is the Blackwood association, characterised by coarse loamy and sandy textures. The soils are naturally affected by fluctuating groundwater but can vary from well drained WC I where the regional water table has been lowered, to WC IV where it has not. If in WC I or II, the profiles would be limited by wetness and/or climate to Subgrade 3a; if in WC III or IV, the profiles would be limited by wetness to Subgrade 3b.
- 13.9 In the south and east, the Newport 1 association is mapped and includes deep, well drained sandy and coarse loamy soils. These profiles are most likely to be most affected by the overriding climatic limitation, to Subgrade 3a.
- 13.10 No peat soils are mapped however initial Ground Investigations surveys have identified the presence of peat, albeit to a very limited extent in the south-west, as indicated in **Chapter 12**. Two investigations have taken place; one found a very limited area of thin bands of peat to the north of a spoil mound but the second more extensive survey did not record any peat in sample boreholes. Under the applicable climatic conditions, any thin bands of peat soils occurring within a depth of 1.2m are likely to be in ALC Grade 5
- 13.11 There is a very large number of ownership titles within the Site but the number of operational farm holdings is limited and includes Broom Hill Farm, Higher Barn Farm and Thurston Fold Farm, with a number of other smaller land holdings.

Proposed Scope of Assessment

- 13.12 The below sets out the proposed scope of assessment based on an understanding of the characteristics of the Site, surrounding area and the Project for Assessment (**Chapter 4**). Where environmental effects are considered unlikely to be 'significant', an appropriate evidence base has been provided to justify the 'scoping out' of these effects ensuring the EIA and ES only assess those effects considered 'likely' to be significant, at this stage.

Effects Unlikely/Not Significant

Disturbance / Removal of Peat

- 13.13 The ground investigation sampling in the south-west has indicated that peat is not present on-Site, other than in thin bands in a very localised area to the north of the spoil mound in the south-west of the Site (**Figure 12.3**). This is consistent with the Soil Survey mapping, which does not indicate the presence of peat soils. It is therefore appropriate to scope out any effects on peat as a resource.
- 13.14 Therefore, disturbance or removal of peat, in the context of a resource is not considered to be significant and will not be considered further in the EIA or reported in the ES.

Effects Likely/Significant

- 13.15 **Table 13.1** outlines the effects (and associated receptors) that are considered to be likely and significant and therefore will be assessed within the EIA and reported in the ES. An indication of which spatial zone the impact is relevant to is also provided.

Table 13.1: Potential Likely Significant Effects and Sensitive Receptors

Effect	Receptor(s)	Applicable Stage(s)	Spatial Zone
Loss of agricultural land	Agricultural land, including that of best and most versatile (BMV) quality	Construction	All Spatial Zones
Loss of or damage to soil resources	Soil resources	Construction	All Spatial Zones
Reduction in farmable area and business viability	Tenanted farm holdings	Construction	All Spatial Zones

Assessment Methodology of Effects Likely/Significant

- 13.16 The following background surveys have been/will be completed.

Table 13.2: Background Surveys/Studies

Survey/Study/Analysis/Evaluation	Overview	Date of Completion
Completed		
Initial desk appraisal of soils and ALC	As presented above in Technical Baseline	July 2024
Pending		
Detailed ALC and soil resources survey	Surveys to definitively classify the agricultural land and characterise the soil resource.	September/October 2024
Consultation with landowners	Collection of information about the owner-occupied and tenanted farm businesses and likely impacts of the loss of farmable area on tenant farms	Autumn 2024

- 13.17 The study area extends to all of the agricultural land within the Site.
- 13.18 The Agricultural Land baseline conditions will be established by undertaking a detailed ALC and soil resources survey in accordance with the established guidelines and criteria

for assessing the quality of agricultural land^{128,129}. At each observation point the following characteristics will be assessed for each soil horizon up to a maximum of 120cm:

- Soil texture;
- Stone content;
- Colour (including localised mottling);
- Consistency;
- Structural condition;
- Free carbonate; and
- Depth.

13.19 Representative topsoil samples will be submitted for laboratory determination of particle size distribution, pH, organic matter content and nutrient contents (P, K, Mg).

13.20 The data obtained will be analysed according to the ALC guidelines¹²⁸ and will classify the land into applicable grades. The soil resources identified will be classified into broad types for the impact assessment.

13.21 There is a very large number of ownership titles within the Site. For the purposes of the assessment on farm businesses, it is assumed that owner-occupied units of whatever size have undertaken their own assessment on the impacts of the Project for Assessment on the viability of their land holding. The assessment will therefore consider the impacts on farm businesses that rely on tenanted land, which are smaller in number but account for the majority of agricultural land within the Site. Information on each of these businesses will be obtained from the landowners and tenants and/or their representatives.

13.22 The assessment of likely significant effects to sensitive receptors will consider the sensitivity of the receptor (on a scale of high, medium, low and negligible) and the magnitude of change (on a scale of large, medium, small and negligible) to determine the level of effect on a scale of major, moderate, minor and negligible. Significant effects will be determined following this through professional judgment. The criteria used follow the same principles to those established in IEMA guidance¹³⁰ but have had regard to the scale of development proposed.

13.23 The sensitivity of the agricultural receptors is shown in **Table 13.3**:

¹²⁸ MAFF (1988). Agricultural Land Classification of England and Wales. Revised guidelines and criteria for grading the quality of agricultural land. MAFF Publications.

¹²⁹ Natural England (2012). Technical Information Note 049 - Agricultural Land Classification: protecting the best and most versatile agricultural land, Second Edition.

¹³⁰ IEMA (2022) A New Perspective on Land and Soil in Environmental Impact Assessment

Table 13.3: Sensitivity of Agricultural Receptors

Sensitivity	Agricultural Land	Soil Resources	Farm Holdings
High	Grades 1 and 2	Peat soils	Farm types in which the operation of the enterprise is dependent on the spatial relationship of land to key infrastructure, and where there is a requirement for frequent and regular access between the two, or dependent on the existence of the infrastructure itself
Medium	Subgrades 3a and 3b	Soils with high clay and silt fractions (clays, silty clays, sandy clays, heavy silty clay loams and heavy clay loams)	Farm types in which there is a degree of flexibility in the normal course of operations
Low	Grade 4	Medium-textured soils (silt loams, medium silty clay loams, medium clay loams and sandy clay loams)	Off-lying areas of commercial land and non-commercially farmed land
Negligible	Grade 5	Soils with a high sand fraction (sands, loamy sands, sandy loams and sandy silt loams)	None

13.24 The magnitude of change to each receptor is determined as follows in **Table 13.4**.

Table 13.4: Magnitude of Change of Agricultural Receptors

Magnitude	Agricultural Land	Soil Resources	Farm Holdings
Large	Development would directly lead to the loss of over 50ha of agricultural land	The soil displaced from development is unable to fulfil one or more of the primary soil functions	Development results in the loss of the tenanted farm holding or renders the residual land holding non-viable
Medium	Development would directly lead to the loss	The soil displaced from development mostly	Development results in changes being required

Magnitude	Agricultural Land	Soil Resources	Farm Holdings
	of between 20ha and 50ha of agricultural land	fulfils the primary soil functions off-site or has a reduced capacity to fulfil the primary functions on site	to the management of the residual farm holding in order that it can remain viable
Small	Development would directly lead to the loss of between 5ha and 20ha of agricultural land	The soil displaced from development mostly fulfils the primary soil functions on-site	Development does not affect the ongoing management of the residual land
Negligible	Development would directly lead to the loss of less than 5ha of agricultural land	The soil retains its existing functions on-site	No impact on the farm holding

13.25 All effects on agricultural receptors are anticipated to occur in the construction phase of the Project for Assessment.

Limitations and Assumptions

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

- If it is not possible to survey all of the agricultural land required, results from the nearest observations and on the same mapped soil type may be extrapolated. This will be sufficient to describe the baseline soil and agricultural land quality conditions within the Site. In any areas where there is a greater likelihood of BMV, a cautious approach will be taken, with an assumption that BMV is present in these areas.
- Information obtained from landowners and tenants is not verified by any other means (other than cross-reference where these interests overlap) and is assumed to be accurate. It is not unusual for questionnaires to be returned incomplete. Assessment of effects can only be based on information included.

14. Archaeology

Technical Baseline

- 14.1 A Pre-Application Discussion Report was prepared by Orion Heritage in March 2022 which informs the baseline set out below¹³¹.
- 14.2 The study area is a 1km buffer from the Site which has been used to identify designated or non-designated archaeological assets that might be directly or indirectly impacted by the Project for Assessment and to inform the potential for previously unrecorded archaeological remains.
- 14.3 An initial assessment of available data has noted that there are no World Heritage Sites, Scheduled Monuments, Registered Battlefields or Protected Wrecks within the Site.
- 14.4 The current known baseline information for the Site, held by the HER, is summarised in **Table 14.1**, the HER preferred reference number is shown in parentheses. The locations of the HER are shown on **Figure 14.1**.

Table 14.1: Archaeological Baseline

Spatial Zone	Archaeological Baseline
Orange Quarter (O)	The Orange Quarter contains evidence of farming activity, mine shafts, coal and marl pits. These features are not of particular archaeological interest however they are recorded within the HER. The HER records two built heritage assets within this quarter (Three Arrows Inn and Higher Fields Farm) which are considered in Chapter 15. The HER records a cropmark of a possible sub-rectangular Prehistoric enclosure within this quarter however it is also noted that this could relate to mine workings (2900.1.2).
Yellow Quarter (Y)	The Yellow Quarter contains the Meadowcroft fold complex which comprises built heritage assets (see Chapter 15) and evidence of Medieval settlement, agriculture and metal working. Meadowcroft Fold is thought to represent a shrunken and then deserted medieval settlement. The settlement was largely agricultural, however excavations have also recorded evidence of medieval iron smelting activity¹³². A further medieval iron working site has been

¹³¹ Orion Heritage in Avison Young (March 2022) Pre-Application Discussion Report, Proposed Employment Development, Northern Gateway, Greater Manchester.

¹³² L-P Archaeology (December 2022) Archaeological Evaluation Report Meadowcroft Fold Northern Gateway. Report No. LP4015C.

	identified through excavations at Whittle Brook within the northwest of the Site. This quarter contains evidence of agriculture, quarrying and mining activity. The Whittle Brook medieval iron smelting site is noted within this quarter (5773.1.0).
Brown Quarter (B)	The Brown Quarter contains buildings recorded by the HER which are considered in Chapter 15. Whittle Fold settlement is noted which is interpreted by the HER as an early farm site (5057.1.0), rectangular features are also noted which are likely former buildings or silage pits (2958.1.0).
Purple Quarter (P)	The Purple Quarter contains buildings recorded by the HER which are considered in Chapter 15. The area contains evidence of former brickwork activity and ridge and furrow. This quarter contains Siddal Moor (Doctor's Moss) which is an area of sand geology which could contain archaeological evidence (5076.1.0). Whilst it is acknowledged that extraction activity within the Site will have had an impact on this area there remains a potential for Prehistoric features to be present within any remaining deposits.
Peach Quarter (P)	The Peach Quarter contains evidence of former and extant farmsteads and agricultural activity, extant buildings are reviewed by a separate assessment. This quarter contains Unsworth Moss (Back o' the' Moss), an area of peat and sand geology which could contain archaeological evidence (3878.1.0). Whilst it is acknowledged that extraction activity within the Site will have had an impact on this area there remains a potential for Prehistoric features to be present within any remaining peat deposits.
Grey Quarter (G)	The Grey Quarter contains evidence of agricultural and quarrying activity and may also contain peripheral elements of Unsworth Moss contained within the Peach Quarter. Whilst it is acknowledged that extraction activity within the Site will have had an impact on this area there remains a potential for Prehistoric features to be present within any remaining peat deposits. A square cropmark of unknown date and function is noted within this quarter (3922.1.0) alongside rectilinear anomalies identified through geophysical survey (17121.1.0).
Pink Quarter (P)	The Pink Quarter is noted to contain evidence of former farmsteads, ponds and agricultural activity.

	The HER notes earthworks and cropmarks around Castle Brook which may relate to a prehistoric camp (2894.2.0).
Navy Blue Quarter (N)	The Navy Blue Quarter contains the site of the former Birch Mill (5121.1.0), some elements remain upstanding and will be assessed by a separate built heritage assessment. The HER notes that the below ground archaeological survival of the mill is likely to be low.
Azure Quarter (A)	There are no known assets within the Azure Quarter.
Blue Quarter (B)	There are no known assets within the Blue Quarter.
Turquoise Quarter (T)	The Turquoise Quarter is noted as having the potential to contain below ground evidence of former buildings noted on early mapping.

- 14.5 It is acknowledged that further, currently unknown, non-designated archaeological finds and features may be present within the Site, however it is anticipated that should such remains be present they would be of local-regional significance.

Proposed Scope of Assessment

- 14.6 The below sets out the proposed scope of assessment based on an understanding of the characteristics of the Site, surrounding area and the Project for Assessment (**Chapter 4**). Where environmental effects are considered unlikely to be 'significant', an appropriate evidence base has been provided to justify the 'scoping out' of these effects ensuring the EIA and ES only assess those effects considered 'likely' to be significant, at this stage.

Effects Unlikely/Not Significant

- 14.7 The following effects are considered unlikely to be significant and therefore will not be considered further within the EIA or reported in the ES. A factual evidence base has been provided below to support this. Where mitigation has been used to inform this judgement, the identified mitigation has been captured within the PEMP provided in **Appendix 2.1**.

Truncation, Disturbance, or Removal of Designated Archaeological Assets

- 14.8 There are no designated archaeological assets within the Site. A review of the 1km study area, informed by baseline data, professional judgement and a Site visit, has not identified any designated archaeological assets within 1 km of the Site boundary either.
- 14.9 As no designated archaeological assets have been identified within 1km of the Site, direct and indirect effects are not considered to be significant and will not be considered further in the EIA or reported in the ES.

Effects Likely/Significant

- 14.10 **Table 14.2** outlines the effects (and associated receptor[s]) that are considered to be likely and significant and therefore will be assessed within the EIA and reported in the ES. It is noted that not all entries within the HER data are identified as individual sensitive receptors however these are covered under the 'Non-Designated Archaeological Assets Across the site' receptor. An indication of which spatial zone the impact is relevant to is also provided.

Table 14.2: Potential Likely Significant Effects and Sensitive Receptors

Effect	Receptor(s)	Applicable Stage(s)	Spatial Zone
Direct effects including the truncation, disturbance, or removal of known and unknown archaeological remains	Unsworth Moss, Potential Peat and Prehistoric Deposits	Construction	Grey & Peach
	Siddal Moor, Potential Peat and Prehistoric Deposits		Purple
	Meadowcroft Fold Medieval Settlement and Iron Smelting Site		Yellow
	Whittle Brook Medieval Iron Smelting Site		Yellow
	Castle Brook, Potential Prehistoric Camp		Pink
	Non-Designated Archaeological Assets Across the Site		All Spatial Zones

Assessment Methodology of Effects Likely/Significant

- 14.11 The following background surveys/studies have been/will be completed.

Table 14.3: Background Surveys/Studies

Survey/Study/Analysis/Evaluation	Overview	Date of Completion
Completed		
Pre-Application Discussion Report, Proposed Employment Development, Northern Gateway, Greater Manchester.	Orion Heritage completed an initial assessment of the site's archaeological resource to inform pre-application consultations.	March 2022

Survey/Study/Analysis/ Evaluation	Overview	Date of Completion
Geophysical Survey, Meadowcroft Fold ¹³³	West Yorkshire Archaeological Services (WYAS) completed a geophysical survey of Meadowcroft Fold. The survey noted evidence of potential settlement, pits and features of unknown origin.	November 2020
Archaeological Evaluation	L-P Archaeology (now Museum of London Archaeology [MoLA]) completed a trial trench evaluation in July-August 2022. The evaluation comprised 66 trenches and 53 test pits. The investigations recorded evidence of Medieval occupation and iron smelting.	December 2022
Pending		
Archaeology Desk Based Assessment	Orion Heritage will prepare an Archaeology Desk Based Assessment (ADBA) which will identify and characterise the Site's archaeological potential and assess the potential impacts to archaeology arising from the Project for Assessment.	Autumn 2024
Archive	Following the archaeological evaluation in 2022, MoLA (formerly L-P Archaeology) are currently confirming details of the material archive deposition.	Anticipated to be October 2024

14.12 The ES Chapter will initially include an outline of the legislative framework in respect of archaeology. It will then outline the approach taken to the various desk-based studies and Site surveys undertaken and present the findings of these works. With this information, potential effects of the Project for Assessment will be established.

14.13 An ADBA will be prepared and form a technical appendix of the ES Chapter. The ADBA will be undertaken in line with the following policy, legislation and guidance documents:

¹³³ West Yorkshire Archaeological Services (November 2020) Meadowcroft Fold, Northern Gateway, Greater Manchester – Geophysical Survey. Report No. 3486.

- Historic Environment Good Practice Advice In Planning Note 2: Managing Significance in Decision-Taking in the Historic Environment¹³⁴;
- Historic Environment Good Practice Advice In Planning Note 3: The Setting of Heritage Assets¹³⁵;
- Standard and guidance for historic environment desk based assessment¹³⁶;
- Management of Recording Projects in the Historic Environment: MORPHE¹³⁷; and
- Principles of Cultural Heritage Impact Assessment in the UK¹³⁸.

14.14 A 1km buffer from the Site boundary has been used to identify non-designated archaeological assets which might be directly or indirectly impacted by the Project for Assessment and to inform the potential for previously unrecorded archaeological remains. This methodology has been agreed through consultation with GMAAS and Historic England.

14.15 The ES will identify and evaluate the nature and likelihood of the impacts of the Project for Assessment, both permanent and temporary, in both the short, medium and long term, on archaeological features against clearly defined criteria – as set out in **Table 14.4 to 14.6** below. The assessment methodology is in line with the methodology and significance criteria outlined in the Design Manual for Roads and Bridges (DMRB)¹³⁹. DMRB was initially designed to ensure a consistent approach to the assessment of impacts resulting from trunk road schemes however it is routinely used to assess archaeology.

14.16 Following completion of the baseline assessments the following methodologies will be used to assess 'Heritage Significance', 'Magnitude of Impact' and 'Significance of Effect'.

14.17 The assessment of likely significant effects to sensitive receptors will consider the sensitivity of the receptor (on a scale of high, medium, low and negligible) and the magnitude of change (on a scale of large, medium, small and negligible) to determine the level of effect on a scale of major, moderate, minor and negligible. Significant effects will be determined following this through professional judgment.

¹³⁴ Historic England (2015) Historic Environment Good Practice Advice In Planning Note 2: Managing Significance in Decision-Taking in the Historic Environment.

¹³⁵ Historic England (2017) Historic Environment Good Practice Advice In Planning Note 3: The Setting of Heritage Assets

¹³⁶ Chartered Institute for Archaeologists (2020) Standard and guidance for historic environment desk based assessment

¹³⁷ Historic England (2015) Management of Recording Projects in the Historic Environment: MORPHE

¹³⁸ IEMA, IHBC & ClfA (2021) Principles of Cultural Heritage Impact Assessment in the UK

¹³⁹ Highways Agency (2020) Design Manual for Roads and Bridges (DMRB) Volume 11, Section 3, Part 2.

- 14.18 The above categories for magnitude of change and level of effect vary from the terminology used in the DMRB. To achieve consistency in reporting across the ES, the ES terminology (where this differs to the DMRB terminology) has been adopted (**emboldened**) with the equivalent DMRB terminology provided in **Tables 14.4 to 14.6** below.
- 14.19 In order to assess the heritage significance of previously unrecorded or non-designated heritage assets, the criteria used by the Department of Culture, Media, and Sports (DCMS) publication, the 'Scheduled Monuments Policy Statements'¹⁴⁰ is used. The criteria for establishing value/sensitivity of heritage assets for this assessment are presented in **Table 14.4**.
- 14.20 The ES terminology used in **Table 14.4** is consistent with the terminology used within the DMRB but the latter has a five-point scale with the additional category of 'very high.' As there are no assets within the 'very high' category (e.g. World Heritage Sites), this category has been omitted from the methodology.

Table 14.4: Determining the heritage value/sensitivity of an Archaeology Asset

Importance	Description
National (High)	Ancient monuments scheduled under the Ancient Monuments and Archaeological Areas Act 1979, or archaeological sites and remains of comparable quality, assessed with reference to the DCMS's principles of selection for scheduled monuments.
Regional/ County (Medium)	Archaeological sites and remains which, while not of national importance, score well against most of the DCMS's principles of selection for scheduled monuments.
Local (Low)	Archaeological sites that score less well against the DCMS's principles of selection for scheduled monuments.
None (Negligible)	Areas in which investigative techniques have produced negligible or only minimal evidence for archaeological remains, or where previous large-scale disturbance or removal of deposits can be demonstrated.

- 14.21 It is widely recognised that the heritage value/sensitivity of an asset is not the same as its sensitivity to changes to its setting¹⁴¹. Thus, in determining effects upon the setting of assets by development, both value and sensitivity to changes to setting need to be considered. Factors considered when assessing sensitivity to change include, but are not limited to, heritage value/sensitivity, condition, type and period of asset and landscape positioning.

¹⁴⁰ Department for Culture Media and Sport (2013) Scheduled Monuments Policy Statement. Available at: <https://www.gov.uk/government/publications/scheduled-monuments-policy-statement> [Accessed: 05.07.2024].

¹⁴¹ Historic England (2017) The Setting of Heritage Assets, Historic Environment Good Practice Advice in Planning Note 3 (2nd Edition).

- 14.22 The magnitude of the impact is a product of the extent of development impact on an asset. Change can be direct or indirect, adverse or beneficial. The criteria for assessing the magnitude of change are set out in **Table 14.5**.

Table 14.5: Magnitude of Change

Magnitude	Direct Change	Indirect Change
Large Adverse	Complete removal of an archaeological site.	Radical transformation of the setting of an archaeological monument.
Medium / Moderate Adverse	Removal of a major part of an archaeological site and loss of research potential / heritage significance.	Partial transformation of the heritage significance of an archaeological site e.g. the introduction of significant noise or vibration levels to an archaeological monument leading to changes to amenity use, accessibility or appreciation of an archaeological site.
Small / Minor Adverse	Removal of an archaeological site where a minor part of its total area is removed but the site retains significant future research potential.	Minor harm to the heritage significance of an archaeological monument due to a change in setting.
Negligible	Negligible impact from changes in use, amenity or access.	Negligible perceptible change to the significance of an archaeological site due to a change in setting.
Small / Minor Beneficial	Land use change resulting in improved conditions for the protection of archaeological remains.	Decrease in visual or noise intrusion on the setting of an archaeological site or monument.
Medium / Moderate Beneficial	Land use change resulting in improved conditions for the protection of archaeological remains plus interpretation measures (heritage trails, etc.)	Significant reduction or removal of visual or noise intrusion on the setting of an archaeological site or monument. Improvement of the wider landscape setting of an archaeological site or monument. Improvement of the cultural heritage amenity, access or use of an archaeological site or monument.
Large Beneficial	Alteration to an archaeological site resulting in significant beneficial impact.	Significant enhancement to the setting of an archaeological site, its cultural heritage amenity and access or use.

- 14.23 The significance of the effect of the Project for Assessment on archaeological assets is determined by the heritage value/sensitivity of the asset and the magnitude of impact to the asset.

14.24 **Table 14.6** below presents a matrix that demonstrates how the significance of effect is established. Professional judgement may be utilized where a range of effects are identified e.g. 'Moderate or Major'. The levels of effect could potentially be beneficial or adverse.

Table 14.6: Evaluation of Significance of Effect

Magnitude of change (or impact)	Sensitivity (or value, importance, etc.)			
	High	Medium	Low	Negligible
Large (Major)	Major (Large or very large)	Moderate to major (Moderate or large)	Minor to moderate (Slight to moderate)	Negligible (Slight)
Medium (Moderate)	Moderate to major (Moderate or large)	Moderate (Moderate)	Minor (Slight)	Negligible (Neutral or slight)
Small (Minor)	Minor to moderate (Slight or moderate)	Minor (Slight)	Negligible to minor (Neutral or slight)	Negligible (Neutral or slight)
Negligible	Negligible (Slight)	Negligible (Neutral or slight)	Negligible (Neutral or slight)	Negligible (Neutral)

Limitations and Assumptions

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

- That data provided by the Greater Manchester Historic Environment Record (HER) is regularly updated, the information assessed by the baseline assessments and the ES Chapter will be limited to the information available at point of data delivery by the HER.

15. Built Heritage

Technical Baseline

- 15.1 The earliest detailed mapping of the area dates from the mid-19th century and shows the Site as having been in agricultural use at that time, with dispersed farmsteads and a network of lanes and routes through the Site. By the late 19th century and into the 20th century, the settlements of Unsworth, Middleton and Heywood surrounding the Site had grown, but the Site itself remained largely in agricultural use. In the 1930s the No.35 RAF Maintenance Unit was established at Pilsworth Road. It closed in 1967, and the site became the Pilsworth Industrial Estate.
- 15.2 The character of the area, including some areas of the Site, became more urbanised from the late 20th century onwards with the opening of the M62 in the early 1970s, followed by the M66 in the mid- 1970s. Birch Industrial Estate, within the centre of the Site, was added in the 1980s and the Pike Fold Golf Course was laid out in 1999. More recently the opening of the Queen Elizabeth Way in 2022 and the commencement of the construction of housing as part of development at South Heywood has added to the urban character immediately to the north and east of the Site.
- 15.3 There are a number of designated and non-designated assets within the Site and the surrounding area as indicated on the Heritage Asset Plan (HAP) (**Figure 15.1**). The significance of these assets, including the contribution made by setting and the Site, has been assessed proportionately within an updated Initial Heritage Appraisal (**Appendix 15.1**), taking into account their relative significance and the extent of potential effects.
- 15.4 There are two listed buildings within the Site: Brick Farmhouse and Lower Whittle Farm (both grade II listed). They hold special interest as farmhouses dating from the 17th century though both have later additions and Lower Whittle Farm is highly altered. Brick Farmhouse is partially enclosed by trees and vegetation which filter views to and from the surrounding landscape, though expansive views are likely from the upper floors. Lower Whittle Farm is enclosed on three sides by agricultural buildings (both traditional and modern) which limit views to and from the asset. The wider agricultural surroundings (including the Site) emphasise their agricultural origins and associations.
- 15.5 There are five additional listed buildings within 1km of the Site, however they are distanced from the Site and/or are experienced within a localised, enclosed setting. The Temple to the north east of Heaton Hall (grade II* listed) is situated over 1km to the south west of the Site on a high point within Heaton Park, a grade II Registered Park and Garden (PR&G). There are wide ranging views from the Temple encompassing areas of rural, suburban and urban character though views to the north are partly restricted by tree belts. Alkington Hall (grade II* listed building) is a 18th century Palladian house over 2km from the Site but with extensive views across the landscape to the north west, towards the Site.
- 15.6 The Site includes part of Birch Conservation Area, which is situated to the south of the M62 and Birch Services. The significance of the conservation area lies in the strong

association it has with the influential architect Edgar Wood, its linear townscape and characteristic combination of 19th century industrial architecture and Arts and Crafts residences with distinctive local detail.

- 15.7 There are 16 assets within the Site that are included on either the RBC Local List or the BC Draft Local List with over 30 additional locally listed buildings within 1km of the Site. The Greater Manchester Historic Environment Record (HER) was consulted in April 2024 and reviewed with both LPA Conservation Officers to identify any additional non-designated heritage assets (NDHAs) (see **Appendix 15.1**). The majority of NDHAs within the Site are associated with the area's agricultural history and, to varying degrees, draw significance from aspects of rural character within their setting.

Proposed Scope of Assessment

- 15.8 The below sets out the proposed scope of assessment based on an understanding of the characteristics of the Site, surrounding area and the Project for Assessment (**Chapter 4**). Where environmental effects are considered unlikely to be 'significant', an appropriate evidence base has been provided to justify the 'scoping out' of these effects ensuring the EIA and ES only assess those effects considered 'likely' to be significant, at this stage.
- 15.9 A 1km Study Area has been defined following site visits and inspections of relevant heritage assets, undertaken by suitably qualified heritage professionals (IHBC and MRTPI), a review of a Zone of Theoretical Visibility (ZTV)¹⁴² prepared by Tyler Grange (**Figure 16.3**) taking into account:
- The nature and scope of the Project for Assessment;
 - The proximity of heritage assets to the Project for Assessment;
 - The degree of inter-visibility between the heritage assets and the Site taking into consideration, for instance, changes in topography as well as interposing townscape and landscape features and seasonal changes; and
 - The significance of the relevant heritage assets and the contribution made by their setting including any historic or functional relationships.
- 15.10 The potential impact of the Project for Assessment has been considered in relation to all designated heritage assets within the 1km Study Area and additional designated assets beyond the 1km Study Area which are of particular sensitivity (e.g. highly graded listed buildings where setting makes a key contribution to the significance of the asset).
- 15.11 A Heritage Assessment will accompany the Built Heritage ES Chapter and will include an assessment of the significance and setting of all built heritage assets within the Site and Study Area (the Project for Assessment plus 1km) that are likely to be affected by

¹⁴² The ZTV is modelled on an assumed maximum height of 65m AOD including rooftop wind across the Site with the exclusion of those parts of the Site identified for highways infrastructure which are excluded from the modelling.

the Project for Assessment, as identified at **Figure 15.1**. Only those assets which are likely to experience significance effects need to be considered within the ES Chapter.

Effects Unlikely/Not Significant

- 15.12 The following effects are considered unlikely to be significant and therefore will not be considered further within the EIA or reported in the ES. A factual evidence base has been provided below and within the Initial Heritage Appraisal at **Appendix 15.1** to support this. Where mitigation has been used to inform this judgement, the identified mitigation has been captured within the PEMP provided in **Appendix 2.1**.

Impact on the significance of designated heritage assets as a result of change within their setting

- 15.13 The Birch in Hopwood War Memorial (grade II) (HAP 9) and Fountain Horse Trough (grade II) (HAP 6) are situated in the Birch Conservation Area, south of the Site. They are of functional significance as a trough and memorial and are experienced in a very localised setting and any effects would be limited.
- 15.14 Edgcroft, Church of St George and Unsworth War Memorial (all grade II listed) are all more distanced from the Site and, due to the intervening development, topography and landscape, do not have a visual relationship with the Site. There are no known historic or functional associations between the assets and the Site which would be affected by its development. Therefore, it is concluded that these assets will not be affected by the Project for Assessment.
- 15.15 Therefore, the impact on the significance of Edgcroft, Birch in Hopwood War Memorial and Fountain Horse Trough as a result of change within their setting, is not considered to be significant and will not be considered further in the EIA or reported in the ES.

Impact on the significance of non-designated heritage assets as a result of change within their setting

- 15.16 The Project for Assessment will have an urbanising effect on the Site and, where assets are within or proximate to the Site and/or there are views from assets and their setting to the Site, there will be an associated urbanising effect on the character of their setting.
- 15.17 The Bridge at Whittle Brook, Castle Road (HAP 16) is an altered bridge with elements of 19th century brick and metal work. The Project for Assessment would retain the bridge but may alter the surrounding context in which it is experienced. This would diminish the aesthetic qualities of its setting and the ability to appreciate its historic context and relationship with Castle Road. However, having considered the primarily functional qualities of the bridge, its altered state and its local value, it is concluded that the adverse effects on the asset would be limited.
- 15.18 Whittle Farm Farmhouse (HAP 52) is a grouping of historic agricultural buildings set within a dip in the area's undulating topography between higher ground to the north and the M62 to the south. This topography in combination with tree planting and modern agricultural sheds, mean the farmstead is experienced within an enclosed setting with limited visual relationships between the farmhouses and the wider associated farmland including the main part of the Site to the north. There will be no direct impact on the locally listed building. The agricultural land surrounding the

farmstead will become more urbanised as a result of the Proposed Scheme and there may be some visibility of the Proposed Scheme from the farmstead and on approach. This will reduce the appreciation of the farmstead's historic rural setting, though its former agrarian function will remain legible. Due to the enclosure of the farmstead the effect will be limited.

15.19 Egypt Farm (HAP 20) similarly has an enclosed setting, in this case created by the surrounding buildings and high evergreen hedging that encloses the former farmstead. The Project for Assessment will develop land historically associated with the former farm and will be experienced on approach to Egypt Farm. There will be no direct works to the farm and, due to the extent of its physical and visual separation from the surrounding area, it is concluded that the effect on the asset will be limited.

15.20 The Gardener's Arms Public House and Birch Hotel (HAP 44 and 41) are situated within the south eastern part of the Site along Heywood Old Road and within an area of existing built development. No direct works are proposed to the buildings which are principally experienced from Heywood Old Road within a varied urban setting with some views to undeveloped land to the north, including the Site. Birch Hotel has been encapsulated by later development with setting making a very limited contribution to its significance. The Proposed Scheme will not affect their relationship with the road, or the ability to appreciate their local significance.

15.21 Sandhill Farm (BC Local List, HAP 21) is situated to the south of the Site and the M62. The historic buildings (house and barn) are orientated to the south, away from the Site, with large metal sheds and the M62 motorway to the north between the asset and the Site. Therefore, any impact on the significance of the asset is likely to be limited and arise from a reduction of the rural character on approach to the farm.

15.22 The following locally listed buildings are situated within the northern part of Birch village:

- 724 Heywood Old Road (HAP 31).
- 743-747 Heywood Old Road (HAP 32).
- 757-763 Heywood Old Road (HAP 33).

15.23 Birch village has an enclosed character and is separated from the majority of the Site by the M62 motorway. Due to the proximity of the motorway, locally listed buildings within the north of Birch are already experienced alongside the visual and audible impacts of the motorway. The Project for Assessment will bring the motorway network in closer proximity to these assets and will result in the loss of Birch Mill, with which they have an associative relationship. The land rises between Heywood Old Road and the M62 to the north, including behind the locally listed former workers cottages at 743-747 and 757-763 Heywood Old Road. Part of the fields are used to accommodate storage containers and a fenced area with scrap cars. Therefore, whilst the fields currently afford some separation from the motorway and a sense of the former rural setting of the village, they do not provide a rural idyl. The effects on the significance of these assets will be included in the Heritage Assessment, but are not anticipated to be significant. The significance and setting of all locally listed buildings within the 1km

Study Area have been considered and with the exception of those included in **Table 15.1** below, all have been scoped out of the ES Chapter. The evidence base for this has been provided within the Initial Heritage Appraisal (**Appendix 15.1**).

- 15.24 Therefore, the impact on the significance of non-designated heritage assets as a result of change within their setting, is not considered to be significant and will not be considered further in the EIA or reported in the ES.

Effects Likely/Significant

- 15.25 **Table 15.1** outlines the effects (and associated receptor[s]) that are considered to be likely and significant and therefore will be assessed within the EIA and reported in the ES. An indication of which spatial zone the impact is relevant to is also provided.

Table 15.1: Potential Likely Significant Effects and Sensitive Receptors

Effect	Receptor(s)	Applicable Stage(s)	Spatial Zone
Impact on the significance (character and appearance) of Birch Conservation Area	Birch Conservation Area	Construction/ Operation	Spatial Zones Brown, Navy Blue, Pink
Impact on the significance (special architectural and historic interest) of designated heritage assets as a result of change within their setting	Brick Farmhouse (grade II listed building) (HAP 3) Lower Whittle Farmhouse (grade II listed building) (HAP 4) Alkrington Hall (grade II* listed building) (HAP 2) Temple to the north east of Heaton Hall (grade II* listed building) (HAP 1) Heaton Park (grade II RP&G)	Construction/ Operation	All Spatial Zones
Impact on the significance of non-designated heritage assets as a result of demolition	<i>BC Draft local list:</i> Moss Side Barn/Farm Griffe Lane (HAP 15) Meadowcroft Fold Farmhouse and Barns (HAP 19) Thurston Fold (HAP 22)	Construction	All Spatial Zones

Effect	Receptor(s)	Applicable Stage(s)	Spatial Zone
	<i>RBC Local List:</i> Birch Mill (HAP 34) Stock Nook (HAP 37) Saxon's Farm (HAP 43) New Gap Farm (HAP 45) Higher Fields Farm (HAP 46) Coal Pits Farm (HAP 47) Broom Hill Farm (HAP 51)		
Impact of the collective loss of historic farmsteads within the Site on the local heritage resource	<i>BC Draft local list:</i> Moss Side Barn/Farm Griffie Lane (HAP 15) Meadowcroft Fold Farmhouse and Barns (HAP 19) Thurston Fold (HAP 22) <i>RBC Local List:</i> Stock Nook (HAP 37) Saxon's Farm (HAP 43) New Gap Farm (HAP 45) Higher Fields Farm (HAP 46) Coal Pits Farm (HAP 47) Broom Hill Farm (HAP 51)	Construction	All Spatial Zones

Assessment Methodology of Effects Likely/Significant

15.26 The following background surveys/studies have been/will be completed.

Table 15.2: Background Surveys/Studies

Survey/Study/Analysis/ Evaluation	Overview	Date of Completion
Completed		
Initial Heritage Appraisal (2020, updated 2021 and 2024)	Prepared on behalf of Northern Gateway Development Vehicle LLP to provide initial heritage advice on considerations associated with the promotion of land at Northern Gateway Site JPA1.1 initially through the Greater Manchester Spatial Framework (GMSF) and then Places for Everyone (PFE). The Appraisal has been further developed and expanded in 2024 to reflect the extended area for consideration and additional heritage assets; assessing their significance, setting and the potential impact of the Project for Assessment on that significance.	July 2024
Pending		
Heritage Assessment	A full Heritage Assessment will be appended to the ES Chapter and will be prepared in light of the statutory duties of the Planning (Listed Buildings and Conservation Areas) Act 1990, relevant policies of the National Planning Policy Framework (NPPF) and national Planning Practice Guidance (NPPG) for the historic environment.	Winter 2024

15.27 As set out above, a 1km Study Area has been established as a guide and basis for identified assets for assessment, taking into account the factors identified above.

15.28 In the absence of specific prescribed criteria for the assessment of impacts on built heritage¹⁴³ the methodology for establishing the relative value or importance of heritage assets; the magnitude of impact; and the significance of effect is drawn from

¹⁴³ There is no agreed methodology for assessing the impact on heritage assets for an ES – Historic England, for example, has not provided any guidance. This approach is an accepted methodology and, although the guidance relates to roads and bridges, the principles in relation to assessing impacts of development on heritage assets applies for other types of development.

Design Manual for Roads and Bridges (DMRB).¹⁴⁴ The following documents also provide relevant guidance:

- Historic England (2015) Good Practice Advice Note 2, Managing Significance in Decision Taking in the Historic Environment¹⁴⁵;
- Historic England (2017) Good Practice Advice Note 3, The Setting of Heritage Assets¹⁴⁶;
- Historic England (2019) Advice Note 12, Statements of Heritage Significance¹⁴⁷;
- Historic England (2008) Conservation Principles, Policies and Guidance; and
- IHBC, ClfA & IEMA (2021) Principles of Cultural Heritage Impact Assessment¹⁴⁸.

15.29 The assessment will consider both the construction and operational phases and will be based upon plans and a series of agreed key design assumptions as set out in **Chapter 4**. The Built Heritage ES Chapter will take into account the findings of the Landscape and Visual Impact Assessment (LVIA) and ES Chapter to ensure integration of approach and assessment.

15.30 The assessment of likely significant effects to sensitive receptors will consider the sensitivity of the receptor (on a scale of high, medium, low and negligible) and the magnitude of change (on a scale of large, medium, small and negligible) to determine the level of effect on a scale of major, moderate, minor and negligible. Significant effects will be determined following this through professional judgment, informed by an understanding of the heritage significance of these assets and having regard to the DMRB (which advises that the effect on the cultural heritage resource is not significant when the impact does not substantially diminish the heritage interest of the cultural heritage resource).

15.31 The above categories for magnitude of change and level of effect vary from the terminology used in the DMRB. To achieve consistency in reporting across the ES, the ES terminology has been adopted (**emboldened**) with the equivalent DMRB terminology provided in **Tables 15.3 to 15.6** below.

Determining the Sensitivity of the Receptor

15.32 The heritage significance (sensitivity) of the heritage assets (receptors) will be defined on the basis of **Table 15.3**, which has been informed by the DMRB, and a clear understanding and appreciation of heritage significance to be set out in the Heritage Assessment. This will be undertaken in accordance with Historic England guidance and informed by a site visit, research and professional judgement.

¹⁴⁴ Highways England (2020) The 'Design Manual for Roads and Bridges' ((LA 104 Environmental Assessment and Monitoring) and (LA 106 Cultural Heritage Assessment)) ('DMRB')

¹⁴⁵ Historic England (2015) Historic Environment Good Practice in Planning Note 2: Managing Significance in Decision Taking in the Historic Environment

¹⁴⁶ Historic England (2017) Historic Environment Good Practice in Planning Note 3: The Setting of Heritage Assets

¹⁴⁷ Historic England (2019) Advice Note 12, Statements of Heritage Significance: Analysing Significance in Heritage Assets

¹⁴⁸ IEMA, IHBC and ClfA (2021) Principles of Cultural Heritage Impact Assessment in the UK

15.33 The ES terminology used in **Table 15.3** is consistent with the terminology used within the DMRB but the latter has a five-point scale with the additional category of 'very high.' As there are no assets within the 'very high' category (e.g. World Heritage Sites), this category has been omitted from the methodology.

Table 15.3: Determining the Sensitivity of the Receptor

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

Determining the Magnitude of Change

- 15.34 The magnitude of change is the change experienced from the current baseline conditions by the sensitive receptor. The magnitude of change to heritage assets is assessed as outlined in the criteria in **Table 15.4** which draws upon Table 3.4N of the DMRB.

Table 15.4: The Magnitude of Change to Heritage Assets

Magnitude of Change (ES/DMRB Terminology)	DMRB Definition	Application of Definition to the Built Heritage
Large/Major	<i>Adverse</i> – Loss of resource and/or quality and integrity of resource; severe damage to key characteristics, features or elements.	Change to key elements of the heritage asset, such that the asset is totally altered and much of its heritage significance is lost or enhanced. Substantial change within the setting of a heritage asset leading to considerable loss or enhancement of heritage significance of the asset.
	<i>Beneficial</i> – Large scale or major improvement of resource quality; extensive restoration; major improvement of attribute quality	
Medium/Moderate	<i>Adverse</i> – Loss of resource, but not adversely affecting the integrity; partial loss of/damage to key characteristics, features or elements.	Change to many key elements of the heritage asset, such that the asset is clearly modified and there is some loss or enhancement of heritage significance. Change within the setting of a heritage asset leading to some loss or enhancement of heritage significance of the asset.
	<i>Beneficial</i> – Benefit to, or addition of, key characteristics, features or elements; improvement of attribute quality.	
Small/Minor	<i>Adverse</i> – Some measurable change in attributes, quality or vulnerability; minor loss of, or alteration to, one (maybe more) key characteristics, features or elements.	Changes to key elements of the heritage asset, such that the asset is slightly altered and there is some loss or enhancement of heritage significance. Change within the setting of a heritage asset leading to a slight loss or enhancement of heritage significance of the asset.
	<i>Beneficial</i> – Minor benefit to, or addition of, one (maybe more) key characteristics, features or elements; some beneficial impact on attribute or a reduced risk of negative impact occurring.	
Negligible	<i>Adverse</i> – Very minor loss or detrimental alteration to one or more characteristics, features or elements.	Slight changes to elements of a heritage asset or within its setting that hardly affect the heritage significance of the asset.

Magnitude of Change (ES/DMRB Terminology)	DMRB Definition	Application of Definition to the Built Heritage
	<i>Beneficial</i> – Very minor benefit to or positive addition of one or more characteristics, features or elements.	

Determining the Level of Effect

- 15.35 The level of effect to heritage assets is quantified based upon the particular heritage significance of the asset, the contribution made by its setting, and the nature and level of the effect of the Project for Assessment on that significance. A detailed discussion will be set out within the accompanying Heritage Assessment to determine the level of effect, using **Table 15.5** as a tool to assist with this process.
- 15.36 **Table 15.5** is informed by the Significance Matrix at Table 3.8.1 in the DMRB. The DMRB terminology is provided in brackets after the ES terminology. Whilst the matrix provides ranges, the level of effect is confirmed as a single level and not a range, informed by professional judgement.

Table 15.5: Criteria for Determining the Level of Effect on Heritage Asset Receptors

Magnitude of change (or impact)	Sensitivity (or value, importance, etc.)			
	High	Medium	Low	Negligible
Large (Major)	Major (Large or very large)	Moderate to major (Moderate or large)	Minor to moderate (Slight to moderate)	Negligible (Slight)
Medium (Moderate)	Moderate to major (Moderate or large)	Moderate (Moderate)	Minor (Slight)	Negligible (Neutral or slight)
Small (Minor)	Minor to moderate (Slight or moderate)	Minor (Slight)	Negligible to minor (Neutral or slight)	Negligible (Neutral or slight)
Negligible	Negligible (Slight)	Negligible (Neutral or slight)	Negligible (Neutral or slight)	Negligible (Neutral)

15.37 The following terms, defined in **Table 15.6** have been used to determine the significance¹⁴⁹ of the effects identified and these can be '*beneficial*' or '*adverse*.' The standardised significance criteria are not an exact equivalence with the DMRB five-point significance categories. However, professional judgement would be used in determining the category of significance for the effect on each asset.

Table 15.6: Significance categories and definitions

Level of Effect (ES Terminology/DMRB)	DMRB Definition	ES Definition
Major/Very Large	Effects at this level are material in the decision-making process	Where the Project for Assessment is likely to cause a considerable change from the baseline conditions and the receptor has limited adaptability, tolerance or recoverability or is of the highest sensitivity
Major/Large	Effects at this level are likely to be material in the decision-making	
Moderate/ Moderate	Effects at this level can be considered to be material decision-making factors	Where the Project for Assessment is likely to cause either a considerable change from the baseline conditions at a receptor which has a degree of adaptability, tolerance or recoverability or a less than considerable change at a receptor that has limited adaptability, tolerance or recoverability. This effect is considered more likely to be ' <i>Significant</i> ' but will be subject to professional judgement
Minor/Slight	Effects at this level are not material in the decision-making process.	Where the Project for Assessment is likely to cause a small, but noticeable change from the baseline conditions on a receptor which has limited adaptability, tolerance or recoverability or is of the highest sensitivity; or where the Project for Assessment is likely to cause a considerable change from the baseline conditions at a receptor which can adapt, is tolerant of the change or/and can recover from the change.

¹⁴⁹ Significance in this context relates to EIA and the identification of significant effects. For the avoidance of doubt, when referring to the significance of heritage assets the term 'heritage significance' has been used.

Level of Effect (ES Terminology/DMRB)	DMRB Definition	ES Definition
Negligible/Neutral	No effects or those that are beneath levels of perception, within normal bounds of variation or within the margin of forecasting error.	Where the Project for Assessment is unlikely to cause a noticeable change at a receptor, despite its level of sensitivity or there is a considerable change at a receptor which is not considered sensitive to a change.

15.38 The principles of the methodology were agreed with RBC and BC Conservation Officers on 6th August with the details to be agreed through the Scoping process.

Limitations and Assumptions

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

- The assessment relies on available data, and all reasonable endeavours have been made to ensure that the data is accurate and up to date. The HER was reconsulted in April 2024. It is assumed that information obtained from, Historic England, the HER database and other sources are accurate.
- The RBC Local List has not been mapped and is only available in list form. The location of locally listed buildings within the Study Area has therefore been manually added to the HAP and checked with the local authority.
- Additional information identifying further non-designated heritage assets has been provided by RBC following the drafting of the EIA Scoping Report. This will be taken into account and the relevant assets assessed as part of the ES Chapter and Heritage Assessment (as appropriate).
- Following the updated HER search, there have been changes to the Site boundary to account for highways works at the north and north west of the Site, which has extended the 1km Study Area to the north to include an area of Heywood north of the Pilsworth Road Industrial Estate and railway line and an area to the west of Junction 3 of the M66. A group of listed buildings now fall within the extended Study Area at its western extent. For the purposes of Scoping, further assessment and a further HER search and mapping of RBC locally listed building has not been undertaken but will be completed prior to the completion of the ES Chapter. The updated Study Area and HER data is unlikely to change the built heritage scope.
- There has been no access to the interiors of the relevant listed buildings. It is considered that an external inspection is sufficient for the purposes of assessing the impacts of the Project for Assessment on their heritage significance through change in part of the buildings' setting.

- Due to the enclosed character of Egypt Farm, which is not owned by the Northern Gateway Development Vehicle (NGDV) LLP, an assessment of its significance and setting has been limited to historic mapping and the HER data.

16. Landscape and Visual

Technical Baseline

Landscape-Related Designations

- 16.1 As seen within **Figure 16.1**, there are no statutory or local landscape designations within the Site. The closest statutory designation to the Site is the Peak District National Park 15.4km to the east. The Site is contained to the north-west, east and south by Green Belt Land.
- 16.2 Two Grade II Listed Buildings lie within the Site namely Brick Farmhouse and Lower Whittle Farmhouse. There are a number of listed heritage assets within the wider Study Area with intervisibility with the Site, in addition to Birch Village Conservation Area south of the M62, the northern-most edge of which edges into the south-eastern extent of the Site. These heritage assets are detailed further within **Chapter 15: Built Heritage** and on **Figure 15.1**.
- 16.3 There are no Special Landscape Areas within the Site.
- 16.4 A number of blocks of woodland are identified to extend into the Site boundary (identified through the National Forest Inventory), none of which are designated as Ancient Woodland. The closest Ancient Woodland is located 630m to the east, comprising Glade Wood and Hopwood Woodlands.

Settlement and Land Use

- 16.5 The Site largely comprises undulating farmland bisected by riparian corridors. Pike Fold Golf Club and associated grounds form a more manicured landscape of tree belts and open, mown greens within the south-west of the site (Grey Quarter of the Spatial Referencing Plan, **Figure 4.1**). The surrounding area in contrast is well developed mainly for residential and industrial uses to the west and north respectively. The main transport corridors of the M66 and M62 form defining features alongside the Site's western and south-eastern boundaries respectively, intersecting at the Site's southern-most point. Pilsworth Quarry and Landfill Restoration and Pilsworth South Landfill Site are also located alongside the Site's north-western boundary, between Pilsworth Road and the course of Brightley Brook, both of which are visible from within the Site and exert a detracting influence. As such, the Site has a settled context.

Rights of Way and Access

- 16.6 The Site is crossed by a network of Public Rights of Way (PRoW) (**Figure 16.1**) which comprises Footpaths and a single Restricted Byway (at the western extent of the Site, passing through Castle Brook Farm). The PRoW provide recreational connections with land uses to the immediate north, south, east and west of the Site, and radiate through the surrounding settlements and farmland. Publicly accessible locations with intervisibility with the Site are found further afield on elevated land, 1.2km south of the Site to the east of Bowlee, and c.10km north, for example on moorland supporting Scout Moor Wind Farm and around Peel Tower (local landmark) at Holcombe Hill. The Rochdale Way long distance footpath passes through the landscape to the south-east of the Site, meeting the Site boundary next to Junction 19 of the M62 at its

easternmost extent before heading along the north-western edge of Langley towards Bowlee. There is intervisibility between the Site and this promoted long distance footpath.

Topography and Hydrology

- 16.7 The Site has an undulating topography which is most pronounced around the various water courses. The topography ranges between 85m AOD in the north-west corner of the Site to 134m AOD towards the centre of the Site adjacent to Birch Industrial Park. Surrounding the Site the landform is sculpted by the presence of a number of watercourses, notably sloping into the valley landform associated with the River Irwell to the east and south-east, and the River Irk to the south-west. To the north the land rises towards the elevated ground associated with Knowl Hill (7.3km from the Site's northern boundary, 419m AOD). Similarly, topography undulates but gradually rises to the east of the Site, rising more noticeably circa 8km to the east near Moorside as the landform leads up to the elevated ground associated with the Peak District National Park circa 15km away.
- 16.8 A number of watercourses flow through the Site, notably Brightley Brook which defines part of the Site's north-eastern boundary; Castle Brook which extends south through the western extent of the Site, and Whittle Brook which winds its way north-west to south-east across the western half of the Site (**Figure 11.1**). Scattered ponds are also present across the Site, with a reservoir and fishing pond adjoining the northern boundary of the Site (off-Site).

Published Landscape Character

- 16.9 Natural England's National Character Areas (NCA's) identify broad, strategic character areas for the whole of England. At a national level, the Site and entire Study Area (**Figure 16.2**) lies within the 'Manchester Pennine Fringe' Character Area, identified as NCA 54. The settled context of the Site, and therefore its perceptual qualities, are characteristic of lowland parts of NCA 54. Landscape features/elements present within the Site, namely the riparian corridors, hedgerows and woodland, form key characteristics.
- 16.10 Greater Manchester Landscape Character and Sensitivity Report (2018) identifies the four landscape character types (LCT) which cover the Site, namely (i) Incised Urban Fringe Valleys; (ii) Mosslands and Lowland Farmland; (iii) Urban Fringe Farmland; and (iv) Reclaimed Land / Wetlands. These LCTs are further divided into Landscape Character Areas (LCAs). LCAs within the Site are (i) 25: River Roch; (ii) 26: Prettywood, Pilsworth and Unsworth Moss; and (iii) 27 Simister, Slattocks and Healds Green.

Landscape Receptors

- 16.11 Overall, built form within the Site, together with the commercial areas and Pilsworth landfill to the north and motorway corridors to the south and west, has an urbanising influence upon the scenic value and perceptual qualities of the Site and its immediate landscape context. Away from these areas, however, pockets of rural character remain, particularly in the west.
- 16.12 The value and condition of the landscape features within the Site is variable with pockets of relative tranquillity afforded by the landform, tall hedgerows and tree cover.

However, in some areas, including around Pilsworth Fishing Lake which is bound by metal palisade fencing, there exists a mild fringe character.

16.13 Landscape receptors are considered to include:

- The Landscape Character of the Site itself;
- LCTs and LCAs of the Rochdale Landscape Character Assessment; and
- LCTs and LCAs of the Greater Manchester Landscape Character and Sensitivity Report.

Visual Amenity

16.14 The undulating nature of the Site provides opportunities to obtain panoramic views towards the surrounding land uses, which are backdropped by elevated land of Knowl Hill to the north of the Site, and the Peak District in the distance to the east. Lower lying parts of the Site are more contained, with containment afforded by a combination of topography and woody habitats.

16.15 Six visits to the Site and the surrounding area have been undertaken in both winter and summer since 2022, with the most recent visit carried out in February 2024 where a number of potential viewpoints were visited. The locations of views for consideration have been discussed with BC and RBC in February 2024. Viewpoint locations have synergies across this Chapter and **Chapter 15**.

16.16 A Zone of Theoretical Visibility (ZTV) mapping exercise has been undertaken and the corresponding plan relating to a maximum 65m ridge height has been prepared (**Figure 16.3**).

16.17 Following the creation of an initial ZTV (based on LiDAR 1m DSM) a study area has been identified on **Figure 16.3** extending out 2km from the Site. This is proposed as a suitable extent given the scale of development. Significant effects are not anticipated beyond this, however viewpoints beyond this are included for context (out to a maximum of 4.4km) as a result of rising topography and consequent availability of elevated views beyond 2km of the Site. The landscape and visual study area is proposed to be the same, as this will enable effects on viewers in the surrounding area and indirect landscape effects to be adequately assessed.

16.18 Viewpoints proposed for inclusion to aid assessment of effects within an LVIA, 27 in total, are detailed within **Table 16.1** below (and shown on **Figure 16.3**).

Table 16.1: Selected Viewpoints

VP Number	Receptor(s)	Description	Distance from Site	Viewing Direction
1	Footpath/Road	Restricted Byway BY/85BUR and Castle Road	Within Site	East
2	Footpath/Road	BY/7WHI and Unsworth Academy Playing Fields (BC Request)	Within Site	East
3	Footpath/Road	BY/6WHI and Griffie Lane	Within Site	North
4	Footpath	BY/6WHI	Within Site	South-west
5	Footpath/Road	BY/12WHI and Pole Lane	140m	East
6	Footpath/Road	BY/9WHI and Egypt Lane	Within Site	North-east
7	Footpath/Road	BY/46WHI and Road leading from Egypt Lane	50m	West
8	Footpath/Road	BY/8WHI and Simon Lane	36m	West
9	Footpath/Road	BY/8WHI and Simon Lane	500m	West
10	Road	Whittle Lane	Within Site	East
11	Footpath/Road	BY/3WHI and Moss Hall Road	Within Site	East
12	Promoted Footpath	Rochdale Way and Bowlee Community Park	719m	North-west
13	Promoted Footpath	Rochdale Way	325m	West
14	Footpath	RD/Hey/Fp143	660m	North-west
15	Road/Residential	Hareshill Road	Within Site	South-west
16	Footpath	RD/Hey/Fp74	Within Site	South
17	Footpath/Road	RD/Hey/Fp72 and Queen Elizabeth Way	On Site Boundary	South-west
18	Footpath/Road	RD/Hey/Fp75 and Pilsworth Road	On Site Boundary	South
19	Footpath/Road	BY/1WHI and Moss Hall Road	72m	South
20	Footpath	BY/1WHI	115	South-east
21	Visitors	Heaton Park Temple	1.6km	North

VP Number	Receptor(s)	Description	Distance from Site	Viewing Direction
22	Footpath/Visitors	Informal Footpath at Alkington Hall (RBC request)	3.3km	North-west
23	Footpath	Informal Footpath and Tandle Hill War Memorial & Country Park (RBC request)	3.7km	West
24	Footpath	RD/Mid/FP5	2.7km	West
25	Footpath	RD/Hey/FP93 and RD/Hey/BP48	3.4km	South
26	Footpath/Road	RD/Hey/Fp12 and Ashworth Road	4.4km	South
27	Footpath	BY/113BUR	2.8km	East

Visual Receptors

- 16.19 **Figure 16.3** demonstrates the proposed location of viewpoints. Assessment is based upon groups of visual receptors rather than specific views, except where such views are identified in local policy or mapping.
- 16.20 Visual receptors to be considered as part of the LVIA (to be appended to the Landscape ES Chapter) include the following, with their representative viewpoint noted:
- Public Footpath users within the Site extents:
 - BY/85BUR (Viewpoint 1);
 - BY/7WHI (Viewpoint 2);
 - BY/6WHI (Viewpoint 3 and 4);
 - BY/3WHI (Viewpoint 11); and
 - BY/9WHI (Viewpoint 6).
 - Public Footpath users beyond the Site Boundary (within 2km):
 - BY/12WHI to the west (Viewpoint 5);
 - BY/8WHI (Viewpoint 8 and 9), BY/46WHI (Viewpoint 7) and Rochdale Way Promoted Long Distance Footpath (Viewpoint 12 and 13) to the south-east;
 - RD/Hey/Fp143 to the east (Viewpoint 14); and
 - RD/Hey/Fp72 (Viewpoint 17), RD/Hey/Fp75 (Viewpoint 18), RD/Hey/Fp74 (Viewpoint 16) and BY/1WHI (Viewpoint 20)(along the south-eastern edge of Pilsworth Quarry) to the north.

- Public Footpath users beyond the Site (beyond 2km):
 - To the west around Elton Reservoir (Viewpoint 27);
 - To the north, upon rising ground north of B6222 (Viewpoint 25 and 26); and
 - To the east, between A666 Manchester Road and the A627(M) (Viewpoint 24) and at the Tandle Hill Viewpoint (Viewpoint 23).
- Minor Road users within the Site's extents:
 - Castle Road (Viewpoint 1);
 - Griffe Lane (Viewpoint 3);
 - Egypt Lane (Viewpoint 6); and
 - Whittle Lane (Viewpoint 10).
- Local Main Road Users:
 - M62 (Viewpoint 7 and 8);
 - M66 (Viewpoint 2);
 - A6184 Queen Elizabeth Way (Viewpoint 17); and
 - A6045 Heywood Old Road (Viewpoint 12).
- Local Minor Road Users beyond the Site:
 - Moss Hall Road (Viewpoint 19);
 - Pilsworth Road (Viewpoint 18);
 - Pole Lane (Viewpoint 5);
 - Simon Lane (Viewpoint 8 and 9);
 - Hareshill Road (Viewpoint 15); and
 - Ashworth Road (Viewpoint 26).
- Recreational Receptors:
 - Visitors to informal Footpath at Alkington Hall;
 - Visitors to Tandle Hill War Memorial & Country Park (Viewpoint 23);
 - Visitors to Heaton Park Temple (Viewpoint 21);
 - Unsworth Academy Playing Fields (Viewpoint 2); and

- Visitors to Birch Services.
- Residential Receptors:
 - Simister to the south;
 - Unsworth to the west; and
 - Langley to the south-east).

Proposed Scope of Assessment

- 16.21 The below sets out the proposed scope of assessment based on an understanding of the characteristics of the Site, surrounding area and the Project for Assessment. Where environmental effects are considered unlikely to be 'significant', an appropriate evidence base has been provided to justify the 'scoping out' of these effects ensuring the EIA and ES only assess those effects considered 'likely' to be significant, at this stage.

Effects Unlikely/Not Significant

Changes to the character and amenity of views beyond the ZTV and 2km

- 16.22 The ZTV provided within **Figure 16.3** identifies areas from which receptors have potential to experience intervisibility with the Site and Project for Assessment. Those areas of the surrounding landscape, and associated receptors, not highlighted by the ZTV are therefore not expected to experience views towards the Site and are therefore unlikely to be affected. BC requested the inclusion of two viewpoints from Footpath 84BUR, however given their wooded context and the foreground presence of the treed M66 corridor these viewpoints, there is limited intervisibility.
- 16.23 As noted above, intervisibility between the Site and elevated areas of landform beyond the 2km Study Area have been identified through the ZTV process. However, the perceived changes as a result of Project for Assessment for receptors in these areas (notably those receptors represented by Viewpoints 22-27) are likely to be limited and not significant. Whilst new built form will be noticeable within views, the existing settled context within which the Site is situated and the presence of detractors such as quarries, landfill sites and existing commercial/industrial lessens an impact. In these locations, the changes would not be considered out of character compared with the baseline views experienced.
- 16.24 Therefore, changes to the character and amenity of views beyond the ZTV and the 2km Study Area are unlikely to be considered significant and will not be considered further in the EIA or reported in the ES. This includes Viewpoints 22-27 which will only be considered within the LVIA to be appended to the ES Chapter.

Effects Likely/Significant

- 16.25 **Table 16.2** below outlines the effects (and associated receptor groups) that are considered to be likely and potentially significant and therefore will be assessed within the EIA and reported in the ES. An indication of which spatial zone the impact is relevant to is also provided.

Table 16.2: Potential Likely Significant Effects and Sensitive Receptors

Effect	Receptor(s)	Applicable Stage(s)	Spatial Zone
Changes to Landscape Character	The Site itself; LCTs and LCAs of the Rochdale Landscape Character Assessment; and LCTs and LCAs of the Greater Manchester Landscape Character and Sensitivity Report	Construction/ Operation	All Spatial Zones
Changes to the character and amenity of views	Public Footpath Users within the Site	Construction/ Operation	All Spatial Zones
	Public Footpath Users beyond the Site Boundary (within 2km)	Construction/ Operation	All Spatial Zones
	Minor Road Users within the Site's	Construction/ Operation	All Spatial Zones
	Local Minor Road Users beyond the Site	Construction/ Operation	All Spatial Zones
	Local Main Road Users	Construction/ Operation	All Spatial Zones
	Recreational Users of Unsworth Academy playing fields	Construction/ Operation	Grey Quarter
	Visitors to Heaton Park Temple	Construction/ Operation	All Spatial Zones
	Visitors to Birch Services	Construction/ Operation	Navy Blue, Purple and Brown Quarter

Assessment Methodology of Effects Likely/Significant

16.26 The following background surveys/studies have been/will be completed.

Table 16.3: Background Surveys/Studies

Survey/Study/Analysis/ Evaluation	Overview	Date of Completion
Completed		
Landscape Site Visit and Viewpoint Survey	Collection of winter-time viewpoint photography for Photoviewpoints 1-23 and 26	29 February 2024
Pending		
Site visit to collect additional viewpoint photography	Collection of additional viewpoint photography for Photoviewpoints 24, 25 and 27.	Ongoing between August and November 2024
Landscape and Visual Impact Assessment	Assessment of potential landscape and visual effects resulting from the construction and operation of the Project for Assessment.	Ongoing between August and November 2024
Verified Wireline Visualisations	A selection of verified wireline visualisations, compliant with TGN 06/19 Type 3 Wireline, to provide supporting material to visualise the scale and massing of development. Number and locations of photoviewpoints to be taken forward to Wireline are to be agreed with two LPAs. Viewpoints without Wirelines will be presented as photosheets compliant with TGN 06/19 Type 1.	November 2024

- 16.27 A landscape and visual impact assessment (LVIA) is required to ensure any significant adverse impacts on the landscape resources or visual amenity are recognised at an early stage in the masterplanning process and where practical, reduced by means of mitigation design. It will also highlight opportunities and incorporate measures to mitigate any residual landscape effects and improve landscape conditions. The full LVIA report will be appended to the ES Chapter, with identified significant impacts drawn out and reported in the ES Chapter.
- 16.28 The LVIA will be undertaken in accordance with the Guidelines for Landscape and Visual Impact Assessment, Third Edition (GLVIA3), prepared by the Landscape Institute and IEMA in 2013.
- 16.29 The LVIA will provide a systematic analysis of the existing landscape context and the potential effects arising from the Project for Assessment. The baseline assessment would set out the existing condition of the landscape in terms of its regional context,

its physical fabric, landscape character, any cultural heritage value, and recreational value. The existing visual amenity of the Site and locality would be assessed in a further separate section of the baseline work.

16.30 In order to establish the degree of change arising from the Project for Assessment the extent to which that change will affect local receptors, the existing situation and Site context will be ascertained in terms of amenity, availability of views and the landscape character context for the site and local area. The baseline appraisal process will include:

- An overview of statutory plans and other data regarding relevant designations and landscape and visual related planning policies for the area;
- An assessment of the landscape character of the Site with reference to published works and checked and verified through field work;
- The extent of the baseline study area will be established through GIS topographical analysis and ZTV mapping, which will then be subsequently verified and assessed in the field. The field verified visual envelope will be defined based on Site work to determine the extent of visibility taking into account surrounding built form and vegetation;
- Utilising the ZTV, representative viewpoint and associated visual receptors have been identified. In accordance with best practice, the viewpoint locations have been agreed with the LPA prior to running the assessment; and
- A visual appraisal of the site and its surroundings.

16.31 The LVIA will be informed by a set of verified wireline visualisations to be agreed with the LPAs. These will be compliant with TGN 06/19 Type 3 Wireline.

16.32 The impact assessment process will classify the identified landscape character resources and visual receptors / viewpoint locations in terms their sensitivity to change with a judgement to evaluate the magnitude of change for each identified receptor. The significance of any landscape and visual effect is a function of the sensitivity of the affected landscape resources and visual receptors against the magnitude of change that they would experience.

16.33 The assessment of likely significant effects to sensitive receptors will consider the sensitivity of the receptor (on a scale of high, medium, low and negligible) and the magnitude of the change (on a scale of large, medium, small and negligible) to determine the level of effect on a scale of major, moderate, minor and negligible. Level of effect and significance will be determined through professional judgement.

16.34 A copy of the methodology to be used through the preparation of the forthcoming LVIA is included within **Appendix 16.1**. Criteria in the tables within this methodology will be used as a basis for identification of receptor sensitivity and anticipated magnitude of change, with professional judgement used to establish a level of effect and resulting significance.

- 16.35 A full version of the LVIA will be appended to the ES Chapter to set out all of the effects anticipated (both significant and not significant), with identified significant effects presented within the ES Chapter.

Limitations and Assumptions

- 16.36 To ensure transparency within the EIA process, the following limitations and assumptions have been identified:
- Assessment of baseline views have been undertaken during winter months where project timescales allow. This ensures the ability to assess the 'worst case' scenario, i.e. when visibility is at its maximum. Where winter assessment has not been possible due to shorter project timescales, professional judgement has been used and set out to describe the likely changes during winter months; and
 - It is not practicable to visit every location from which a development may be visible and, as such, vantage points are chosen to represent the views experienced by different receptor groups. Assessment is undertaken on the effects on receptors, not on views.

17. Climate Change

17.1 The UK Climate Change Projections (UKCP18)¹⁵⁰ set out that climate change is projected to lead to increasing annual temperatures, decreasing summer rainfall and increasing winter rainfall as a result of increasing global Greenhouse Gas (GHG) emissions. This applies to the UK, including the Site.

17.2 In this context the EIA regulations require the consideration of Climate Change, including how resilient the Project for Assessment is to the effects of climate change, and how it mitigates its impact on climate change through GHG emissions.

Technical Baseline

17.3 Current baseline conditions regarding greenhouse gas (GHG) emissions have been established at the local authority (Rochdale and Bury) and the regional level (North West) from the latest (2022) UK Government local authority and regional carbon dioxide emissions national statistics: 2005 to 2022¹⁵¹ as presented in **Table 17.1**.

17.4 The Site's current GHG emissions are unknown in quantitative terms and for the purposes of the GHG emissions assessment, baseline GHG emissions from the Site are assumed to be zero, an approach that helps ensure a reasonable 'worst-case' scenario regarding the GHG effect of the Project for Assessment.

Table 17.1: Baseline Local & Regional GHG Emissions

Geographical Area	2022 GHG Emissions (tonnes CO ₂ e)
Bury and Rochdale	1,899,500
North West	40,593,000
Site	0

17.5 The future baseline conditions regarding GHG emissions have been established in the form of carbon budgets proposed for Rochdale and Bury via the Tyndall Centre¹⁵² and the UK¹⁵³ as presented in **Table 17.2**.

17.6 These will be used to contextualise GHG emissions from the Project for Assessment in order to establish the magnitude of its net GHG effect.

¹⁵⁰ <https://www.metoffice.gov.uk/research/approach/collaboration/ukcp/index>

¹⁵¹ <https://www.gov.uk/government/statistics/uk-local-authority-and-regional-greenhouse-gas-emissions-national-statistics-2005-to-2021>

¹⁵² <https://carbonbudget.manchester.ac.uk/reports/E08000003/>

¹⁵³ Carbon Budgets - GOV.UK (www.gov.uk)

Table 17.2: UK & Bury and Rochdale Carbon Budgets (tCO₂e)

Period	UK	Rochdale and Bury
2018 – 2022	2,544,000,000	7,500,000
2023 – 2027	1,950,000,000	3,900,000
2028 – 2032	1,725,000,000	1,900,000
2033 – 2037	965,000,000	900,000
2038 – 2042	Not yet set	500,000
2043 – 2047	Not yet set	200,000
2048 - 2100	Not yet set	200,000

- 17.7 Current baseline climate conditions for the Site (**Table 17.3**) have been established from the Met Office's closest automatic weather station to the Site, located at Rochdale, Greater Manchester¹⁵⁴. The data provides average monthly conditions for the 1981-2010 period summarised below to show summer maximum temperature and average summer and winter rainfall.

Table 17.3: Current climate baseline

Description	Temperature / Rainfall
Summer maximum temperature (°C)	19.7
Summer rainfall (mm per month)	83.1
Winter rainfall (mm per month)	105.8

- 17.8 Future baseline climate conditions for the Site area have been established from the Met Office's latest climate projections UKCP18¹⁵⁵ for the 25km OS grid square within which the Site is located (387500, 412500).
- 17.9 The projections comprise forecast changes relative to 1981 to 2010 baseline conditions for annual and seasonal temperatures and rainfall. In accordance with IEMA guidance, projections are taken from the "high" emissions scenario (known as "RCP8.5"), 50th percentile (i.e. median) scenario for the 2030s, 2050s and 2080s.
- 17.10 Projected changes to seasonal and annual temperature and rainfall relative to 1981-2010 conditions, which could result in severe weather effects such as droughts, floods and heat waves, are provided in **Table 17.4**.

¹⁵⁴ <https://www.metoffice.gov.uk/research/climate/maps-and-data/uk-climate-averages/gcw2ymd6s>

¹⁵⁵ <https://www.metoffice.gov.uk/research/approach/collaboration/ukcp/about/what-is-ukcp>

Table 17.4: Future climate baseline

Description	2030s			2050s		2080s	
	Temperature / Rainfall baseline	Change to baseline	Future baseline Temperature / rainfall	Change to baseline	Future baseline Temperature / rainfall	Change to baseline	Future baseline Temperature / rainfall
Summer maximum temperature (°C)	19.7	1.2	20.9	2.3	22.0	4.8	24.5
Summer rainfall (mm per month)	83.1	-5%	78.6	-16%	69.7	-31%	57.5
Winter rainfall (mm per month)	105.8	2%	107.6	7%	113.0	13%	120.1

17.11 The UK Climate Projections provide guidance on the anticipated effects of climate change. Using these projections, the UK Climate Change Risk Assessment (UKCCRA)¹⁵⁶, updated in 2021, identifies potential risks and impacts of climate change across a number of areas including Infrastructure, Health, Communities and the Built Environment. Key risks from the UKCCRA which related to the Project for Assessment are summarised below:

- N1 – Risks to species and habitats from climate change;
- I2 – Risks for infrastructure from flooding;
- I7 – Risks to infrastructure from subsidence;
- H1 – Risks to health and wellbeing from high temperatures;
- H3 – Risks to people, communities and buildings from flooding;
- H5 – Risks to building fabric;
- H10 – Risks to water quality and household water supplies;
- B1 – Risks to businesses from flooding;
- B3 – Risks to business from water scarcity; and

¹⁵⁶ <https://www.theccc.org.uk/publication/independent-assessment-of-uk-climate-risk/>

- B5 – Risks to business operations due to high temperatures.

17.12 Based on the Climate Projections and risks from the UKCCRA key likely receptors to be impacted by climate change include:

- The Global Climatic System from additional GHG emissions;
- Construction Employees and Future Occupants may be impacted due to overheating from increasing temperatures;
- Site Infrastructure may be impacted due to changing ground conditions and as a result of increased rainfall and flood risk;
- Construction Operations may be impacted by changing weather patterns leading to risks of flooding, pollution and impacts on Air Quality;
- Site Habitats and Species may be impacted by changing climate space; and
- Site Operations, Infrastructure and Future Occupants may be impacted by decreasing summer rainfall and water availability, as well as increased risks of flooding due to increasing winter rainfall.

Proposed Scope of Assessment

17.13 The below sets out the proposed scope of assessment based on an understanding of the characteristics of the Site, surrounding area and the Project for Assessment (**Chapter 4**). Where environmental effects are considered unlikely to be 'significant', an appropriate evidence base has been provided to justify the 'scoping out' of these effects ensuring the EIA and ES only assess those effects considered 'likely' to be significant, at this stage.

Effects Unlikely/Not Significant

17.14 The following effects are considered unlikely to be significant and therefore will not be considered further within the EIA or reported in the ES. A factual evidence base has been provided below to support this. Where mitigation has been used to inform this judgement, the identified mitigation has been captured within the PEMP provided in **Appendix 2.1**.

Increasing summer mean and daily maximum temperatures and influence on human health during construction

17.15 Increasing summer temperatures may lead to health and safety risks for construction employees.

17.16 A Construction Environmental Management Plan (CEMP) will be prepared to support the demolition and construction of the Project for Assessment and will set out climate change adaptation and measures to reduce risks to human health from overheating such as provision of shaded refuges and potable water supplies during construction.

- 17.17 Therefore, the effect of an increasing summer mean and daily maximum temperatures on construction employees and their human health is not considered to be significant and will not be considered further in the EIA or reported in the ES.

Changing annual temperatures / rainfall patterns and changes to air quality during construction and water supply, flood risk and during construction and operation

- 17.18 Changing annual temperatures and rainfall patterns may lead to a reduction of water supply, an increased risk of flooding (and damage), and an impact on air quality.
- 17.19 The CEMP will include measures to protect receptors from potential climate change effects through demolition and construction, including the provision of appropriate drainage and pollution prevention systems. The CEMP will also include measures to monitor and reduce potable water use.
- 17.20 It is anticipated that dust and particulate matter emissions produced during demolition and construction activities would be controlled through the implementation of a CEMP. This CEMP will be informed by the Institute of Air Quality Management (IAQM) guidance and would include prevention measures, such as screening stockpiles of materials, deployment of windbreak netting and dampening exposed soils as appropriate and set out requirements for ongoing monitoring. This would include any enhanced dust suppression measures to reduce the risk of dust from increased summer temperatures.
- 17.21 The Project for Assessment will lead to an increased demand on potable water supplies from future Site users. The operational development will include water saving measures built into the design of the Project for Assessment, such as water saving fixtures and fittings to reduce water consumption, specific targets for homes and non-residential development include:
- Targeting water consumption rate of 105litres per person per day for homes; and
 - Targeting the equivalent of two BREEAM Wat01, Water Efficiency credits for non-residential development.
- 17.22 According to the Environment Agency Flood Zone Map¹⁵⁷, the majority of the Site is located in Flood Zone 1. This is with the exception of the immediate surrounding land of Whittle Brook and Hollins Brook and Brightly Brook (to the west of Pilsworth Fishery) which is within Flood Zone 3 and in an area classified as being at 'high' probability of flooding.
- 17.23 Development will be steered to areas of low or very low flood risk within Flood Zone 1, with flood alleviation measures to reduce flood risk associated with Whittle; Hollins; and Brightly Brooks (**Figure 11.1**) to be incorporated where appropriate. The flood alleviation measures will ensure there no increased risk from flooding downstream.

¹⁵⁷ <https://flood-map-for-planning.service.gov.uk/location>

- 17.24 The Project for Assessment will include flood attenuation measures and drainage discharge rates taking into account the appropriate climate change allowances.
- 17.25 All of these tertiary mitigation measures would be considered an integral part of the Project for Assessment. Therefore, changing annual temperatures / rainfall patterns and changes to water supply, flood risk and air quality is not considered to be significant and will not be considered further in the EIA or reported in the ES.

Changes to future climate including temperature and rainfall and risk to building infrastructure and future occupants during operation

- 17.26 Changes to future climate including temperature and rainfall may cause ground conditions to change which may lead to impacts on building foundations and structures and the future occupants.
- 17.27 The Building Regulations¹⁵⁸ require new developments to consider the impact of ground movement in foundation design. The Project for Assessment will be designed in accordance with current guidance and best practice, and this will include the consideration of changing climate on stability of the ground conditions, influencing foundation design as necessary.
- 17.28 Therefore, the effect of changes to future climate including temperature and rainfall upon site infrastructure and future occupants is not considered to be significant and will not be considered further in the EIA or reported in the ES.

Changes to future climate and resilience of site habitats and species during operation

- 17.29 Changes to future climate including temperature and rainfall, could impact upon site habitats and species. The landscape and biodiversity strategy is under development at the moment and will have objectives to:
- Protect and enhance existing features, where possible;
 - Avoid development within areas of higher landscape value/biological value, where possible;
 - Ensure that green and blue assets across the Site are connected to enable the greater mobility and movement of species between habitats; and
 - The Project for Assessment will enhance the biodiversity of the Site, mitigating the anticipated impacts of climate change in accordance with the England Biodiversity Strategy¹⁵⁹ and Natural England Climate Change Adaptation Manual¹⁶⁰. This will include a wide diversity of species tolerant to a range of conditions.

¹⁵⁸

https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/540328/BR_PDF_AD_L2A_2_Q13_with_2016_amendments.pdf

¹⁵⁹

https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/69446/pb13583-biodiversity-strategy-2020-111111.pdf

¹⁶⁰ <http://publications.naturalengland.org.uk/publication/5679197848862720>

- 17.30 Therefore, changes to future climate and resilience upon site habitats and species is not considered to be significant and will not be considered further in the EIA or reported in the ES.

Higher average summer temperatures and risk of building overheating during operation

- 17.31 Higher average summer mean and daily maximum temperatures may lead to building overheating, adversely affecting the health and well-being of occupants.
- 17.32 Proposed buildings will undergo an overheating assessment, in line with the requirements of Part O of the Buildings Regulations¹⁶¹ utilising CIBSE TM52¹⁶² (or similar) to assess and reduce the risk of summer overheating, taking into account future climate scenarios. Where measures are provided to reduce the risk of overheating this will be done in accordance with the cooling hierarchy.
- 17.33 Therefore, higher average summer temperatures and risk of building overheating to occupants is not considered to be significant, and will not be considered further in the EIA or reported in the ES

Effects Likely/Significant

- 17.34 **Table 17.5** outlines the effects (and associated receptor[s]) that are considered to be likely and significant and therefore will be assessed within the EIA and reported in the ES. An indication of which spatial zone the impact is relevant to is also provided.

Table 17.5: Potential Likely Significant Effects and Sensitive Receptors

Effect	Receptor(s)	Applicable Stage(s)	Spatial Zone
GHG Emissions	Global Climatic System	Construction and Operation	All spatial Zones

Assessment Methodology of Effects Likely/Significant

- 17.35 The following background studies have been/will be completed

Table 17.6: Background Surveys/Studies

Survey/Study/Analysis/Evaluation	Overview	Date of Completion
Completed		
Climate Change Assessment	A review of UKCP18 climate change projections and potential climate change risks	June 2024
Pending		

¹⁶¹ <https://www.gov.uk/government/publications/overheating-approved-document-o>

¹⁶² Chartered Institution of Building Services Engineers (2013) TM52: Comfort Analysis

Survey/Study/Analysis/ Evaluation	Overview	Date of Completion
High level review of potential GHG emissions	Estimate of the Project for Assessment's GHG emission and contextualisation against local and national emissions and carbon budgets.	November 2024

- 17.36 IEMA has prepared guidance for EIA practitioners for both Climate Change Adaptation¹⁶³ and Mitigation¹⁶⁴ which will be used in the Climate Change assessment for the Project for Assessment.
- 17.37 The assessment of greenhouse gas emissions will be undertaken in accordance with IEMA's GHG Assessment Guidance.
- 17.38 The Site will form the principal study area for the assessment; however the assessment will include off-site GHG emissions / savings such as those associated with the manufacture and transportation of construction materials, and those associated with the off-site generation (e.g. at a power station) of grid electricity consumed during operation.
- 17.39 The Site's current GHG emissions are unknown in quantitative terms and for the purposes of the GHG emissions assessment, baseline GHG emissions from the Site are assumed to be zero, an approach that helps ensure a reasonable 'worst-case' scenario regarding the GHG effect.
- 17.40 The GHG assessment of the Project for Assessment will consider both the construction and operational stages. This will include a high level assessment of embodied carbon and consideration of other potential carbon losses that may be associated with peatland on the Site. An Energy Strategy will be prepared to estimate the operational energy demand of the Project for Assessment.
- 17.41 GHG emissions from the construction and operation of the proposed buildings will be estimated either using modelled building data or recognised industry benchmarks/targets, for example RIBA 2030 Climate Challenge which sets out targets on embodied carbon and operational energy demand.
- 17.42 In line with IEMA's guidance, GHG emissions resulting from the construction and operation stages of the Project for Assessment will be evaluated in the context of baseline GHG emissions from the Site, local authority's administrative area and UK region, as well as the future carbon budgets proposed for Rochdale, Bury and the UK.

¹⁶³ IEMA (2020). Environmental Impact Assessment Guide to Climate Change Resilience and Adaptation

¹⁶⁴ IEMA (2022). EIA Guide to: Assessing Greenhouse Gas Emissions and Evaluating their Significance

- 17.43 Furthermore, and in accordance with IEMA's guidance, consideration will also be given to the contribution of the Project for Assessment to a science-based net zero trajectory in line with the 2015 Paris Agreement's 1.5°C pathway.
- 17.44 The assessment of likely significant effects to sensitive receptors will consider the sensitivity of the receptor (on a scale of high, medium, low and negligible), the magnitude of change (on a scale of large, medium, small and negligible), the level of effect on a scale of major, moderate, minor and negligible. The global climate system is the receptor for GHG emissions and is considered highly sensitive in accordance with IEMA guidance.
- 17.45 The significance of the Project for Assessment's net GHG effect will then be determined by considering the magnitude of its net GHG emissions effect in conjunction with consideration of whether it makes an appropriate contribution to the UK's net zero trajectory, and also using professional judgment.

Limitations and Assumptions

- 17.46 To ensure transparency within the EIA process, the following limitations and assumptions have been identified:
- Activity Data – In estimating construction and operational stage GHG emissions, third party emissions factors and benchmarks may be applied to estimated parameters, including energy demand. These factors and benchmarks may potentially not fully reflect the actual construction and operational performance of the Project for Assessment, however, the proposed approach is nevertheless considered to represent the best available option at this stage;
 - Emission Factors – The primary source of emission factors applied is UK Government conversion factors for company reporting. These factors are published annually by the Department for Business, Energy and Industrial Strategy (BEIS). The current factors (published June 2023) may not accurately reflect the Project for Assessment's construction and operational activities undertaken in future years; and
 - BEIS also publishes annual projections of the future carbon intensity of electricity supplied by the national grid. These projections can be used to estimate operational GHGs over a 30-year period. The BEIS projections are based on various assumptions including the continued uptake of renewable energy technologies and the closure of fossil fuel power stations which may not fully reflect actual future conditions.

18. Approach to the Assessment of Cumulative Effects

Overview

- 18.1 This Chapter establishes the methodology for the assessment of cumulative effects arising from the Project for Assessment. The EIA Regulations, through Schedule 4, Paragraph 5e and Regulation 4, Paragraph 2, requires the consideration of the culmination of effects with other “*existing and/or approved projects*”, as well as the interaction between effects identified at the project level.
- 18.2 To accord with the EIA Regulations and best practice guidance, the following types of cumulative effects will be considered within the EIA:
- **Effect interactions** (to accord with Regulation 4, Paragraph 2): the interactions and combination of environmental effects of the Project for Assessment affecting the same receptor, either within the Site or in the local area; and
 - **In-combination effects** (to accord with Schedule 4, Paragraph 5(e)): the interaction and combination of environmental effects of the Project for Assessment with other existing or approved project (s) affecting the same receptor (hereinafter referred to as ‘Cumulative Projects’).

Assessment Methodology

- 18.3 At present, there is no widely accepted current methodology or best practice for the assessment of cumulative effects. Furthermore, there is limited guidance on the best practice approach for the assessment of cumulative effects. The Planning Inspectorate issued an advice note on (No. 17) on the assessment of cumulative effects relevant to nationally significant infrastructure projects (NSIPs)¹⁶⁵, however, as the name suggests this is focused on NSIPs and therefore not necessarily applicable at all project levels.
- 18.4 The assessment of cumulative effects, for both effect interactions and in-combination effects, will be largely qualitative in nature. For some technical topics quantitative data may be available (i.e. where modelling work is undertaken) facilitating a quantitative analysis of cumulative effects, which will be fully set out within the assessment within the ES. Where information is not available, assumptions will be made based on professional judgement and clearly stated alongside any uncertainty as part of the assessment.

Effect Interactions

- 18.5 The approach to the assessment of effect interactions considers the changes in baseline conditions at common sensitive receptors due to overlapping effects arising

¹⁶⁵ Advice Note Seventeen: Cumulative Effects assessment relevant to nationally significant infrastructure projects (Version 2), Planning Inspectorate (August 2019). Available online - <https://infrastructure.planninginspectorate.gov.uk/legislation-and-advice/advice-notes/advice-note-17/>

from the Project for Assessment. The assessment is based upon residual effects only, as identified through technical assessments within the ES. The common sensitive receptors considered within this assessment are those which are assessed within two or more of the technical assessments within the ES.

18.6 A matrix of residual effect interactions will be formulated in the ES corresponding to the construction and operational stages of the Project for Assessment.

18.7 An overall qualitative assessment of the cumulative effect on the common sensitive receptors identified will be made using professional judgement and informed by the technical information provided in the ES and supporting appendices.

In-Combination effects

18.8 The assessment of potential in-combination effects will be undertaken using the methodology outlined below.

Step 1: Identification of Projects for Consideration

18.9 In order to identify relevant projects (referred to as 'Cumulative Projects') that could give rise to in-combination effects within the Project for Assessment, a review of the following databases was undertaken:

- BC's and RBC's online register of projects^{166 167};
- Nearby councils' (including Manchester City Council (MCC)¹⁶⁸ and Oldham Council (OC)¹⁶⁹) online register of projects;
- Planning Inspectorate online register of projects¹⁷⁰;
- Transport and Works Order Act online register of projects¹⁷¹;
- Parliament Hybrid Bills online register¹⁷²; and
- The Landstack¹⁷³ map function to identify planning applications (in particular, from BC and RBC).

18.10 In line with the EIA Regulations, this search was focused on projects and therefore is not inclusive of sites allocated within local plans, core strategy documents or supplementary planning documents. As identified within the criteria above, the focus is on projects instead of sites allocated within local plans, core strategy documents or

¹⁶⁶ <https://planning.bury.gov.uk/online-applications/search.do?action=simple&searchType=Application>

¹⁶⁷ <https://publicaccess.rochdale.gov.uk/online-applications/>

¹⁶⁸ <https://pa.manchester.gov.uk/online-applications/search.do?action=simple&searchType=Application>

¹⁶⁹ https://www.oldham.gov.uk/info/200351/planning/1866/search_for_an_application

¹⁷⁰ <https://infrastructure.planninginspectorate.gov.uk/projects/register-of-applications/>.

¹⁷¹ <https://www.gov.uk/government/collections/twa-inspector-reports-and-decision-letters>.

¹⁷² <https://www.parliament.uk/business/bills-and-legislation/current-bills/hybrid-bills/>.

¹⁷³ Landstack is an interactive mapping tool that displays all planning applications submitted to local planning authorities and automatically updates on a weekly basis.

supplementary planning documents. This approach has been adopted due to it being unlikely that there will be sufficient information to inform a robust in-combination assessment.

- 18.11 This is with the exception of JPA1.2, which has the potential to be under determination at the same time as JPA1.1 and is being progressed by the NGDV. The required foul water network upgrades will also be assessed cumulatively.
- 18.12 However, an alternative approach has been adopted for the purpose of the Transport Assessment and therefore for traffic related effects in the ES, a wider range of projects will be considered.
- 18.13 As outlined in **Chapter 2**, a development log has been created to inform the Transport Assessment and this included a far wider range of cumulative projects. The development log is based on assumptions about when such projects will happen and when. This is the most reliable assumptions available. Therefore, traffic related effects in the EIA will be based on a greater number of cumulative projects than those specifically required as part of the EIA. None of the cumulative projects currently identified for assessment in the EIA are additional to those in the development log or if they are, they are unlikely to generate cumulative impacts.
- 18.14 It is considered likely that this greater range of cumulative projects will also meet the requirements for HRA¹⁷⁴ (see **Chapter 2**), where there is also a requirement for a greater range of cumulative projects. However, this will only inform traffic related effects within the HRA, e.g. nitrogen deposition.
- 18.15 To reach a proportionate list of relevant Cumulative Projects, the following criteria were applied:
- Applications dating from January 2017 onwards. It is anticipated that applications prior to this date will already have been built out (and therefore form part of the baseline) and / or where subsequent applications have been submitted these would be captured within the search dates;
 - Applications with resolution to grant planning permission;
 - Applications with planning permission, either under construction or not yet implemented (unless already considered as part of the baseline scenario);
 - Applications submitted, which have the potential to be determined prior to the determination of the Proposed Scheme;
 - Applications which have been refused but subject to an appeal not yet determined;
 - The project being of a relevant scale: the threshold for consideration has been set as the Schedule 2 criteria in the EIA Regulations, at which there is a potential

¹⁷⁴ As Regulation 63(1)a of The Conservation of Habitats and Species Regulations requires effects of the project '*alone or in combination with other plans or projects to be considered*'.

for 'likely significant effects' (however, it is recognised that this needs to be applied with caution); Schedule 1 projects; and nationally significant infrastructure projects; and

- Projects within 5km of the Assessment boundary¹⁷⁵ will be considered acknowledging the maximum extent of likely receptors¹⁷⁶.

- 18.16 Where there are requests for Screening Opinions, Scoping Opinions or the potential for allocated sites to come forward with applications in advance of the submission of the Application, the status of these will be monitored.
- 18.17 An updated search will also be undertaken at key intervals in advance of the Application in 2025, with the final search completed 12 weeks before submission. This is to ensure there is sufficient time for them to be considered and incorporated within any studies / evaluations / modelling that may underpin the assessments within the ES (e.g., visualisations).
- 18.18 Given the expected build out period of the Project for Assessment, as part of the search for cumulative projects a number of 'other projects' known to the project team but are yet to be subject to a formal planning application have been identified. Such other projects have been identified within **Table 18.1** as 'Projects to Monitor'. Currently there is insufficient information available to enable a robust appraisal of possible cumulative effects. Where this remains the case at the point of the ES, they will be excluded from further evaluation.
- 18.19 The resulting Cumulative Projects that will be considered and appraised in the assessment of cumulative effects using the methodology and criteria set out above is provided within **Table 18.1** and shown on **Figure 18.1**.

Assessment of South Heywood

- 18.20 As detailed in **Chapter 2** under 'Baseline Scenario for Use in the EIA' South Heywood will be considered as both baseline and cumulatively. This is considered appropriate as the construction of South Heywood has commenced with the construction and operation of the Queen Elizabeth II Way link road to the M62 Junction 19. The operation of Queen Elizabeth II Way will therefore be considered as the current baseline. Construction of a proportion of the proposed houses for South Heywood have also been built and will also form part of the baseline.
- 18.21 With regards to traffic data, the baseline traffic data has been collated following the operation of Queen Elizabeth II Way in November 2022 and therefore has accounted for the redistribution of the traffic on the local road network and a proportion of traffic associated with the housing built on the site. However, whilst some housing has

¹⁷⁵ This is considered to be an appropriate study area to identify Cumulative Projects where there is a potential for in-combination effects.

¹⁷⁶ This is likely to include the receptors that may be influenced by changes in traffic composition. It may not include all Cumulative Projects that could influence the local economy but a 5km study area is considered to be appropriate to capture the maximum effect (in this case, anticipated to be beneficial).

already been built out, the trip generation/changes associated with the remainder of the South Heywood scheme have not been included in the traffic counts and will be included within the Transport Assessment development log and considered cumulatively.

Table 18.1: Cumulative Projects for Assessment of In-combination Effects

Map ID	Application reference	Address	Summary of Description	Status	Distance from Site	EIA
1	16/01399/HY BR (RBC)	South Heywood Land Bound By Manchester Road, Hareshill Road And Pilsworth Road West Of Junction 19 Of The M62 Rochdale	Part full/part outline planning application for the development of land at South Heywood, including the demolition of a number of existing on-site buildings and structures, construction of a new link road between Junction 19 of the M62 and Pilsworth Road, and the widening of part of Pilsworth Road, together with associated junction improvements. Outline consent for residential uses comprising up to 1000 dwellings (Class C3); employment uses (Classes B2/B8) comprising up to 135,460m2 Gross Internal Area(GIA); a new primary school (Class D1); Class A1/A2/A3/A5 uses comprising up to 2500m2 GIA which includes no more than 499m2 of A1 uses; together with associated landscaping, open space and sports pitches, drainage, ecological enhancements, cycleway and footpath linkages, infrastructure and other works ancillary thereto.	Approved	Adjacent, to the north-east	EIA
2	68530 (BC)	Land at the junction of Hollins Brook Way and Pilsworth Road, Bury, BL9 8RR	Hybrid application - Full application: Zone 1 development of Commercial building No1 (Creche, Use Class E), car parking and internal site roads, a new site access junction to Pilsworth Road, highway improvement works, use of an existing car park exit to Aviation Road for emergency purposes only, and Zone 2 development of Commercial building No.2 (Hub building, Use Class E) car parking and internal site roads and a multi-purpose all-weather sports pitch.	Approved – under construction	300m west	Not EIA
3	68368 (BC)	Land at York Street/Bury Road, Radcliffe,	Full planning permission for 211 dwellings and associated works.	Under construction	2.1km west	Not EIA

Map ID	Application reference	Address	Summary of Description	Status	Distance from Site	EIA
		Manchester, M26 2GL				
4	22/00588/FUL (RBC)	Crimble Mill Crimble Lane Heywood OL10 4DJ	The restoration of the existing mill, change of use of the upper floors to dwellings and ground floor commercial floorspace (Classes E, F1 or F2), the replacement of the existing road bridge and the removal of the existing footbridge, restoration of the mill pond and leat, the construction of flood alleviation measures; t associated road works and landscaping the construction of 31 dwellings and associated works and engineering operations; and the construction of 150 dwellings associated engineering/retention works.	Pending consideration	2.2km north	EIA Development
5	23/00431/HY BR (RBC) (Part of the RCHD766 Allocation)	Castleton Sidings Heywood Road Rochdale	Hybrid planning application (part outline and full) for operational works to facilitate the East Lancashire Railway (ELR) extension; and for Residential development for 191 dwellings including access, landscaping, open space together with erection of sub-station and foul water pump station	Pending consideration	1.5km north-east	Not EIA Development
6	22/01190/FUL (RBC)	Land South Of Cowm Top Lane Castleton Rochdale	Residential development comprising 495 dwellings with associated access, car parking, landscaping and infrastructure	Pending consideration	2.6km north-east	Not EIA Development
7	62969 (BC)	East Lancs Paper Mill, Church Street East,	Outline application for up to 400 residential dwellings including access and associated works including relocation of cricket pitch, including demolition of existing building and structures	Approved	2.4km west	Not EIA

Map ID	Application reference	Address	Summary of Description	Status	Distance from Site	EIA
		Radcliffe, Manchester, M26 9PG				
8	21/00744/FUL (RBC)	Land Off Don Street, Middleton	Residential development of 311 dwellings (Use Class C3) with associated infrastructure, landscaping and access	Approved	4.1km south-east	Not EIA
9	OUT/345898/ 20 (OC)	Shaw Distribution Centre Linney Lane Shaw Oldham OL2 8HF	Outline planning permission for residential development (use class C3), with associated landscaping, de-culverting of the River Beal, surface water drainage infrastructure, car parking and other necessary works with access from Linney Lane and Beal Lane following the demolition of existing buildings and structures	Under construction	3.3km north-east	EIA
10	23/00650/HY BR (RBC)	Land At Stakehill, Off Rochdale Road, Middleton	Hybrid planning application (EIA development) for a residential development of 233 dwellings (Use Class C3) with associated landscaping and access, and Outline planning permission with access for residential development of up to 1147 dwellings (Use Class C3), mixed-use development, land for primary school extension, local centre and MUGA, landscaping, and supporting infrastructure.	Pending consideration	2km east	EIA
11	23/01294/FUL (RBC)	Land At Waterfold Business Park Bury BL9 7BJ	Redevelopment of existing premises, comprising full demolition; erection of new building for Class B8 purposes with ancillary offices; external plant, and associated works for hardstanding for servicing and parking, and landscaping	Pending consideration	800m north	Not EIA
12	70697 (BC)	Pilsworth Lake/Fisherie s, Moss Hall	Erection of café/shop (Use Class E), rebuilding of existing boathouse and associated access road, parking & landscaping	Pending consideration	Adjacent, to the north	Not EIA

Map ID	Application reference	Address	Summary of Description	Status	Distance from Site	EIA
		Road, Bury, OL10 2RF				
<i>Nationally significant infrastructure project (NSIP)</i>						
13	M60/M62/M66 Simister Island	M60 Junction 18, three miles south of Bury.	Construction of a new free-flow link (northern loop) from the M60 eastbound to M60 southbound carriageways. Realignment of the M66 southbound carriageway on the approach to the junction. Construction of a new two-lane free-flow road from the M60 northbound to the M60 westbound to replace the existing single-lane, and widen the M66 southbound to four lanes through junction 18. Conversion of the hard shoulder into a permanent traffic lane between M60 junctions 17 and 18, providing five lanes in both directions. Other works will include improvements to signage, signalling and drainage.	Accepted for examination	Adjacent to the Site	EIA
<i>Projects to monitor</i>						
14	21/01531/SC O	Land To The West Of Bamford And South Of Norden, Rochdale	Scoping opinion in respect of a proposed scheme including 500 dwellings and a sports hub. (Part of the PfE allocation – RCHD765)	Scoping submitted	3.8km north	EIA
15	Proposed PfE site allocation (JPA 1.2)	Simister and Bowlee (Northern Gateway)	Allocation for 1,500 homes, two form entry primary school, local centre (including retail, health and community facilities), open space and supporting infrastructure.	Pre-application stage	600m south	EIA

Step 2: Assessment of In-combination Effects

- 18.22 Whilst a number of Cumulative Projects have been identified, it does not necessarily follow that there will be in-combination effects with the Project for Assessment as there needs to be an effect on the same receptor for a similar duration.
- 18.23 The assessment of in-combination effects will take into consideration available documentation submitted in support of the application for the above Cumulative Projects, to conclude if common receptors are present between the Project for Assessment and the Cumulative Projects and the extent of any in-combination effect. Where suitable information is not available, either professional judgement will be used to determine the cumulative effects or limitations will be set out.
- 18.24 The in-combination assessment will focus on the environmental topic / effects 'scoped in' (i.e., reported within the ES).
- 18.25 The evaluation at the receptor level will consider the following:
- Magnitude of change (or impact) in the relevant technical assessments;
 - Sensitivity (or value, importance, etc.) of the receptor / receiving environment to change; and / or
 - Duration and reversibility of effect.
- 18.26 Through a combination of the evaluation and mitigation presented, conclusions will be drawn as to the likelihood for in-combination effects, their nature (i.e., adverse or beneficial), whether these are 'Significant' or 'Not Significant' and how such effects differ from those reported for the Project for Assessment. In some cases, how the Project for Assessment contributes to the overall in-combination effect will also be considered.
- 18.27 The assessment of in-combination effects is anticipated to comprise qualitative evaluation.
- 18.28 Quantitative evaluation is anticipated in relation to traffic related impacts which will be linked to the traffic model. This is dependent on which Cumulative Projects are included within the traffic model and how they are incorporated, details of which are discussed above and further in **Chapter 2**.

19. Summary of EIA Scoping Report

19.1 **Chapter 5** identified a number of environmental topics for which no likely or significant effects have been identified and are proposed to be 'scoped out' of the EIA and not reported in the ES, based on the technical evidence base provided. These are as follows:

- Lighting;
- Waste;
- Minerals;
- Major Accidents and/or Disasters; and
- Microclimate:
 - Daylight, Sunlight, Overshadowing,
 - Glint and Glare; and
 - Wind.

19.2 The environmental topics proposed to be 'scoped in' (see **Technical Chapters 6 – 17**) are as follows:

- Socio-Economics and Human Health (**Chapter 6**);
- Transport and Access (**Chapter 7**);
- Noise and Vibration (**Chapter 8**);
- Air Quality (**Chapter 9**);
- Biodiversity (**Chapter 10**);
- Hydrology, Flood Risk and Water Quality (**Chapter 11**);
- Ground Conditions and Contamination (**Chapter 12**);
- Agriculture and Soils (**Chapter 13**);
- Archaeology (**Chapter 14**);
- Built Heritage (**Chapter 15**);
- Landscape and Visual (**Chapter 16**); and
- Climate Change (**Chapter 17**).

19.3 **Table 19.1** provides a summary of all the environmental topics and effects considered unlikely / not significant and therefore 'scoped out' as well as the topics and likely significant environmental effects 'scoped in' that will be considered further within the EIA and reported in the ES.

Table 19.1: Summary of effects which are considered to be Likely and Significant and Not Likely and Significant

Technical Topic Area	Effects which are not considered Likely to be Significant	Effects which are considered Likely and Significant
Lighting	Increase in lighting levels during construction and risk of statutory nuisance Changes in lighting levels during operation and risk of statutory nuisance to residents or/and users of public rights of way	-
Waste	Generation and disposal of waste during demolition, construction, and operation on local landfill capacity Consumption of resources on the immediate and long-term availability of materials	-
Minerals	Sterilisation of Mineral Resources	-
Major Accidents and/or Disasters	Major accidents associated with utility strikes Major accidents associated with utility diversions A major accident as a result of fire Malicious attacks caused by war, crime and terrorism Major accidents associated with storage / stockpiling on-Site	-
Microclimate (includes Daylight, Sunlight, and Overshadowing; Glint and Glare; and Wind)	Changes in local daylight and sunlight amenity and levels of overshadowing from built form during construction and/or operation Solar Glint and Glare from solar photovoltaic panels and glare from the facades of proposed building	-

Technical Topic Area	Effects which are not considered Likely to be Significant	Effects which are considered Likely and Significant
	Changes in the local wind environment from built form during construction and operation	
Socio-Economics and Human Health	Provision of new housing	Employment generated
	Access to education facilities (early years, primary, secondary)	Access to skills and training
	Access to primary healthcare facilities	
	Access to healthy food during construction and operation	
	Access to open space and recreation facilities	
	Access to active travel and sustainable transport options	
	Social cohesion, inclusive design and access to community facilities	
	Crime reduction and community safety	
	Other human health-related effects	
Transport and Access	-	Change in traffic flows
		Increase in severance
		Increase in driver delay
		Increase in NMU delay
		Reduction in NMU amenity
		Increase in fear and intimidation
		Increase in accidents and reduction in safety

Technical Topic Area	Effects which are not considered Likely to be Significant	Effects which are considered Likely and Significant
Noise and Vibration	Operational Vibration	Increased demand on Public Transport
		Noise from construction works
		Vibration from construction works
		Construction traffic noise on the road network
		Noise from proposed commercial and industrial uses
		Noise from proposed energy infrastructure
		Noise from development generated road traffic and potential highway infrastructure
Air Quality	Nuisance and disturbance as a result of dust from construction activities Nuisance and disturbance as a result of odour from the Pilsworth South Landfill Site	Noise from existing and reasonably foreseeable future noise sources
		Changes to concentrations of NO ₂ , PM ₁₀ and PM _{2.5} as a result of emissions from development generated traffic
Biodiversity	Loss of potential invertebrate habitat resulting from construction phase affecting invertebrate populations	Exposure to elevated NO ₂ , PM ₁₀ and PM _{2.5} concentrations associated with vehicle exhaust emissions on the local road network
		Degradation through nitrogen deposition and recreational pressure
		Degradation through air quality, dust pollution and recreational pressure
		Overall loss of habitat and degradation of retained habitat Risk of killing/injury/ loss of habitat and disturbance to populations of wildlife

Technical Topic Area	Effects which are not considered Likely to be Significant	Effects which are considered Likely and Significant
Hydrology, Flood Risk and Water Quality	Decrease in water quality as a result of runoff during construction activities	Decrease in water quality as a result of runoff
	Increase in flood risk as a result of runoff during construction activities on the Site	Increase in surface water flood risk as a result of increased overland flows from changes to topography and increased areas of hardstanding
	Increased demand on water supply as a result of water use during construction activities	Increase in fluvial flood risk as a result of areas of hardstanding within the floodplain
		Increase in flood risk due to potential filling of existing drainage channels
		Increased demand on existing drainage networks and Waste Water Treatment Works
		Increased demand on water resources and associated infrastructure
Ground Conditions and Contamination	Potential Risk of Exposure to Contamination	Potential risk of mining and ground collapse
	Potential Risks from the Release/Migration of Contamination to Controlled Waters	
	Potential Risks from Ground, Landfill and Mine Gas to Human Health and the Built Environment	

Technical Topic Area	Effects which are not considered Likely to be Significant	Effects which are considered Likely and Significant
	Potential Risks from the Presence of Unstable and Compressible Ground (non-mining related) on Human Health and the Built Environment	
Agriculture and Soils	Disturbance / Removal of Peat	Loss of agricultural land Loss of or damage to soil resources Reduction in farmable area and business viability
Archaeology	Truncation, Disturbance, or Removal of Designated Archaeological Assets	Direct effects including the truncation, disturbance, or removal of known and unknown archaeological remains
Built Heritage	Impact on the significance of designated heritage assets as a result of change within their setting	Impact on the significance (character and appearance) of Birch Conservation Area
	Impact on the significance of non-designated heritage assets as a result of change within their setting	Impact on the significance (character and appearance) of Birch Conservation Area Impact on the significance (special architectural and historic interest) of designated heritage assets as a result of change within their setting Impact on the significance of non-designated heritage assets as a result of demolition Impact of the collective loss of historic farmsteads within the Site on the local heritage resource
Landscape and Visual	Changes to the character and amenity of views beyond the ZTV and 2km	Changes to Landscape Character Changes to the character and amenity of views

Technical Topic Area	Effects which are not considered Likely to be Significant	Effects which are considered Likely and Significant
Climate Change	Increasing summer mean and daily maximum temperatures and influence on human health during construction Changing annual temperatures / rainfall patterns and changes to air quality during construction and water supply, flood risk and during construction and operation Changes to future climate including temperature and rainfall and risk to building infrastructure and future occupants during operation Changes to future climate and resilience of site habitats and species during operation Higher average summer temperatures and risk of building overheating during operation	GHG Emissions

Appendix 1.1: Record of Consultation

Body/Organisation	Date/Form of Consultation	Summary of Consultation Outputs
Minerals		
Greater Manchester Combined Authority, Minerals and Waste Officer	16/07/2024, Video call & PowerPoint presentation	Discussions on: works completed and findings to date; scope of Minerals Safeguarding Assessment; and need for inclusion within the EIA. Request for consideration of clay extraction and sand and gravel around Pilsworth Quarry.
Transport and Access		
Transport Steering Group	2022 to 2024 / Regular meeting (average of 1 every 2 months)	Discussion and Agreement on Model Specification Report and Model Statement of Agreement for the Northern Gateway Traffic Model (NGTM) The Model Specification Report for NGTM outlined an overview of the model's design and performance. Meanwhile, the Model Statement of Agreement outlines the terms for its use and compliance.
BC, RBC, Transport for Greater Manchester and National Highways	July 2024, Email	Conducting a Scoping Exercise to establish the methodology for the upcoming Transport Assessment and related to the development scheme. This includes the submission and review of a Transport Assessment Scoping Report.
BC, RBC,, Transport for Greater Manchester and National Highways	August 2024, Email	This includes the submission, review, and incorporation of feedback, followed by the submission of a revised Transport Assessment Scoping Report.
Noise and Vibration		
BC, Environmental Health Department	9 th May 2024, Virtual Meeting (Unit Manager, Commercial Team, Public Protection)	Scope of work verbally agreed with respect to: Qualitative noise and vibration assessment for all construction and operational effects with the exception of the assessment of highways infrastructure (to be agreed as detailed proposals emerge).

Body/Organisation	Date/Form of Consultation	Summary of Consultation Outputs
		Off-site road traffic noise assessment based on basic noise level calculations relating to the change in noise levels on the local road network.
RBC, Environmental Health Department	13 th May 2024, Virtual Meeting (Environmental Health Specialist Lead (Environmental Protection))	As above
BC, Environmental Health Department	13 th May 2024, Email	Agreement of scope of noise survey including provisional long term and short term monitoring locations (Figure 8.1) and duration of the survey.
RBC, Environmental Health Department	14 th May 2024, Email	As above
Air Quality		
BC	January 2022 - Formal Consultation Response	Recommendation that air quality monitoring is carried out prior to the completion of the assessment.
RBC	14 th May 2024 - Email	The proposed methodology for a 3-month programme of air quality monitoring was provided to RBC. This was subsequently agreed, subject to a request to change the location of one monitoring position to consider traffic around the junction of A576 Manchester Road and A6045 Heywood Old Road. A request was made for the monitoring programme to avoid school term times where possible. This was subsequently agreed on 15 th May 2024, 11 th June and 3 rd July.
BC	14 th May 2024 - Email	The proposed methodology for a 3-month programme of Air Quality Monitoring was provided to BC. This alongside the BC changes were subsequently agreed on 8 th July.
Biodiversity		
Greater Manchester Ecology Unit	19 th March 2024 / Teams Call	Provided briefing on the approach to surveying across the Project for Assessment area and the requirement

Body/Organisation	Date/Form of Consultation	Summary of Consultation Outputs
		for 'high level assessments' (assessment of local ecological records, review of aerial imagery and views from Public Rights of Way (PROW)) of the Site which access cannot be obtained for and which will not form part of the future planning application. Further detail on this is provided under 'Limitations and Assumptions', and illustrated on Figure 10.1 16551 Ecology Survey Scope. Update on initial 'worse case' BNG results; identifying potential for offsite land within the landowners ownership and possible land within council ownership.
Greater Manchester Ecology Unit	13 th June 2024/ Email	Confirmation (and further detail) of the above survey scope (and limitations). Update on BNG, including the identification of an offsite BNG area within the landowners ownership.
Greater Manchester Ecology Unit	27 th June 2024 / Email 18 th July 2024 / Email	Further request to close out approach to surveying across the Project for Assessment. Update on BNG progress.
RBC	21 st May 2024 / Email	Liaising with RBC to establish Tree Preservation Orders (TPO).
Natural England	9 th September 2024 / Email	Discretionary Advice Service application issued on this date; pertaining to approach and scope for designated sites and Habitat Regulations Assessment (HRA).
Hydrology, Flood Risk and Water Quality		
Lead Local Flood Authority (LLFA) RBC	Email chain with RBC LLFA beginning 20 th May 2024.	A response is pending the appointment of a drainage engineer within RBC.
Lead Local Flood Authority (LLFA), BC	Email chain with BBC LLFA beginning 20 th May 2024.	Initial contact made with Development Management team, awaiting further response to discuss outline concepts for the drainage strategy.
Environment Agency (EA)	The EA have been provided with a copy	The EA's assessment on the suitability of the modelling methodology is pending.

Body/Organisation	Date/Form of Consultation	Summary of Consultation Outputs
	of the modelling methodology via email on 6 th June 2024.	
United Utilities (UU)	8 th May 2024 Teams Call and email chain beginning 8 th May 2024.	Principles of the surface water strategy were agreed to be acceptable. UU confirmed their preference would be to adopt all surface water infrastructure but that it would be acceptable for plots to be provided with private attenuation and discharge controls as part of an integrated site wide surface water strategy. Principles for offsite foul pump station are to be agreed in further consultation with UU drainage engineers. UU confirmed a separate system of land drainage would be needed for the site with outfalls to watercourses and would be required to be adopted by a management company.
Ground Conditions and Contamination		
Coal Authority	19/07/2024 teams Call	A meeting was held with the Coal Authority regarding the mine workings and mine shafts on the site. The Coal Authority's position is that mine shafts should not be built over unless a justifiable reason as to why they should be built over, can be provided. They suggested an increased area for geophysical surveys, to potentially locate unrecorded mine shafts / presence of bell pits. This has been incorporated into the preliminary ground investigation specification. Given the identified presence of mine workings onsite, the Coal Authority will expect mine gas to be assessed. Obtaining initial data for ground gas assessment is part of the preliminary ground investigation specification.
BC	-	Pre-app consultation with the contaminated land officer at Bury

Body/Organisation	Date/Form of Consultation	Summary of Consultation Outputs
		Council has been requested. It is expected that a pre-app Teams call will be held in September 2024.
RBC	06/08/2024, Teams call	A meeting was held with the Environmental Health Senior Officer, for Rochdale Council. Michael's view was that the site was that the risk of significant contamination is low given the historic and current agricultural land use. The application will likely receive typical conditions regarding contamination, such as submission of more detailed targeted ground investigation reports as well as a remediation strategy (if required following ground investigation and assessment), remediation verification (if required) and unexpected contamination clauses.
Archaeology		
Greater Manchester Archaeology Advisory Service (GMAAS)	2020-Present Emails Phone calls 24.03.2022 Site monitoring visit Email acceptance of evaluation report	Ongoing email and phone consultations to agree timing and scope of work for the Site, including Meadowcroft Fold. Archaeological works to date (i.e. trial trench evaluation for Meadowcroft Fold) have been completed to the satisfaction of GMAAS, the current agreement is that pending receipt of the final evaluation post excavation report for Meadowcroft Fold (anticipated to be October 2024), no further archaeological fieldwork will be required to inform the EIA. It was agreed that the results of the trial trench evaluation did not merit consideration of Meadowcroft Fold as a Scheduled Monument. Further archaeological works will be required as a condition of planning consent.
Historic England	2020-2022 Emails	Consulted in relation to proposed methodology for archaeological trial trenching works at Meadowcroft Fold. The methodology was agreed, and monitoring of the fieldwork was

Body/Organisation	Date/Form of Consultation	Summary of Consultation Outputs
		deferred to GMAAS with an offer of specialist advice if required. Historic England welcome further consultation however defer to GMAAS unless specialist input is required.
Built Heritage		
BC & RBC Conservation Officers	2022, pre-application meetings, submission of a pre-application submission document and receipt of an informal scoping opinion.	Discussion of methodology with the scoping opinion requesting the heritage assessment work be carried out in accordance with Historic England's Conservation Principles, Policies and Guidance for the Sustainable Management of the Historic Environment and Design Manual for Roads and Bridges (DMRB). Further information was requested in relation to key views within the setting of Lower Whittle Farm (grade II listed building) and recommended mitigation measures were noted.
BC Conservation Officer	25 March 2024, email	Confirmation that the BC draft local list has not been updated since 2022 and that it remains in draft with no timetable for the adoption.
RBC Conservation Officer	23 April 2024, email	Confirmation that RBC local list data has not been mapped.
RBC Conservation Officer	26 Apr, 14 Jun, emails	Request for information to support Heritage Assets Plan issued by Turley Heritage.
RBC Conservation Officer	25 June, email	Response from RBC to confirm addresses for Silver Birch Stables; recommended meeting to discuss other Heritage Assets data.
RBC Conservation Officer	19 July, meeting	Meeting to confirm location/existence of mapped heritage assets. RBC to review all buildings within the Site against local listing criteria.
BC & RBC Conservation Officers, Historic England	6 August, Meeting	Discussion of methodology including rationale for not assessing against Principles of Conservation (Historic England 2008) but referring to the relevant principles as relevant when

Body/Organisation	Date/Form of Consultation	Summary of Consultation Outputs
		assessing each asset. Explanation of potential impacts on heritage receptors.
Landscape and Visual		
RBC	27 February 2024, email	Discussion and agreement of viewpoints for assessment in the ES (see Table 16.1). Additional views requested: • To the northern entrance of Alkrington Hall, Hall Drive. • Tandle Hill viewing point.
BC	12 February 2024, email	Discussion and agreement of viewpoints for assessment in the ES (see Table 16.1). Three additional views requested for consideration from PRow 7WHI and 84BUR along the Site's western boundary.

Appendix 2.1: Preliminary Environmental Management Plan

Preliminary EMP

Project specific measures to avoid and / or prevent significant adverse environmental effects (i.e. mitigation measures) have been considered through the EIA Scoping process when appraising likely environmental effects.

At this stage, this has focussed on 'primary mitigation' (i.e. inherent mitigation, comprising fundamental aspects of the project design) and 'tertiary mitigation' (i.e. standard environmental commitments / practices).

To support BC and RBC and other stakeholders, the mitigation measures that have been identified at this stage have been collated into a single, Preliminary Environmental Management Plan (PEMP) set out below. This will be developed further as part of the ES and a full Environmental Management Plan (EMP) will be submitted in support of the planning application.

It is envisaged that mitigation within the PEMP and EMP will be secured through suitably worded planning conditions or another mechanism, where appropriate, and the EMP will be utilised by the Applicant and appointed contractor(s) to control mitigation commitments and provide assurance over their implementation. The PEMP has focused on mitigation identified for the Project for Assessment but the EMP will provide further clarity as to which mitigation is relevant to the Proposed Scheme and the planning application and other mitigation which is only relevant to the wider footprint of the Project for Assessment and which will be presented for information only.

Schedule of Mitigation

Mitigation Measure	Description / Details of Measure
Primary Mitigation	
Layout / general arrangement	The layout of the Project for Assessment will allow for retention of the Birch Business Park which will remain in situ and operational.
Public Realm	New public realm will be implemented with consideration of principles related to inclusive design, taking account of Planning Practice Guidance (PPG) ¹⁷⁷ .
Landscape and Biodiversity Strategy	Although the design of the Project for Assessment has not yet been finalised in detail, it will retain the following biodiversity and green-space elements: • Two trees subject to a Tree Preservation Order within the Site (W1 - TPO 124 and G1 - TPO 157) will be retained on Site; • Hollins Brook, Whittle Brook, Castle Brook and Brightly Brook / Pilsworth Clough will be retained in their existing alignments within the Site (sections may need to be culverted for access). No buildings are likely to be built within a minimum distance of 50m to Whittle Brook; • The Project for Assessment will enhance the biodiversity of the Site, mitigating the anticipated impacts of climate change in accordance with the England Biodiversity Strategy¹⁷⁸ and Natural England Climate Change Adaptation Manual¹⁷⁹. This will include a wide diversity of species tolerant to a range of conditions.

¹⁷⁷ Department for Levelling Up, Housing and Communities (2019) Planning Practice Guidance: Housing for older and disabled people – Inclusive Design (para 017)

¹⁷⁸ https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/69446/pb13583-biodiversity-strategy-2020-111111.pdf

¹⁷⁹ <http://publications.naturalengland.org.uk/publication/5679197848862720>

Mitigation Measure	Description / Details of Measure
Daylight / Sunlight Strategy	A Daylight, Sunlight and Overshadowing Assessment will be undertaken to support the outline planning application for buildings above 4 storeys. This will ensure appropriate set back distances from retained properties as well as proposed residential properties, PROW and retained habitats with ecological value.
Building Heights	Maximum building height from existing ground levels are up to 65mAOD (including for roof top wind) Maximum building heights from existing ground levels south of the M62 will be up to 16mAOD.
Transport and Access Strategy	Three primary access points suitable for all vehicular traffic will be provided from Moss Hall Lane, Hareshill Road and from any M62 junction improvements. Three additional, secondary access points will be provided suitable for all road-based traffic with the exception of HGV's and employment traffic. Secondary access points will be provided from the south off the existing Whittle Lane, from the west and from the north utilising the existing Castle Road. Two pedestrian and cycle only access points from the west will use an existing Public Rights of Way (PROW) and Hills Lane. Pedestrian and cycle access from the south of the Site will also be provided from existing access lanes / PROW from the south of the M62. A network of footpaths/cycleways (including retained PROWs, realigned PROWs and new footpaths/cycleways) will connect the Site and wider area.
Heritage Strategy	Built heritage features within the Site which will be retained include (see Spatial Referencing Plan, Figure 4.1 for relevant quarters): • Brick Farmhouse Grade II Listed Building (located in pink quarter); • Lower Whittle Farmhouse Grade II Listed Building (located in purple quarter); • Bridge at Whittle Brook (located on the boundary of the pink and yellow quarters); • Birch Hotel (located within area of existing properties adjacent to purple quarter); • Gardeners Arms (located within area of existing properties adjacent to purple quarter); • Whittle Farm (located within the brown quarter); and • Egypt Farm (located within the peach quarter).

Mitigation Measure	Description / Details of Measure
Utilities Strategy	Any diversion or reinforcement of foul water, telecoms, gas and electricity supply will happen as part of the enabling works and any off-Site works will be the responsibility of the utility provider. The two gas pipelines within the Site will be remain in-situ with a suitable easement.
Lighting strategy	Lighting design and installations will adhere to: All external lighting installations will meet Institute of Lighting Professionals (ILP) Guidance Notes for the Reduction of Obtrusive Light 2021¹⁸⁰. • Planning Practice Guidance on Light Pollution, Ministry of Housing, Communities & Local Government, 1st November 2019; • The Conservation of Habitats and Species Regulations, as amended, 2017; • Environmental Protection Act, 1990; • Rochdale Adopted Core Strategy (Adopted October 2016); • External lighting, where provided on dwellings, commercial/industrial will be undertaken in line with measures set out by ILP Guidance Note 9¹⁸¹, ILP Guidance Note GN08¹⁸², CIE 150, CIE 126¹⁸³, CIBSE LG6¹⁸⁴, CIBSE LG21,¹⁸⁵ BS EN 12464 Part 2¹⁸⁶, BS EN 13201-4¹⁸⁷ and NPPSA¹⁸⁸; and

¹⁸⁰ Institute for Lighting Professionals (2021). Guidance Note 01/21 for the Reduction of Obtrusive Light.

¹⁸¹ Institution of Lighting Professionals (2019), Guidance Note 9 Domestic exterior lighting: getting it right. Available at: <https://theilp.org.uk/publication/guidance-note-9-domestic-exterior-lighting-getting-it-right>

¹⁸² ILP Guidance Note GN08 (2023): Bats and artificial lighting in the UK; Bats and the Built Environment series

¹⁸³ CIE 126: Guidelines for Minimising Sky Glow (1997)

¹⁸⁴ Chartered Institute of Building Services Engineers (CIBSE) LG6: The Exterior Environment (2016)

¹⁸⁵ Chartered Institute of Building Services Engineers (CIBSE) LG21: Protecting the night-time environment (2021)

¹⁸⁶ BS EN 12464 Part 2: Outdoor Lighting (2014)

¹⁸⁷ BS EN 13201-4: Road Lighting – Methods of Measuring Lighting Performance, 2003

¹⁸⁸ National Protective Security Authority (NPSA), Security Lighting

Mitigation Measure	Description / Details of Measure
	Operational lighting for highways will be provided based upon an identified need and risk assessment. Where highways lighting is required, lighting installations will be provided in accordance with BS 5489¹⁸⁹.
Waste strategy	The Project for Assessment will include appropriate facilities for the storage, handling and collection of these waste types in line with the Waste Management Strategy which will set out the principles, strategy and targets for the management and storage of waste and maximise recycling, in accordance with BC and RBC established policy.
Energy strategy	The Project for Assessment will meet the requirements of the forthcoming Building Regulations 2025, including the Future Homes Standard (whereby at least a 75% carbon reduction beyond Part L 2013 will be achieved) and the Future Buildings Standard (with similar standards to be achieved for non-residential buildings). The Project for Assessment will be all-electric, (although there may be certain processes that require gas or oil). The source of electricity will likely be from a mix of sources, predominantly provided by on-Site solar energy with potential for roof mounted wind power as well as potential for micro-hydrogen. The implementation of photovoltaic panels will consider the following to ensure glint and glare is minimised including: - The type of solar photovoltaic panels; - The location and orientation of buildings with solar photovoltaic panels; and - The angle at which the solar photovoltaic panels are positioned on the roofs of proposed buildings.
Potable water strategy	The existing clean water network (operated by United Utilities [UU]) will be upgraded along Pilsworth Road to the new main that UU installed at the corner of Pilworth Rd / QEII Way. Homes will be designed to achieve a water consumption rate of 105l/p/d, exceeding the Building Regulations higher water efficiency rate. Buildings will achieve the equivalent of 2 Wat01 water efficiency BREEAM credits.

¹⁸⁹ BS 5489-1 (2020), Design of road lighting Part 1: Lighting of roads and public amenity areas

Mitigation Measure	Description / Details of Measure
Foul Water Strategy	The design of the foul water drainage system will be undertaken to suit the site phasing strategy, as such, as the design develops there may be a requirement to utilise temporary drainage features / outfalls to facilitate the required phasing arrangements. Foul water is proposed to drain to either the Bury Wastewater treatment works or to existing public sewers in Hareshill Road. Primary pumping stations will be required to achieve the connection points that are agreed in principle with United Utilities. Further pumping stations will be required throughout the development to accommodate the phasing strategy and to limit the maximum depth of the foul sewer system to an acceptable design standard for United Utilities. The foul water system will be designed to adoptable standards to allow maintenance responsibilities to transfer to United Utilities or other approved authority at an appropriate point in the development build out.
Flood risk and surface drainage strategy	Development will be steered to areas of low or very low flood risk within Flood Zone 1, with flood alleviation measures to reduce flood risk associated with Whittle/Hollins/Brightly Brooks to be incorporated where appropriate. The flood alleviation measures will ensure there no increased risk from flooding downstream. A strategy to control flood risk to and from the development will be agreed with the relevant stakeholders including the Environment Agency and the Bury and Rochdale Lead Local Flood Authorities.
Surface water drainage strategy	The design of the surface water drainage system will be undertaken to suit the site phasing strategy. Surface water is proposed to discharge at a rate equivalent to the existing greenfield runoff, with an ultimate outfall into the designated main rivers or tributaries within the Site: Whittle Brook, Castle Brook and Brightly Brook. There will be multiple points of outfall for the surface water system throughout the Site due to scale of the Project for Assessment and the complexity of the catchment analysis. The surface water drainage strategy will provide a corridor of green / blue infrastructure within the Site with the principle SuDS¹⁹⁰ attenuation features being located close to the river corridor but outside the extent of the current and future flood zones. Development plots will provide a suitable level of water quantity and

¹⁹⁰ The Surface Water Drainage Strategy will incorporate Sustainable Drainage Systems (SuDS) and be developed in accordance with the CIRIA 753 – The SuDS Manual where practical.

Mitigation Measure	Description / Details of Measure
	quality management, the principles of which will be agreed with the contributing statutory undertakers. The surface water system will be designed to adoptable standards to allow maintenance responsibilities to transfer to United Utilities or other approved authority at an appropriate point in the development build out.
Tertiary Mitigation	
Construction Environmental Management Plan (CEMP)	A CEMP will be prepared by the appointed contractor in advance of commencing construction works. The document will provide detailed measures / controls to avoid and manage potential adverse effects upon the environment during the construction stage. Measures will include: <u>General Measures</u> • The proposed construction works will be carried out by a competent contractor that will comply with current legislation¹⁹¹; • The site security arrangements for the Project for Assessment during the construction stage will be in line with the requirements set out in the Construction (Design and Management) Regulations 2015¹⁹² and appropriate levels of security (personnel / CCTV) will be provided. • Temporary fencing / hoarding will be erected around relevant perimeters at the outset of construction and temporary secure access gates will be provided to manage the movement of vehicles, plant, equipment and personnel; • All construction activities will be in accordance with the Considerate Constructors Scheme; • Good practice guidance for water efficiency on the Site will be stipulated and monitored; • Climate change adaptation and measures will reduce risks to human health from overheating such as provision of shaded refuges and potable water supplies during construction; and • Construction working hours would be 07:30 to 18:00 Mondays to Friday; 07:30 to 13:00 on Saturday. There will be no construction on Sundays, Public and Bank Holidays. This is with the exception of the

¹⁹¹ This includes the Health and Safety at Work etc. Act 1974; the Control of Pollution Act 1974; and Construction (Design and Management) Regulations 2015.

¹⁹² Secretary of State (2015). Construction (Design and Management) Regulations 2015.

Mitigation Measure	Description / Details of Measure
	infrastructure works associated with the M66 and M62, the construction of which is likely to require some works outside of these periods including during the nighttime periods. <u>Utilities</u> • Appropriate utilities disconnection works will be undertaken prior to the commencement of activities in liaison with the relevant operators. Specific method statements will be prepared making workers aware of the location of utilities and their easements. • Any required diversions of utilities during construction will be undertaken by the relevant Distribution Network Operator (DNO) (or a third party contractor appointed by the DNO), who will operate in line with standard good practice working measures, including accordance with the Construction (Design and Management) Regulations and other health and safety regulations. Any such works would include appropriate isolation of utilities as required. <u>Air Quality</u> • The CEMP will be informed by the Institute of Air Quality Management (IAQM) guidance and would include prevention measures, such as screening stockpiles of materials, deployment of windbreak netting and dampening exposed soils as appropriate and set out requirements for ongoing monitoring. It also sets out requirements for ongoing monitoring and liaison with the local community, BC and RBC. <u>Biodiversity</u> • Where water features are to be retained they will be afforded protection throughout the construction stage with adherence to best practice measures set out by Pollution Prevention Guidance (PPG)^{193;194}. <u>Lighting</u>

¹⁹³ Environment Agency (2014) Pollution Prevention Guidelines: Works in, near or over watercourses, PPG5. Available at: <https://assets.publishing.service.gov.uk/media/5a758f5aed915d6faf2b3eed/pmho1107bnkg-e-e.pdf> [Accessed 26/03/2024].

¹⁹⁴ It is acknowledged that PPG5 was withdrawn by the Environment Agency in 2015, however its recommended pollution prevention measures are still considered to deliver best practice construction methods.

Mitigation Measure	Description / Details of Measure
	- Lighting will be controlled through a series of best practice measures, in line with lighting industry standards and guidance including BS EN 12464-2:2014¹⁹⁵ and ILP Guidance Note GN01¹⁹⁶. - The type of equipment employed, including lamp type and optics, will be carefully selected to provide a controlled distribution of light, within the relevant boundary, whilst limiting the luminous intensity to below 7,000 cd, as required for a medium brightness district (Zone E2). - For Environmental Zone E3, maximum allowable illuminance in the vertical plane is 10 lux for pre-curfew (07:00 – 23:00 hours) and 2 lux for post-curfew (23:00 – 07:00 hours) scenarios. - In general, site floodlights will be mounted around the perimeter of the Site or parts of the Site, directed inwards to avoid direct light being projected outside of the boundary. The type of floodlights employed will have Type C asymmetric reflectors (GN01:2021), with a flat glass lens, and be mounted with the glass parallel to the ground (zero-degree tilt). Wide angle, symmetric floodlights mounted at low level, with a high tilt angle will not be used as the majority of the light is at or above the horizontal creating excessive glare and obtrusive light within the environment. <u>Waste</u> - All construction waste arisings will be separated into allocated skips to maximise material re-use/recycling and removed from Site. A mini 'recycling centre' will be established in working areas where appropriate. Areas of hard standing will be fenced and used for storage of all vehicles, containers, waste equipment and collected waste. Two manual sort lines will be established to screen and sub-sort recycling in accordance with relevant guidance, such as Waste Classification: Guidance on the classification and assessment of waste¹⁹⁷. - Waste will be held on-site for the shortest amount of time that is practical. Control measures will be available including spill kits and bunds for liquid run-off, fencing and tarpaulins for wind-blown debris.

¹⁹⁵ British Standards (2014) BS EN 12464-2 – Lighting of Work Places – Part 2: Outdoor Work Places.

¹⁹⁶ Institute of Lighting Professionals (ILP) (2021) Guidance Notes for the Reduction of Obtrusive Light (GN01).

¹⁹⁷ Waste Classification: Guidance on the classification and assessment of waste (1st edition v.1.1 GB).

Mitigation Measure	Description / Details of Measure
	- Where sand and gravel deposits are encountered and are required to be 'cut' the material will be recovered for reuse as appropriate. This should be implemented through a Materials Management Plan. - Sustainable sourcing of materials, specifically sustainable materials with a high recycled content will be considered. - Specification of sustainable timber (FCS certified, or similar) will be implemented. <u>Ground and Earthworks</u> - All earthworks and foundation design will be in accordance with relevant industry guidance, including but not limited to: CIRIA Report C572: Treated ground engineering properties and performance; British Research Establishment document FB75: Building on Fill – Geotechnical Aspects, BS 6031:2009: Code of Practice for Earthworks and SHW Series 600 Earthworks, 2017 - The mitigation measures identified to reduce exposure to contamination/ground gas, where identified through site investigations (see Ground Investigation Works and Remediation Strategy), during construction activities will be controlled through the implementation of the CEMP. - Measures to prevent the release of any contamination to controlled waters during construction activities will be controlled in line with CIRIA C532: Control of Water Pollution from Construction Sites - Guidance for Consultants and Contractors (2001) and may be informed by a Piling Risk Assessment if significant contamination is encountered. <u>Flood Risk and Drainage</u> - Temporary surface water drainage will be installed as necessary to mitigate flood risk and sediment loading and, where possible will align with the permanent drainage solution. Temporary drainage will be subject to good site working practices and adherence to best practice guidance such as CIRIA's Control of water pollution from construction sites¹⁹⁸.

¹⁹⁸ CIRIA (2001) Report C532: Control of water pollution from construction sites.

Mitigation Measure	Description / Details of Measure
Ground Investigation Works and Remediation Strategy	Mineshafts will be treated and capped prior to construction. Structures over mineshafts will be avoided where possible; where this is not possible build over agreements will be sought from the Coal Authority¹⁹⁹. A Ground Investigation Report will be written and will include a Conceptual Site Model and Generic Quantitative Risk Assessment to appraise risks to the identified receptors. Ground investigations will be undertaken to determine the absence/presence, type and distribution of any forms of ground contamination and ground gas and establish the groundwater conditions within the Site. A remediation strategy will be submitted and agreed with BC and RBC in advance of works taking place. This will also identify the requirement for any construction specific method statements (e.g. if the need for dewatering is identified).
Foundation design	The Building Regulations²⁰⁰ require new developments to consider the impact of ground movement in foundation design. The Project for Assessment will be designed in accordance with current guidance and best practice, and this will include the consideration of changing climate on stability of the ground conditions, influencing foundation design as necessary.
Archaeology Strategy	Consultation with GMAAS, as part of the assessment process, has confirmed that should further archaeological site investigations be required, these works are to be undertaken post determination and secured through a condition of planning consent.
Building safety strategy and site security	The final end-users/building management company will have in place the required emergency producers/practices (i.e. Fire Emergency Evacuation Plan (FEEP)) or apparatus/instruments (i.e. smoke detectors/sprinklers) required by law for commercial occupation. In addition, buildings will be designed with appropriate fire preventative measures (i.e. fire doors, extinguishers etc.) and all external façades and materials will meet the necessary fire resistance standards set out within Building Regulations and by law.

¹⁹⁹ Build over agreements are subject to detailed design and consultation with the Coal Authority. Build over agreements may not be given by the Coal Authority.

²⁰⁰ https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/540328/BR_PDF_AD_L2A_2013_with_2016_amendments.pdf

Mitigation Measure	Description / Details of Measure
	The design of the Project for Assessment will be informed by 'Secure by Design' principles and appropriate design and site management measures (including appropriate lighting and passive surveillance of public spaces) will be implemented to ensure that the potential for crime and anti-social behaviour is minimised.
Overheating Assessment	Proposed buildings will undergo an overheating assessment, in line with the requirements of Part O of the Buildings Regulations ²⁰¹ utilising CIBSE TM52 ²⁰² (or similar) to assess and reduce the risk of summer overheating, taking into account future climate scenarios. Where measures are provided to reduce the risk of overheating this will be done in accordance with the cooling hierarchy.

²⁰¹ <https://www.gov.uk/government/publications/overheating-approved-document-o>

²⁰² Chartered Institution of Building Services Engineers (2013) TM52: Comfort Analysis

Appendix 2.2: Schedule of EIA Competence

Technical Competence in EIA, and Major Accidents and Disasters		
Details	Lead Author of EIA Chapter	Reviewer/Technical Sign-off of EIA Chapter
Name	Emma Eldred	Andy Ricketts
Company	Turley	Turley
Qualifications/Accreditations relevant to technical area	BSc (Hons), MA	BSc (Hons), MA
Qualifications/Accreditations relevant to EIA (individual and company-wide)	Affiliate Member IEMA IEMA QMark	IEMA Principal Environmental Impact Assessment Practitioner IEMA QMark
Years technical experience (in technical area)	15	22
Number of EIA's delivered to date	> 10	100+

Technical Competence in EIA and Transport and Accessibility		
Details	Lead Author of EIA Chapter	Reviewer/Technical Sign-off of EIA Chapter
Name	Matt Thompson	Antonio Pinto
Company	Tetra Tech	Tetra Tech
Qualifications/Accreditations relevant to technical area	Geography BA (Hons), Transport and Planning MSc, Member of the Chartered Institution of Highways & Transportation	Geography BA (Hons), Transport Planning MSc, Chartered Member of the Institute of Logistics and Transport, Member of the Chartered Institution of Highways & Transportation
Qualifications/Accreditations relevant to EIA (individual and company-wide)	Member of the Chartered Institution of Highways & Transportation	Chartered Member of the Institute of Logistics and Transport, Member of the Chartered Institution of Highways & Transportation

Technical Competence in EIA and Transport and Accessibility		
Details	Lead Author of EIA Chapter	Reviewer/Technical Sign-off of EIA Chapter
Years technical experience (in technical area)	7	17
Number of EIA's delivered to date	5	20

Technical Competence in EIA and Air Quality		
Details	Lead Author of EIA Chapter	Reviewer/Technical Sign-off of EIA Chapter
Name	Olly Hanlon	Jethro Redmore
Company	Redmore Environmental Ltd	Redmore Environmental Ltd
Qualifications/Accreditations relevant to technical area	BSc AMIEnvSc	BEng MSc CEnv PIEMA MIAQM MIEnvSc
Qualifications/Accreditations relevant to EIA (individual and company-wide)	As above	As above
Years technical experience (in technical area)	5	18
Number of EIA's delivered to date	>10	>50

Technical Competence in EIA and Noise and Vibration		
Details	Lead Author of EIA Chapter	Reviewer/Technical Sign-off of EIA Chapter
Name	Sam Moran	Gary King
Company	Sharps Redmore	Sharps Redmore
Qualifications/Accreditations relevant to technical area	Member of the Institute of Acoustics (MIOA), Post Graduate Diploma in Acoustics	Member of the Institute of Acoustics (MIOA)

Technical Competence in EIA and Noise and Vibration

Details	Lead Author of EIA Chapter	Reviewer/Technical Sign-off of EIA Chapter
		Member of Chartered Institute of Environmental Health (MCIEH), Post Graduate Diploma in Acoustics
Qualifications/Accreditations relevant to EIA (individual and company-wide)	As above Corporate membership of Institute of Environmental Management and Assessment (IEMA)	As above Corporate membership of Institute of Environmental Management and Assessment (IEMA)
Years technical experience (in technical area)	20	35
Number of EIA's delivered to date	>25	>10

Technical Competence in EIA and Biodiversity

Details	Lead Author of EIA Chapter	Reviewer/Technical Sign-off of EIA Chapter
Name	Nick Bell	Joseph Dance
Company	Tyler Grange	Tyler Grange
Qualifications/Accreditations relevant to technical area	BA (Hons) Chartered Ecologist, Natural England Species Licence Holder.	BSc (Hons) Chartered Ecologist, Natural England Species Licence Holder.
Qualifications/Accreditations relevant to EIA (individual and company-wide)	As above	As above
Years technical experience (in technical area)	Six years in Ecological Consultancy	Eleven years Ecological Consultancy
Number of EIA's delivered to date	1 delivered, 1 in progress:	6 delivered EIA's.

Technical Competence in EIA and Landscape and Visual Details		
	Lead Author of EIA Chapter	Reviewer/Technical Sign-off of EIA Chapter
Name	Emma Baker	Wendy Lancaster
Company	Tyler Grange	Tyler Grange
Qualifications/Accreditations relevant to technical area	BA (Hons) Landscape Architecture, PG Dip Landscape Architecture, CMLI	BA(Hons) PGDip Landscape Architecture, PGDip Urban Design, Chartered Landscape Architect, Fellow of the RSA
Qualifications/Accreditations relevant to EIA (individual and company-wide)	BA (Hons) Landscape Architecture, PG Dip Landscape Architecture, CMLI	As above
Years technical experience (in technical area)	10 years	20 years
Number of EIA's delivered to date	4	> 75

Technical Competence in EIA and Lighting		
	Lead Author of EIA Chapter	Reviewer/Technical Sign-off of EIA Chapter
Name	Faith Doran	Nigel Mann
Company	Tetra Tech	Tetra Tech
Qualifications/Accreditations relevant to technical area	Associate Member of the Institution of Lighting Professionals (ILP)	Associate member of the Institute of Environmental Management and Assessment (AIEMA)
Qualifications/Accreditations relevant to EIA (individual and company-wide)	BSc. Physical Geography	M.Sc. Environmental Science
Years technical experience (in technical area)	5	25
Number of EIA's delivered to date	3	>50

Technical Competence in EIA and Built Heritage		
Details	Lead Author of EIA Chapter	Reviewer/Technical Sign-off of EIA Chapter
Name	Kerrie Melrose	Katy Lightbody
Company	Turley (Heritage)	Turley (Heritage)
Qualifications/Accreditations relevant to technical area	BSc (Hons) City and Regional Planning (2009) MSc Urban Regeneration (2012) Royal Town Planning Institute Full Member (MRTPI) (2016) IHBC Full Member (2015)	MA (Hons) Town Planning (2002) PGDip Conservation of the Historic Environment (2006) Royal Town Planning Institute Full Member (MRTPI) (2003) IHBC Affiliate Member (2009)
Qualifications/Accreditations relevant to EIA (individual and company-wide)	IEMA QMark (company)	IEMA QMark (company)
Years technical experience (in technical area)	16	23
Number of EIA's delivered to date	15+	30+

Technical Competence in EIA and Archaeology		
Details	Lead Author of EIA Chapter	Reviewer/Technical Sign-off of EIA Chapter
Name	Dr Charlotte Willis	Dr Rob Smith
Company	Orion Heritage Limited	Orion Heritage Limited
Qualifications/Accreditations relevant to technical area	BA (Hons) Archaeology MSc Archaeology PhD Archaeology Member of the Chartered Institute for Archaeologists (MCIfA)	BA (Hons) Geography MSc Wetland Archaeological Science and Management PhD Archaeology Member of the Chartered Institute for Archaeologists (MCIfA) Chartered Environmentalist (CEnv) Chartered Geographer (CGeog)

Technical Competence in EIA and Archaeology		
Details	Lead Author of EIA Chapter	Reviewer/Technical Sign-off of EIA Chapter

Chartered Scientist (CSci)
Chartered Institution of Water and Environmental Management (CIWEM)
Fellow of the Royal Geographic Society (FRGS)

Qualifications/Accreditations relevant to EIA (individual and company-wide)	N/A	N/A
Years technical experience (in technical area)	10	25
Number of EIA's delivered to date	20+	100+

Technical Competence in EIA and Hydrology, Flood Risk and Water Quality		
Details	Lead Author of EIA Chapter	Reviewer/Technical Sign-off of EIA Chapter

Name	Elizabeth Langdon	Matthew Bell
Company	Tetra Tech Ltd	Tetra Tech Ltd
Qualifications/Accreditations relevant to technical area	BSc, MEnv Environmental Science	BSc (Hons) Environmental Science
Qualifications/Accreditations relevant to EIA (individual and company-wide)	MCIWEM	CIWEM Chartership in Review
Years technical experience (in technical area)	2 in water, 2.5 additional in consulting	18
Number of EIA's delivered to date	5	> 15

Technical Competence in EIA and Ground Conditions and Contamination		
Details	Lead Author of EIA Chapter	Reviewer/Technical Sign-off of EIA Chapter
Name	Julian Carr	Patricia Gill
Company	Tetra Tech	Tetra Tech
Qualifications/Accreditations relevant to technical area	BSc (Hons), FGS	MSc, C. Geol
Qualifications/Accreditations relevant to EIA (individual and company-wide)	BSc (Hons), FGS	MSc, C. Geol
Years technical experience (in technical area)	26	28
Number of EIA's delivered to date	>25	-

Technical Competence in EIA and Socio-economics and Human Health		
Details	Lead Author of EIA Chapter	Reviewer/Technical Sign-off of EIA Chapter
Name	Tom Ellis	Gavin Amos
Company	Turley	Turley
Qualifications/Accreditations relevant to technical area	BA, MSc, MRTPI	BA (Hons); MBA; AssocRTPI
Qualifications/Accreditations relevant to EIA (individual and company-wide)	QMark (Turley)	QMark (Turley)
Years technical experience (in technical area)	6	14
Number of EIA's delivered to date	30	30

Technical Competence in EIA and Climate Change		
Details	Lead Author of EIA Chapter	Reviewer/Technical Sign-off of EIA Chapter
Name	Svetlana Cronin	Paul White
Company	Turley & ESG	Turley & ESG
Qualifications/Accreditations relevant to technical area	MSc Environmental Impact Assessment and Management	MEng Environmental Engineering
Qualifications/Accreditations relevant to EIA (individual and company-wide)	Practitioner IEMA Member (PIEMA)	Practitioner IEMA Member (PIEMA)
Years technical experience (in technical area)	4 years	10 years
Number of EIA's delivered to date	20	50

Technical Competence in EIA and Agricultural Land		
Details	Lead Author of EIA Chapter	Reviewer/Technical Sign-off of EIA Chapter
Name	Sophie Webb	Alastair Field
Company	Reading Agricultural Consultants Ltd	Reading Agricultural Consultants Ltd
Qualifications/Accreditations relevant to technical area	BSc (Hons), MSc	BA (Hons), MSc
Qualifications/Accreditations relevant to EIA (individual and company-wide)	MI Soil Sci	FBIAB, PIEMA, MiSoil Sci
Years technical experience (in technical area)	12	35
Number of EIA's delivered to date	> 25	>200

Technical Competence in EIA and Waste		
Details	Lead Author of EIA Chapter	Reviewer/Technical Sign-off of EIA Chapter
Name	Lizzie Bolton	Paul White
Company	Turley	Turley
Qualifications/Accreditations relevant to technical area	Environmental Science (BSc) Sustainable Cities (MSc)	MEng Environmental Engineering
Qualifications/Accreditations relevant to EIA (individual and company-wide)	No	Practitioner IEMA Member (PIEMA)
Years technical experience (in technical area)	2	10 years
Number of EIA's delivered to date	0	c.100

