

Unite Students

## Cambridge Hall, Manchester

### Site Waste Management Plan

Reference: CH-SWMP

Draft 1 | 2 December 2024



This report takes into account the particular instructions and requirements of our client. It is not intended for and should not be relied upon by any third party and no responsibility is undertaken to any third party.

Job number 303452-00

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# 1. Introduction

## 1.1 Overview

This Site Waste Management Plan (SWMP) has been prepared by Ove Arup & Partners Limited (Arup) on behalf of Unite Students to support the redevelopment of the land at Manchester Metropolitan University (the Proposed Development). The existing site (the Site) falls within the administrative area of Manchester City Council (MCC) which will determine the planning application as the local planning authority.

This SWMP discharges the requirements of Manchester's Core Strategy (2012-2027), the Guide to Development in Manchester - Supplementary Planning Document and Planning Guidance (SPD) 2007 to produce a SWMP. In addition, the development of this SWMP meets the requirements of 'Wst 01 Construction Waste Management' in the Building Research Establishment Environmental Assessment Method (BREEAM) UK New Construction 2023 certification, for the development of a resource management plan (RMP).

## 1.2 The Site

Unite Students in partnership with Manchester Metropolitan University are redeveloping the Cambridge Halls site in the All Saints Campus, Manchester shown in Figure 1. The site is bounded by Higher Cambridge Street to the West, the Faculty of Business and Law to the North, Chatham Street to the East and Boundary Street West to the South. It is currently occupied by Cambridge Student Hall.

The existing student hall is arranged in three quadrangles and is four stories high. These existing buildings are to be demolished. This was constructed in 1994 and no longer provides the scale or quality of accommodation required or expected by today's students.

## 1.3 Proposed Development

The Proposed Development comprises 2,329 purpose-built student accommodation units with ancillary facilities, public realm, hard and soft landscaping, sustainable drainage and associated access, parking, and infrastructure. The Proposed Development will be delivered in two phases, completing Phase 1 in 2029 and Phase 2 in 2030.

The current architectural plans show two distinct clusters of buildings. Each cluster includes a prominent tower, one reaching a maximum of 22 storeys, and the other up to 28 storeys. Overall, the tallest building on the Site will stand at 28 storeys, with a height of up to 95m above ground level located in the north of the Site. It is proposed that all existing buildings on the Site will be demolished.



**Figure 1: Site location**

The Proposed Development will be delivered in two phases, with the Gross Internal Area (GIA) of each development phase shown in Table 1, subject to further design development.

**Table 1: Summary of proposed floorspace by development phase**

| Phase        | GIA (m <sup>2</sup> ) |
|--------------|-----------------------|
| Phase 1      | 30,442                |
| Phase 2      | 35,626                |
| <b>TOTAL</b> | <b>66,068</b>         |

## 1.4 Purpose

The purpose of this SWMP is to facilitate the planning, implementation, monitoring and review of waste minimisation and management for the construction of the Proposed Development. It acts as a record of the application of the waste hierarchy and circular economy principles with the aim of prioritizing the avoidance and reduction of waste and promoting resource efficiency. This SWMP is a live document that will be updated every six months as a minimum.

This SWMP provides a structured approach for materials management and production of waste during construction and associated demolition and excavation. It does not cover operational waste management.

This SWMP consists of the following sections:

- Legislation, policy and guidance;
- Objectives and targets;
- Materials and waste forecast;
- Waste and resource management strategy;
- Measuring and reporting; and
- Sustainability certification compliance.

## 1.5 Roles and responsibilities

Table 2 highlights the roles and responsibilities for the implementation of this SWMP, prior to and during excavation, demolition and construction activities.

**Table 2: Roles and responsibilities**

| Role title                                          | Responsibility                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
|-----------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Project Director                                    | Provide adequate environmental resources and support to effectively deliver the requirements of this plan.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| Environmental Manager and/or Environmental Advisors | Develop and implement this SWMP.<br>Identify and maintain compliance with the requirements and principles of the SWMP during construction.<br>Assist lead auditors in auditing this SWMP.<br>Identify, develop and provide environmental training as required specific to the SWMP.<br>Approve method statements and consider SWMP requirements.<br>Advise and instruct construction teams in the event of incidents and complaints.<br>Liaise/meet with external stakeholders.<br>Inspections on compliance with the SWMP requirements including duty of care checks.<br>Brief SWMP requirements to relevant teams. |
| Waste Manager                                       | Provide technical support on waste management issues.<br>Establish effective reporting and monitoring regime.<br>Lead on the control and management of waste generated on site.<br>Assist in the investigation of any complaints or incidents as required.                                                                                                                                                                                                                                                                                                                                                           |
| Project Manager                                     | Ensure the requirements of the SWMP are implemented on-site.<br>Ensure the requirements of the SWMP are integrated into all aspects of the construction works and detailed in method statements.<br>Ensure compliance with all waste management related procedures.<br>Manage the investigation and response to complaints.                                                                                                                                                                                                                                                                                          |

Additional roles such as materials and waste champions are to be identified during construction. All staff working on the Site will be suitably trained on the processes in place to meet the commitments of this SWMP and carry out works in accordance with agreed methods and briefings.

## 2. Legislation, policy and guidance

### 2.1 Legislation

The Proposed Development will comply with the requirements defined within the following documents:

- The Environmental Protection (Duty of Care) (England) Regulations 1991 (as amended)<sup>1</sup>;
- The Waste (England and Wales) Regulation 2011<sup>2</sup>;
- The Environmental Permitting (England and Wales) Regulations 2016 (as amended)<sup>3</sup>;
- Control of Pollution (Amendment) Act 1989<sup>4</sup>;
- Waste Framework Directive (WFD) 2008/98/EC<sup>5</sup>; and
- The Hazardous Waste (England and Wales) Regulations 2005<sup>6</sup>.

### 2.2 Policy and guidance

Project targets for waste prevention, reuse and recycling rates and landfill diversion have been developed in accordance with:

- Manchester City Council (2012), Core Strategy 2012-2027 (Policy EN 19 Waste)<sup>7</sup>; and
- BREEAM UK New Construction 2023 (Version 6.1)<sup>8</sup>.

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<sup>1</sup> UK Government (1991). *The Environmental Protection (Duty of Care) (England) Regulations 1991*. Available at: <https://www.legislation.gov.uk/uksi/1991/2839/introduction/made> (Accessed on 27/09/2024)

<sup>2</sup> UK Government (2011). *The Waste (England and Wales) Regulation 2011*. Available at: <https://www.legislation.gov.uk/uksi/2011/988/contents/made> (Accessed on 27/09/2024)

<sup>3</sup> UK Government (2016). *The Environmental Permitting (England and Wales) Regulations 2016*. Available at: <https://www.legislation.gov.uk/uksi/2016/1154/contents/made> (Accessed on 27/09/2024)

<sup>4</sup> UK Government (1989). *Control of Pollution (Amendment) Act 1989*. Available at: <https://www.legislation.gov.uk/ukpga/1989/14/contents> (Accessed on 27/09/2024).

<sup>5</sup> European Union Law (2008). *Directive 2008/98/EC of the European Parliament and of the Council of 19 November 2008 on waste and repealing certain Directives (Text with EEA relevance)*. Available at: <https://www.legislation.gov.uk/eudr/2008/98/contents#> (Accessed on 27/09/2023)

<sup>6</sup> UK Government (2005). *The Hazardous Waste (England and Wales) Regulations 2005*. Available at: <https://www.legislation.gov.uk/uksi/2005/894/contents/made> (Accessed on 27/09/2024)

<sup>7</sup> Manchester City Council (2021). *Core Strategy 2012-2027*. Available at: [https://www.manchester.gov.uk/info/200074/planning/6573/core\\_strategy\\_2012-2027](https://www.manchester.gov.uk/info/200074/planning/6573/core_strategy_2012-2027) (Accessed: on 01/10/2024).

<sup>8</sup> BREEAM (2023). *UK New Construction 2023 Technical Manual Version 6.1*. Available at <https://bregroup.com/products/breeam/breeam-technical-standards/breeam-new-construction/> (Accessed on 27/09/2023).

## 3. Objectives and targets

### 3.1 Overview

Waste generated by the Proposed Development will be managed according to the principles of the waste hierarchy as shown in Figure 2. The waste hierarchy identifies ‘waste prevention’ as the most favourable management option to reduce waste and retain materials at their highest value. ‘Disposal’ is the least favourable management option. The order of priority for the management of waste is set out in descending order of environmental preference in Resources and Waste Strategy for England (2018)<sup>9</sup>.

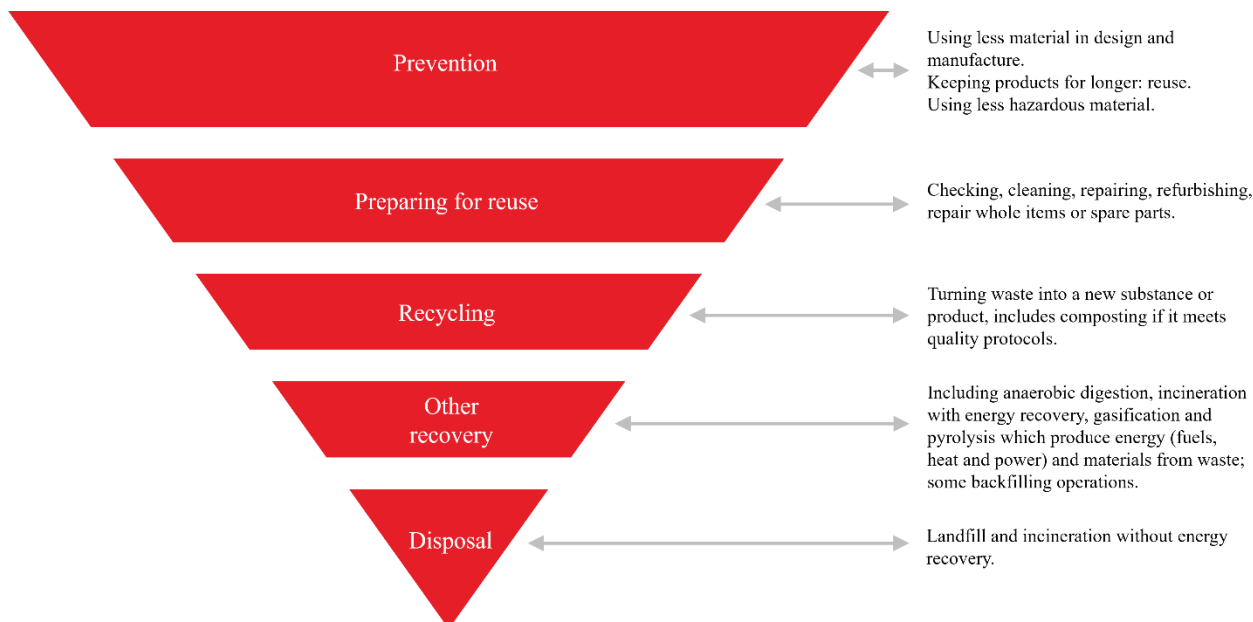


Figure 2: Waste hierarchy

### 3.2 BREEAM certification

The BREEAM New Construction standard provides a framework to deliver high performing and sustainable newly built assets that create positive environmental and social impacts. The Proposed Development is targeting a BREEAM rating of ‘Outstanding’ under the BREEAM New Construction 2023 scheme. This includes an emphasis on targeting credits within the ‘Materials and Waste’ sections.

The BREEAM UK New Construction 2023 Technical Manual<sup>8</sup> includes six waste related sections, encouraging the reduction of waste from construction, and throughout the lifetime of a building. Section ‘Wst 01 Construction Waste Management’ aims to reduce construction waste by encouraging reuse, recovery and best practice waste management, to minimise waste going to landfill. The credits being targeted include:

- Pre-demolition audit: 1 credit;
- Construction resource efficiency: 2 credits; and
- Diversion of resources from landfill: 1 credit.

This SWMP document addresses the requirement of Wst 01 for preparing a RMP, which addresses all corresponding requirements (see Section 7). Furthermore, resource efficiency targets have been set (see Section 3.2.2), which would enable attainment of the available credits, if achieved during construction. Waste minimisation measures have been identified which would contribute towards attainment of the specified resource efficiency target.

<sup>9</sup> Department for Environment, Food and Rural Affairs, Environment Agency (2018). *Our waste, our resources: A strategy for England*. Available at: <https://assets.publishing.service.gov.uk/media/5c18f11740f0b60bbe0d827/resources-waste-strategy-dec-2018.pdf>. (Accessed on 12/11/2024).

Additional credits being targeted relevant to construction waste management include:

- Wst 03: Operational waste
  - Operational waste: 1 credit
- Wst 05: Adaptation to climate change
  - Adaptation to climate change - structural and fabric resilience: 1 credit
- Wst 06: Design for disassembly and adaptability
  - Design for disassembly and adaptability: 2 credits
  - The requirements of these additional credits (Wst 03, Wst 05 and Wst 06) are discharged through other BREEAM documents.

### 3.2.1 Pre-demolition audit

- To obtain one credit for a pre-demolition audit under Wst 01 Construction waste management, the following criteria must be met:
- Complete a pre-demolition audit of any existing buildings, structures or hard surfaces being considered for demolition. This must be used to determine whether refurbishment or reuse is feasible and, in the case of demolition, to maximise the recovery of material for subsequent high grade or value applications. The audit must cover the content of the pre-demolition audit scope (see below) and:
  - Be carried out at Concept Design stage by a competent person prior to strip-out or demolition works.
  - Guide the design, consider materials for reuse and set targets for waste management.
  - Engage all contractors in the process of maximising high grade reuse and recycling opportunities.
- Make reference to the audit in the RMP.
- Compare actual waste arisings and waste management routes used with those forecast and investigate significant deviations from planned targets.
  - The pre-demolition audit scope, as per BREEAM requirements, includes:
- Identification and quantification of the key materials where present on the project.
- Potential applications and any related issues for the reuse and recycling of the key materials in accordance with the waste hierarchy.
- Opportunities for reuse and recycling within the same development.
- Identification of local reprocessors or recyclers for recycling of materials.
- Identification of overall recycling targets where appropriate.
- Identification of reuse targets where appropriate.
- Identification of overall landfill diversion rate for all key materials.
  - The pre-demolition audit will be prepared in a separate document.

### 3.2.2 Construction resource efficiency

To obtain two credits for construction resource efficiency under Wst 01 Construction waste management, the following criteria must be met:

- Produce a RMP with the aim of minimising and monitoring waste.
- Waste management procedures recorded in the RMP and implemented. Measure and report:

- Construction waste generated by the project in m<sup>3</sup> or tonnes per 100m<sup>2</sup> gross internal floor area, excluding demolition and excavation waste. To obtain two credits, this must not exceed 7.5m<sup>3</sup> per 100m<sup>2</sup> Gross Internal Area (GIA) (actual, not bulk volume) or 6.5 tonnes per 100m<sup>2</sup> GIA.
- The proportion of construction waste diverted from landfill, i.e. reused, recycled or recovered.

### 3.2.3 Diversion of resources from landfill

To obtain one credit for the diversion of resources from landfill under Wst 01 Construction waste management, the targets set out in Table 3 are recommended. These align with the requirements of the BREEAM UK New Construction 2023 Technical Manual. ‘Stretch’ targets align with the BREEAM ‘Exemplary level’ benchmarks.

MCC does not specify landfill diversion targets for construction, demolition and excavation waste.

**Table 3: Targets for diversion of resources from landfill**

| Waste type                                        | BREEAM requirements | Stretch target |
|---------------------------------------------------|---------------------|----------------|
| Non-hazardous construction waste (non-demolition) | 80% by weight       | 90% by weight  |
| Non-hazardous demolition waste                    | 90% by weight       | 95% by weight  |
| Non-hazardous excavation waste                    | N/A                 | 95% by weight  |

It is proposed that these targets form the basis of all decisions with respect to resource efficiency and waste management in the design and construction of the Proposed Development.

The ‘stretch’ targets are more ambitious than the conservative landfill diversion rates used in the Waste Framework Directive (WFD) 2008/98/EC and compliance would contribute to local and regional policy targets.

Whilst compliance with the project targets set out in the table above will be readily achieved through waste management procedures detailed in later sections for construction and demolition waste, the project acknowledges potential external constraints for the diversion of excavated waste, which are dependent on third parties and the availability of receptor sites during construction phase, this is further detailed in Section 4.2.3 and Section 5.2.3.

Progress against these targets will be monitored once construction associated with the development commences, in accordance with the requirements identified in Section 6. The evaluated progress against the stated targets will be included in future revisions to this SWMP.

# 4. Materials and waste forecast

## 4.1 Overview

A high-level forecast has been prepared for the quantity of materials and waste arising during the construction, demolition and excavation works of the Proposed Development.

## 4.2 Waste forecast

### 4.2.1 Overview

Waste is expected to be generated in Phase 1 and Phase 2 of the Proposed Development. Waste forecasting has been undertaken based on preliminary design information, and typical industry benchmarks (BRE SmartWaste data supplied 2022). These are summarised in Table 4, and presented in more detail in subsequent sections of this SWMP.

**Table 4: Waste forecast summary**

| Construction stage | Estimated waste generation (tonnes) |
|--------------------|-------------------------------------|
| Demolition         | 2,533                               |
| Excavation         | 9,064                               |
| Construction       | 9,877                               |
| <b>TOTAL</b>       | <b>21,475</b>                       |

The total figure accounts for rounding.

### 4.2.2 Demolition

A pre-demolition audit will be undertaken for the Proposed Development. The aim of the pre-demolition audit is to determine if refurbishment or reuse of material is feasible where demolition is required. It is proposed that all existing buildings on the Site will be demolished. Typical industry standard benchmarks and the original project cost plans have been used to quantify and forecast demolition waste for the Proposed Development. A summary of the waste types, quantities and waste management destinations is set out in Table 5. An estimated 2,533 tonnes of waste is expected to be generated from demolition activities.

### 4.2.3 Earthworks

Excavation quantities have been estimated and forecast using industry standards and assumptions. It has been assumed that no levelling will need to take place as the Site is located on level land. In addition, no basements exist within the proposed design.

It has been assumed that earthworks activities on the Site will primarily comprise of structural foundations. In addition, an allowance has been included for excavation of underground services such as drainage and utility connections. An approximate diameter of 0.75m and a depth of 15m has been assumed with full displacement of piling columns volume.

Classification of estimated excavated waste arisings will be undertaken following further ground investigations. Therefore, an assumption of 5% hazardous material has been applied and when ground investigation results are available, these will inform any further updates of this SWMP. A summary of the waste types, quantities and waste management destinations is set out in Table 5. An estimated 9,064 tonnes of waste is expected to be generated from excavation activities. Currently available design information indicates limited opportunities for excavated material reuse on-site.

### 4.2.4 Construction

Based on the design information available, a forecast has been prepared of potential quantities of waste generated during construction of the Proposed Development.

Waste forecasts have been undertaken using industry benchmarks from the Building Research Establishment (BRE), assuming business-as-usual approaches to waste management; the forecast does not take consideration of the waste minimisation measures included in the design and recommended in this SWMP. This waste forecast will be revised in future updates to this SWMP, as the available design information increases in detail.

The Proposed Development includes the construction of two student accommodation blocks, Cambridge Hall North and Cambridge Hall South. Some construction works in the public realm, relating to utilities connections, will be required. Table 5 provides a recycling and waste forecast reporting table including the European Waste Catalogue (EWC) codes. An estimated 9,877 tonnes of waste is expected to be generated from construction activities.

The current forecast waste generation rate exceeds the resource efficiency target (see Section 5.2). However, the benchmarks used to estimate waste quantities are the industry average and are expected to reduce when waste minimisation measures contained within this SWMP are implemented and subsequently reflected in the forecast.

Table 5: Recycling and waste forecast reporting table

| C, D or E                                            | Waste stream                                                                                       | Further description | EWC code  | Diversion from landfill |                | Forecast    |               |             |
|------------------------------------------------------|----------------------------------------------------------------------------------------------------|---------------------|-----------|-------------------------|----------------|-------------|---------------|-------------|
|                                                      |                                                                                                    |                     |           | Management route        | Percentage (%) | Volume (m³) | Mass (tonnes) | Forecast by |
| Construction                                         | Plasterboard / Gypsum                                                                              |                     | 17 08 02  | Recycled on-site        | 99%            |             | 350           | Arup        |
|                                                      | Inert mixture: concrete, bricks, other.                                                            |                     | 17 01 01  | Recycled off-site       | 99%            |             | 4,658         | Arup        |
|                                                      | Insulation materials other than those mentioned in 17 06 01 and 17 06 03                           |                     | 17 06 04  | Recycled off-site       | 99%            |             | 51            | Arup        |
|                                                      | Packaging Materials                                                                                |                     | 15 01 06  | Recycled off-site       | 99%            |             | 277           | Arup        |
|                                                      | Timber                                                                                             |                     | 17 02 01  | Recycled off-site       | 99%            |             | 847           | Arup        |
|                                                      | Bituminous mixtures other than those mentioned in 17 03 01                                         |                     | 17 03 02  | Recycled off-site       | 99%            |             | 58            | Arup        |
|                                                      | Mixed metals                                                                                       |                     | 17 04 07  | Recycled off-site       | 99%            |             | 140           | Arup        |
|                                                      | Binders                                                                                            |                     | 10 10 14  | Recycled off-site       | 99%            |             | 13            | Arup        |
|                                                      | Plastic (excluding packaging waste)                                                                |                     | 15 01 02  | Recycled off-site       | 99%            |             | 187           | Arup        |
|                                                      | Floor coverings (soft)                                                                             |                     | 20 01 11  | Recycled off-site       | 99%            |             | 5             | Arup        |
|                                                      | Waste electrical and electronic equipment (WEEE)                                                   |                     | 20 01 36  | Recycled off-site       | 99%            |             | 4             | Arup        |
|                                                      | Furniture                                                                                          |                     | 20 03 07  | Recycled off-site       | 99%            |             | 1             | Arup        |
|                                                      | Canteen/Office/Ad hoc waste                                                                        |                     | 20 03 01  | Recycled off-site       | 99%            |             | 104           | Arup        |
|                                                      | Liquids                                                                                            |                     | 16 10     | Recycled off-site       | 99%            |             | 5             | Arup        |
|                                                      | Oils (fuel oil and diesel)                                                                         |                     | 13 07 01* | Landfill                | 0%             |             | 1             | Arup        |
|                                                      | Other waste                                                                                        |                     | 20 03 01  | Recycled off-site       | 99%            |             | 266           | Arup        |
|                                                      | Mixed construction and/or demolition waste                                                         |                     | 17 09 04  | Recycled off-site       | 99%            |             | 2,849         | Arup        |
|                                                      | Other construction and demolition wastes (including mixed wastes) containing hazardous substances* |                     | 17 09 03* | Landfill                | 0%             |             | 61            | Arup        |
| Construction (hazardous) total                       |                                                                                                    |                     |           |                         |                |             | 62            |             |
| Construction (non-hazardous) total                   |                                                                                                    |                     |           |                         |                |             | 9,816         |             |
| Construction (non-hazardous) diversion from landfill |                                                                                                    |                     |           |                         |                |             | 99%           |             |
| Excavation                                           | Concrete                                                                                           | Pile arisings       | 17 01 01  | Beneficial use          | 100            |             | 4,810         | Arup        |
|                                                      | Concrete                                                                                           | Pile arisings       | 17 01 01  | Beneficial use          | 95             |             | 3,802         | Arup        |
|                                                      | Concrete                                                                                           | Contaminated        | 17 05 03* | Landfill                | 0              |             | 453           | Arup        |
| Excavation (hazardous) total                         |                                                                                                    |                     |           |                         |                |             | 453           |             |
| Excavation (non-hazardous) total                     |                                                                                                    |                     |           |                         |                |             | 8,611         |             |
| Excavation (non-hazardous) beneficial use            |                                                                                                    |                     |           |                         |                |             | 98%           |             |
| Demolition                                           | Concrete                                                                                           |                     | 17 01 01  | Recycled off-site       | 99%            |             | 2,507         | Arup        |
|                                                      | Masonry                                                                                            |                     | 17 01 06  | Recycled off-site       | 42%            |             |               | Arup        |
|                                                      | Non-ferrous                                                                                        |                     | 16 01 18  | Recycled off-site       | 87%            |             |               | Arup        |
|                                                      | Timber                                                                                             |                     | 17 02 01  | Recycled off-site       | 19%            |             |               | Arup        |
|                                                      | Soils and Stone                                                                                    |                     | 17 02 04* | Landfill                | 25%            |             |               | Arup        |
|                                                      | Mixed metals                                                                                       |                     | 17 04 07  | Recycled off-site       | 40%            |             | 8             | Arup        |
|                                                      | Insulation materials other than those mentioned in 17 06 01 and 17 06 03                           |                     | 17 06 04  | Recycled off-site       | 0%             |             |               | Arup        |
|                                                      | Plasterboard / Gypsum                                                                              |                     | 17 08 02  | Recycled off-site       | 0%             |             | 4             | Arup        |
|                                                      | Floor coverings (soft)                                                                             |                     | 20 01 11  | Recycled off-site       | 30%            |             |               | Arup        |
|                                                      | Plastic (excluding packaging waste)                                                                |                     | 17 02 03  | Recycled off-site       | 37%            |             |               | Arup        |
|                                                      | Glass                                                                                              |                     | 17 20 2   | Recycled off-site       | 99%            |             |               | Arup        |
|                                                      | Ferrous                                                                                            |                     | 16 01 17  |                         |                |             | 13            |             |
|                                                      | Bituminous mixtures other than those mentioned in 17 03 01                                         |                     | 17 03 02  | Recycled off-site       | 0%             |             |               | Arup        |
| Demolition (hazardous) total                         |                                                                                                    |                     |           |                         |                |             | 0             |             |
| Demolition (non-hazardous) total                     |                                                                                                    |                     |           |                         |                |             | 2,533         |             |
| Demolition (non-hazardous) diversion from landfill   |                                                                                                    |                     |           |                         |                |             | 98%           |             |
| TOTAL                                                |                                                                                                    |                     |           |                         |                |             | 21,475        |             |

## 5. Waste and resource management strategy

### 5.1 Overview

This SWMP sets out how waste will be managed throughout each stage of the Proposed Development. Prior to the commencement of site development, the main contractor will identify suitable waste management contractors and investigate opportunities to reduce waste generation, reuse materials on-site or recycle any waste that is predicted to arise. Waste minimisation measures have been identified which would contribute towards attainment of the specified resource efficiency target.

All waste will be managed in accordance with the duty of care requirements under Section 34 of the Environmental Protection Act 1990<sup>1</sup> and the Hazardous Waste (England and Wales) Regulations 2005<sup>6</sup>. This will include the following key responsibilities:

- Safe and secure storage of waste;
- Appropriate classification of waste in accordance with Technical Guidance WM3<sup>10</sup>;
- Transfer of waste to a licensed waste carrier taking waste to a permitted (or registered exempt) waste facility; and
- Completion and retention of waste transfer notes and hazardous waste consignment notes.

All hazardous waste, including asbestos containing materials (ACM), will be segregated from non-hazardous waste, stored separately, and managed in accordance with the Hazardous Waste (England and Wales) Regulations 2005<sup>6</sup>.

### 5.2 Waste minimisation procedures

There are opportunities to improve resource efficiency during the design development of the project with the key focus on designing out waste, design for deconstruction opportunities, and lifecycle carbon reduction.

The following sections will be updated at each future design development stage, to reflect which actions are most applicable to the current Proposed Development phase.

#### 5.2.1 Design

The biggest opportunities for reducing waste generation during the construction of the Proposed Development, will occur through decisions made at the design stage. As defined by the Waste & Resources Action Programme (WRAP)<sup>11</sup>, central to designing out waste are the following five principles:

- Design for reuse and recovery;
- Design for off-site construction;
- Design for materials optimisation;
- Design for waste efficient procurement; and

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<sup>10</sup> Environment Agency, Natural Resource Wales, and the Scottish Environment Protection Agency (2021). *Waste Classification*. Available at: [https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/1021051/Waste\\_classification\\_technical\\_guidance\\_WM3.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1021051/Waste_classification_technical_guidance_WM3.pdf) (Accessed on: 29/11/2024).

<sup>11</sup> Waste and Resources Action programme (WRAP). *Designing out Waste: A design team guide for buildings*. Available at: <https://safe.rbi-umbrella.com/doc/docview/viewer/docN428E3B9A4221ba47374034edf6262ac1cd161b6da5fa35ab299c78031de2c56e38fadfe76a40>. (Accessed on: 14/10/2024)

- Design for deconstruction and flexibility.

Designing out waste for the Proposed Development will be explored at a later design stage. However, waste prevention opportunities that are intended to be explored and/or implemented in the design are shown in Table 6. This list will be updated in future revisions to this SWMP.

**Table 6: Designing out waste opportunities register**

| Design principles              | Designing out waste potential application                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|--------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Ongoing design communications  | Ongoing communications between client and design teams, and contractors and sub-contractors when appointed. Ongoing reviews of specifications that may restrict waste reduction options. If departures from standard specifications are required to enable waste reduction, these are more readily implemented if identified by the design team and discussed with the client and main contractor.                                                                                                             |
| Off-site fabrication           | Through design consultation the Proposed Development will explore the incorporation of prefabricated façade panels. The modular system is constructed offsite as per design needs. This directly reduces the amount of waste produced on site by reducing off-cuts, surplus materials and on-site material damage.                                                                                                                                                                                             |
| Off-site assembly              | Designing for as much work as possible taking place in a factory environment, leaving assembly operations only on-site. The components manufactured off-site will incorporate the principles of designing out waste in their own design.                                                                                                                                                                                                                                                                       |
| Designing for whole life cycle | Considering the whole life cycle of all materials used within the design. This will include sourcing reclaimed products such as timber components or secondary materials such as crushed demolition materials. Consideration will be given to what will happen to the materials specified when they reach the end of their useful life. Where possible, elements will be designed for repair, modular repair, recycling at the end of life or safe disposal. The use of hazardous materials will be minimised. |
| Flexible/adaptable design      | Allowing for flexibility in the operational state of a building will minimise waste through fitout and refurbishment works, or premature replacement of buildings. Examples of this can include the use of partitions to allow spaces to be reconfigured or the use of bolts instead of adhesives for deconstruction.                                                                                                                                                                                          |

### 5.2.2 Demolition

A pre-demolition audit will be undertaken for the Proposed Development to determine if reuse of materials is feasible where demolition is required. If not, the intent is to maximise the recovery of material from demolition for subsequent high grade or high value applications. Demolition activities will produce a large amount of concrete; opportunities will be explored to reuse this material on-site as a piling matt.

### 5.2.3 Excavation

Excavated material will be used to satisfy the fill material requirements of the Proposed Development wherever reasonably practicable. Excavated material surplus to the requirements of the Proposed Development will be reused off-site where suitable receptor sites exist, these may include restoration of mineral sites, environmental mitigation and habitat creation projects, landscape and land raise works, and other local construction projects.

### 5.2.4 Construction

Construction materials that cannot be reused on or off-site will be sent directly to material reprocessors or sent to construction materials recovery facilities (MRFs).

MRF performance varies widely depending on the combination of equipment employed, and the nature of the incoming materials. Careful engagement with waste contractors will be undertaken in cases where MRFs are used to segregate a mixed waste stream, to ensure that the chosen contractor and facility are able to support the Proposed Development's targets for landfill diversion.

## Material management

Enabling the purchase of materials in shape/dimension and form that minimises the creation of off-cuts waste. The use of a materials inventory system will be explored, to minimise over ordering and facilitate just-in-time deliveries. This measure would reduce the period which materials are stored on-site, potentially reducing the wastage rates associated with damaging construction materials during periods of prolonged storage.

### **Packaging take-back**

The use of packaging take-back schemes will be explored with all materials suppliers. This will ensure that where possible, materials are delivered in packaging that is suitable to be returned and reused a number of times.

### **Surplus materials**

Unused, surplus construction materials will be returned to suppliers or sold/donated to nearby construction projects via online construction materials trading platforms such as Globechain and Enviromate.

### **Secure storage**

To prevent damaged materials/theft, keeping deliveries packaged until they are ready to be used and the inspection of deliveries on arrival as well as safe storage areas helps to reduce damage and wastage.

#### **5.2.5 Hazardous waste**

Hazardous waste will be minimised through design opportunities prior to demolition, excavation and construction; opportunities to reduce the quantum of hazardous waste include:

- Choosing non-hazardous or less hazardous materials or components as alternatives to any hazardous materials currently used, for example, material coatings.
- Improving quality control procedures to reduce the number of defective products wasted.
- Minimising equipment cleaning – better working practices can reduce both the frequency and the extent of cleaning, reducing the amount of potentially contaminating effluents produced.

### **5.3 Storage and segregation**

All contractors undertaking work as part of the construction of the Proposed Development, will comply with the waste segregation, storage, reuse and recycling procedures.

The reuse and recycling of waste materials generated during all phases of construction will be maximised wherever possible. Meeting the landfill diversion rates targeted in Table 3 should be achieved wherever possible through reuse and recycling, with recovery used only as a last resort option.

The construction site will be planned to use best endeavours to ensure that sufficient space is available for the on-site segregation of recyclable materials. During periods of construction where space is exceptionally constrained, it will be permitted for a mixed-waste stream to be segregated off-site by a licensed waste management contractor with suitable recovery equipment to maintain the stated landfill diversion rate.

In cases where off-site segregation is necessary, the main contractor will liaise with its chosen waste services provider, to ensure that materials which may hinder the segregation performance are removed from the mixed-waste stream on-site.

As a minimum, the waste and material types (with associated EWC codes where relevant) shown in Table 7 below, excluding excavated waste will be segregated from the mixed residual waste.

**Table 7: Waste type descriptions and EWC codes**

| <b>Waste type description</b>           | <b>EWC code</b> |
|-----------------------------------------|-----------------|
| Inert mixture: concrete, bricks, other. | 17 01 01        |
| Plastic (excluding packaging)           | 17 02 03        |
| Oils (fuel oil and diesel)              | 13 07 01*       |
| Packaging materials                     | 15 01 06        |
| Timber                                  | 17 02 01        |
| Bituminous mixtures                     | 17 03 02        |

| Waste type description                                                                             | EWC code  |
|----------------------------------------------------------------------------------------------------|-----------|
| Mixed metals                                                                                       | 17 04 07  |
| Plasterboard / gypsum                                                                              | 17 08 02  |
| Other construction and demolition wastes (including mixed wastes) containing hazardous substances* | 17 09 03* |
| Waste electrical and electronic equipment (WEEE)                                                   | 20 01 36  |
| Canteen/office/ad hoc waste                                                                        | 20 03 01  |
| Furniture                                                                                          | 20 03 07  |
| Liquids                                                                                            | 16 10     |
| Soils and stone                                                                                    | 17 05 04  |
| Hazardous soils and stones                                                                         | 17 05 03* |
| Concrete                                                                                           | 17 01 01  |
| Metals                                                                                             | 07 14     |
| Glass                                                                                              | 17 20 2   |
| Wood                                                                                               | 07 02 01  |
| Ceramics                                                                                           | 10 71 03  |
| Textiles (including carpet/vinyl)                                                                  | 20 01 11  |
| Insulation materials                                                                               | 17 06 04  |

A dedicated waste storage area will be established with suitable hardstanding for waste storage receptacles. This will be located in a secure location and away from public access to prevent fly-tipping; it will be marked on both the site plan and the traffic management plan.

Waste storage receptacles will be colour coded in line with the colour coding scheme that will help reduce the levels of contamination in the skips and increases the likelihood that a load would not subsequently be rejected once the waste stream has been sent off-site for reprocessing. In cases where the load is rejected, the likely destination would be landfill (which would increase the costs of the Proposed Development). Waste storage receptacles will also have appropriate signage and labelling to facilitate separation of waste for reuse and recycling and separation of inert, non-hazardous and hazardous waste.

Skips will be monitored by the contractor to ensure that contamination of segregated skips does not occur.

Any hazardous materials identified during demolition should be handled safely by contractors, stored in a segregated and lockable storage space on-site, and transferred to an appropriate regulated waste facility off-site.

The requirements for managing waste and materials on the construction site, specified in this SWMP, will be communicated to all contractor staff and their suppliers. Communication and training regarding waste management and material efficiency on the construction site, will be undertaken regularly from the outset of construction, until handover of the Proposed Development. A register of relevant training will be maintained and kept on-site for the duration of construction. The main contractor will nominate a 'Waste Champion' who will form the primary point of contact for communications regarding resource and waste management.

## 6. Measuring and reporting

### 6.1 Overview

All waste producers (as defined by the Environmental Protection Act 1990) undertaking work as part of the construction of the Proposed Development, are legally obliged to take measures to ensure that waste is managed properly and recovered or disposed of safely under the duty of care requirements. In particular, waste producers are required to record details of the nature and quantity of waste generated, in waste transfer notes and hazardous waste consignment notes as appropriate.

In line with the waste duty of care reporting on the final destination of all waste streams will be recorded as soon as established. Once the contractor(s) has been appointed and works commence actual waste movements are to be recorded as per the methods for recording in the MCC's Code of Construction Practice.

### 6.2 Measuring

A log of actual waste movements leaving the construction site will be maintained throughout construction. The log will comprise the primary record of all waste generated by the construction of the Proposed Development. During construction, applicants should record the source of all waste arising and monitor this accordingly using a waste management tool.

It will be the responsibility of the main contractor to ensure that the waste log is complete and up to date throughout the construction period. Wherever practicable, weighbridge weight data will be used to populate the waste log; vague volumetric quantities (e.g. 'a skip', 'a large bin' etc) often recorded in waste transfer notes, will not be accepted.

### 6.3 Reporting

It is important to collect and report waste data throughout the construction phases to allow for accurate assessment against the targets set in this SWMP, and for more accurate waste forecasting in future projects. Sufficient data should be captured to enable performance to be monitored against the resource efficiency and landfill diversion targets.

### 6.4 Review

This SWMP will be reviewed regularly throughout the design and construction stages; this will take place not less than once every six months during design (and whenever there is a significant change in the design), and monthly during construction. Reviews will be undertaken under the responsibility of the environmental sustainability manager during design, and by the main contractor's nominated waste champion during construction. This SWMP will be revised and updated whenever the reviews identify it as necessary.

The main contractor will record and compare all waste quantities and actual treatment destinations to the quantities forecast. As part of the review, the main contractor will record the following:

- The types and volumes of waste produced;
- The types and volumes of waste that have been;
  - reused (and whether this was on-site or off-site);
  - recycled (and whether this was on-site or off-site);
  - recovered;
  - sent to landfill.

See Appendix A.1 for an example of a waste actuals reporting table template.

## 7. Sustainability certification compliance

### 7.1 BREEAM

Table 8 demonstrates how this SWMP meets the BREEAM requirements for waste management.

It is proposed that these resource efficiency targets form the basis of all decisions with respect to resource efficiency and waste management in the design and construction of the development. The one-credit target is intended to comprise an achievable benchmark which sets the maximum rate of material generation expected of contractors working on the construction of the Site. It is proposed that the Proposed Development targets a waste generation rate of not more than  $\leq 6.5$  tonnes/100m<sup>2</sup> GIA.

Based on the design information available at the time of writing this SWMP, the targeted maximum waste generation rate of non-hazardous waste from construction of new buildings (excluding demolition, excavation and construction of infrastructure and external works), would have to equate to no more than 4,294 tonnes throughout construction. Progress against this target will be monitored once construction of the Proposed Development commences, in accordance with the requirements identified in Section 5. The evaluated progress against the stated targets will be included here during future updates to this SWMP.

**Table 8: BREEAM Wst 01 resource management requirements**

| SWMP requirement                                                                                                                        | Report reference                 | Compliant? |
|-----------------------------------------------------------------------------------------------------------------------------------------|----------------------------------|------------|
| A target benchmark for resource efficiency i.e. m <sup>3</sup> or tonnes of waste per 100m <sup>2</sup> GIA                             | Section 3.2.2                    | Yes        |
| Procedures and commitments for minimising non-hazardous waste in line with the benchmark                                                | Section 5.2                      | Yes        |
| Procedures for minimising hazardous waste                                                                                               | Section 5.2                      | Yes        |
| A waste minimisation target and details of waste minimisation actions to be undertaken, including 'designing out waste' principles      | Section 5.2                      | Yes        |
| Procedures for estimating, monitoring, measuring and reporting hazardous and non-hazardous site waste                                   | Section 4.2 and 6 and Appendix A | Yes        |
| Procedures for sorting, reusing and recycling waste into defined waste groups, either on-site or through a licensed external contractor | Section 5.3                      | Yes        |
| Procedures for reviewing and updating the plan                                                                                          | Section 1.5 and 6.4              | Yes        |
| The name or job title of the individual responsible for implementing the above                                                          | Section 1.5                      | Yes        |

# Appendix A

## Example Waste Actuals Reporting Table

# A.1 Example Waste Actuals Reporting Table

| Waste type   | Waste classification (inert/ non-hazardous/ hazardous) | Waste quantity (tonnes) | EWC code | Reused (tonnes) |          | Recycled (tonnes) | Recovered (tonnes) | Landfill |
|--------------|--------------------------------------------------------|-------------------------|----------|-----------------|----------|-------------------|--------------------|----------|
|              |                                                        |                         |          | On-site         | Off-site |                   |                    |          |
| Demolition   |                                                        |                         |          |                 |          |                   |                    |          |
|              |                                                        |                         |          |                 |          |                   |                    |          |
|              |                                                        |                         |          |                 |          |                   |                    |          |
|              |                                                        |                         |          |                 |          |                   |                    |          |
| Excavation   |                                                        |                         |          |                 |          |                   |                    |          |
|              |                                                        |                         |          |                 |          |                   |                    |          |
|              |                                                        |                         |          |                 |          |                   |                    |          |
|              |                                                        |                         |          |                 |          |                   |                    |          |
| Construction |                                                        |                         |          |                 |          |                   |                    |          |
|              |                                                        |                         |          |                 |          |                   |                    |          |
|              |                                                        |                         |          |                 |          |                   |                    |          |
|              |                                                        |                         |          |                 |          |                   |                    |          |
|              |                                                        | TOTAL (tonnes)          |          |                 |          |                   |                    |          |
|              |                                                        | TOTAL (%)               |          |                 |          |                   |                    |          |