

Operational Waste Management Strategy

Fallowfield Campus Redevelopment Project

XXXX-BHE-XX-XX-XX-X-XXXX

0053454

25 August 2023

Revision P02

Revision	Description	Issued by	Date	Checked
P01	Draft	CA	29.06.23	DB
P02	Final	CA	25.08.23	CP

C:\Users\pnorman\Downloads\230825 Fallowfield OWMS - issued 25.08.23_signed.docx

Report Disclaimer

This Report was prepared by Buro Happold Limited ("BHL") for the benefit, use and information of UoM and its Delivery Partner only for the purposes of the Fallowfield Campus Redevelopment Project Outline Planning Application. BHL assumes no liability or responsibility for any reliance placed on this Report by any other third party or for any actions taken by any such other third party in reliance of the information contained herein. BHL's responsibility regarding the contents of the Report shall be limited to the purpose for which the Report was produced and shall be subject to the express contract terms between BHL and Rider Levett Bucknall UK Limited. The Report shall not be construed as investment or financial advice. The findings of this Report are based on the available information as set out in this Report.

author **Chrisiane Alcantar**

date **25 August 2023**

approved **Christopher Parr**

signature 

date **25 August 2023**

Contents

1	Introduction	6
1.1	Preamble	6
2	The Waste Hierarchy and Circular Economy	8
2.1	Project Aims and Aspirations	8
1.1	Reduce/Re-use	9
1.2	Recycle	9
1.3	Duty of Care	9
3	Waste Management Policy and Guidance	10
3.1	Introduction	10
3.2	National context	10
	Legislation	10
	Policy and guidance	10
3.3	Regional context	10
3.4	Local context	10
3.5	Other relevant waste guidance	11
3.6	University of Manchester	11
4	Waste Movement and Collection	12
4.1	Introduction	12
4.2	Waste Segregation and Movement	12
4.3	Internal Storage	13
4.3.1	Student and staff units	13
4.3.2	Student and staff accommodation block	13
4.4	Student hub	13
4.5	Centralised waste storage area	13
5	Waste Generation and Storage	15
5.1	Waste generation benchmarks	15
5.2	Waste generation	16

5.3	Waste storage	17
5.3.1	Interim waste stores	17
5.3.2	Central waste store	19
6	Summary	20
	Appendix A Waste Management Policy and Guidance	21
	Appendix B Proforma for Planning Applications	28
Table of Tables	Table 5—1 Waste generation and compositional split	15
	Table 5—2 Waste generation estimates	17
	Table 5—3 Interim waste store requirements	18
	Table 5—4 Interim waste store indicative spatial requirements	18
	Table 5—5 Waste storage provision and collection frequency for the centralised waste storage area	19
	Table 6—1 Council waste collection vehicle specifications	25
Table of Figures		
	Figure 1—1 Site red line boundary	7
	Figure 2—1 The waste hierarchy	8
	Figure 2—2 Principles of a circular economy	8
	Figure 4—1 Student apartment waste strategy	12
	Figure 4—2 Example of waste segregation at point of generation within student and staff units	13
	Figure 4—3 Examples of electric vehicles i.e. Alke municipal waste transport electric vehicle (left) and Bradshaw bin trailer (right)	14
	Figure 5—1 Student blocks within the Proposed Development	16

Glossary

Term	Definition
Defra	Department for Environment, Food and Rural Affairs
GMCA	Greater Manchester Combined Authority
LPA	Local Planning Authority
MCC	Manchester City Council
MHCLG	Ministry of Housing, Communities and Local Government
OWMS	Operational Waste Management Strategy
SDGs	Sustainable Development Goals
UoM	The University of Manchester

1 Introduction

1.1 Preamble

This Operational Waste Management Strategy (OWMS) has been prepared by Buro Happold on behalf of the University of Manchester or UoM (the “applicant”) and in support of the proposed Fallowfield Campus Redevelopment Project (the Proposed Development). This OWMS is supporting material as part of an outline planning application (with access only) for the phased erection of purpose-built student accommodation, to include all associated ancillary uses, demolition and other necessary works. The Proposed Development is part of UoM’s Fallowfield campus area with a total site area of approximately 8ha and the red line boundary is shown in Figure 1—1.

Coordination with the applicant and design team has been undertaken to inform this OWMS. This ensures that the foreseeable operational waste is handled efficiently, sustainably, and safely while minimising the impacts on building performance, the environment and occupiers of the Proposed Development.

In line with the requirements from Manchester City Council, the key objectives of this document are as follows:

- To provide an estimate of the volume and types of waste produced by the Proposed Development.
 - To provide guidance on management of waste including storage provision of general and recyclable waste.
 - To outline the waste flow from point of generation to the indicative proposed collection point for waste contractors.
 - To provide details of number and capacity of bins proposed and collection frequency.
 - To ensure that national and local policies, as well as the applicant’s waste management aims, and aspirations are met.
-

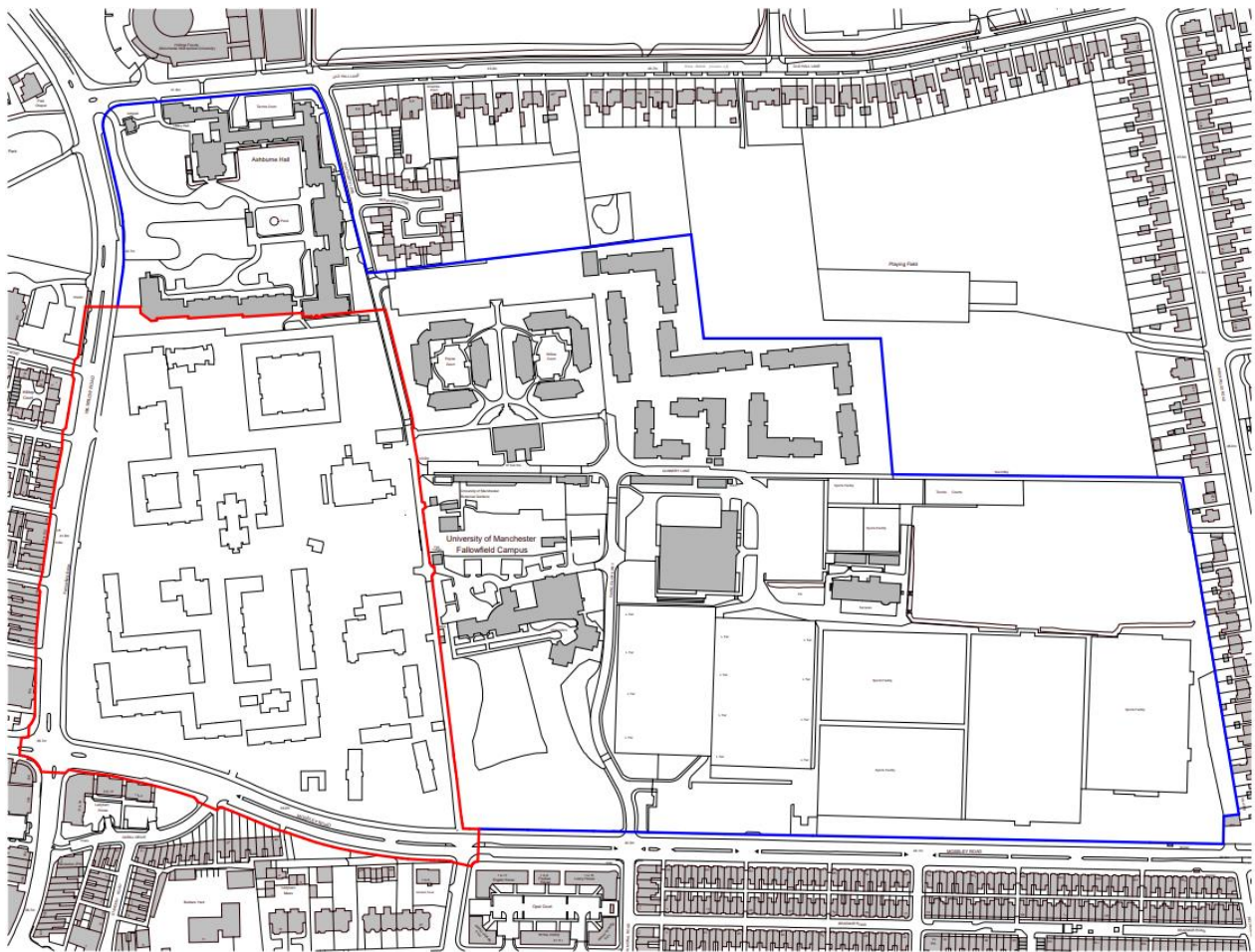


Figure 1—1 Site red line boundary

2 The Waste Hierarchy and Circular Economy

2.1 Project Aims and Aspirations

The applicant will promote the principles of the waste hierarchy (Figure 2—1) and circular economy across all aspects of its operations. The waste management strategy will first look to prevent and reduce waste generation, before re-using, recycling or recovering value from discarded material. Only after these options have been deemed unfeasible should the safe treatment and final disposal of waste be considered.



Figure 2—1 The waste hierarchy

The development's waste management strategy will facilitate students and other site users in making sustainable choices and will look to move beyond the traditional linear approach of 'take, use, dispose'. The circular economy model aims to keep resources in use for as long as possible, so that the maximum value possible can be extracted from them. The key principles of a circular economy model are illustrated schematically in Figure 2—2.

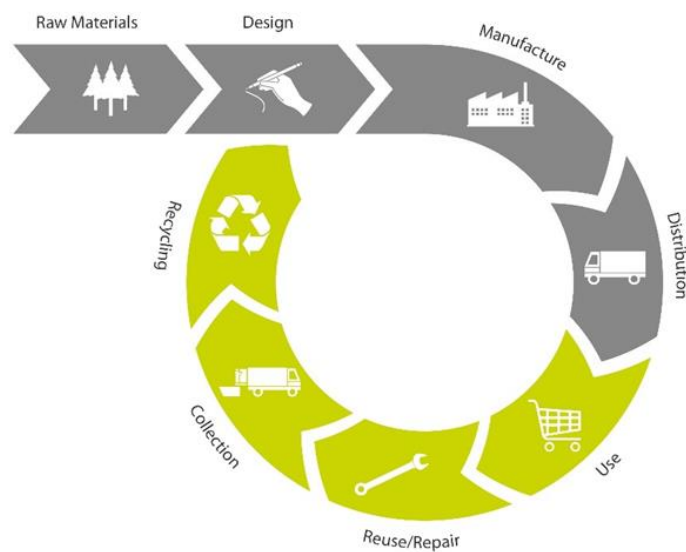


Figure 2—2 Principles of a circular economy

1.1 Reduce/Re-use

The most preferred waste management approach is to minimise the amount of waste produced and to avoid producing waste to begin with. Where preventing waste generation is not possible, efforts should then be made to re-use items as many times as possible.

1.2 Recycle

Where possible, waste that can no longer be re-used or that is no longer needed should be recycled. Hence, mixed recyclables should be collected separately from residual waste. Reducing the contamination of waste streams is highly encouraged and, in doing so, increases the quality of the recycle.

1.3 Duty of Care

In line with the Environmental Protection (Duty of Care) Regulations 1990, the applicant has a duty of care to ensure that their waste is managed properly. All waste materials will therefore be stored safely and securely and, when collected, will be taken by a registered waste carrier to an appropriate permitted facility, with all relevant documentation completed.

3 Waste Management Policy and Guidance

3.1 Introduction

This section summarises the relevant national, regional and local policies to consider as part of this OWMS. Further detail is provided in Appendix A.

3.2 National context

Legislation

- Environment Act 2021 – UK Parliament (2021).
- Waste Regulations – England and Wales (2011, amended 2016).
- The Environmental Permitting Regulations – England and Wales (2016).
- Environmental Protection (Duty of Care) Regulations (1990).

Policy and guidance

- Waste Management Plan for England - Department for Environment, Food and Rural Affairs (Defra) (2021).
- Waste Prevention Programme for England - Defra (2021).
- Our Waste, Our Resources: A Strategy for England - Defra (2018).
- National Planning Policy for Waste - Ministry of Housing, Communities and Local Government (MHCLG) (2014).
- National Planning Policy Framework - MHCLG (2021).
- 25 Year Environment Plan – Defra (2023).

3.3 Regional context

- The Greater Manchester Joint Waste Plan - Greater Manchester Combined Authority (GMCA) (2012).
- The Greater Manchester Joint Minerals Plan - GMCA (2013).
- Manchester Climate Change Framework 2020-25 - Manchester Climate Change Agency (2022).

3.4 Local context

- Guide to Development in Manchester SPD Guidance – Manchester City Council (MCC) (2007).
 - Manchester Core Strategy - MCC (2012 to 2027).
 - Places for Everyone Joint Development Plan – MCC (2021).
 - GD04 Waste Storage and Collections Guidance for New Developments – MCC (2017).
-

- The Manchester Local Plan Review – MCC (ongoing).
- Manchester Green and Blue Strategy – MCC (2015 to 2025).
- Our Manchester Strategy: Forward to 2025 – MCC (2016).
- Manchester Residential Quality Guidance – MCC (2017).

3.5 Other relevant waste guidance

To supplement the above local codes and standards, it is intended that the design aligns with international best practice standards for waste and the following codes and standards may be of relevance:

- BS 5906:2005 Waste Management in Buildings – Code of Practice.
- UK MHCLG: Building Regulations 2010 Part H6 – Drainage and waste disposal.
- Association of Directors of Environment, Economy, Planning and Transport (ADEPT) - Designing Waste Management in New Developments: A Practical Guide for Developers and Local Authorities.

3.6 University of Manchester

- UoM Sustainability Strategy 2023-2028 - University of Manchester (2023).
-

4 Waste Movement and Collection

4.1 Introduction

The following section outlines the proposed waste management strategy to segregate, transfer and collect waste generated from the Proposed Development. The overall waste movement and collection strategy is shown in Figure 4—1. The proposed waste collection frequency has been assumed for the purpose of this outline application and will be further defined at the reserved matters stage.

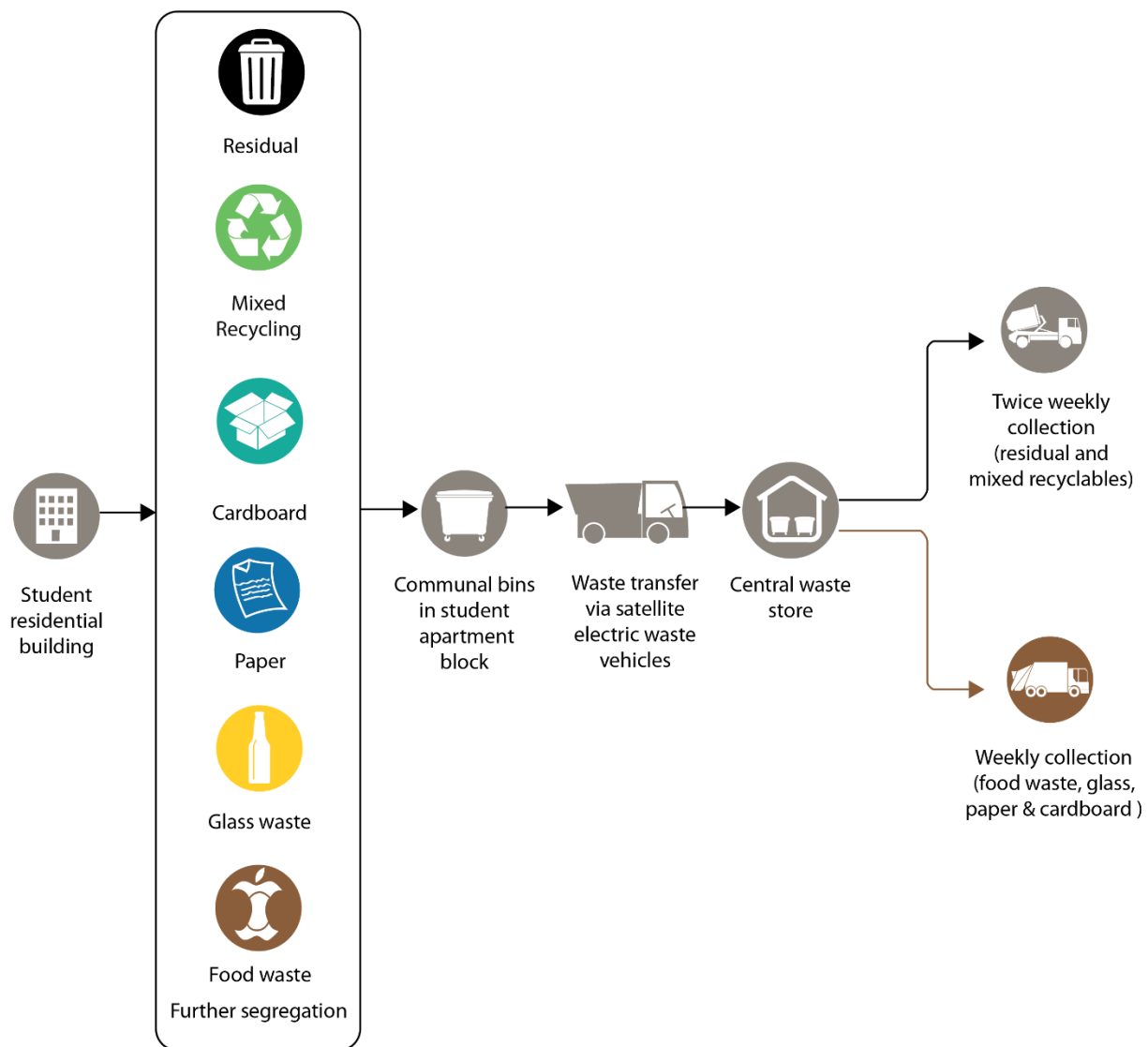


Figure 4—1 Student apartment waste strategy

4.2 Waste Segregation and Movement

The following sections outlines the proposed waste segregation and movement from the point of generation through to the final waste storage area in the Proposed Development (i.e. the centralised waste storage area).

4.3 Internal Storage

4.3.1 Student and staff units

To ensure that recyclables are collected and recovered from general refuse, adequate internal storage will be provided in all student and staff units to ensure that waste is segregated at the point of generation. Waste generated in the student and staff accommodation will be segregated into six streams. This will be residual, paper, cardboard, mixed recycling (mixed metal & plastics), glass and food waste as shown in Figure 4—1. The internal storage provided can include a ventilated cupboard or drawer. The internal storage is typically located within the kitchen or other student communal spaces. Examples of internal waste storage system are shown in Figure 4—2.



Figure 4—2 Example of waste segregation at point of generation within student and staff units

4.3.2 Student and staff accommodation block

Students and staff within an accommodation block are expected to transfer their bagged waste to the interim waste store in the respective block. Students and staff are expected to dispose of their waste in the respective wheeled bins in their segregation streams described in Section 4.3.1. Waste is proposed to be collected every two days for residual, mixed recyclables (mixed plastics and metals), cardboard, food waste and, weekly for paper and glass by the University's Facilities Management (FM) team. The proposed waste collection frequency has been assumed for the purposes of this outline application and will be further defined at the reserved matters stage. Additional space is also proposed for bulky waste in the interim waste store. The locations of the interim waste stores will be determined at the reserved matters stage.

4.4 Student hub

An interim waste store will be provided within the demise of the student hub building. The interim waste store will accommodate an appropriate quantum of bins that will be used to consolidate waste generated in the student hub, prior to being transferred to the centralised waste storage area. Point of generation bins will provided throughout the building. Students and staff will be responsible for source segregating waste into the appropriate point of generation bins. Staff will be responsible for moving waste from point of generation bins to the interim waste store at the necessary times throughout the day. Additional space is also proposed for bulky waste in the interim waste store. The locations of the interim waste stores will be determined at the reserved matters stage.

4.5 Centralised waste storage area

A centralised waste store area has been proposed to store and bulk all waste generated across the student and staff accommodation blocks within the Proposed Development. The University's FM team, or equivalent, will collect the

waste in the student and staff blocks. It is proposed to use electric vehicles for the movement of waste to the centralised waste store. At this stage, two options are being considered for the location of the centralised waste store. These options are summarised as follows:

- **Off Site (On Campus)** – the centralised waste store will be provided in a location outside of the application boundary, yet within the University Campus.
- **On Site** – the centralised waste store will be provided in a location within the boundary of the application. Under this option, waste collection vehicles will access the site directly to collect waste from the centralised waste storage area using either the existing route (Whitworth Lane) or alternative routes such as Moseley Road and Wilmslow Road. Waste collection vehicles will not make use of or rely on the highway to collect waste under this option.

It is proposed to condition the location of the centralised waste storage area as part of the outline application, and to provide further detail as part of the reserved matter application.

Examples of electric vehicles are shown in Figure 4—3. It is proposed that 360L bins for paper, and 240L bins for glass and food waste could be transferred via bin trailers as show in the right of the figure; Whereas bagged waste from residual, cardboard and mixed recyclables could be moved within a specialised electric vehicle such as that on the left of the figure.



Figure 4—3 Examples of electric vehicles i.e. Alke municipal waste transport electric vehicle (left) and Bradshaw bin trailer (right)

Waste will be collected for off-site treatment or disposal from the centralised waste storage area.

It is proposed that the FM team will bale cardboard waste prior to collection. It is also proposed that residual and mixed recyclables (mixed plastics and cans) will be compacted. The applicant is responsible for procuring a private waste contractor and it is proposed that residual and mixed recyclables will be collected twice a week. The remaining waste streams which, are food waste, glass, paper & cardboard are proposed to be collected weekly.

The design considerations of the interim waste stores per student block and the centralised waste store will need to adhere to Manchester City Council's guidance, GD04 Waste Storage and Collections Guidance for New Developments – Manchester City Council (2017). See Appendix A for more information.

5 Waste Generation and Storage

The following section outlines the waste generation and waste storage spatial requirements.

5.1 Waste generation benchmarks

Student and staff accomodation waste generation benchmarks are not provided within local guidance, therefore, waste generation benchmarks have been based on the UoM's 2017 Operational Waste Strategy and data from current UoM waste facilities and collections received on June 13, 2023. Waste arising at the student hub is calculated using a retail (including food and beverage) benchmark. This benchmark has been sourced from ADEPT Designing Waste Management in New Development (2010) and uses an average of retail and food and beverage waste generation benchmarks. The benchmark used for the student hub provides a worst case scenario in terms of waste generation. The waste generation and composition splits used are summarised in Table 5—1.

Table 5—1 Waste generation and compositional split

Land use	Waste generation	Waste composition					
		Residual	Paper	Cardboard	Glass	Mixed recycling	Food waste
Student and staff accommodation	65.10 L/student/week	59.64%	3.00%	13.57%	1.50%	15.07%	7.23%
Hub	7.5 L/m ² /week	30%	-	-	5%	50%	15%

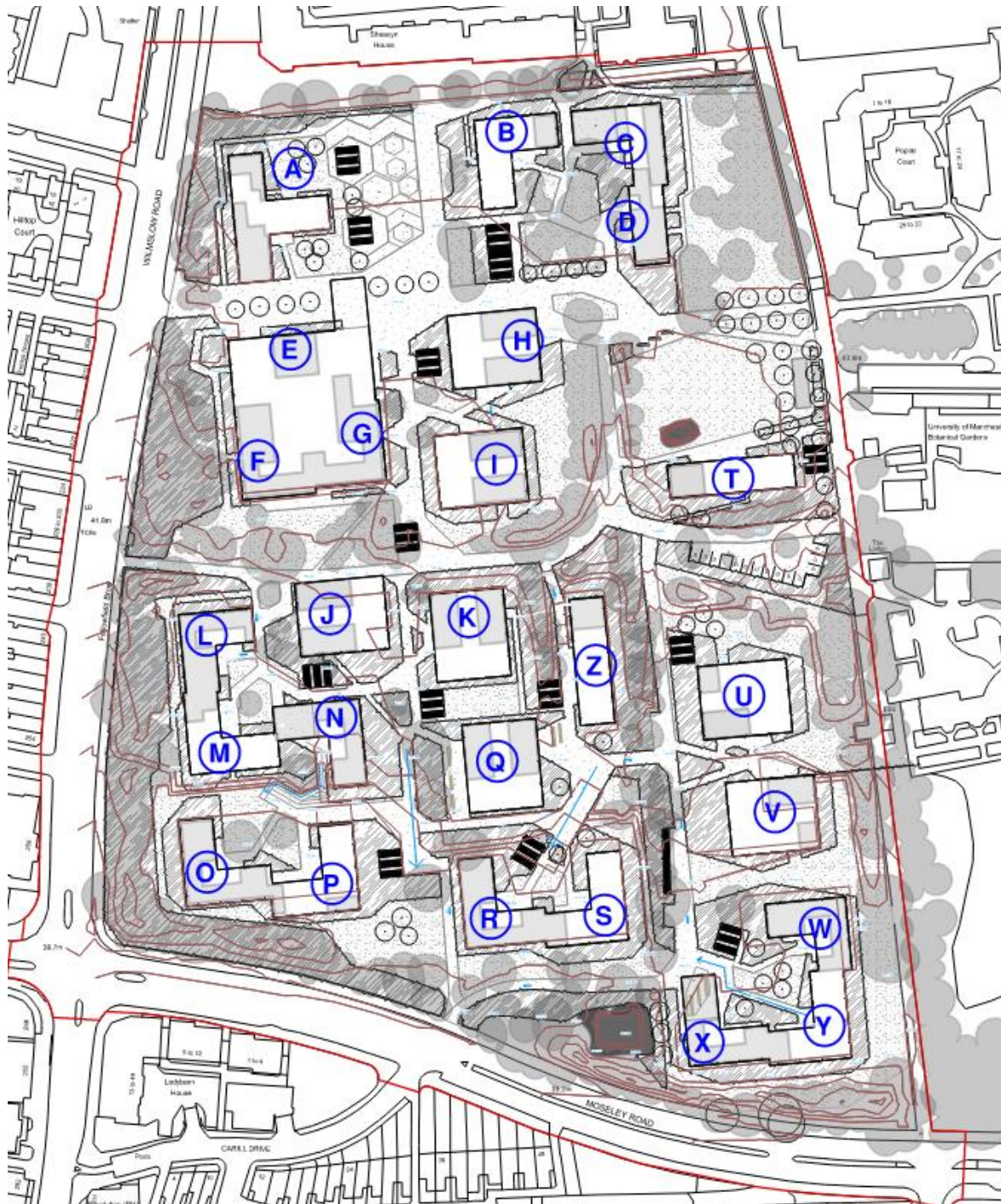


Figure 5—1 Student blocks within the Proposed Development

5.2 Waste generation

The Proposed Development comprises of 25 plots as shown in Figure 5—1. The waste generated across all plots are outlined in Table 5—2, assuming that the waste across the student and staff blocks will be segregated into the following streams: residual, mixed recycling, glass, paper, cardboard, and food waste. Due to the nature of operation, it

is assumed the student hub will segregate waste into the following streams: residual, mixed recycling, glass, and food waste.

Table 5—2 Waste generation estimates

Plot	Population	Area (m ²)	Waste generated (litres per week)						
			Residual	Paper	Cardboard	Glass	Mixed recyclables	Food waste	Total waste
A	154	-	5,979	301	1,360	150	1,510	725	10,025
B	118	-	4,581	230	1,042	115	1,157	555	7,682
C	69	-	2,679	135	610	67	677	325	4,492
D	74	-	2,873	145	654	72	726	348	4,817
E	108	-	4,193	211	954	105	1,059	508	7,031
F	57	-	2,213	111	504	56	559	268	3,711
G	57	-	2,213	111	504	56	559	268	3,711
H	264	-	10,249	516	2,332	258	2,589	1,242	17,187
I	301	-	11,686	588	2,659	294	2,952	1,416	19,595
J	169	-	6,561	330	1,493	165	1,658	795	11,002
K	282	-	10,948	551	2,491	275	2,766	1,327	18,358
L	70	-	2,718	137	618	68	687	329	4,557
M	87	-	3,378	170	769	85	853	409	5,664
N	140	-	5,435	273	1,237	137	1,373	659	9,114
O	114	-	4,426	223	1,007	111	1,118	536	7,421
P	114	-	4,426	223	1,007	111	1,118	536	7,421
Q	220	-	8,541	430	1,943	215	2,158	1,035	14,322
R	108	-	4,193	211	954	105	1,059	508	7,031
S	107	-	4,154	209	945	104	1,049	504	6,966
T	84	-	3,261	164	742	82	824	395	5,468
U	125	-	4,853	244	1,104	122	1,226	588	8,138
V	125	-	4,853	244	1,104	122	1,226	588	8,138
W	70	-	2,718	137	618	68	687	329	4,557
X	84	-	3,261	164	742	82	824	395	5,468
Y	84	-	3,261	164	742	82	824	395	5,468
Z	188	-	7,299	367	1,661	184	1,844	885	12,239
Staff	15	-	582	29	133	15	147	71	977
Hub	-	3,723	8,377	-	-	1,396	13,961	4,188	27,923
Total	3,388	3,723	139,991	6,617	29,929	4,704	47,190	20,132	248,483

5.3 Waste storage

5.3.1 Interim waste stores

Each student and staff block, as well as the student hub will be provided with wheeled bins as described in Table 5—3. Wheeled bins will be stored in interim waste stores located at ground floor level. For the student and staff

accommodation blocks, the interim waste stores will be adjacent to each building core. It is proposed that residual, cardboard and mixed recyclables is stored in 660L bins, paper in 360L and glass and organic waste in 240L bins. Waste will be transferred by the FM team to the central waste storage area, and the collection frequencies for each stream are outlined in Table 5—3. Indicative spatial requirements for the interim waste stores are outlined in Table 5—4.

Table 5—3 Interim waste store requirements

Land use	Waste storage provision					
	Residual	Paper	Cardboard	Glass	Mixed recycling	Food waste
Interim waste stores	660L bin	360L bin	660L bin	240L bin	660L bin	240L bin
Internal transfer to central waste storage area	Every two days	Weekly	Every two days	Weekly	Every two days	Every two days

Table 5—4 Interim waste store indicative spatial requirements

Plot	Bin provision						Indicative spatial requirement for interim waste stores (m²)
	Residual (660L bin)	Paper (360L bin)	Cardboard (660L bin)	Glass (240L bin)	Mixed recyclables (660L bin)	Food waste (240L bin)	
A	4	1	1	1	1	2	27.5
B	2	1	1	1	1	1	20
C	2	1	1	1	1	1	20
D	2	1	1	1	1	1	20
E	3	1	1	1	1	1	23
F	2	1	1	1	1	1	20
G	2	1	1	1	1	1	20
H	7	2	2	1	2	3	47
I	8	2	2	2	2	3	51.5
J	5	1	1	1	1	2	30.5
K	7	2	2	1	2	2	45.5
L	2	1	1	1	1	1	20
M	2	1	1	1	1	1	20
N	4	1	1	1	1	1	26
O	3	1	1	1	1	1	23
P	3	1	1	1	1	1	23
Q	6	1	2	1	2	2	39.5
R	3	1	1	1	1	1	23
S	3	1	1	1	1	1	23
T	2	1	1	1	1	1	20
U	3	1	1	1	1	1	23
V	3	1	1	1	1	1	23
W	2	1	1	1	1	1	20
X	2	1	1	1	1	1	20

Y	2	1	1	1	1	1	20
Z	5	1	1	1	1	2	30.5
Staff	1	1	1	1	1	1	17
Hub	6	1	1	6	9	8	74

5.3.2 Central waste store

As noted, waste will be collected by an external waste collection contractor from the central waste storage area. The indicative waste storage area required is approximately 312 sqm. Note that this area excludes parking and charging of the electric vehicles. The proposed waste equipment and collection frequency is outlined in Table 5—5. Residual, mixed recyclables, and cardboard waste is proposed to be compacted to reduce the spatial requirements. Space for bulky waste is also proposed.

Table 5—5 Waste storage provision and collection frequency for the centralised waste storage area

Land use	Waste equipment and storage provision						Total indicative spatial requirement
	Residual	Paper	Cardboard	Glass	Mixed recycling	Food waste	
Centralised waste store	1 x Compactor (22,000L)	31 x 360L bin	1 x Baler	34 x 240L bin	1 x Compactor (10,000L)	45 x 240L bin	312 m ²
Collection frequency per week	2	1	1	1	2	1	

6 Summary

This OWMS outlines how waste generated from the proposed Fallowfield Campus Redevelopment Project is proposed to be segregated, stored and collected once the development becomes operational. This document sets out the principles of the waste management strategy in compliance with relevant national, regional, and local waste management policy requirements and standards.

It is estimated that future students occupying the Proposed Development will generate approximately 248,500 litres of total waste per week. All student and staff units, as well as the student hub will be provided with sufficient interim waste storage to ensure waste can be segregated at the point of generation into either six (student and staff accommodation) or four (student hub) streams . Students and staff will transfer segregated waste to communal bins in the interim waste stores. Waste from the interim waste stores will be transferred by the UoM's FM Team, or equivalent, via electric vehicles to the central waste storage area (either off site (on campus) or on site) where it will be consolidated prior to being collected for off-site recovery or disposal. Residual and mixed recyclables (mixed plastics and cans) will be collected twice per week whereas paper and cardboard, glass and food waste will be collected weekly.

Appendix A Waste Management Policy and Guidance

A.1 National context

The Waste (Circular Economy) (Amendment) Regulations 2020

The Waste (Circular Economy) (Amendment) Regulations 2020 (SI 2020/904), transpose the EU's 2020 Circular Economy Package (2020 CEP) in England and Wales. These Regulations implement for England and Wales, and partially implement for Scotland and Northern Ireland, six amending EU Directives in the field of waste, namely Directives (EU) 2018/849, (EU) 1999/31 (EU) 2018/850, (EU) 2018/851, (EU) 2018/852, (EU) 2020/362 and (EU) 2020/363.

The amending Directives cover packaging and packaging waste, landfill of waste, end-of life vehicles (ELVs), batteries and accumulators and waste electrical and electronic equipment (WEEE).

Environment Act 2021 – UK Parliament (2021)

The Act enshrines environmental protection as law and offers new powers to set new binding targets in terms of improving air and water quality, protecting wildlife, increasing recycling and reducing plastic waste. This is UK's new environmental protection framework as a result of leaving the European Union.

25 Year Environment Plan – DEFRA (2023)

The 25-year environment plan sets out the Government's long-term policy for improving the environment within a generation. It includes commitments to double resource productivity, reach zero avoidable waste by 2050 and eliminate avoidable plastic waste by 2042, amongst other targets.

The Environmental Targets (Residual Waste) (England) Regulations 2023

This regulation specifies 'the residual waste long-term target' in section 1 of the Environment Act 2021. The target is a matter within the area of resource efficiency and waste reduction. It sets out a target that by the end of 31st December 2042 the total mass of residual waste for the calendar year 2042 does not exceed 287 kilograms per head of the population in England.

Waste Management Plan for England - Department for Environment, Food and Rural Affairs (2021)

The Plan provides an analysis of waste management in England, focusing on waste arisings and their management. The Plan will support the aims and objectives laid out in the Waste (England and Wales) Regulations 2011 and is an integral component for the overarching waste strategy for England, Our Waste, Our Resources.

Waste Prevention Programme for England - (Department for Environment, Food and Rural Affairs (2021)

This is a supplementary programme for the Waste Management Plan outlined above. It sets out the government's plan on waste prevention measures such as greater reuse, repair and remanufacture and ensuring better design to achieve the former measures.

Our Waste, Our Resources: A Strategy for England- Department for Environment, Food and Rural Affairs (2018)

This overarching strategy for England sets out a roadmap on preserving materials resources by minimising waste, promoting resource efficient and the government's vision for moving towards a more circular economy. This strategy will contribute to the delivery of five strategic ambitions:

- Work towards all plastic packaging placed on the market being recyclable, reusable or compostable by 2025;
- Work towards eliminating food waste to landfill by 2030;
- Eliminate avoidable plastic waste over the lifetime of the 25 Year Environment Plan;
- Double resource productivity by 2050; and
- Eliminate avoidable waste of all kinds by 2050.

National Planning Policy for Waste - Ministry of Housing, Communities and Local Government (2014)

The document aims to support the UK's waste ambitions of engaging communities to take responsibility of their waste and enabling reuse and recovery of materials. This document also outlines requirements for waste infrastructure within new developments such as the provision of the segregation, storage, and collection of waste.

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

The National Planning Policy Framework (NPPF) notes that the purpose of the planning system is to contribute to the achievement of sustainable development. The document identifies three dimensions to sustainable development, with an environmental dimension being one. As part of the environmental role, the document notes that efforts must be made to minimise waste generation and increase re-use and recycling. In the NPPF it is stated that during the planning stages of development, recycled or secondary materials should be prioritised over the use of primary material.

Waste Regulations – England and Wales (2011, amended 2016)

The Waste (England and Wales) Regulations 2016 work towards implementing the revised EU Waste Framework Directive (2008/98) relating to some key components of waste operations; collection, recovery, transport and disposal of waste materials. They also address the application of additional responsibilities to the contents of transfer notes, the introduction of a two-tier system for the registration of waste carriers and brokers, further amendments to hazardous waste controls and also the omission of certain categories of waste from waste controls.

National Planning Policy Framework - Ministry of Housing, Communities and Local Government (2021)

The National Planning Policy Framework sets out the Government's policies for England and how these should be applied in planning as a basis for locally-prepared policies regarding housing and developments. The planning system has three overarching objectives: economic, social, and environmental.

The Environmental Permitting Regulations – England and Wales (2016)

The Environmental Permitting (England and Wales) Regulations 2016 transpose fifteen directives of varying subject matters to set out an environmental permitting and compliance regime that applies to various activities and industries. To the extent of their relation to waste, they impose and regulate environmental permitting for activities such as landfill, incineration, mining and general waste operations. Before plans are finalised, the EA will be liaised with in relation to the environmental permits required.

Building Regulations 2010 Drainage and Waste Disposal 2015 Edition (HM Government, 2015)

The HM Government Building regulations detail waste disposal requirements and relevant legislation for both domestic and non-domestic land uses, including the relevant design requirements.

A.2 Regional context

The Greater Manchester Joint Waste Plan - Greater Manchester Combined Authority (2012)

As part of their Statutory Development Plan, the Association of Greater Manchester Authorities produced their Waste Plan which provides a spatial planning framework to deliver sustainable waste management in Manchester to 2027. The main objectives are to promote the waste hierarchy and ensure their waste growth does not increase to the same degree as their economic growth. Waste management systems should also provide flexibility to allow for new technologies and emerging systems, as well as protect the quality of life of communities and the natural environment. The plan also identifies the existing waste infrastructure within Manchester and the gaps to be filled in order to achieve their targets:

- Reducing residual waste per household
- Increasing the percentage of household waste sent for reuse, recycling, and composting
- Contributing to the offset of carbon emissions through sustainable waste management.

Planning permission is only granted for developments identified as appropriate in the Waste Plan and where the highest level of recycling is demonstrated by the applicant.

The Greater Manchester Joint Minerals Plan - Greater Manchester Combined Authority (2013)

In conjunction with the individual development plans of the ten Greater Manchester councils, this document outlines the overarching aim and objectives for the management of minerals and therefore any waste arisings. These are broken down per policy which all revolve around the consideration of minerals as a valuable resource and therefore maximising reuse of materials and resources and minimising waste. Additionally, adverse impacts on the environment must be mitigated and sustainable modes of waste and materials transportation ensured.

Manchester Climate Change Framework 2020-25 - Manchester Climate Change Agency (2022)

The framework is Manchester's high-level strategy for minimising the city's impacts on climate change which, complements the commitment in Our Manchester Strategy 2016-25. The objectives and targets established includes staying within the city's carbon budget, build climate adaptation and resilience, improve health and wellbeing and provide an inclusive, zero carbon and climate resilient economy. A particular area of interest in meeting the objectives and targets is food; specifically the reduction of food waste, both individually and commercially.

A.3 Local context

Guide to Development in Manchester SPD Guidance – Manchester City Council (2007)

This document guides developers, designers, and residents to the type of development desired within Manchester. Its role is to inform the ongoing development of the City by highlighting its many and varied existing qualities and describing how they can be enhanced in the future. The waste management section states that all developments should have a waste management strategy included in the Environmental Standards Statement. This will ensure that

adequately sized bin storage areas, access for collection crews and vehicles, and other aspects of waste management are designed into the development at the earliest stage.

Manchester Core Strategy - Manchester City Council (2012 to 2027)

This key document within the Local Development Framework outlines the status of Manchester City as of 2012, when it was published, and sets out the Council's vision for Manchester by 2027, along with planning policies and requirements to achieve their aspirations. Detailed under Objective 6 (Environment) is Policy EN 19 (Waste) which specifies the requirement for all developers to demonstrate alignment with the waste hierarchy, have full regard to the socio-economic impacts of the waste management, and consider the sustainable modes of waste transportation. Manchester does not have any landfill capacity and with its growing population, are keen to prioritise waste prevention, reduction, and material reuse.

Places for Everyone Joint Development Plan – Manchester City Council (2021)

Places for Everyone is a long-term plan of nine Greater Manchester districts for jobs, new homes, and sustainable growth and will determine the kind of development that takes place in these boroughs, maximising the use of brownfield land and urban spaces while protecting Green Belt land from the risk of unplanned development. It will also ensure all new developments are sustainably integrated into Greater Manchester's transport network or supported by new infrastructure.

GD04 Waste Storage and Collections Guidance for New Developments – Manchester City Council (2017)

The document is for planners, architects and developers on planning and design considerations for storage and collection of residual and recyclable waste in domestic and commercial developments. This document is a practical guide to the minimum standards which planners and designers of new developments must adhere to in relation to the design of waste storage and collection, and for recycling facilities in both domestic and commercial properties. The document provides technical details for the requirements for the expected waste infrastructure and vehicles broken down by development type. Relevant design guidelines are elaborated below.

Waste storage room requirements

- Waste stores should have adequate lighting
- Floor and wall surfaces of waste store should be impervious and easy to clean. A trapped gully and waste supply should be provided for bin washing
- Bump strips should be provided at bin height to prevent damage of bins
- Doors must have the capacity to be held open during collection
- Housing Management organisations are responsible for the upkeep of the communal bin stores, regular washing of bins and arranging bin replacements

Waste storage areas

- Storage must be identified on the plans
- At least 1.3 m clear doorways (including thickness of doors) should be provided
- A minimum of 1.3 m clear path should be provided within the waste store to allow movement and access of each waste receptacle

- The distance for occupants to move waste to the waste store (excluding vertical movement) should not exceed 30 m as stated in the Building Regulations 2002, Part H
- In instances whereby residual and recyclable waste have separate waste stores, preference for easier access (e.g., closest) to the recycling waste store should be provided to encourage recycling
- In mixed use developments, separate refuse areas must be provided for residential and commercial developments
- Containers should have designated external storage areas that are accessible for disabled people

Waste collection vehicle requirements

- The road networks must accommodate manoeuvring and loading of Refuse Collection Vehicles (RCVs) with the specifications outline in Table 6—1
- Collection vehicles should not be expected to reverse into the development from a major road and should enter a major road in a forward gear
- Waste operatives should not be required to move wheeled bins for more than 10m from bin presentation point to the RCV

Table 6—1 Council waste collection vehicle specifications

Specification	Dimensions
Overall length	11.5 m (13.1 m when loading)
Overall width	3 m (4.1 m when loading)
Overall height	4 m (6 m including top loader arms)
Turning circle (between kerbs)	17.88 m
Turning circle (between walls)	19.39 m
Weight	32 tonnes when fully laden

Surface requirements

- Where there are communal stores, the paths between the stores and the collection points must have a minimum width of 1.54 metres
- Paths should be free from kerbs or steps. Where the path meets the roadway, dropped kerbs should be provided.
- Paths should have solid foundations with a smooth finish

Other design guidelines

- Provision for cigarette disposal should be provided and recommended in smoking areas
- Clauses should be written in tenant contracts to encourage their commitment to segregating and recycling waste
- Food waste generated must comply with Animal By-Products Regulations 2005

The Manchester Local Plan Review – Manchester City Council (DRAFT)

With the consultation completed in 2020, the emerging review of the Manchester Local Plan is currently in its draft stage. The aim is to develop the existing core strategy to further detail the issues faced by the City and the actions to take to support their zero carbon ambitions by 2038.

Manchester Green and Blue Strategy – Manchester City Council (2015 to 2025)

The Green and Blue Strategy and Action Plan sets out the framework for maintaining the city's green spaces and waterways to ensure growth and developments in these areas are sustainable economically, socially, and environmentally.

Our Manchester Strategy, Forward to 2025 – Manchester City Council (2016)

The Our Manchester Strategy 2016–2025 sets out the long- term vision for Manchester's future and the goals every stakeholder within the area will work together on to ensure Manchester achieves its ambitions. Such ambitions include achieving net zero carbon by 2038 at the latest achieved via green growth, sustainable design, green infrastructure, and increasing climate resilience.

Manchester Residential Quality Guidance – Manchester City Council (2017)

This document outlines the considerations, qualities, and opportunities that will help to deliver high quality residential development for successful and sustainable neighbourhoods across Manchester. A key aim for residential design within Manchester is to 'make it practical' and ensure the back of house functions are effective and efficient. In particular, the document provides details for waste infrastructure requirements such as:

- Segregation of waste into four streams, three of which are recycled
- Bin storage should be carefully considered so that it is easy to understand and integrated seamlessly into design
- Larger residential blocks should provide facilities to manage recycling internally, and explore other innovative solutions to reduce waste generation

A.4 University of Manchester

UoM Sustainability Strategy 2023-2028 - University of Manchester (2023)

UoM published a sustainability strategy which, includes commitments that contribute to the University's core goals on social responsibility, teaching and learning and, research and discovery. The commitments focuses on risk and climate resilience, responsible procurement, travel and transport, valuing nature, construction and refurbishment and, resource management. Under resource management, there are aspirations to increase resource efficiency which, achieves wider international goals i.e. United Nations' Sustainable Development Goals (SDGs) SDG 12 on responsible consumption and SDG 13 on climate action. Relevant waste management targets include:

- Recycle 45% of waste produced through campus operations by 2025
- Divert 100% of waste from landfill from 2023 onwards
- Introduce food waste collection to all buildings by 2024 or when legislation demands it

Other relevant commitments include increasing awareness on the impacts of materials in the perspective of carbon and end of life implications, work with suppliers, staff and students on encouraging behavioural change in reducing waste. Lastly, introducing mechanisms that supports low consumption, reuse and sharing across the University.

Appendix B Proforma for Planning Applications

Chrisiane Alcantar

[Company]

17 Newman Street

London

W1T 1PD

UK

T: +44 (0)207 927 9700

F: +44 (0)870 787 4145

Email: chrisiane.alcantar@burohappold.com