

Operational Waste Management Strategy

Project Taverna
Manchester City Football Club

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Executive Summary

Hilson Moran has been commissioned by Manchester City Football Club to develop an Operational Waste Management Strategy to inform the planning application for the Proposed Development of Project Taverna, an immersive events space, located at the 'Collar Site' of the Etihad Campus, Manchester.

The Waste Management Strategy seeks to ensure correct provisions for long-term waste management are made during the operational stage of the development in alignment with guidance laid out by Manchester City Council.

With regards to the design inclusion, the waste storage areas have been designed in accordance with the recommendations in this report.

Waste will be segregated at source to maximise recycling and diversion from landfill. The principal waste streams generated by the development are anticipated to comprise:

- Dry mixed recyclable material (including paper, card, plastics and metals);
- Food (organic) waste; and
- Residual (non-recyclable) waste.

Storage requirements have been calculated using tenant monitoring data and a precautionary full-container capacity assumption to reflect peak operational scenarios. Based on this assessment, the proposed development requires provision for:

- 3 × 1,100-litre Eurobins (residual waste);
- 10 × 1,100-litre Eurobins (dry mixed recycling);
- 6 × 240-litre Eurobins (food waste); and
- 6 × 240-litre Eurobins (glass waste).

Waste will be stored within a dedicated external waste storage area located adjacent to the venue's back-of-house area. The storage provision has been designed to accommodate peak delivery-day arisings and allow operational flexibility.

Overall, the Proposed Development provides appropriate waste storage and management arrangements that are proportionate to the anticipated waste volumes, exceed the requirements of Manchester City Councils GD04 guidelines and fully integrated within the wider campus waste strategy. The scheme is therefore considered to be GD04 compliant.

1. Introduction

1.1. Background

Hilson Moran has been commissioned by Manchester City Football Club ('MCFC') ('the Client'), to produce an Operational Waste Management Strategy to support the planning application for the Proposed Development of Project Taverna, an immersive events space, located at the 'Collar Site' of the Etihad Campus, Manchester, M11 3FF ('the Site').

The Site is bound by the Metrolink line to the north, Alan Turing Way to the east, Gibbon Street to the south, and Loverose Street to the west. The Site is located in the administrative area of Manchester City Council ('MCC') at National Grid Reference (NGR) 386925 398736, as identified in **Figure 1-1**.

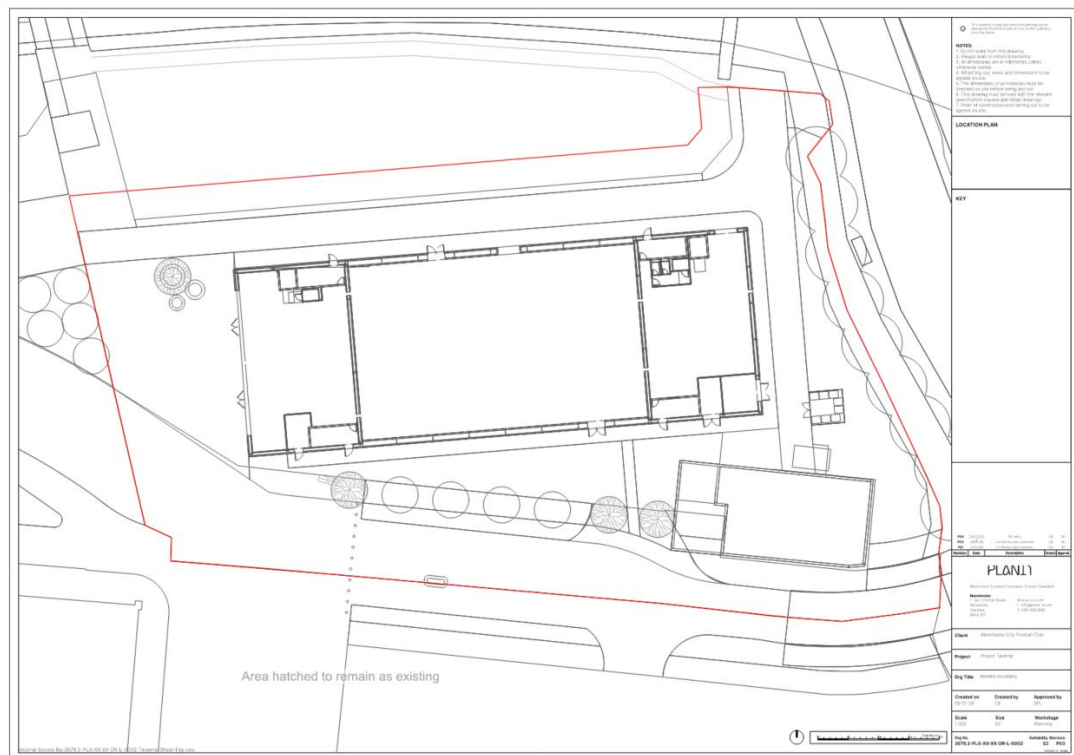


Figure 1-1 Site Boundary (Source: Planit, dated February 2026)

1.2. Proposed Development

The Proposed Development involves the development of Project Taverna, an immersive events space, located within the wider Etihad Campus.

It is understood that the development will comprise a three-storey building incorporating a centralised entertainment area with dedicated catering facilities, back-of-house operational areas, front-of-house spaces for guests including a VIP

Bar and associated support infrastructure. It is understood that the venue has a capacity for circa. 600 guests.

1.3. Purpose

This document describes the Operational Waste Management Strategy for the development of the Site and details how the infrastructure and management procedures will ensure that the development operates under the best environmental practice for the lifespan of its operation. The strategy will provide a framework for the design and operation of waste infrastructure in order to deliver cost effective, sustainable waste management procedures. A key component of this approach is the provision of best practice, sustainable waste management guidance that will allow the project to contribute significantly to waste minimisation and recycling in the area.

1.4. Scope

The scope of the Waste Management Strategy considers the operation of the development. The scope does not include all clearance, earthworks and infrastructure building.

1.1. Disclaimer

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2. Legislation and Policy Framework

This report has been prepared with due regard and consideration to applicable legislation, national and local planning policy and best practice guidance. A summary of the key documents is provided below.

2.1. Legislation

2.1.1. Environmental Protection Act 1990

The Environmental Protection Act 1990ⁱ (as amended) is the principal legislation regarding waste, establishing the definition as provided in the Waste Framework Directive as *‘any substance or object which the holder discards or intends or is required to discard’*. Further to this, and of relevance to this assessment, the Act also distinguishes in Section 75 between household, industrial and commercial waste, collectively known as ‘controlled waste’. The Controlled Waste (England & Wales) Regulations 2012ⁱⁱ provide further interpretation of controlled waste to which the Act applies.

Importantly, the Act places a duty of care on any person that imports, produces, carries, keeps, treats or disposes of controlled waste. This duty of care requires all reasonable steps to be taken to:

- Prevent unauthorised or harmful deposit, treatment or disposal of waste;
- Prevent a breach (failure) by any other person to meet the requirement to have an environmental permit, or a breach of a permit condition;
- Prevent the escape of waste from your control;
- Ensure that any person you transfer the waste to has the correct authorisation; and,
- Provide an accurate description of the waste when it is transferred to another person.

The Waste Duty of Care Code of Practiceⁱⁱⁱ provides guidance on the duty of care and methods of complying with the requirements of the Act. This includes methods of ensuring waste is handled and stored safely and securely, ways of checking authorisation for waste removal and methods of ensuring waste descriptions are accurate.

The Act places a duty on the Secretary of State to establish a Strategy regarding the recovery and disposal of waste in England and Wales and permits waste collection authorities to enact waste reduction schemes in line with Schedule 2AA of the Act.

2.1.2. The Waste (England & Wales) Regulations, 2011

The Waste (England & Wales) Regulations 2011 (as amended)^{iv} transpose the revised Waste Framework Directive (Directive 2008/98/C). The Regulations also

repealed the Environmental Protection (Duty of Care) (England & Wales) Regulations 1991 and replaced them with provision in the Environmental Protection Act 1990 (as amended).

The Regulations set requirements for the collection, transport, recovery and disposal of wastes. Notably, the Regulations require businesses/organisations to confirm, upon transfer of waste, all reasonable measures have been taken to apply the waste hierarchy, in the following order of priority:

- Prevention;
- Preparing for re-use;
- Recycling;
- Other recovery (*e.g.* energy recovery); and
- Disposal.

The Regulations, including 2014 amendment, establish new requirements for the completion of a Waste Transfer Note, including use of alternative documentation provided it complies with the legal requirements for what must be included.

The Waste (Circular Economy) (Amendment) Regulations 2020^v amend a number of primary and secondary legislation on waste and introduce a revised framework for the identification of steps to reduce waste and establish long-term plans for the reuse and recycling of wastes.

2.1.3. Environmental Permitting (England and Wales) Regulations 2016

The Environmental Permitting (England and Wales) Regulations 2016^{vi} provide the current framework for hazardous waste management in England and Wales. This comprehensive legislation governs the classification, handling, treatment, and disposal of hazardous waste, ensuring environmental protection and public health.

Hazardous waste is identified under the European Waste Catalogue (EWC), which includes a wide range of materials and items commonly encountered in both domestic and commercial settings. Examples of hazardous waste include waste oils from vehicle maintenance, fluorescent tubes, and certain electronic and electrical equipment. The Environmental Permitting Regulations require waste producers to separate hazardous materials from general waste for appropriate handling and disposal.

The regulations impose strict controls on the methods of treatment and disposal of hazardous waste. These controls are designed to prevent environmental harm, such as contamination of soil and water sources. Hazardous waste destined for landfill disposal must comply with stringent landfill management provisions under the Environmental Permitting framework. These provisions regulate the operation

of hazardous waste landfill sites and require pre-treatment of waste to ensure it meets specific classification and environmental safety criteria before disposal. Measures are also in place to manage risks associated with landfill leachate and gas production, reducing potential harm to the environment and human health.

Waste producers, including both domestic and commercial entities, must comply with the Duty of Care requirements under the Environmental Protection Act 1990 (as amended). This includes ensuring hazardous waste is properly classified, stored, and transported, with appropriate documentation to verify compliance. Failure to adhere to these requirements can result in legal penalties and significant environmental damage.

The Environmental Permitting (England and Wales) Regulations 2016 continue to evolve, reflecting advancements in waste management practices and environmental standards. By consolidating multiple regulatory provisions, they provide a clear and effective framework for addressing the challenges posed by hazardous waste.

2.1.4. The Environment Act 2021

The Environment Act 2021^{vii}, particularly Part 3, adopts a holistic approach to improving resource management and reducing environmental impacts by targeting every stage of a product's lifecycle. This aligns with the UK's broader goals of transitioning to a circular economy, minimising waste, and promoting sustainable resource use.

The Environment Act makes provision for product design and related requirements to ensure products are more durable, repairable, and recyclable. It also notes provisions could be made for clearer labelling of products so consumers can easily identify recyclable products.

The Act also makes provision for the introduction of new extended producer responsibility schemes, which will allow for producers to be responsible for the full net costs of managing their products and packaging for disposal. Charges on single-use plastics are introduced as well as the provisions for introduction of a deposit return scheme for waste items such as drinks containers.

The Environment Act also addresses the consistency and frequency of recycling collections across England, aiming to simplify and standardise the recycling process. Councils are required to implement weekly separate food waste collections to ensure organic waste is diverted from landfills.

2.2. Planning Policy

2.2.1. National

2.2.1.1. National Planning Policy for Waste

The National Planning Policy for Waste^{viii} (October 2014) sets out the Government's waste planning policies for England and promotes a more sustainable and efficient approach to resource use and management. It should be read alongside the National Planning Policy Framework and the National Waste Management Plan for England.

In determining non-waste development proposals, the Policy requires planning authorities to ensure that:

- Development does not prejudice the operation of existing or allocated waste management facilities;
- Adequate provision is made for on-site waste storage and collection, integrated within the overall design of the development; and
- Waste arising from construction and operation is managed in accordance with the waste hierarchy, maximising reuse and recovery and minimising disposal.

2.2.1.2. Resources and Waste Strategy for England

The Waste Strategy for England^{ix}, (2018) supports delivery of the 25 Year Environment Plan and promotes a transition towards a circular economy. It seeks to improve resource efficiency, reduce waste generation and increase recycling rates.

Key objectives include:

- Consistent collection of dry recyclable materials from households and businesses;
- Expansion of separate weekly food waste collections;
- Increasing recycling rates to 65% of municipal waste by 2035; and
- Encouraging application of the waste hierarchy, particularly for hazardous and commercial wastes.

2.2.1.3. Waste Management Plan for England, 2021

The Waste Management Plan for England^x (2021) recognises that delivery of the objectives of the Waste (England and Wales) Regulations 2011 (as amended) requires coordinated action by government, businesses, local authorities and consumers. The Plan therefore provides a policy framework to support implementation of sustainable waste management practices.

The Plan reinforces the waste hierarchy, prioritising prevention, followed by preparing for re-use, recycling and recovery, with disposal as a last resort.

Construction, Demolition and Excavation (CDE) waste continues to represent the largest proportion of total waste generated nationally. Recovery rates for non-hazardous C&D waste have consistently met the 70% target set for 2020. However, commercial and industrial waste arisings have increased in recent years, highlighting opportunities to improve resource efficiency and reduce costs to businesses.

The Plan supports increasing recycling rates to 65% of municipal waste by 2035 and promotes the collection of household-like wastes to improve recycling performance. It also encourages rationalisation of waste collection systems and operators to reduce vehicle movements associated with waste management activities.

2.2.2. Local

2.2.2.1. Greater Manchester Joint Waste Development Plan

The Greater Manchester Joint Waste Development Plan Document^{xi} forms part of the statutory Development Plan for Manchester and provides the strategic framework for waste management across the ten Greater Manchester authorities. The Plan seeks to ensure sufficient waste management capacity is delivered to manage municipal, commercial and industrial, and construction waste streams in accordance with the waste hierarchy.

The key objectives of the Waste Plan are to:

- Promote sustainable waste management in line with the waste hierarchy;
- Ensure an adequate network of waste management facilities across Greater Manchester;
- Manage waste as close to its source as practicable;
- Protect human health, amenity and the environment from adverse impacts;
- Support economic growth through appropriate waste infrastructure provision.

While primarily focused on waste facility provision, the principles of the Waste Plan are relevant to new commercial development in ensuring that operational waste is appropriately segregated, stored and collected.

2.2.2.2. Manchester City Council GD04 Waste Storage and Collection Guidance

MCC's GD04 Waste Storage and Collection Guidance for New Developments^{xii} provides detailed requirements for the design and provision of waste storage and collection arrangements for residential and commercial schemes. The guidance supports the implementation of strategic waste policy and ensures developments incorporate practical, safe and efficient waste management solutions.

The guidance requires developments to:

- Provide adequate storage capacity for all anticipated waste streams, including general waste, dry recyclables and food waste;

- Facilitate segregation of recyclable materials in accordance with the waste hierarchy;
- Ensure waste storage areas are accessible, secure and appropriately ventilated;
- Demonstrate suitable access and manoeuvring space for collection vehicles;
- Provide clear presentation points that do not obstruct the highway or pedestrian routes.

Developments are expected to submit a completed waste management proforma as part of the planning application to demonstrate compliance with the Council's requirements.

2.3. Guidance

2.3.1. DEFRA – Waste Arisings Methodology

DEFRA's guidance on commercial and industrial waste arisings provides a structured methodology for estimating waste generation across different sectors in England. The approach draws on national datasets, business surveys and sector-specific benchmarks to quantify waste volumes and composition, including hazardous and non-hazardous streams.

The methodology supports waste forecasting for planning and environmental reporting purposes and promotes alignment with the waste hierarchy, prioritising prevention, reuse and recovery over disposal. It provides an appropriate evidence base for estimating likely waste outputs associated with commercial development proposals.

2.3.2. WRAP - Resource Efficiency and Waste Benchmarks

Waste and Resources Action Programme (WRAP)^{xiii} provides technical guidance and evidence to support sustainable waste management and resource efficiency across the UK.

WRAP publications inform waste forecasting, bulk density assumptions, recycling performance benchmarks and infrastructure planning. Typical bulk density ranges identified by WRAP are commonly applied in waste strategy assessments to convert tonnage data into volumetric storage requirements.

WRAP guidance also supports implementation of the waste hierarchy, increased recycling performance and improved commercial waste segregation, aligning with national policy objectives.

3. Waste Hierarchy and Circular Economy

The waste strategy for the operational phase of the Proposed Development has been developed to maximise diversion from landfill and support the transition to a circular economy. The strategy prioritises waste prevention, reuse and recycling, ensuring that residual disposal is minimised and that waste generated by the development is managed efficiently within the wider Etihad Campus waste infrastructure.

The strategy will be guided by the principles of the Waste Hierarchy (**Figure 3-1**), prioritising waste prevention, re-use, and recycling, with disposal to landfill considered only as a last resort.

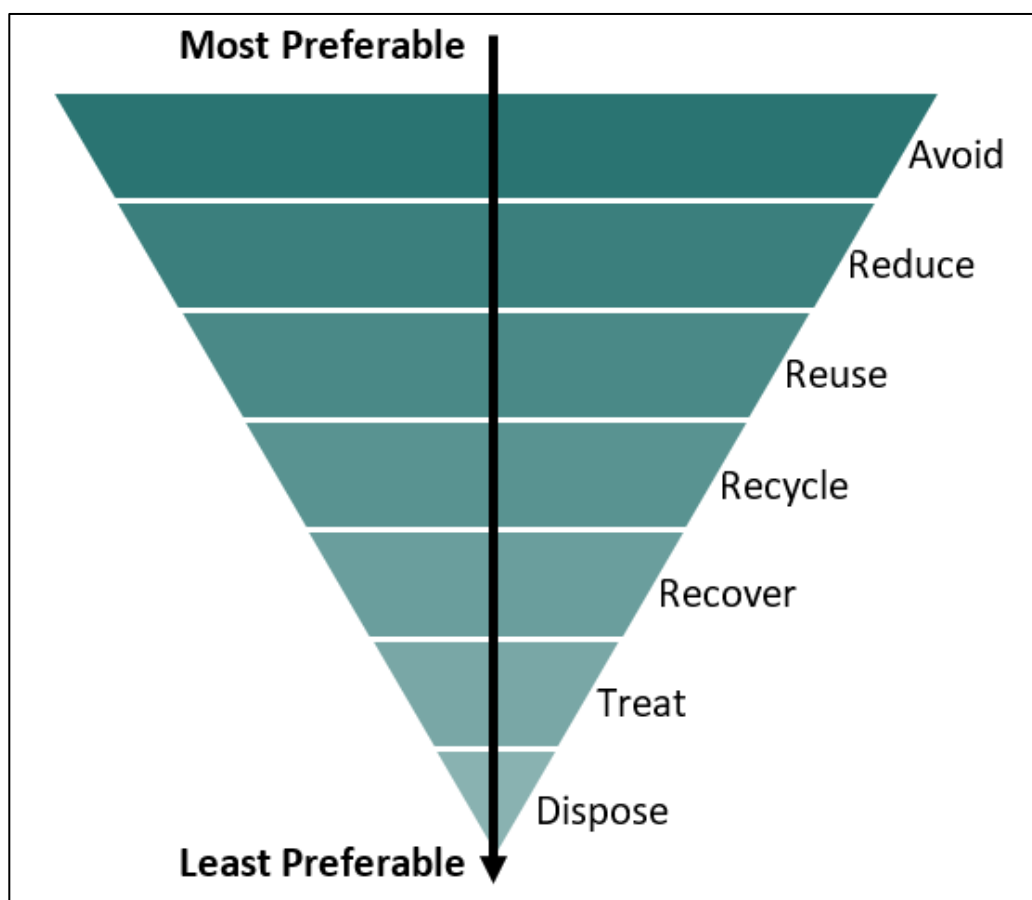


Figure 3-1 Waste Hierarchy

Planning for operational waste management at design stage ensures that the building can operate efficiently and sustainably, while minimising impacts on layout, servicing and long-term building performance.

3.1. Waste Operations and Procedures

3.1.1. Waste Management Objectives

The development aims to operate to the highest practicable standards of environmental performance. A key component of this approach is the provision of long-term, sustainable and reliable waste management systems that minimise environmental impacts and support national and local waste objectives.

Accordingly, this strategy has set the following aims:

- To align with the waste management objectives of MCC and the Greater Manchester Joint Waste Development Plan, promoting sustainable waste management in accordance with the waste hierarchy;
- To provide future visitors and workers with convenient and efficient waste management systems that enhance the operation of the building and promote high levels of recycling;
- To ensure that waste management within the development complies with DEFRA's Simpler Recycling regulations^{xiv} for non-residential developments and the requirements of local waste collection contractors; and
- To integrate with the existing centralised waste facility, optimising storage efficiency, managing peak event waste volumes and reducing collection vehicle movements.

3.1.2. Operational Procedures

In line with the waste hierarchy, the following procedures are recommended for implementation in the operation of the development.

3.1.2.1. Avoid and Reduce

The primary objective of any waste management strategy is to avoid generating waste wherever possible, then to reduce the amount generated. For this development, the following measures are recommended:

- Promoting waste minimisation through staff training, operational procedures and clearly visible visitor-facing signage;
- Encouraging operators to minimise single-use materials and excess packaging;
- Promoting reusable service ware and sustainable procurement practices where feasible; and
- Implementing digital ticketing and communications to minimise paper consumption.

3.1.2.2. Reuse

The venue will support reuse initiatives where practicable, including:

- Redistribution or donation of surplus materials, furniture or equipment; and
- Reuse of event materials where feasible.

3.1.2.3. Recycling and Waste Segregation

Where materials cannot be prevented or reused, they should be segregated at source and recycled wherever practicable in accordance with the waste hierarchy.

For commercial entertainment venues, effective recycling performance relies upon clear segregation systems, appropriate container provision and operational management. The following best practice measures are recommended:

- Providing clearly labelled waste receptacles to support separation of residual, recyclable and food waste streams;
- Ensuring packaging and materials used within the development are compatible with available recycling infrastructure;
- Designing waste storage areas to accommodate separate waste streams and minimise cross-contamination;
- Delivering staff training and operational guidance to ensure correct segregation procedures are followed;
- Monitoring waste arisings and contamination levels to support continuous improvement.

3.1.3. Waste Classification

3.1.3.1. Residual Waste

Waste that cannot be recycled or composted will be classed as residual and stored in assigned bins for scheduled collection. DEFRA's waste hierarchy will be followed to minimise residual volumes.

3.1.3.2. Dry Recyclables

Dry recyclable waste generated within the building is expected to include, but not be limited to:

- Paper and cardboard;
- Plastic bottles and packaging;
- Glass bottles and jars; and
- Aluminium cans.

The exact materials accepted will be subject to the specifications of the appointed waste contractor and MCC requirements. Recycling provision will be designed to facilitate effective separation and minimise contamination.

3.1.3.3. Food Waste

In accordance with DEFRA's Simpler Recycling regulations, non-domestic premises in England are required to provide a separate food waste stream. The development will therefore provide dedicated storage for food waste to enable separate collection and appropriate treatment.

3.1.3.4. Hazardous and WEEE Waste

The development may generate limited quantities of hazardous and Waste Electrical and Electronic Equipment (WEEE wastes) e.g. light bulbs, IT equipment, batteries. These will require specific collection and disposal arranged by tenants or specialist contractors to ensure safe and compliant management.

3.1.4. Promoting Sustainable Waste Management

The development will adopt a proactive approach to sustainable waste management, supporting resource efficiency and high recycling performance. Building management will be encouraged to monitor waste generation, review segregation performance and engage with operators to identify opportunities for continual improvement.

This approach ensures that operational waste management aligns with legislative requirements, local authority guidance and wider sustainability objectives, while remaining adaptable to evolving regulatory standards and collection arrangements.

4. Operational Waste Management

4.1. Existing Waste Management Services

The waste strategy for the Proposed Development will integrate with the established waste management arrangements serving the wider Etihad Campus and Co-op Live. The wider site operates with appointed private waste contractors providing services for:

- Residual waste collections;
- Dry mixed recycling collections;
- Glass collections; and
- Organic waste collections.

General waste, dry mixed recyclables and organic waste generated across the wider site are transferred following game/event days from interim waste stores to the Etihad Campus central waste compound via electric vehicles (EVs) with bin tows designed to transport 1,100-litre Eurobins (general waste and dry mixed recyclables) and 240-litre bins (organic waste).

The central waste compound includes the following infrastructure:

- 1 × portable roll-on roll-off compactor (residual waste);
- 1 × portable roll-on roll-off compactor (dry mixed recyclables);
- 1 × 35 cubic yard roll-on roll-off skip (residual waste contingency);
- 1 × skip (wood);
- 1 × skip (cardboard);
- 1 x WasteMaster organic food digester; and
- Designated space for bins and additional waste streams as required.

The facilities management reported that the compactor capacities 6 tonnes for general waste and mixed recycling waste. These capacities were calculated based on the average haulage weight. Based on the tonnage, it is considered likely that these compactors are 30-35 cubic yard portable compactors.

The appointed waste contractor, Panda (previously B&M Waste Services), contract waste services to Clean Event Services, who transport the waste to licensed waste transfer stations for onwards treatment and recovery.

Organic waste is consolidated within the digester located in the central waste compound and subsequently transported off-site for treatment at a licensed anaerobic digestion facility.

Waste is collected from the central compound via Gate 15, located to the west of the Etihad Campus, as illustrated on **Figure 4-1** below.

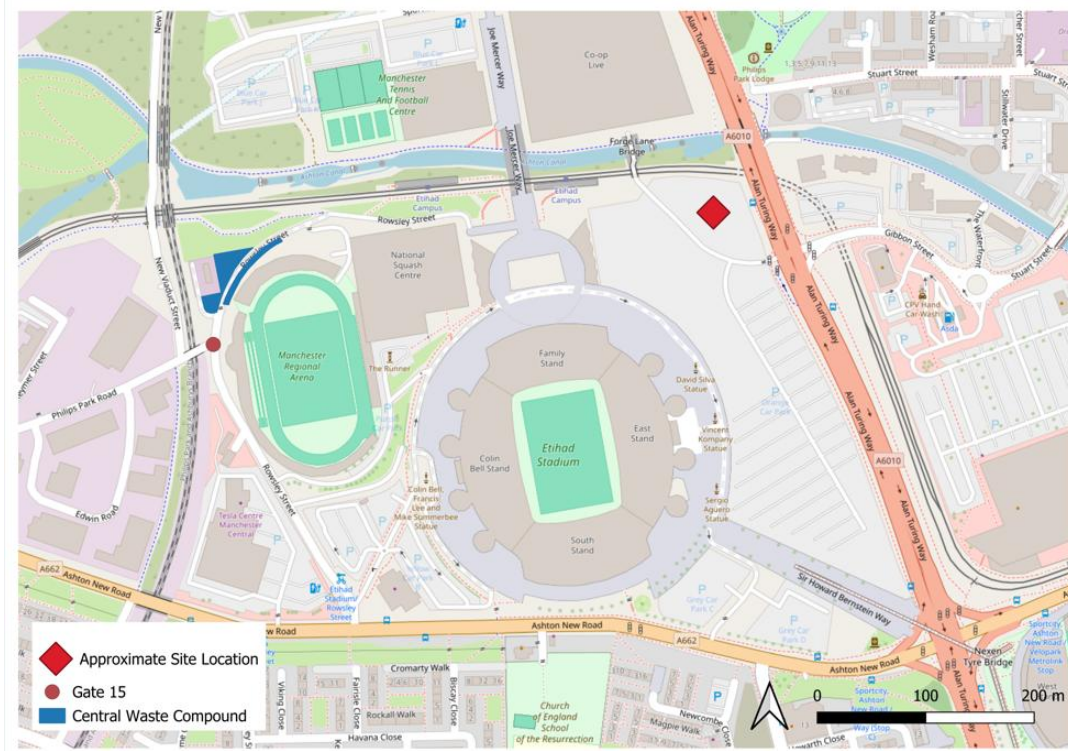


Figure 4-1. Location of the Central Waste Compound and Proposed Development

While residual, dry-mixed recycling and organic waste is consolidated within the central compound, glass waste is currently transferred following events to the Stadium Gate B collection area, where they are collected separately.

The facilities management team confirmed that a dedicated glass skip is currently being trialled within the central waste compound.

All waste across the wider site is currently diverted from landfill.

4.2. Existing Waste Generation

The volumes of waste generated by the existing Etihad Stadium, Co-op Live and proposed North Stand Expansion (in development) have been calculated using:

- 2022 operational data provided by the Club
- The Co-op Live Operational Waste Management Strategy (OWMS)
- The North Stand OWMS (Ref: NSE-BHE-ZZ-XX-RP-YZ-000001, April 2022).

It is noted that the data presented reflects event day / game day generation, representing worst-case operational scenarios. Average daily waste generation outside of event days is significantly lower.

The total volumes of waste are shown in **Table 4-1** below.

Table 4-1 Existing Waste Daily Waste Generation (kg)

Land Use	Daily Generated Mix (kg)	
	Residual	Dry Mixed Recycling
Etihad Stadium	9,697	5,028
Co-op Live Arena	N/A	1,307
North Stand Expansion	1,774	1,162
Total		
<i>Note: Only dry mixed recycling from Co-op Live is managed within the central compound. Residual waste from Co-op Live is compacted locally and collected directly from the service yard within the Arena's demise.</i>		

WRAP guidance provides typical bulk density ranges for use in planning and infrastructure models. The typical ranges for the waste streams are:

- 150-250 kg/m³ for residual municipal waste
- 80-150 kg/m³ for dry mixed recyclables

For the purpose of this assessment, an average bulk density of 200 kg/m³ for residual and 120 kg/m³ for dry mixed recyclables have been applied to convert the data into volumetric storage requirements, as presented **Table 4-2** below.

Table 4-2 Existing Waste Daily Waste Generation (litres)

Land Use	Daily Generated Mix (litres)	
	Residual	Dry Mixed Recycling
Etihad Stadium	48,485	41,900
Co-op Live Arena	N/A	10,890
North Stand Expansion	8,870	9,680
Total	57,355	62,470
<i>Note: Only dry mixed recycling from Co-op Live is managed within the central compound. Residual waste from Co-op Live is compacted locally and collected directly from the service yard within the Arena's demise.</i>		

4.3. Waste Generation

The tenant has provided monitoring data from a comparable London venue (504-seat capacity). The Proposed Development will increase capacity to circa. 600 seats (approximately +19%).

The monitoring information is based on operational bin usage rather than confirmed volumetric measurements. For the purposes of this assessment, full container capacity has been assumed to provide a precautionary storage allowance.

Table 4-3 Tenant Daily Waste Monitoring Data

Waste Stream	Container Type	Containers Filled	
		London Venue (504 seats)	Manchester Venue (600 seats)
General Waste (Residual)	1100L Eurobin	2 bins (2,200L)	2.4 bins (~2,620L)
Dry Mixed Recycling (Standard Day)	1100L Eurobin	4 bins (4,400L)	4.8 bins (~5,240L)
Dry Mixed Recycling (Delivery Day)	1100L Eurobin	8 bins (8,800L)	9.6 bins (~10,470L)
Food Waste (Kitchen)	240L bin	5 bins (1,200L)	6 bins (~1,430L)
Glass (Bar)	240L bin	5 bins (1,200L)	6 bins (~1,430L)

MCC's GD04 Waste Storage and Collection Guidance for Developers references commercial waste calculation benchmarks derived from Designing Waste Management in New Developments prepared by the Association of Directors of Environment, Economy, Planning and Transport (ADEPT)^{xv}.

The ADEPT guidance indicates a recommended total waste storage capacity of:

- 1,500 litres per 20 dining spaces per week

This is considered the most comparable land use category to the Proposed Development.

Applying this benchmark to a 600-seat venue results in:

- 45,000 litres per week
- Equivalent to approximately 6,430 litres per day

This figure is notably lower than the waste volumes derived from the tenant's operational monitoring data for the comparable London venue.

It is acknowledged that ADEPT guidance provides indicative benchmark values intended for early-stage spatial planning. In contrast, the tenant's data reflects actual operational bin usage for a full dining theatre model, which includes pre-plated service, high-volume batch preparation and synchronised dining associated with show times.

Accordingly, the tenant monitoring data is considered to provide a more precautionary basis for assessing storage requirements for the Proposed Development, as it exceeds the minimum requirements stipulated within MCC's GD04 Waste Storage and Collection Guidance for Developers.

For planning purposes, the tenant data has therefore been adopted as the primary basis for storage calculations, ensuring that sufficient capacity is provided under peak operational conditions.

4.4. Spatial Requirements

Following a review of the anticipated waste arisings and in line with the London venue strategy, it is recommended that provision is made for:

- 3 no. 1,100-litre Eurobins (residual);
- 10 no. 1,100-litre Eurobins (dry mix recycling);
- 6 no. 240-litre Eurobins (food waste); and
- 6 no. 240-litre Eurobins (glass waste).

The MCCs Waste Guidance for Developers states that a 1.9m² and 0.7m² footprint is required for 1100-litre and 240-litre bins respectively (**Appendix A**).

To allow for manoeuvrability, and in line with best practice guidance and principles set out in BS 5906:2005, a gross space allowance has been adopted of:

- 2.9m² per 1100-litre Eurobin
- 1.6m² per 240-litre Eurobin

Therefore, it is recommended that the operational storage requirements of the venue would be 57 m², to allow for circulation and layout efficiency.

An allowance for this has been provided with an external bins store located adjacent to the east of the venue, through the back of house, as illustrated in **Appendix B**.

This strategy includes additional dry mixed recycling capacity to accommodate increased waste generation on delivery days. Deliveries are anticipated to occur on a weekly basis, and the additional recycling provision ensures sufficient flexibility during peak operational periods.

In line with best practice and MCC requirements, the waste storage area within the Proposed Development will be designed to:

- Accommodate forecast waste volumes and anticipated collection frequencies;
- Provide safe, secure and convenient access for staff and collection operatives;
- Enable efficient transfer of residual waste and dry mixed recycling to the central waste compound; and
- Facilitate efficient collection of food waste from the designated storage area.

4.5. Waste Transfer and Servicing

Waste generated across the venue, including the VIP bar, kitchen and entertainment/dining space, will be segregated at source and collected internally within appropriately labelled bins.

No dedicated internal waste storage area has been provided, as it is anticipated that waste will be removed following each show and transferred to the external waste store by the tenant's building staff. Waste will then be collected daily from the external store by facilities management (as appointed by MCFC) and transported via EV bin tugs to the central waste compound for onward collection.

The back-of-house layout has been designed to ensure that bins will not need to be manually moved more than 10 metres by collection staff. In accordance with MCC guidance, where communal containers are used, the route between the storage area and the collection point will:

- Be a minimum width of 1.54 metres;
- Be free from kerbs, steps or excessively steep gradients;
- Have solid foundations;
- Be suitably paved with a smooth, continuous finish; and
- Include dropped kerbs where the path meets the roadway.

No dedicated bin wash has been incorporated within the external waste store; however, bin washdown facilities are available within the existing central waste facility.

A swept path analysis has been undertaken to demonstrate that refuse collection vehicles can safely access, manoeuvre within, and exit the Site, including servicing the external bin store, as shown in **Appendix C**.

In accordance with the current waste strategy, larger refuse vehicles will not require routine access to the external bin store associated with the Proposed Development, as waste will be transferred to the central waste compound via EVs. However, as a precautionary and future-proofing measure, the layout has been designed to accommodate refuse vehicle access to the external bin store, should direct collections be required in the future.

4.6. Central Compound Capacity

4.6.1. General Waste and Dry Mixed Recycling

Facilities management have confirmed that the residual and dry mixed recycling compactors located within the central waste compound are currently emptied approximately 6–7 times per month. Based on the peak event day waste generation data presented in Section 4.2 and the typical capacities of 30–35 cubic yard portable compactors, this collection frequency is considered consistent with existing operational waste volumes.

The additional waste arisings associated with the Proposed Development represent a comparatively small proportion of the total event-day waste currently managed within the central compound. On this basis, it is considered that the

existing waste infrastructure has sufficient baseline capacity to accommodate the increase in demand.

Where required, collection frequencies can be adjusted operationally to ensure that compactor capacity is not exceeded during peak periods.

4.6.2. Food Waste

Given the organic waste volumes anticipated from the Proposed Development, it is considered likely that food waste collections may require increased frequency, particularly during peak operational weeks. As food waste is consolidated via the on-site WasteMaster digester prior to off-site transfer for anaerobic digestion, additional collections can be arranged through the existing contractor framework to maintain operational resilience and hygiene standards.

4.6.3. Glass Waste

Glass waste from the wider site is currently managed separately from the central compound, with collections undertaken from Stadium Gate B. Facilities management have confirmed that a dedicated glass skip within the central compound is currently being trialled.

Based on the anticipated daily glass arisings from the Proposed Development (approximately 1,430 litres per day), a 6–8 cubic yard skip (approximately 4.5–6 m³ capacity) would be appropriate for operational use. This would provide sufficient resilience for multiple days between collections while remaining proportionate to expected generation rates.

5. Summary

This Operational Waste Management Strategy establishes a framework for delivering sustainable, practical and efficient waste management arrangements for the Proposed Development. The strategy integrates with the established waste management infrastructure serving the wider Etihad Campus and Co-op Live Arena, ensuring a coordinated approach to waste handling.

Provision has been made to ensure that waste is safely segregated, stored, transferred and collected in accordance with MCCs guidance and best practice principles set out in BS 5906:2005.

Based on the tenant's operational monitoring data and applying a precautionary full-container capacity assumption, the following on-site storage provision is required:

- 3 × 1,100-litre Eurobins (residual waste);
- 10 × 1,100-litre Eurobins (dry mixed recycling);
- 6 × 240-litre Eurobins (food waste); and
- 6 × 240-litre Eurobins (glass waste).

This capacity allows for peak delivery days and increased recycling volumes, ensuring operational flexibility.

Facilities management have confirmed that the central waste compound compactors are currently emptied approximately 6–7 times per month. Based on the scale of additional waste arisings associated with the Proposed Development, it is considered that the existing central compound infrastructure is sufficient to accommodate the increased demand. Where necessary, collection frequencies can be adjusted operationally to respond to peak periods.

In addition, it is recommended that provision is made within the central waste compound for a dedicated glass skip to support efficient segregation and collection of glass waste generated by the venue.

The size and location of the external bin store are illustrated in Appendix A.

Overall, the Proposed Development provides appropriate waste storage and management arrangements that are proportionate to the anticipated waste volumes and fully integrated within the wider campus waste strategy. The proposed storage capacity and collection arrangements exceed the requirements of MCC's GD04 Waste Storage and Collection Guidance for Developers. The scheme is therefore considered to be GD04 compliant.

Appendix A – Bin Specification

Appendix A: Container Dimensions

1100L Eurobin

Dimensions:

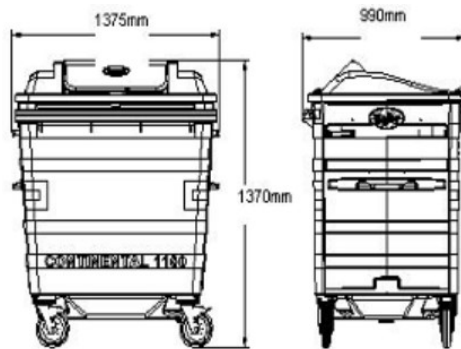
Width 1375mm

Depth 990mm

Height 1370mm

Height with bin lid open 2370mm

Floor space required 1575mm x 1190mm



240L Wheeled bin

Dimensions:

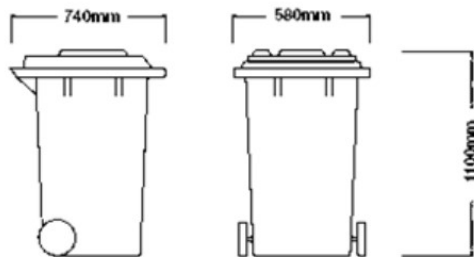
Width 580 mm

Depth 740 mm

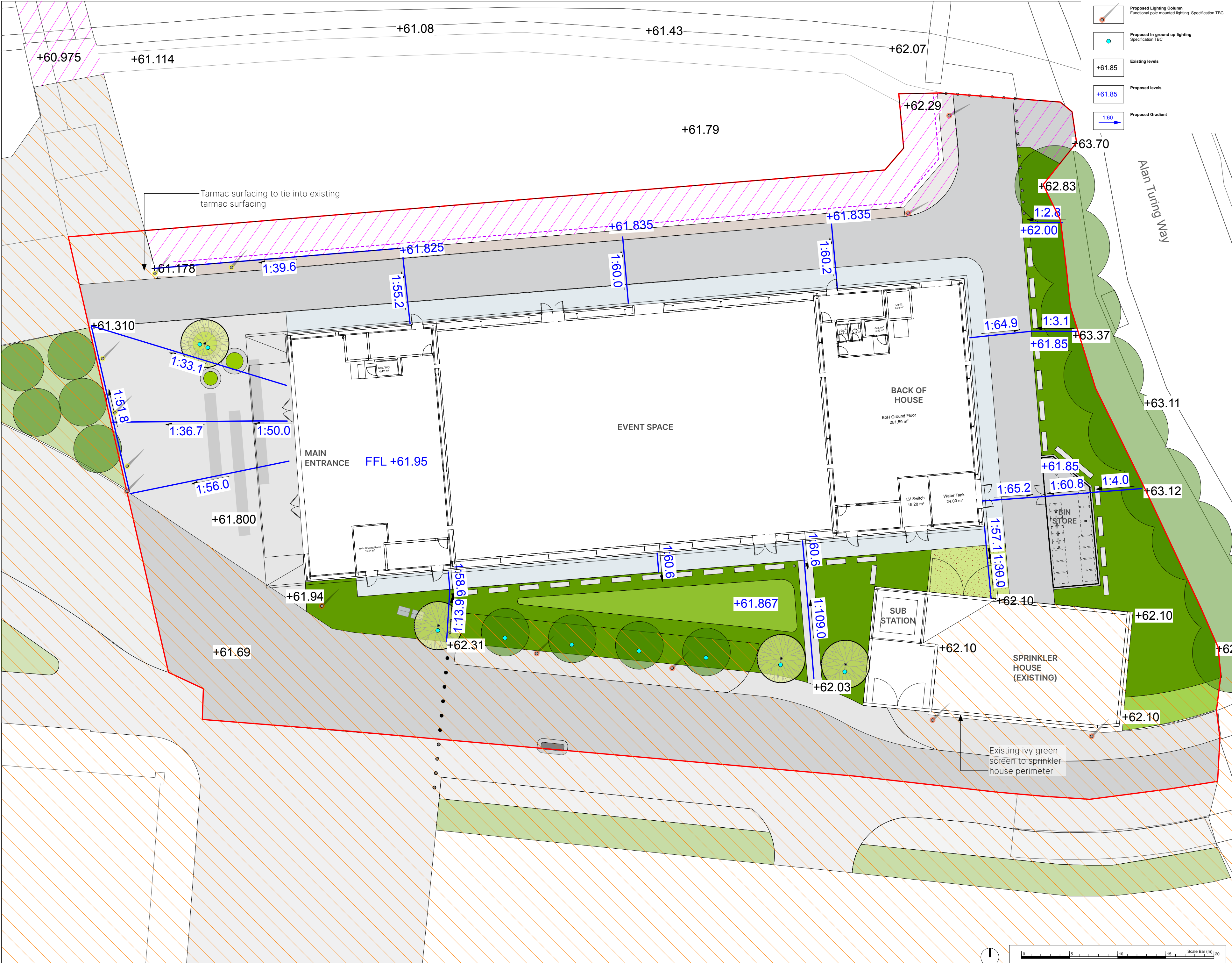
Height 1100 mm

Height with lid open 1750mm

Floor space required 780mm x 940mm



Appendix B – Bin Store Location



Proposed Lighting Column
Functional pole mounted lighting. Specification TBC

Proposed In-ground up-lighting
Specification TBC

Existing levels
+61.85

Proposed levels
+61.85

Proposed Gradient
1:60

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NOTES:

1. Do not scale from this drawing.
2. Always work to noted dimensions.
3. All dimensions are in millimetres unless otherwise stated.
4. All setting out, levels and dimensions to be agreed on site.
5. The dimensions of all materials must be checked on site before being laid out.
6. This drawing must be read with the relevant specification clauses and detail drawings.
7. Order of construction and setting out to be agreed on site.

Key

- Ornamental Planting**
Mixed shrub, herbaceous perennial and ornamental grass planting (plant species to be into existing North Stand works)
Notes: 300mm topsoil over 400mm subsoil
- Rain Garden Planting**
Rain garden suitable planting mix
Notes: 300mm topsoil over 400mm subsoil
- Climbers**
Tensile wire system with climbing plants to soften and screen the new substation enclosure. Twining climber species - final extent to be coordinated with substation ventilation requirements
- Proposed Street tree**
Semi-mature tree
20-25cm girth
Notes: 300mm topsoil over 600mm subsoil
- Existing Tree**
- Surface Type 1**
Initially concrete with large format precast concrete banding to arrival plaza
- Surface Type 2**
Concrete block paving to footpath around the perimeter of the building. Specification to be in keeping with the North Stand development
- Surface Type 3**
Tarmac to access road to match existing surfacing on North Stand development
- Surface Type 4**
Filter Drain along northern edge of access road to form part of the drainage strategy
- Surface Type 5**
Reinforced grass to sprinkler house access point
- Large pre cast concrete planters**
Placed in the arrival plaza, the raised concrete planters help soften the entrance facade and allow people to perch on the planter edge
- Fixed Bullard**
To form HVM line. Specification TBC
- Fixed Concrete Block**
Fixed concrete block with gabion cladding / artwork to improve appearance. To form HVM line. Specification TBC
- Timber Post and rail fence**
1.2m high to the northern edge of the access road
Product TBC
- Bin Store**
Steel frame with timber uprights and lockable gates.
Product TBC
- Proposed Lighting Column**
Column mounted projectors. Specification TBC
- Area to Remain as Existing**
- Emerging Context Under North Stand Public Realm Works**

P05	02/03/26	Incorporating Architects Comments	CB	SC
P04	27/02/26	Planning	CB	SPL
P03	30/01/26	Review and comment	CB	SPL
P02	28/01/26	For Review and Comment	CB	SPL
P01	22/01/26	For Review and Comment	CB	SPL

Revision	Date	Description	Drawn	Apprv.
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Project Project Taverna

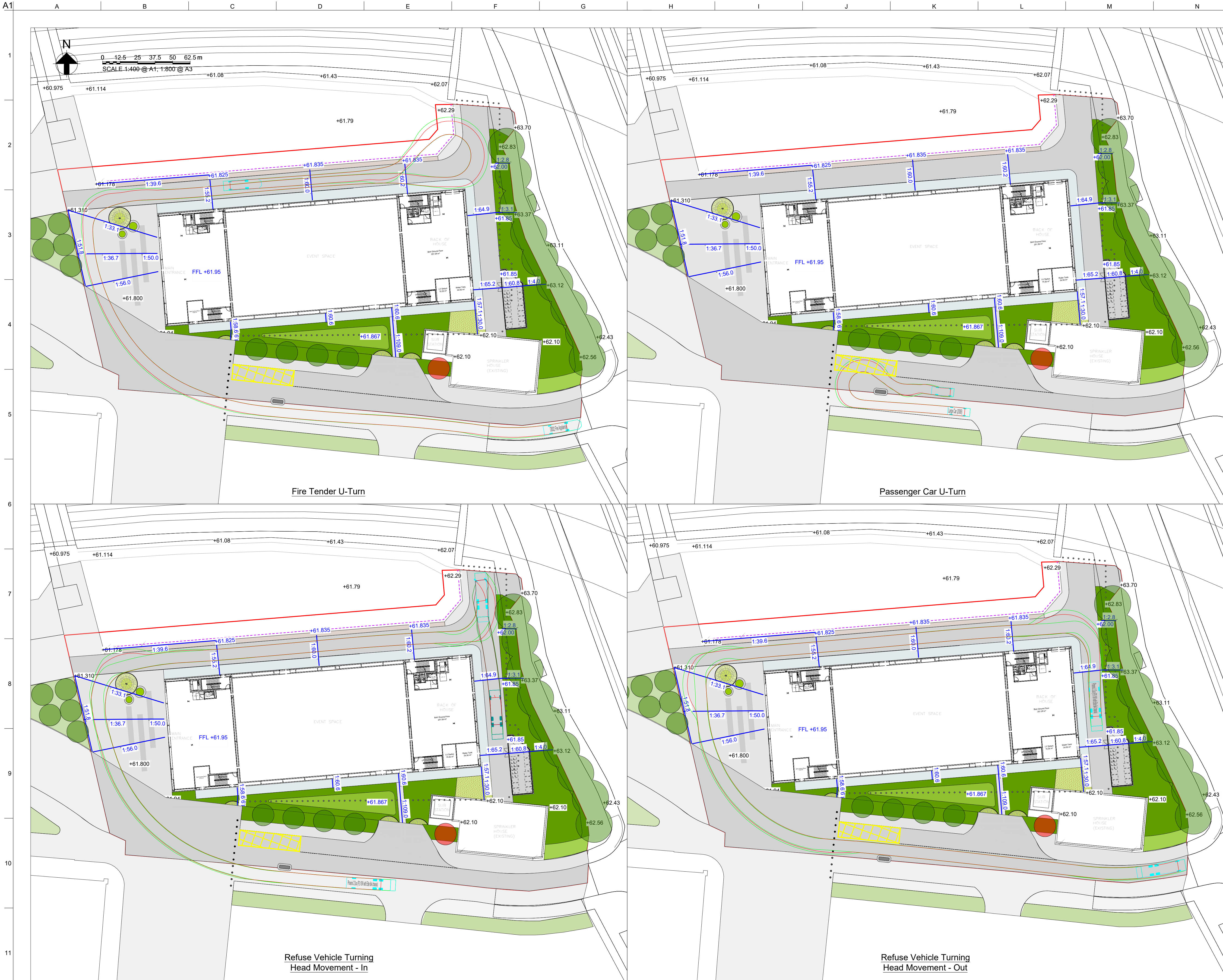
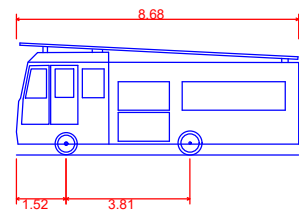
Drg Title Landscape General Arrangement

Created on 09-01-26
Created by CB
Approved by SPL

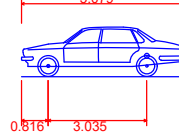
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Workstage Planning

Drg No. 3679.3-PLA-XX-XX-DR-L-0001
Suitability Revision S2 P05
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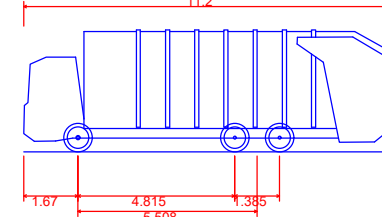
Appendix C – Swept Path Analysis



DB32 Fire Appliance
Overall Length 8.880m
Overall Width 2.180m
Overall Body Height 3.452m
Min Body Ground Clearance 0.337m
Max Track Width 2.121m
Lock to lock time 6.00s
Kerb to Kerb Turning Radius 7.810m



Large Car (2006)
Overall Length 5.079m
Overall Width 1.872m
Overall Body Height 1.525m
Min Body Ground Clearance 0.310m
Max Track Width 1.831m
Lock to lock time 4.00s
Kerb to Kerb Turning Radius 5.900m



Phoenix 2 Duo (P2-15W with Elite 6x4 chassis)
Overall Length 11.200m
Overall Width 2.530m
Overall Body Height 3.751m
Min Body Ground Clearance 0.304m
Track Width 2.500m
Lock to lock time 4.00s
Kerb to Kerb Turning Radius 9.500m

B	03/03/2026	Updated Landscaping Layout
A	30/01/2026	First issue for information
Issue	Date	Description
Drawn		Design Check
TS		APF
Designed		Approved
TS		APF

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Client
MANCHESTER CITY FOOTBALL CLUB

Project Title
PROJECT TAVERNA

Drawing Title
VEHICLE TRACKING

Scale at A1 NTS

Role

Status S2 - Information

Arup Job No

314031

Document Number (ID)

314031-ATR-001

Rev

B

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