Derwent Valley Property Developments Limited

Network Building

The Network Building Reserved Matters Application 2 – Class E(g)(ii) Lab Building Delivery, Servicing and Waste Management Plan

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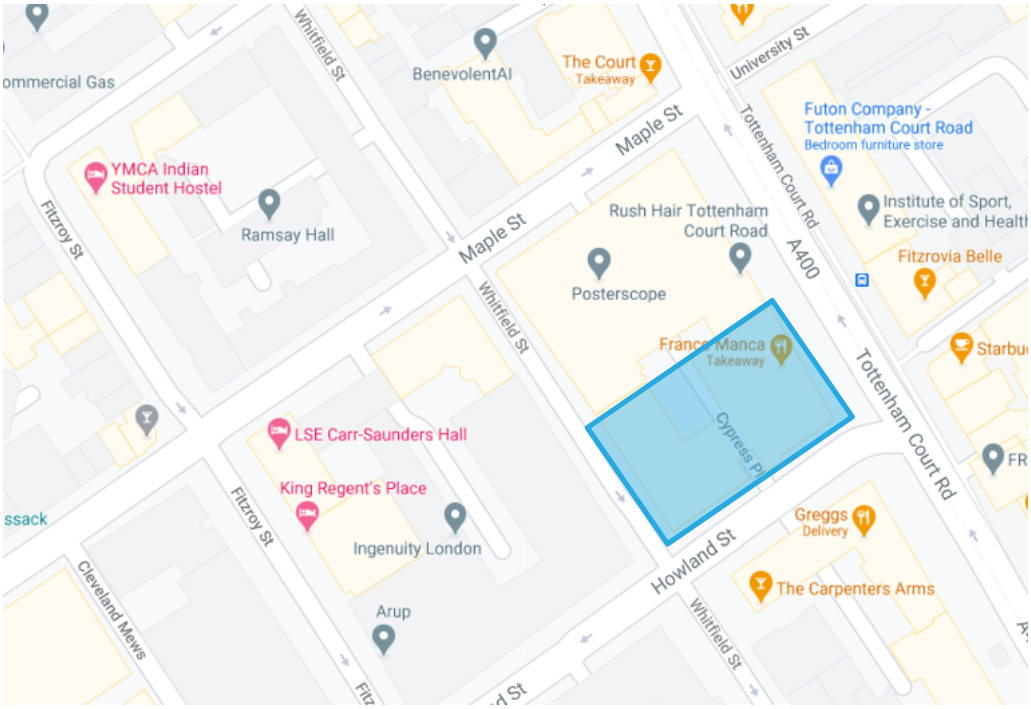
1 Introduction

1.1 Background

Arup has been appointed by Derwent Valley Property Developments Limited to provide a Delivery, Servicing, and Waste Management Plan (DSWMP) for the development of Network Building, located within the London Borough of Camden (LBC) otherwise referred to as 'the development' in this document.

The application site occupies the southern half of the block bounded by Tottenham Court Road on the east, Whitfield Street to the west and Howland Street to the south. The existing building is a six-storey office building with retail units at ground level. Figure 1 illustrates the site location.

Figure 1 Site Plan



The proposal for the Network Building is a mixed-use development, comprising of:

- 411 m² GIA commercial retail use
- 13,145 m² GIA laboratory and 1:10 density office use

The Network building is currently being developed by Derwent into a commercial office by a separately appointed design team. Arup previously carried out a study on the Network Building to assess the implications of converting the current office scheme into a laboratory-enabled building.

As a follow on from the laboratory-enabled study, Derwent appointed Arup to further develop the design to support a planning application for the laboratory enabled building.

The laboratory-enabled network building will consist of 8 floors above ground and a basement level below ground. The building will include both laboratory and office space – laboratory space is to be located on floors 2-6 and will occupy approximately 50% of the space on these floors.

The service yard is accessed from Maple Street via Cypress Place.

1.2 Area Schedule

Table 1 shows the area schedule for the development

Table 1 Area schedule

Land Use	GIA (m^2)
Offices & Labs (Class E (g))	13,145
Retail (Class E (a)(b)	411
Plant / BOH / Common Parts	1,855
Total	**15,411**

1.3 Reference Publications

The following planning policy and best practice guidance documents have been considered when developing this DSWMP:

National policy documents:

- Revised National Planning Policy Framework, 2019;
- Designing for Deliveries, Freight Transport Association, 2016;
- The Waste (England and Wales) Regulations, 2011;
- DEFRA Government Review of Waste Policy in England, 2011; and
- BS5906 Waste Management in Buildings – Code of Practice, 2005.

Regional policy documents:

- Draft New London Plan, 2019
- The Freight and Servicing Action Plan, 2019;
- The Mayor's Transport Strategy, 2018;
- Delivering a road freight legacy, 2013;
- Fleet Operator Recognition Scheme (FORS); and
- TfL guidance for DSMPs.

Key local policy:

- Camden Planning Guidance – Design March 2019; and
- Camden's Environment Service technical guidance for recycling and waste.

1.4 Report Structure

This report is divided into the following sections:

Section Two – sets out initiatives to reduce delivery vehicles and emissions through smart procurement and vehicle reduction measures;

Section Three – sets out the type, number and nature of daily delivery vehicles;

Section Four – sets out the delivery and servicing strategy for the movement of goods within the development;

Section Five – sets out the waste management strategy; and

Section Six – sets out a process for conducting an annual review of the DSWMP.

1.5 DSWMP Objectives

This DSWMP sets out to meet the following objectives:

- *To identify the expected number of delivery and servicing trips associated with the proposed development;*
- *To demonstrate that goods and services can be delivered, and waste removed, in a safe and efficient manner;*
- *To identify ways to reduce delivery numbers, employ out of hours deliveries and consolidate goods wherever possible;*
- *To ensure delivery activities do not hinder the flow of traffic on the public highway or obstruct pedestrian routes;*
- *To minimise vehicles waiting or parking at loading areas so that there is a continuous availability for approaching vehicles;*
- *To provide design guidance for accommodating service and delivery vehicles; and*
- *To provide design guidance for waste storage and refuse collection vehicles.*

On-going monitoring and review of the DSWMP will be required to ensure that the listed objectives of this DSWMP are achieved (further details in Section 5). If necessary, the DSWMP will be reviewed and adapted to reflect continuous improvement of the delivery and servicing process.

The document will be shared and reviewed by all suitable stakeholders including:

- Camden planning officers;
- Site management team; and
- Service providers.

2 Procurement and Sustainability

2.1 The Mayor's Transport Strategy

The Mayor's Transport Strategy (MTS) sets out the Mayor's transport strategy for London up to 2031 and the issues of freight and servicing is considered throughout.

The MTS highlights the importance of the London Freight Plan, SMPs, CLPs and FORS to encourage improved efficiency and provide a framework for incentivisation and regulation.

Proposal 99 states that the "the Mayor, through TfL and working with the London Boroughs, road freight operators and other stakeholders will:

- Adopt planning conditions that specify Delivery and Servicing Plans for major developments;
- Aim for 50% of HGVs and vans servicing London to be member of the FORS;
- Encourage, and where appropriate specify, improved freight movement efficiency through, for example greater consolidation, more off-peak freight movement and greater use of rail-based transport; and
- Support the freight industry and land requirements for locally focused consolidation and/or break-bulk facilities and access to waterways and railways."

Proposal 117 acknowledges the incorporation of SMPs, CLPs and the FORS scheme:

"The Mayor, through TfL and working with the London boroughs, and other stakeholders in the public and private sectors, will improve the efficiency and effectiveness of freight operations through the promotion of delivery and servicing plans, construction logistics plans, the FORS and other efficiency measures across London."

The MTS sets out the importance of the London freight information portal which "will help London's public authorities (the GLA and boroughs, for example) and freight operators exchange information about:

- Improving operational efficiency;
- Encouraging better driver behavior, the use of alternative fuels and the uptake of low carbon vehicles;
- Reducing freight administration costs; and
- Enhancing freight journey planning.

2.2 Overview

The objective of the servicing strategy outlined below is to employ several initiatives that have reduced the number of weekly delivery and servicing trips in similar developments around London thereby achieving:

- Fewer commercial vehicle visits during the working day;
- Improved safety for pedestrians and cyclists through reducing vehicle movements; and
- Improved air quality through reduced vehicle emissions.

All tenants within the development will be required to implement the following measures to reduce vehicle trips and the impact of servicing on the local environment:

- Use a booking-in service to control the flow of vehicles and for loading bay management;
- Consider the re-timing of deliveries;
- Provide a list of preferred suppliers and ensure that tenants only order through them to allow collective procurement; and
- Provide information to deliverers i.e. a delivery point assessment.

Additional measures that would reduce the number of daily deliveries include:

- Deploy stock optimisation techniques, such as the bunching of orders so that they arrive at the same time every week;
- For office staff, companies should consider promoting the collection of personal deliveries on the way home from work, as opposed to having packages delivered to the building; and
- Consider the introduction of a nominated carrier scheme (a scheme whereby a single delivery company is selected by the purchaser to deliver all their goods from all their suppliers).

2.3 Delivery Booking System

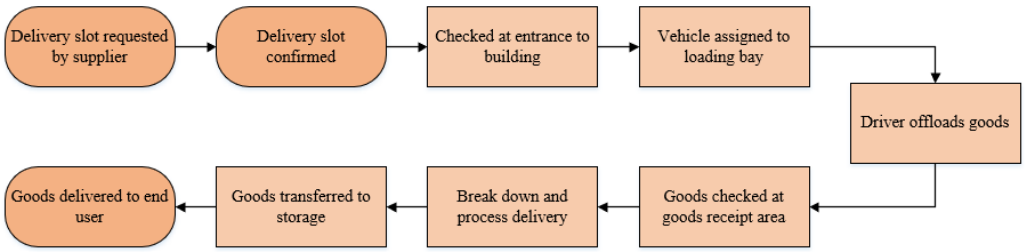
Deliveries will be managed by the facilities management (FM) team using a delivery management system. All delivery and servicing vehicles are registered on the system before they can enter the service yard. This will ensure all servicing vehicles are scheduled and prioritised accordingly. A booking system allows the FM team to actively manage the arrivals to the site during the day and will have the following benefits:

- Online appointment scheduling for carriers and suppliers to book loading bay;
- Appointments over the web, and monitor the status in real time;
- The ability for the site FM team to accept requests, prioritise shipments and refuse requests;

- Automated appointment scheduling with unload service time calculations taking into consideration vehicle type, loading bay restrictions, special equipment, and product handling unit types;
- Appointment audit trail and reporting;
- Historical data analysis and compliance tracking;
- Improved visibility to the inbound supply chain by tying purchase orders to inventory and shipment data; and
- Improved resource planning and task allocation for the site FM team.

When a vehicle arrives, the FM team will inspect the booking form or delivery note. The goods will be unloaded by the driver and inspected by the FM team before onward distribution to, or collection from, the laboratory or office tenants. This process flow is summarised in Figure 2.

Figure 2 Goods in process flow



2.4 Re-timing of Deliveries

Retiming of deliveries should be managed through the booking-in system. Operational hours at this stage in design are predicted to be 5am – 6pm Monday to Sunday. Out of hours cover (Monday – Sunday) for delivery vehicles will be provided as follows:

- 6pm – 5am

When scheduling deliveries outside of normal business hours, suppliers and their delivery agents will be expected to conform to TfL's Code of Practice for Quieter Deliveries.

2.5 Delivery Point Assessment (DPA)

To assist deliveries to the development, suppliers and their logistics providers will be given a DPA. This document provides drivers with clear instructions on where and how to access the development to avoid causing disruption to other road users and pedestrians. The content of these guidance notes will include the following:

- Provide the contact details for the FM team /security;
- Outline of the correct route to the delivery premises;
- Provision of a detailed parking map of the area, including restrictions;

- Risk rating for manoeuvring;
- Risk rating for loading;
- Advice to the driver about special restrictions (e.g. the need to turn off refrigeration units); and
- Health and safety risks to their employees and third parties.

2.6 Vehicle Reduction Measures

The development will also introduce policy-led interventions to avoid unnecessary vehicle movements.

2.6.1 Waste Collection Consolidation

To consolidate waste collections into as few vehicles as possible, commercial tenants will be required to use waste contractors appointed by the site FM team for the collection of refuse, recycling and food waste streams.

2.6.2 Personal Delivery Reduction

At present, in London, it is estimated that almost 40% of all deliveries made to the workplace are personal[1]. This is having a significant impact on congestion, safety for vulnerable road users and air quality.

An option to reduce the impact is to discourage employees and promote alternative ways to receive their online purchases. The building owner and tenants could choose to promote a click and collect scheme for their tenants (i.e. Doddle, collect +, Hub Box, Parcelly). This will allow employees to divert their personal deliveries to a specialised click and collect location.

2.6.3 Collective Procurement

Tenants within the development could have access to a preferred supplier scheme supervised by the FM team if set-up by agreement. In such schemes Tenants are encouraged to engage in collective procurement for consumables. Tenants agree to purchase goods and services from a small, carefully selected choice of suppliers. Each tenant has an account with the supplier, but their orders will be combined so that deliveries will arrive together, on a single vehicle.

The development benefits from reducing the number of supplier vehicles on the street. Tenants benefit from volume discounts and reduced delivery costs. It has been shown that collective procurement by individual groups or businesses within a building, such as Transport for London's (TfL) Palestra operating centre, reduced stationery deliveries from twice daily to only three deliveries a week.

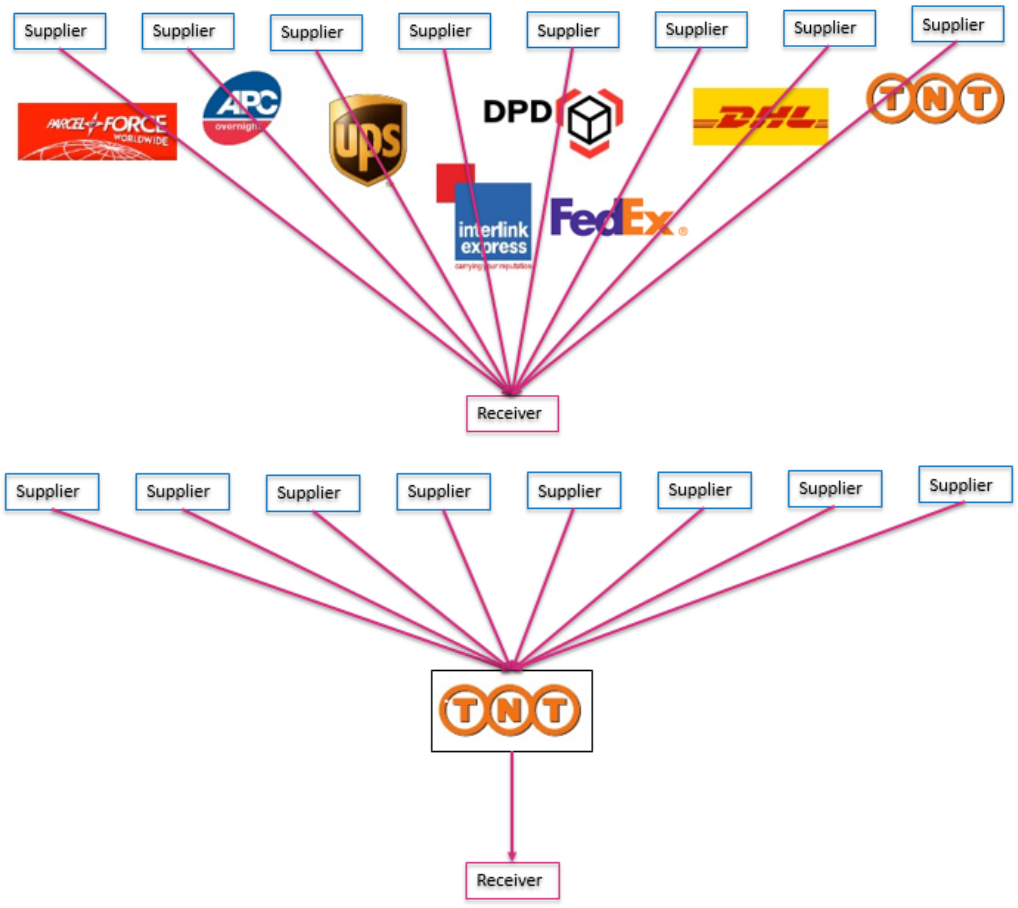
[1] This figure is based on a large-scale survey of 1,200 offices conducted by TfL in 2016

If a preferred supplier scheme is introduced in this building Tenants will be encouraged to order goods and materials to fully utilise their storage capability. This will result in less frequent deliveries throughout the week.

2.6.4 Nominated Carrier Scheme (NCS)

A nominated carrier scheme (NCS) would involve tenants agreeing to the use of a single company for the delivery of certain types of goods. This is predominantly focussed on the collective procurement of non-perishable goods such as stationery. Additionally, nominating a shared courier, to be used by all tenants, is also a positive measure and would reduce the number of courier trips to the building each day. A visual representation is shown in Figure 3.

Figure 3 Nominated carrier scheme



2.6.5 Operational Constraints

The use of collective procurement and NCS measures will require investigation and evaluation. Should they be adopted at the proposed development there would be some operational parameters to work within:

- The measures are not suitable for the delivery of laboratory items due to the special delivery requirements for these items, for example refrigeration.

Therefore, collective procurement and NCS would be proposed to be used by building users for any non-laboratory items only; and

- Tenants would be required to order supplies through a designated supplier. These would be combined into a smaller number of delivery vehicles and then be delivered to the offices at set times of the day, usually outside of the peak hours for staff arrivals and other deliveries to the retail units.

2.7 Accredited Operator Schemes

Tenants should strive to work with suppliers that are aiming to raise the level of quality within fleet operations, and to demonstrate best practice in safety, efficiency, and environmental protection.

2.7.1 Fleet Operators Recognition Scheme (FORS)

FORS is a unique, industry-led, free membership (bronze, silver, gold) scheme to help van and lorry operators in the Capital become safer, more efficient and more environmentally friendly.

For bronze level membership a number of requirements under the following headings need to be met:

- Drivers and vehicle management;
- Vehicle maintenance and fleet management;
- Transport operations; and
- Assessing the performance of company policies.

For silver and gold level, members need to provide data to enable benchmarked values to be produced per million kilometres for each type of vehicle for:

- Fuel use;
- CO2 and emissions;
- Vehicle incidents; and
- Penalty Charge Notices and fines.

2.7.2 Safe Urban Driving (SUD)

SUD is essential training for all commercial drivers operating heavy goods vehicles (HGVs) regularly in the urban environment and where there are high volumes of vulnerable road users, such as cyclists and pedestrians.

The course is aligned to meet the requirements of:

- Work Related Road Risk (WRRR)
- Fleet Operator Recognition Scheme (FORS)

- Construction Logistics and Cyclist Safety (CLOCS).

2.8 Alternative Fuelled Vehicles

Logistics providers and courier companies are increasingly using electric vehicles and cycles for making last mile deliveries. For example, Clipper Logistics, UPS and Gnewt provide electric powered goods vehicles, courier vans and electric powered cycles.

In terms of measures which could be implemented by management to encourage the use of alternatively fuelled vehicles, the following would be considered as part of the retail and procurement strategy:

- Choosing retail partners that operate a supply chain including alternatively fuelled delivery vehicles;
- Choosing a courier company for outgoing mail that use alternatively fuelled vehicles;
- Using the procurement system within the development to encourage purchasing managers to buy from suppliers actively using alternatively fuelled vehicles in their supply chain; and
- Using the vehicle management system to offer optimum delivery (i.e. early morning) slots to retail operators with alternatively fuelled vehicles.

3 Delivery and Servicing Vehicles

3.1 Overview

This section presents the information for delivery and servicing stakeholders, as follows:

- The size of delivery vehicles permitted within the loading bay;
- The number and frequency of delivery vehicles;
- The delivery and servicing strategy; and
- The nature of expected deliveries.

3.2 Assumptions

The following assumptions have been made in regard to deliveries and servicing:

- Due to access restrictions goods vehicle size will be limited to 3.5 tonne (6m) vehicles to align with height limitations and vehicle bay sizing.

3.3 Size of Servicing Vehicles

As a mixed-use development within London, the majority of the servicing trips to the site will be made by 6m transit vans. There will also be cycle courier deliveries throughout the day. Table 2 shows the likely service vehicle type including typical turnaround times.

Table 2 Size of servicing vehicles

Vehicle Type	Vehicle	Characteristics	Turnaround Time (minutes)
LGV – Light Goods Vehicle		3.5 Tonne, vehicle length 6m	15
Service Engineer		3.5 Tonne, vehicle length 6m	45 – Half day

3.4 Vehicle Generation

The estimated daily delivery and servicing trips to the site were calculated using an Arup in-house vehicle generation tool developed to utilise Arup research. The generation tool applies a delivery and servicing vehicle trip rate for each of the proposed building uses to the relevant gross internal area (GIA) for that building. The trip rates, which are expressed as vehicles per 100m^2 per day, have been derived from survey data at office, retail, residential and other facilities around London, as well as relevant design guidelines and local authority regulations. The surveys

recorded vehicle arrival and departure times, vehicle type and size of goods vehicle use to make the delivery.

The generation rates used to determine the daily number of delivery trips are shown below:

- 0.52 vehicles/100m^2/day for commercial retail tenants;
- 0.20 vehicles/100m^2/day for office and lab uses; and
- 0.10 vehicles/100m^2/day for plant / BOH / common parts.

3.5 Servicing Trips

The anticipated number of delivery and servicing trips for Network Building is shown in Table 3.

Table 3 Estimated deliveries and servicing trips

Network Building Residential and Commercial Delivery and Servicing Trips					
Land Use	**GIA (m^2)**	**Trip Rate**	**Vehicles per day**	**Peak Hour Trips**	**Peak Hour**
Offices & Labs (Class E (g))	13,145	0.20	27	3	09:00 – 10:00
Retail (Class E (a)(b)	411	0.52	3	1	
Plant / BOH / Common Parts	1,855	0.10	2	0	
Total	**15,411**		**32**	**4**	

The anticipated total number of daily vehicles (including lab/office couriers) by vehicle type is shown in Table 4.

Table 4 Number of vehicles

Vehicle Type	Daily Deliveries	Peak Hour Deliveries
Up to 3.5-ton LGV	32	4
Lab/Office Courier	9	1
Total	**41**	**5**

A minimum 3m has been provided behind each loading bay for offloading and 4.5m clear headroom above vehicle manoeuvring and parking areas.

3.6 Delivery Profile

This section illustrates the benefits of vehicle scheduling on reducing the number of peak hour deliveries and controlling access to outside of peak arrival times for building users. Figure 4 shows the distribution of deliveries without scheduling. Figure 5 shows that the distribution of deliveries with scheduling has reduced the peak hour demand seen above from around 4 to a steady across the working day.

Figure 4 Delivery profile without scheduling

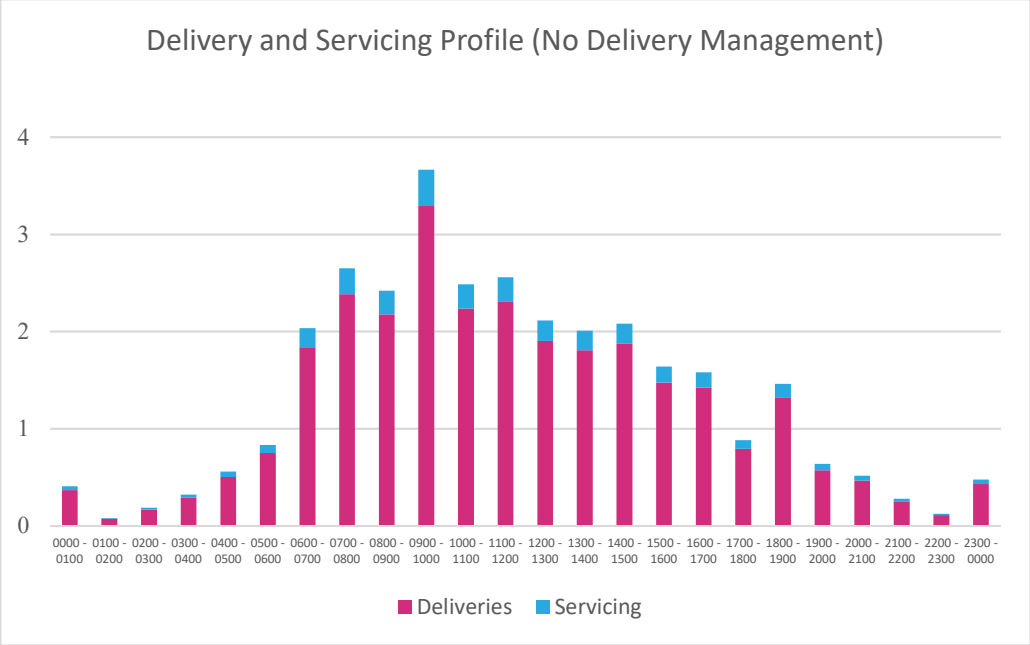
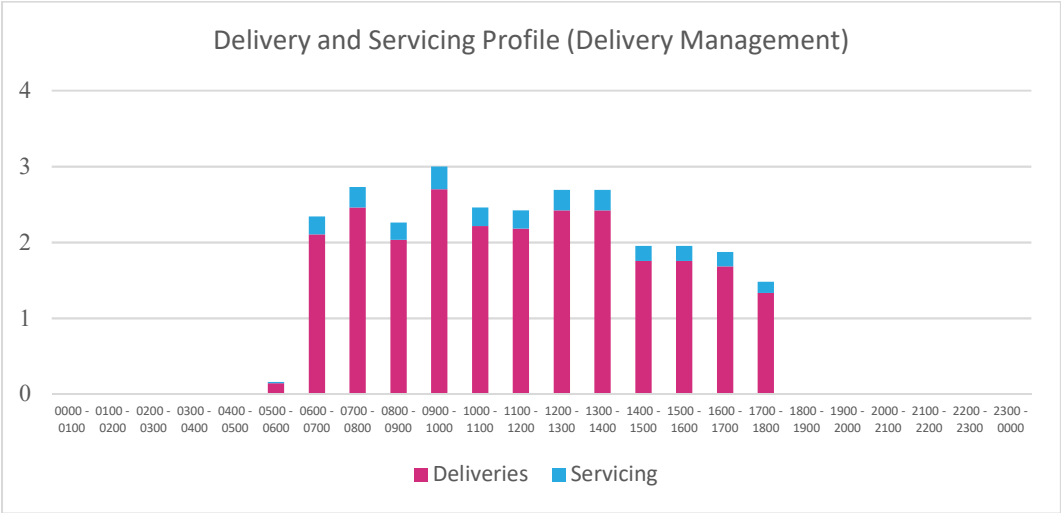


Figure 5 Delivery profile with scheduling



3.7 Typical Deliveries

Some example of typical deliveries, identified through survey data, are shown in Table 5.

Table 5 Typical deliveries

A1 Retail	B1 Office	B1 Lab
Furniture	Furniture	Equipment
Stock	Stationary	Chemicals
Promotional material	Cleaning products	PPE

These goods and materials are normally delivered in the following ways:

- Linen is wrapped in plastic and comes in bags, trolleys or roll containers;
- Frozen food deliveries are generally palletized, whereas fresh food is delivered in plastic/wooden crates; and
- Cans are often delivered on a pallet.

Palletized goods and heavy or large crates are handled using a hand pallet truck. Roll cages are pushed. Examples of the types of containers which are used for general goods deliveries are shown in Table 6.

Table 6 Typical Goods Containers

Roll Container	Pallet	Plastic or Wooden Crate
		
Overall width: 7800mm Overall length: 6800mm Overall height: 1340mm Capacity: 600kg	Width: 1200mm Length: 800mm Height: 166mm Capacity: 1000kg	Overall width: 1000mm Overall length: 1200mm Overall height: 400mm

3.8 Pedestrian/Cycle routes

Having good visibility and clearly marked routes for drivers, cyclists and pedestrians will be essential for operational safety. To achieve this, the use of signage, line markings and other mitigation measures will be considered. Delivery vehicle movements in the service yard will be overseen by the Dock Manager / FM team to ensure pedestrian management and public safety is maintained.

4 Internal Distribution

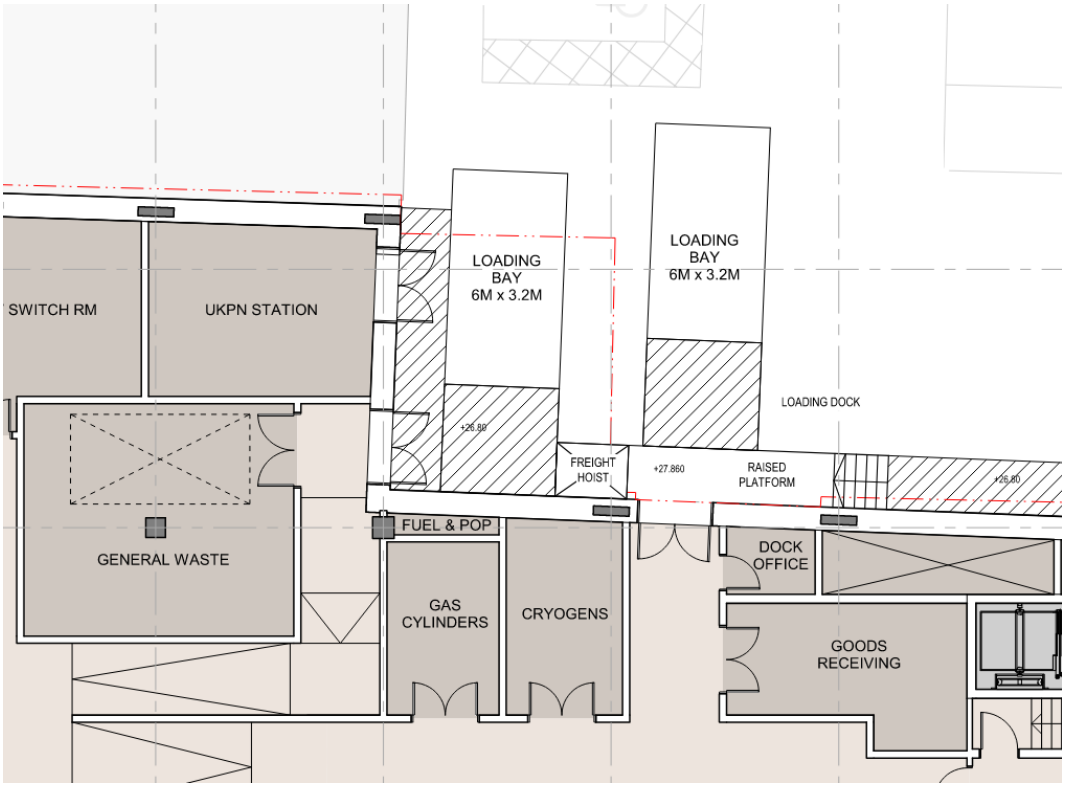
4.1 Overview

All deliveries to Network Building will be delivered to the designated loading area off Maple Street on Cypress Place. From these locations, deliveries will be transferred directly to the end user in a safe manner using the appropriate manual handling equipment using service corridors and goods lifts to reach the final delivery point.

4.2 Loading Bays

The scheme has provided two loading bays as shown in Figure 6.

Figure 6 Loading bays



All goods or courier deliveries will report to the Dock Manager who would inform the tenant. The deliverer will either be sent to the tenant's floor via the goods lift or a tenant representative will make their way down to the loading bay to collect their delivery. The Dock Manager or the reception team will not be responsible for receiving or signing for tenant goods or materials, this will be done by the FM team or tenant. Once delivered and signed for, all goods must be taken to the final delivery point. There will be no provision for the temporary storage of goods within the loading bays.

Swept path analysis has been completed for access, manoeuvring and egress for this layout in Appendix B.

4.3 Goods Receipt and Distribution

4.3.1 Facilities Management (FM) Team

In terms of the day-to-day management of incoming goods and consignments, it is proposed that the site FM team be responsible for the following:

- Communication and liaison with each tenant;
- Assisting with the receipt, sorting and moving of goods through the building to their destination;
- Monitoring misuse, unsafe or illegal use of the loading areas by the suppliers and taking action if necessary;
- Using the information provided by the booking-in system, collating delivery information into an overall delivery profile; and
- Reducing or consolidating the number of suppliers by identifying opportunities to share the same supplier base among the different tenants of the development.

4.3.2 Pre-delivery Process

Commercial tenants will use a pre-booked delivery system. This will ensure an even arrival profile of service vehicles to optimise the use of the loading facilities.

When booking a delivery slot, the logistics provider will be allocated a slot for their delivery to be completed. If a driver misses their slot, they will be instructed to leave the area and re-book an alternative delivery slot.

It is anticipated that not every delivery can be booked in advance. Deliveries arriving without a booking-in slot will be processed at the discretion of the site FM team.

There will be a procedure for periodic reviews between the site FM team and the tenants to ensure the system utilised is operating to the benefit of all concerned. It will also be able to respond to any unexpected issues that may arise that are beyond the control of the team.

4.3.3 Post Room

For letters, small parcels and personal deliveries (if permitted) a post room has been provided, this is currently shown at basement level. This space will be a location to sort, manage and store inbound mail items for internal distribution to their intended destination and to process outbound mail. The post room will need to contain:

- 1 No. franking machine (outgoing post);
- 1 No. X-ray scanner
- 1 No. sorting table (incoming post);
- 1 No. mail sorting frame (internal distribution);
- 2 No. mail trolleys (internal distribution); and
- 1 No. workstation.

4.3.4 Delivery Receipt and Distribution Process

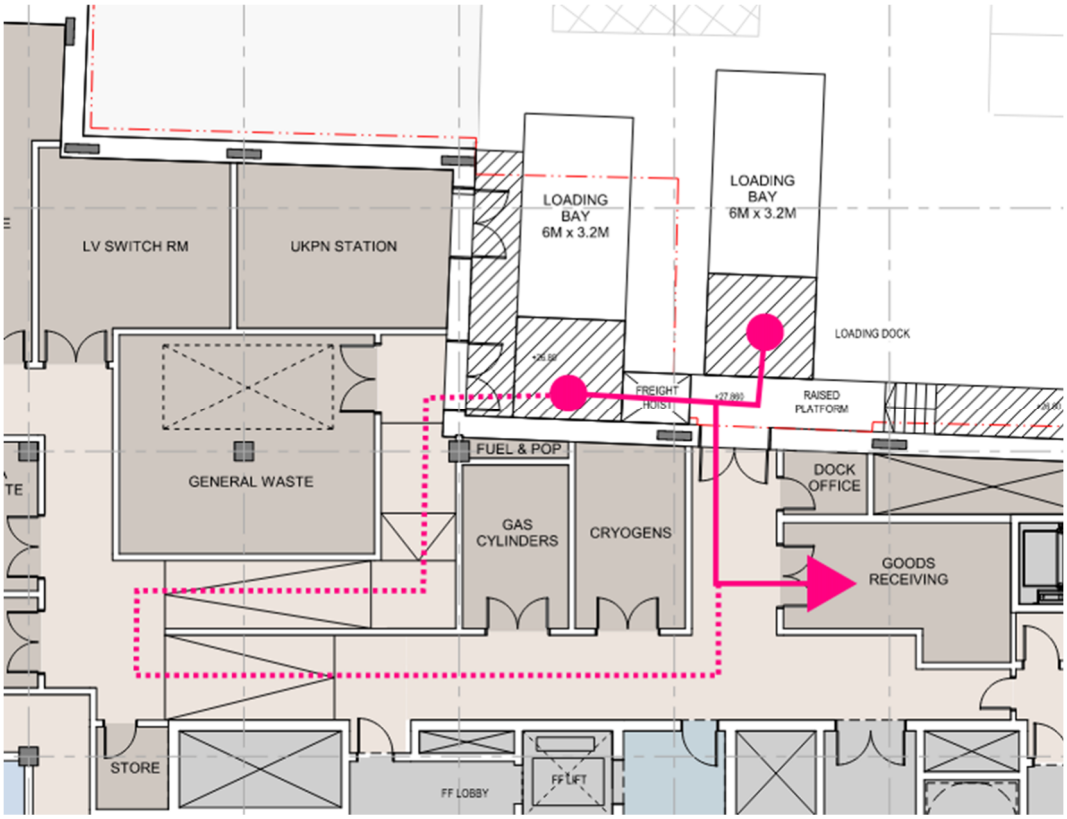
4.3.4.1 Overview

It is assumed that the service yard will be open 13 hours a day. Delivery vehicles will be able to access the service yard from Cypress Place and reverse within the service yard into the allocated loading bay. The Dock Manager will co-ordinate the delivery receipt process.

Tenants should be aware of the bookings their suppliers have made in the delivery booking system and should be ready to receive their deliveries. The Dock Manager will inform the tenant when their delivery has arrived, and the FM team will co-ordinate the route through the building.

The FM team will use the routes from the loading bay to the goods store as shown in Figure 7. The primary route will be from the loading dock directly to the goods receiving room. A secondary access route, in case of lift break down, is indicated via the ramps to the west of the loading bays.

Figure 7 Loading Bay to Goods Receipt distribution routes



4.3.5 Site Specific Constraints

The following actions are required for the site to operate safely:

- All deliveries will be scheduled to manage the peak delivery vehicle demand for the movement of traffic entering the site within the two proposed loading bays available, and to avoid peak cyclist arrival times. These peak times are expected to correspond to the peak hours for general road traffic in the vicinity of the building and conform to TfL's Code of Practice for Quieter Deliveries.
- In addition, the need for vehicles to utilize the same access and egress route as cyclists poses a safety risk for which mitigation measures will be required (such as signage, markings etc) and will be evaluated in depth at Stage 3 of design.
- Deliveries will be scheduled to avoid peak cyclist arrival times and a banksman will be present to guide manoeuvring of larger vehicles. The requirement for a banksman is an obligation on all occupiers and suppliers and will be included in the Occupier Handbook.

4.3.5.1 Office Deliveries

The driver will be responsible for the unloading and loading of goods from the vehicle. The FM team will be expected to receive the goods and distribute them using the goods lifts to the tenant levels. This will ensure that the delivery or collection is completion in an efficient and timely manner and the driver can leave the service yard as quickly as possible.

Some deliveries may need to be delivered directly to the intended recipient, including lab deliveries, legal papers that need to be signed for by the named recipient or large deliveries that there is insufficient space for in the goods receipt area. In these cases, the driver will transfer the goods to the FM team who will deliver the goods directly to the recipient, or designated handover point for laboratory deliveries.

The FM team will use the routes as shown in Figure 8, Figure 9 and Figure 10.

Figure 8 Office ground floor distribution routes

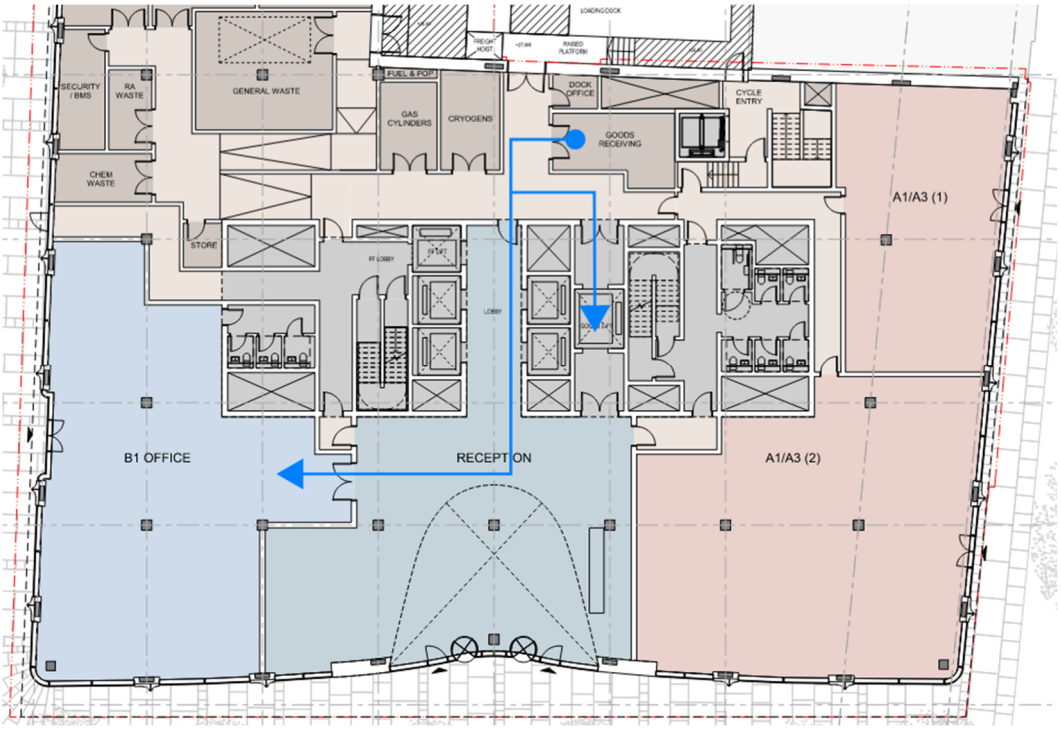


Figure 9 Office upper floor distribution routes

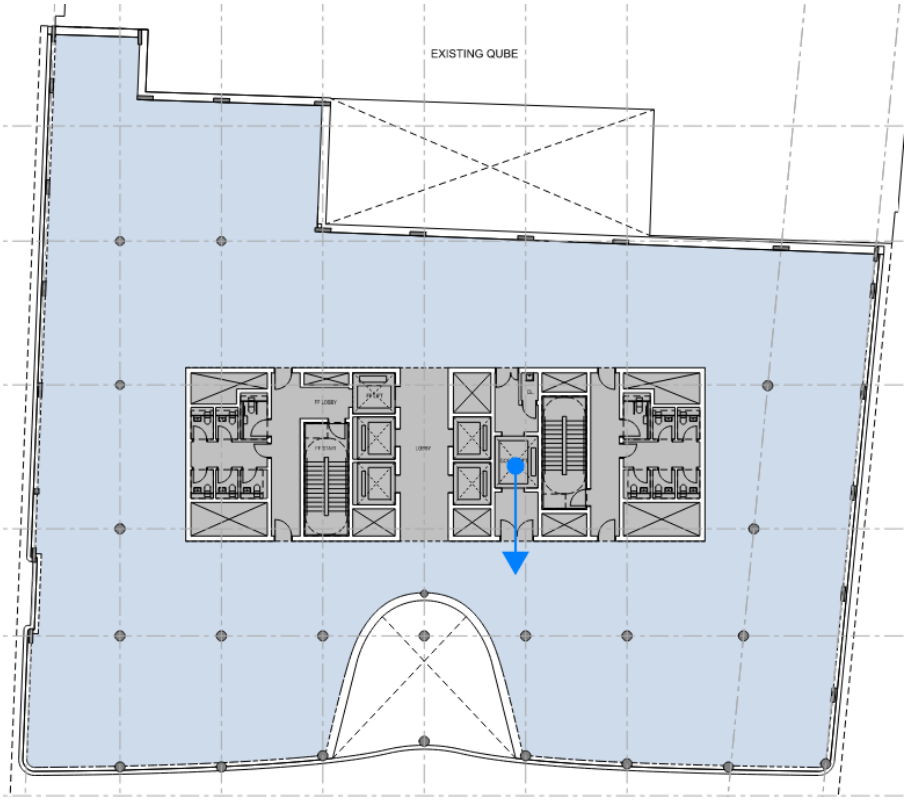
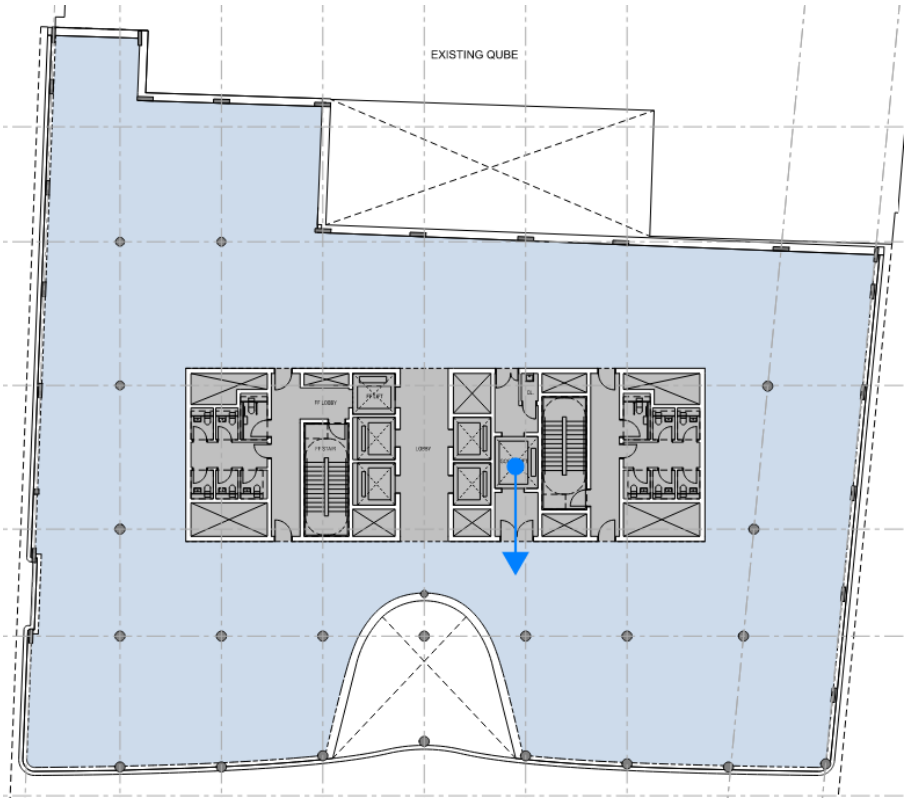


Figure 10 Office upper floor distribution routes



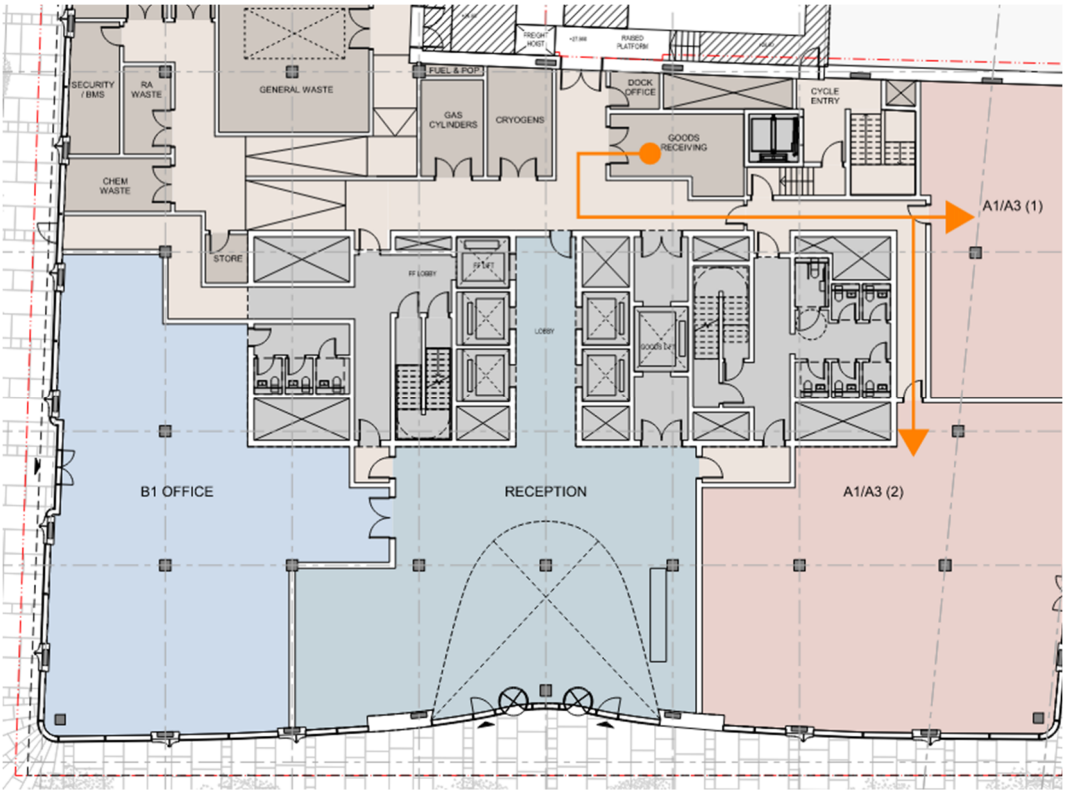
4.3.5.2 Retail Deliveries

The driver will be responsible for the unloading/loading and distribution of goods from the vehicle. Goods are moved to the retail stores by the FM team, the recipient signs for the goods and the driver returns to the vehicle and leaves the loading bay.

Where fresh food goods are delivered, a representative may be required to inspect the goods before taking ownership from the logistics provider. The retail representative will inspect the goods. Once received, the staff or driver will complete the movement of goods between the service yard and the kitchen.

From the loading bays, goods will be manually transported into the retail units at ground floor level either through the internal servicing corridor as shown in Figure 11.

Figure 11 Retail internal distribution routes



4.3.5.3 Laboratory Deliveries

The driver will be responsible for the unloading/loading and distribution of goods from the vehicle. Goods are moved to the retail stores by the FM team, the recipient signs for the goods and the driver returns to the vehicle and leaves the loading bay.

Where specialist lab deliveries are made, a representative may be required to inspect the goods before on-site FM take ownership from the logistics provider. The laboratory representative will inspect the goods. Once received, on-site FM will complete the movement of goods between the service yard and the laboratory.

For non-perishable lab deliveries, the driver will be responsible for the unloading/loading and distribution of goods from the vehicle to the goods store. The recipient then signs for the goods and the driver returns to the vehicle and leaves the loading bay. From the store, goods will be manually transported into the laboratories through the goods lift and internal corridors at ground level, as shown in Figure 12 and Figure 13.

Figure 12 Ground floor laboratory distribution route

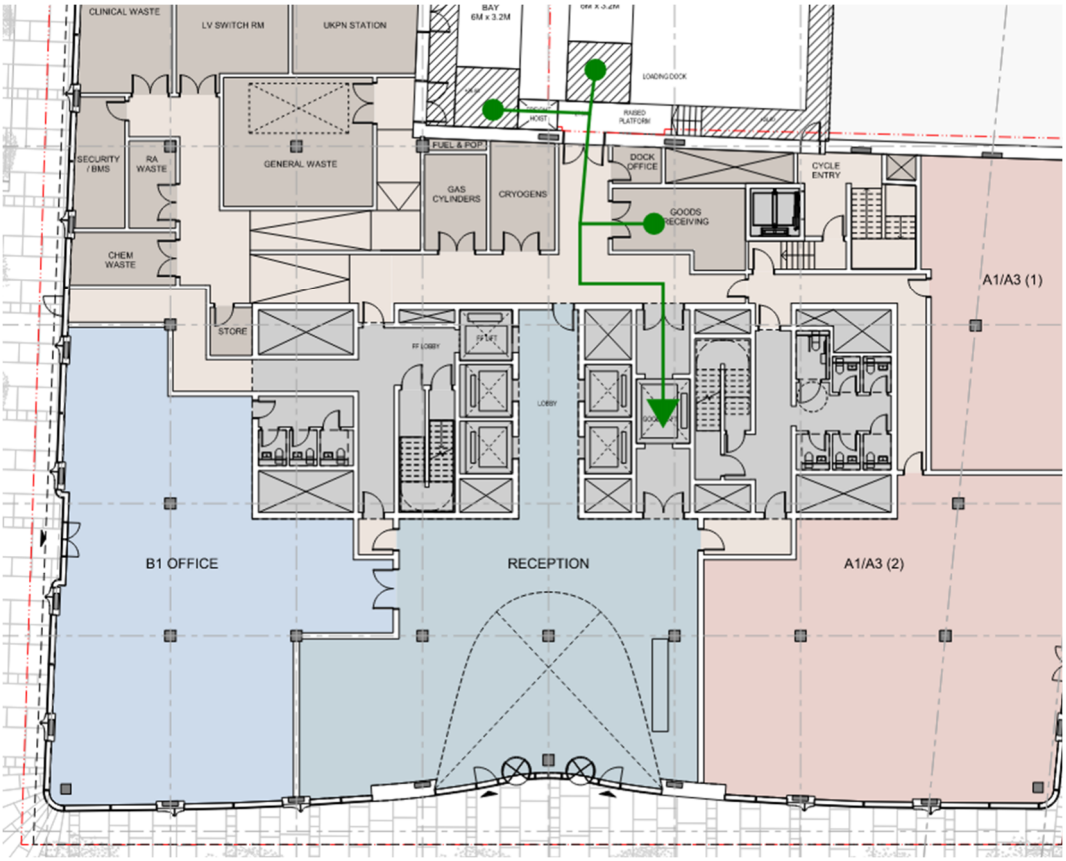
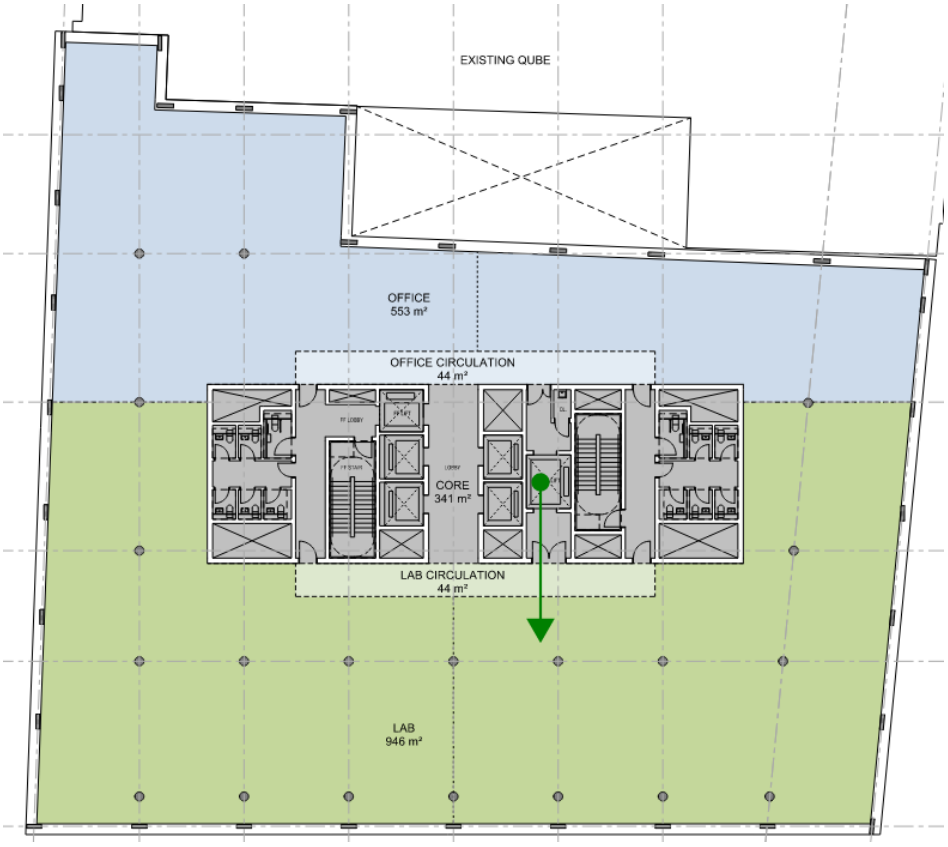


Figure 13 Upper level laboratory distribution route



5 Waste Storage and Servicing

5.1 Overview

A Waste Management Plan (WMP) presented in Appendix A has been prepared using the following guidance documents:

- Camden Planning Guidance, March 2019
- Camden's Environment Service technical guidance for recycling and waste; and
- BS 5906:2005 Waste management in buildings – a code of practice.

It is intended that the WMP be updated and agreed LBC no later than 6 weeks prior to the commencement of facilities management at the site and reviewed annually once in operation.

The area schedules applied to calculate the waste generation for the development are shown in Table 1 of the SMP. To comply with industry best practice, two-day waste storage has been provided for waste generated by the commercial land uses. Waste generated within the development is split between dry mixed recyclables, residual waste streams and food waste. Other waste streams will be generated on an ad-hoc basis.

5.2 Waste Storage Requirements

General requirements for waste storage shall be as follows, with further details to be set out in the WMP in **Appendix A**:

- The enclosure or chamber should be large enough to allow clearance of 150 mm between each bin and the walls, on each side;
- There should be space in front of the bins to allow residents to easily access the bins when depositing waste;
- If multiple bins are used, then there should be sufficient space to rotate the bins in between collections;
- The walls should be made from an impervious, non-combustible material that ideally has a fire resistance of one hour when tested to BS 476-21;
- If a gate or door is added to the enclosure or chamber it should be metal, hardwood or softwood clad with metal;
- Ideally it should have a fire resistance of 30 minutes when tested to BS 476-22. The door frame should allow clearance of 150 mm either side of the bin, when it is being pulled out for collection;
- The door frame should be rebated into the reveals of the opening. There should be a latch or clasp to hold the door open while the collection process takes place;
- Arrangements should be made for the cleansing of the bin stores with water and disinfectant. A hose union tap should be installed for the water supply. Drainage should be by means of trapped gully connected to the foul sewer. The floor of

the bin store area should have a suitable fall (no greater than 1:20) towards the drainage points;

- If the chambers are inside the building, they should have a light. The lighting should be a sealed bulkhead fitting (housings rated to IP65 in BS EN 60529:1992); and
- Internal bin chambers should have appropriate passive ventilators to allow air flow and prevent unpleasant odours. The ventilation must be fly, and vermin proofed and near to either the roof or floor, but away from the windows of dwellings.

5.2.1 Access for Collections

- Collectors should not have to move a bulk bin more than 10 metres from the point of storage to the collection vehicle;
- The gradient of any path that the bulk bins must be moved on should ideally be no more than 1:20, with a width of at least 2 metres, and the surface should be smooth;
- If the storage area is raised above the area where the collection vehicle parks, then a dropped kerb is needed to safely move the bin to level of the collection vehicle; and
- The roadway the vehicle parks on should be able to accommodate the weight and size of the specified waste collection vehicle.

5.3 Waste Collection

Waste bins will be collected from Network Building and waste collections will be undertaken by a nominated waste contractor. Collections are usually out of hours between, 05:00 and 07:00 and after closing, between 19:00 and 22:00.

5.4 Waste Mitigation

Tenants of the development will be encouraged to reduce, re-use and recycle waste materials where possible to reduce waste to incineration.

The FM team and any other on-site staff handling, and segregating waste will need full training on the correct residual and recycling compositions using up to date LBC guidance.

5.5 Litter Picking

Litter picking will be conducted by the FM team throughout the day to allow for both a safe and clean environment within the site and its immediate environs.

6 DSWMP Review Process

This SMP is intended to be updated frequently, as described in section 6.2. The following sub-sections set out how the document will be reviewed and maintained.

6.1 Delivery Monitoring

The FM team will be responsible for keeping a record of servicing activity, monitoring the effectiveness of the scheduling strategy and making amendments to the plan. Key data to be captured are as follows:

- Date and the delivery slot(s) booked
- Vehicle types and type and volume of carried goods;
- Arrival and departure times; and
- Company and driver contact details.

An initial survey of servicing activity will be undertaken within 12 months of occupation.

6.2 SMP Review Process

The on-site FM team will use information and feedback from tenants, suppliers and residents to conduct an annual review of this SMP. This review will assess the efficiency of the SMP to meet the objectives of minimising the environmental impact on the surrounding area and providing servicing arrangements for the building which meet road management and safety requirements.

The FM team (on behalf of the building owner) will conduct the first review within 12 months after occupation and reviews will be conducted as necessary thereafter on an annual basis. Where necessary, changes to the SMP will be made to reflect the findings of any review. A daily record of the service traffic movements will be conducted during a typical week to obtain the details. The information on delivery and service traffic that will be sought will include type of suppliers (to seek opportunities for consolidating regular visits), patterns of arrivals and departures (to avoid peak periods) and types of vehicles used by the suppliers (for any assessment of vehicle-related emissions).

The Owner shall notify LBC of any change the occupancy of the Development that may have a material change to the approved SMP as soon as is reasonably practicable and in any event one month prior to the commencement of such occupancy.

Any amendments that the Owner may wish to make to the SMP shall be submitted to LBC for approval and no amendments shall come into force until they have been approved.

Appendix A

Waste Management Plan

A1 Waste Management Plan

A1.1 Overview

This document sets out the Waste Management Plan (WMP) for Network Building. A final WMP shall be developed as a standalone document and agreed 6 weeks prior to the commencement of Facilities Management (FM) at the site. It is noted that the information provided in this WMP is based on currently known information.

Linda Hall-Brunton, Principle Environment Services Officer, LBC, will offer advice for the final submission and arrangement for this waste strategy.

The final WMP will include the following key elements:

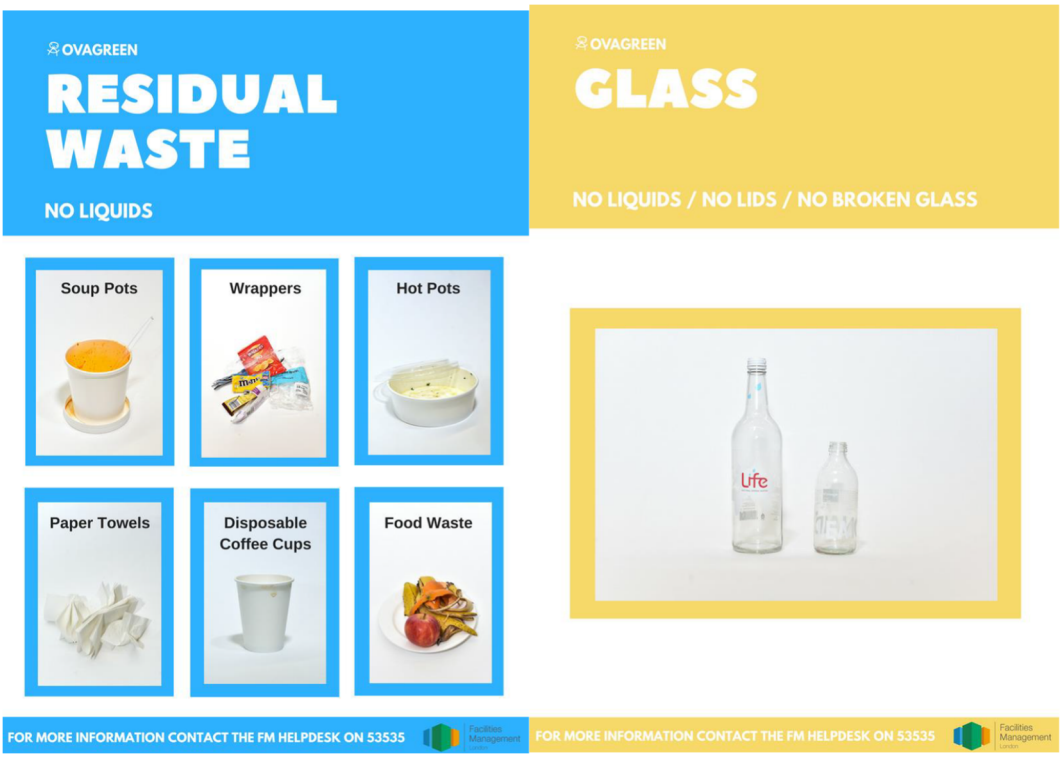
- Details of the responsible contact person, how a copy can be obtained and the teams / personnel to whom a copy of the WMP must be provided to;
- The segregation of waste streams and how to dispose of them;
- Expected waste generation and storage requirements;
- Collection points and frequency;
- The various responsibilities of FM team and future occupants;
- Programme of document monitoring and review; and
- Documentation of any amendments.

A1.2 Waste Segregation

Since January 2015, UK regulations require the separate collection of paper, plastic, metals & glass for recycling from all waste producers including commercial waste.

There is often confusion for people around what is and isn't recyclable, the items that are recyclable should carry obvious visual clues about which bin they should be placed into. This could be via labels on the packaging itself or signage on and adjacent to the bins carrying photos of each container type and an indication of which bin it should be placed into. Some examples of how this can be achieved is shown in Figure 14.

Figure 14 Waste labels and posters



If it is not technically, environmentally and economically practicable to segregate all waste streams, it is proposed to provide co-mingled recyclable storage for waste streams shown in Figure 15.

Figure 15 Co-mingled recyclables

A1.3 Waste Generation

Guidance in the following documents has been applied when defining the WMP:

- Camden Planning Guidance, March 2019
- Camden's Environment Service technical guidance for recycling and waste; and
- BS 5906:2005 Waste management in buildings – a code of practice.

Two-day waste generation for commercial use has been calculated to comply with best practice and allow for contingency.

The equipment required can be seen in Section A3.

A1.3.1 Assumptions

The following assumptions have been made in regard to waste management:

- One employee per 10 m^2 NIA of B1 office/lab floor space, with one employee generating 50 litres of waste per week;
- Retail waste, assumed to be A1 retail, which generates 10 litres of waste per $1m^2$ NIA per week;
- Two days of waste storage has been provided for all waste streams in the waste room;
- As per BS5906:2005 the assumed waste splits are as follows:
  - Retail (A1): 12 % residual and 88% recyclable (27% paper, 40% cardboard, 13% plastic, 0% aluminium, 3% glass and 5% organic);
  - Office, Labs & Support Functions (B1): 20% residual and 80% recyclable (65% paper, 7% cardboard, 6% plastic and 2% aluminium).
- Paper, cardboard and plastics will be stored in either 1100 litre bins or in 100kg bales;
- Waste processed using a baler will produce 100kg bales. Two 100kg bales can be stored on a 1,000mm x 1,200mm pallet;
- Residual waste will be stored in 1,100 litre bins;
- Glass and food waste will be stored in 240 litre bins;
- Clinical waste will be stored in specialist containers e.g. hazardous waste bins;
- A centralised approach to commercial waste management; and
- Collections will be undertaken by a private contractor.

A1.3.2 Commercial Waste Generation

Based on the area schedule in Table 1 of the SMP, the estimated two-day waste generation is $23.34m^3$ as shown in Table 7.

Table 7 Two-day waste generation

Network Building Commercial Two-Day Waste (m^3)			
Waste Stream	**Retail**	**Office & Lab**	**Total**
Residual	0.12	4.47	4.59
Paper	0.27	14.53	14.79
Cardboard	0.40	1.56	1.96
Plastic	0.13	1.34	1.47
Aluminium	0.00	0.45	0.45
Glass	0.03	0.00	0.03
Food Waste	0.05	0.00	0.05
Total	**1.00**	**22.35**	**23.34**

A1.3.3 Commercial Waste Storage

Network Building requires a waste store sized at 42m² to accommodate two days' storage of commercial waste. The equipment required is shown in Table 8.

Table 8 Waste storage equipment

Network Building Two Day Commercial Waste Storage						
Waste Type	**Un-compacted Waste (m^3)**	**Compaction Ratio**	**Compacted Waste (m^3)**	**Waste Container**		
				Description	**Volume (m^3)**	**Number Required**
Residual	4.59	1	4.59	1	1.1	5
Paper	14.79	2	7.40	2	-	8
Cardboard	1.96	4	0.49	4	-	3
Plastic	1.47	3	0.49	3	-	1
Aluminium	0.45	1	0.45	1	1.1	1
Glass	0.03	1	0.03	1	0.24	1
Food Waste	0.05	1	0.05	1	0.24	1
Total	**23.34**	**-**	**13.5**	**-**	**-**	**20.00**

This will require the provision of:

- 1 No. top load baler;
- 1 No. hand pallet truck;
- 5 No. 1,100 litre eurobins for residual waste;
- 6 No. 1,000mm x 1,200mm pallets for baled waste (2 No. 100kg bales per pallet);
- 1 No. 1,100 litre eurobin for aluminium;

- 1 No. 240 litre wheelie bin for glass; and
- 1 No. 240 litre wheelie bin for organic (food) waste.

A1.4 Waste Storage

A waste storeroom has been provided and is located at ground floor level.

The waste store will require 2.8m clear headroom for compaction equipment and the FM team will be responsible for the wash-down and cleaning of the waste store (and loading bay), providing spill kits where necessary.

A1.5 Internal Waste Disposal

A1.5.1 General waste

Non-recoverable waste streams will be colour coded and clearly labelled to help waste producers and the FM team responsible for transferring the waste to the waste room to ensure that they place waste in the correct storage units.

A1.5.2 Dry recyclables

Dry recyclables will be segregated from other waste in both office and retail areas. Bins and bags will be colour coded and clearly labelled to help waste producers and the FM team responsible for transferring the waste to the waste room to ensure all recyclable waste is placed in the correct waste storage units.

A1.5.3 Specialist waste stream disposal

Laboratory Waste

Laboratory and clinical waste will be stored in a separate waste store, which should too have the BS5906 waste room standards such as Drainage and hose-down facilities. This waste stream will be collected in situ by a specialist contractor and disposed of off-site.

Waste Electrical and Electronic Equipment (WEEE)

WEEE and other specialist waste are to be stored, alongside bulky waste, in an allocated area within the waste room.

Confidential Paper Waste

Confidential waste must be collected in secure bins located around the buildings. To be fully compliant with the Data Protection Act, a written contract with a certified confidential waste company is required. This waste stream will be collected in situ by a specialist contractor and shredded and disposed of off-site.

Hazardous Waste

A specific request should be sent to the FM team for the collection of hazardous waste. Upon collection, the marshals will take it to the general waste store prior to collection by a waste contractor. This waste will then be stored in the same area of the waste room as the WEE and bulky waste.

Waste streams such as florescent tubes, batteries, asbestos and chemicals will be required to be collected by a licensed specialist contractor as they are designated as hazardous waste. The FM team will be required to register the site for a Hazardous Waste Licence to permit this waste to be collected safely and reprocessed.

Construction and Demolition Materials

Construction and demolition waste is excluded and managed under the Construction Management Plan (CMP) or by the contractors.

Oil

Waste oils will have contracts with a waste oil removal provider and will not be dispensed in the drains.

Batteries

Batteries will be collected in pots (separate for lithium and alkaline types) located by the photocopiers, which will be periodically collected by the FM team for storage in the general waste store prior to collection by a waste contractor.

The terminals of lithium batteries will require covering with an insulating, non-conductive material e.g. using electrical tape, to prevent the risk of fire. The FM team will ensure this is completed, though staff disposing of the batteries will be expected to complete this where possible.

Photocopier cartridges

Photocopier and printer cartridges will be collected in boxes located by the photocopiers, which will be periodically collected by the FM team for storage prior to collection by a waste contractor.

Fluorescent Tubes and Light Bulbs

A specific request should be sent to the FM team for the collection of fluorescent tubes and light bulb waste. Upon collection, the FM team will take it to the general waste store prior to collection by a waste contractor. This waste will then be stored in the same area of the waste room as the WEE and bulky waste.

Waste streams such as florescent tubes and batteries will be required to be collected by a licensed specialist contractor as they are designated as hazardous waste. The FM team will be required to register the site for a Hazardous Waste Licence to permit this waste to be collected safely and reprocessed.

Landscape Maintenance Waste

Any maintenance on lawns, hedges, trees and flower beds within the site boundaries will be carried out specialist contractors who will be responsible for disposing of the waste as part of the contracted.

A1.6 Internal Waste Transfer

The FM team will be responsible for communicating with commercial tenants on the requirements for transferring waste and recycling to the storage facility, including the requirements for bulky and non-standard waste. The waste store and individual zones within the store shall be clearly labelled at all times.

The office and retail areas will be provided with waste and recycling stations on each floor for segregating waste. Commercial tenants must be aware of and follow their responsibilities under the waste duty of care: Code of Practice (2016)[2] . The FM team will empty the bins on each floor and transfer waste to the waste store in trolleys or roll cages via the goods lift.

The FM team will be responsible for the collection of all residual, recyclable and specialist waste streams from the development.

Residents will be responsible for transferring their own waste from each unit to the residential waste room and placing it in the appropriate container.

A1.7 Litter Management

A1.7.1 General Public Waste

Waste will be collected from the general public bins within immediate vicinity by the FM team. The FM team will check all bins within their remit twice daily to be emptied as necessary within that time.

Public areas such as seating, stairways and pathways will be monitored throughout the day and cleaned by the FM team.

A1.7.2 Litter Picking

Litter picking will be conducted by the FM team throughout the day to allow for both a safe and clean environment.

A1.7.3 External/Surrounding Areas

The cleaning of external areas within the site will follow the programme set out in Table 9.

[2] https://www.gov.uk/government/publications/waste-duty-of-care-code-of-practice/waste-duty-of-care-code-of-practice

Table 9 Cleaning schedule

Action	Frequency
Clear debris, litter from entrances and public areas	Daily
Empty waste bins	Daily
Clear leaves from all entrances and fire exits	Weekly
Clean and wash down external signs	Weekly

A1.8 Waste Collection

Prior to collection time, the facilities management team will move full bins to the waste presentation area, within the service area. The floor surface between the waste store and the collection point will be suitable to drag bins to and from the presentation area.

Two options have been explored and evaluated to provide at least one viable working solution.

Option 1

Waste is collected directly from the service area by the nominated waste contractor. This would require the contractor to utilise specialist, small refuse collection vehicles (RCVs) which can pass safely under the Maple Street entrance.

Advantages: Allows for direct collection from the service area, no changes to infrastructure required.

Disadvantages: Limits the number of contractors with the required vehicles who could bid for the contract specialist vehicles which may result in higher commercial waste rates due to the specialist nature of the collection.

Option 2

Waste is transferred from the storage area to a temporary presentation point at the interchange of Maple Street and the Cypress Place access road by on-site FM. The RCV would reverse partially off Maple Street adjacent to the presentation point and waste is collected by the nominated waste carrier in a standard RCV.

Advantages: This option would allow more flexibility with potential contractors

Disadvantages: Would require the loading dock schedule to keep the service yard free during collection times, the removal of barriers along Cypress Place, agreement from 90 Whitfield Street building to temporarily store bins awaiting collection, clashes with cycle access.

Recommendation

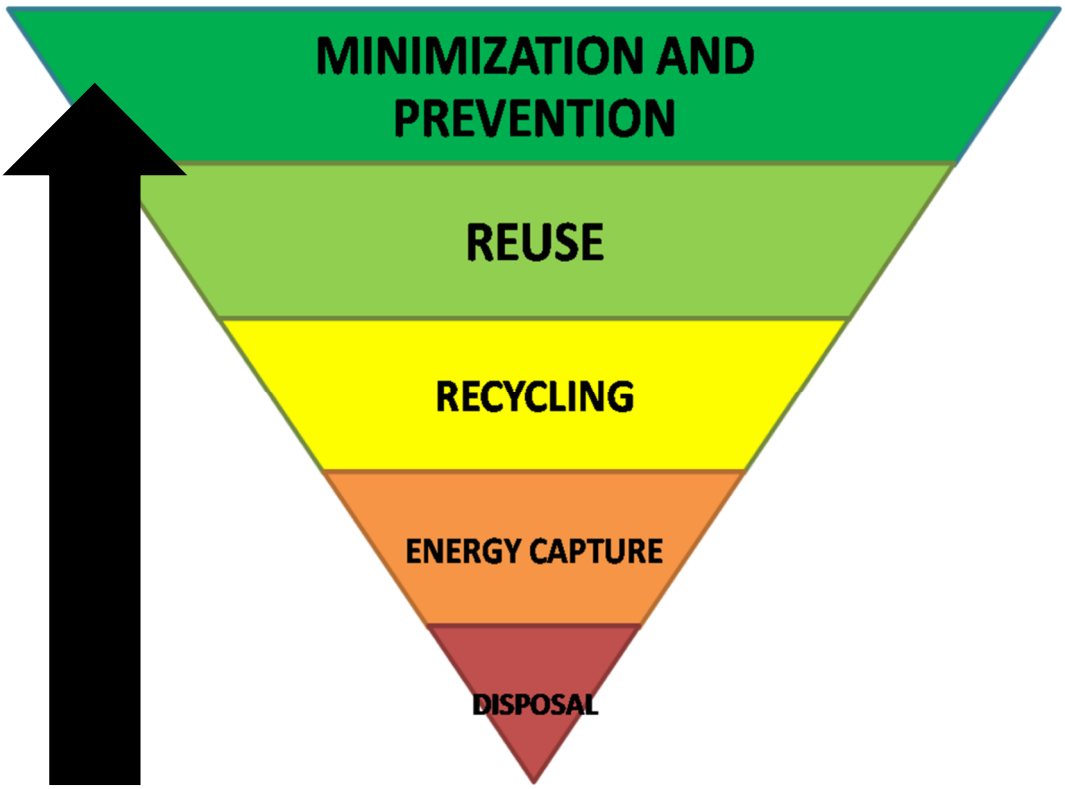
It is recommended to take Option 1 forward into future stage design mainly due to safety concerns with cyclist access under Option 2.

A2 Waste Reduction Interventions

This section presents initiatives to encourage environmental thinking to reuse, recycle and reduce waste through the building's supply chain.

When considering waste reduction methods, the waste hierarchy pyramid provides a useful guide to the order in which waste reduction measures should be considered, from most effective to the least effective as shown in Figure 16.

Figure 16 Waste hierarchy



Preventing the generation of waste is considered the most effective way of improving recycling rates, followed by reuse of materials and then moving into recycling, recover and, eventually, disposal in landfill.

A2.1 Packaging

The building management team should endeavour to collaborate with suppliers that display green initiatives when packing items including:

- Downsizing packaging;
- Using "green" packaging materials;
- Promoting recycling and reuse programs;
- Cooperating with vendor to standardize packaging;
- Encouraging and adopting returnable packaging methods;
- Minimising material uses and time to unpack;

- Using a recyclable pallet system; and
- Saving energy in warehouses throughout the supply chain.

A2.2 Supply Chain

The building management should provide a purchasing strategy that encourages green logistics, including:

- Using alternative fuelled vehicles;
- Grouping orders together, rather than in smaller batches;
- Collaborating with other tenants to consolidate loads; and
- Optimising reverse logistics to collect used products and packaging from customers for recycling, returning packaging and products to suppliers for reuse, and requiring suppliers to collect their packaging materials.

A2.3 Behaviour Change

People often attach a low priority to pro-environmental behaviour. To encourage such behaviour and drive environmental performance, the tenant should address both the physical and the psychological environment. The goal should be to create an environment that guides decision making, and helps people act out those decisions. Some examples on how this could be achieved are as follows:

- Collect data to understand users' experience of waste infrastructure and its effect on their behaviour;
- Reduce the amount of packaging, and increase the percentage of recyclable packaging;
- Redesign signage to make bins for different streams distinct;
- Update labelling to be uniform;
- Locate bins for different streams where they are most needed (e.g. on walking routes);
- Remove bins not consistent with design;

A3 Example Equipment Specification

A3.1.1 Baler

Example: Pakawaste VB100 Vertical Baler

Length: 1.03m

Width: 1.56m

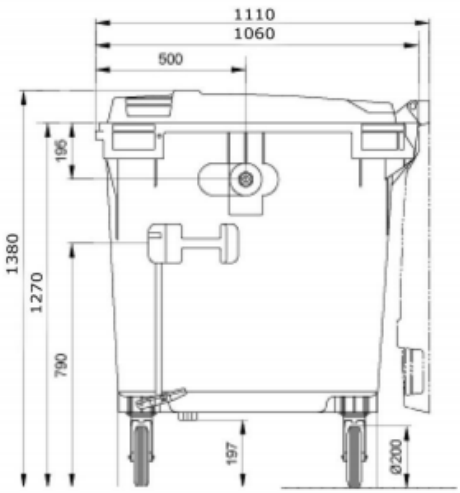
Height: 2.63m

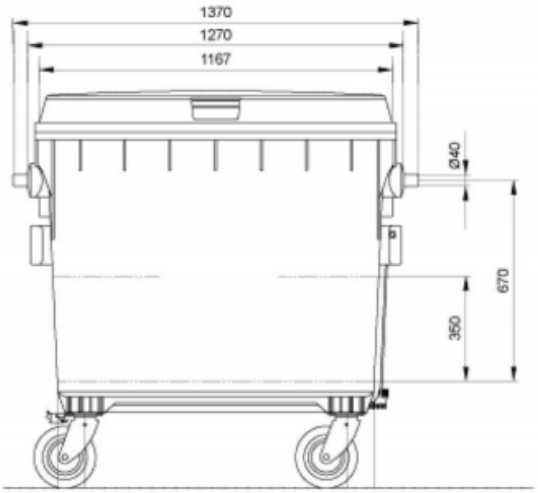
A3.1.2 1,100 Litre Eurobin

Length: 1.37m

Width: 1.11m

Height: 1.38m



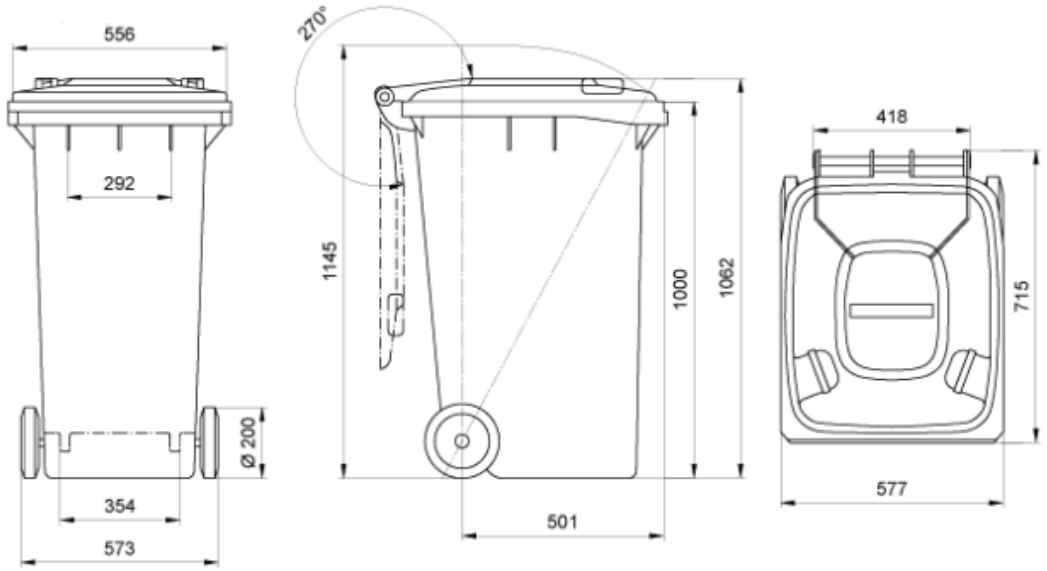


A3.1.3 240 Litre Wheelie Bin

Length: 0.72m

Width: 0.55m

Height: 1.15m



A4 Waste Management Plan Review

The success of the strategy as detailed above will be closely monitored by the building manager and the facilities team.

Feedback will be provided as a minimum on a monthly basis and as and when required where immediate action is required and dealt with in accordance to this strategy.

The strategy will be updated and amended as appropriate to ensure the development is within the perimeters of what is deemed necessary to maintain a clean and safe environment all year round.

An annual review will be provided to LBC at their written request to confirm the success of the strategy and any amendments that may have been required to the original document based on lessons learned. Any changes or deviations to the agreed WMP will be made by submission of a change request to planning at LBC. Amendments will be shown in an appendix to the WMP, under version control.

Appendix B

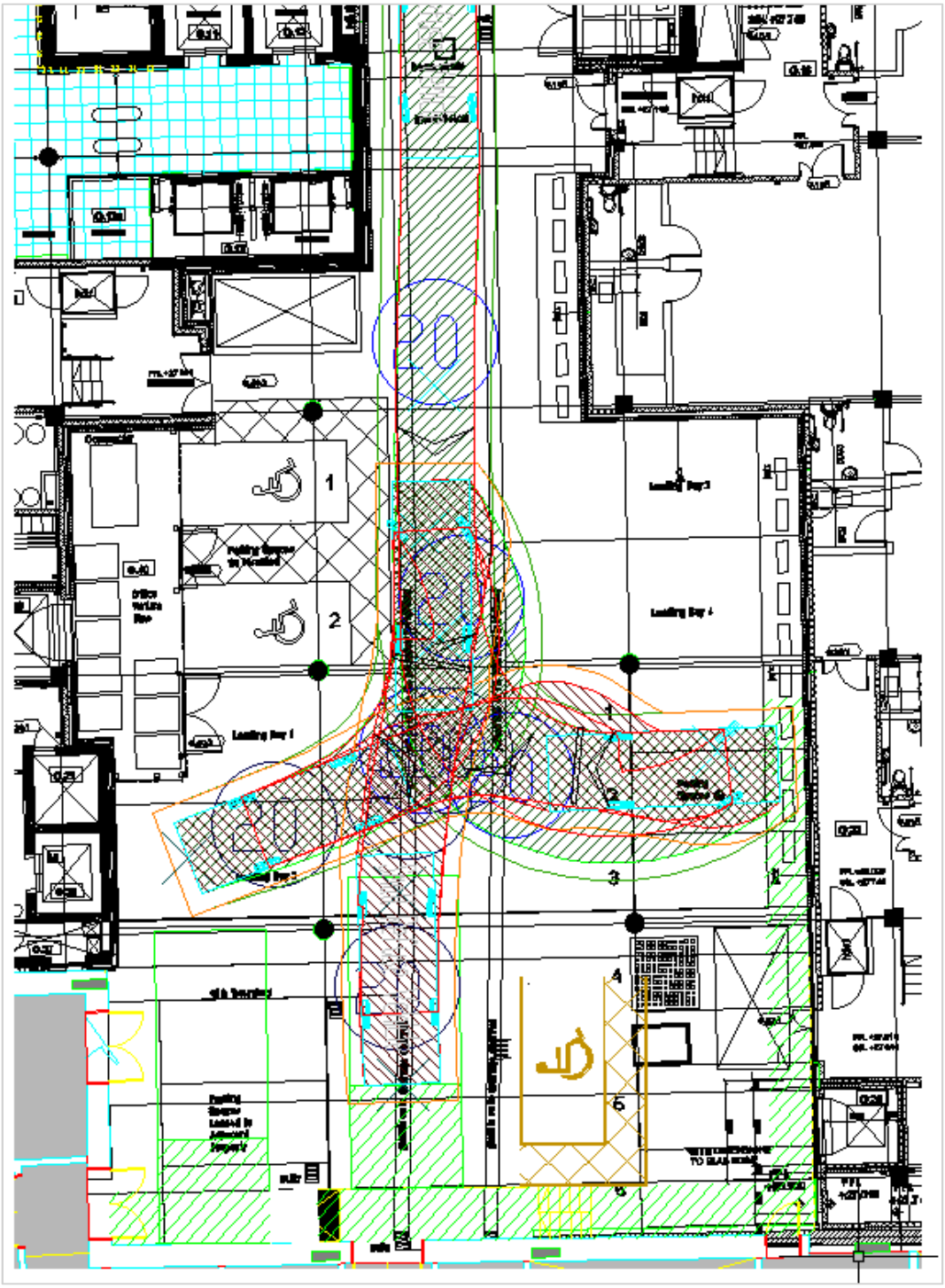
Swept Path Analysis

B1 6m Delivery Vehicle In

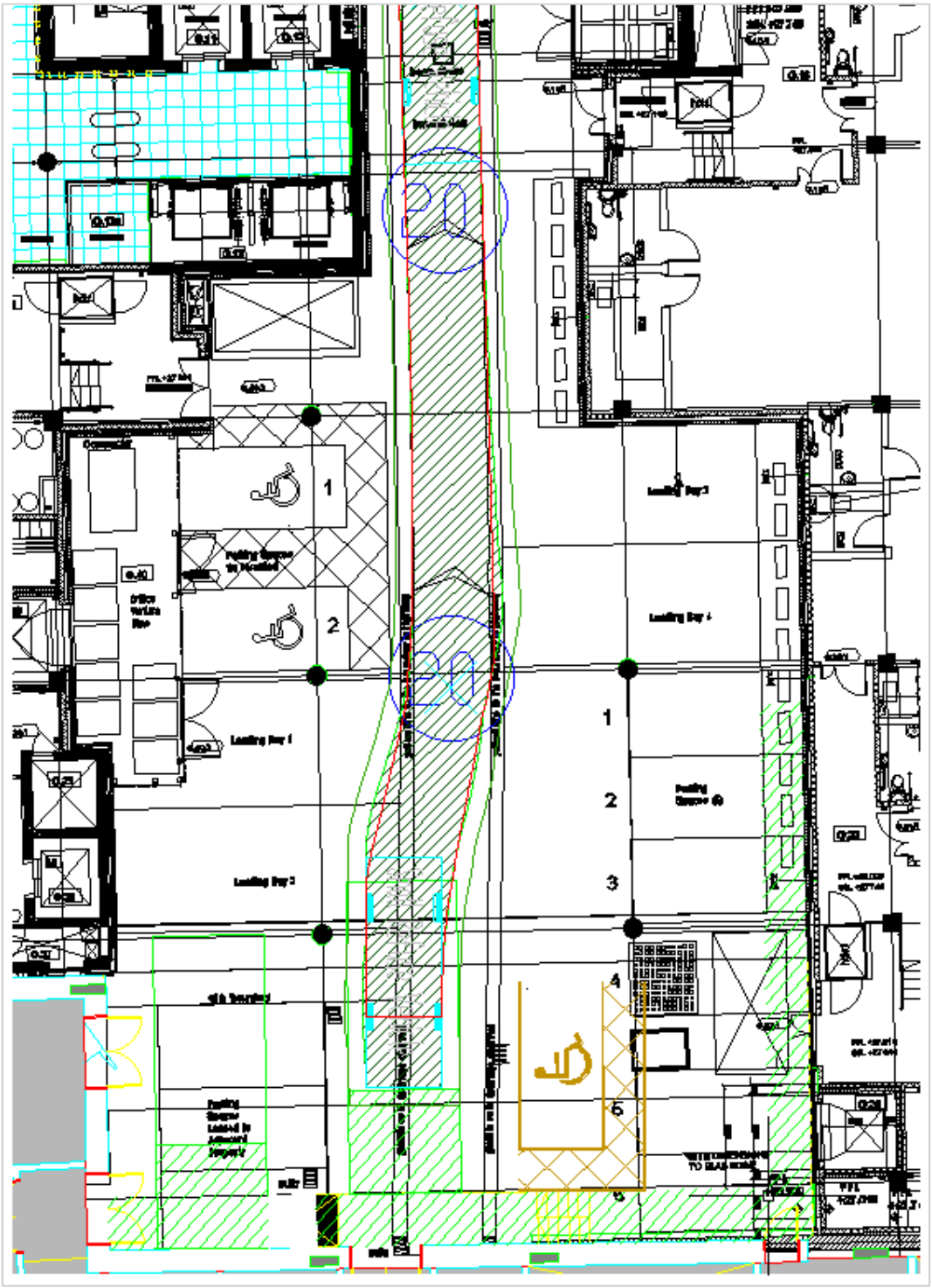
The scenario provides a 1.5m “cycle lane” around the perimeter of the loading bay. This is to be reviewed at the next design stage.

B2 6m Delivery Vehicle Out

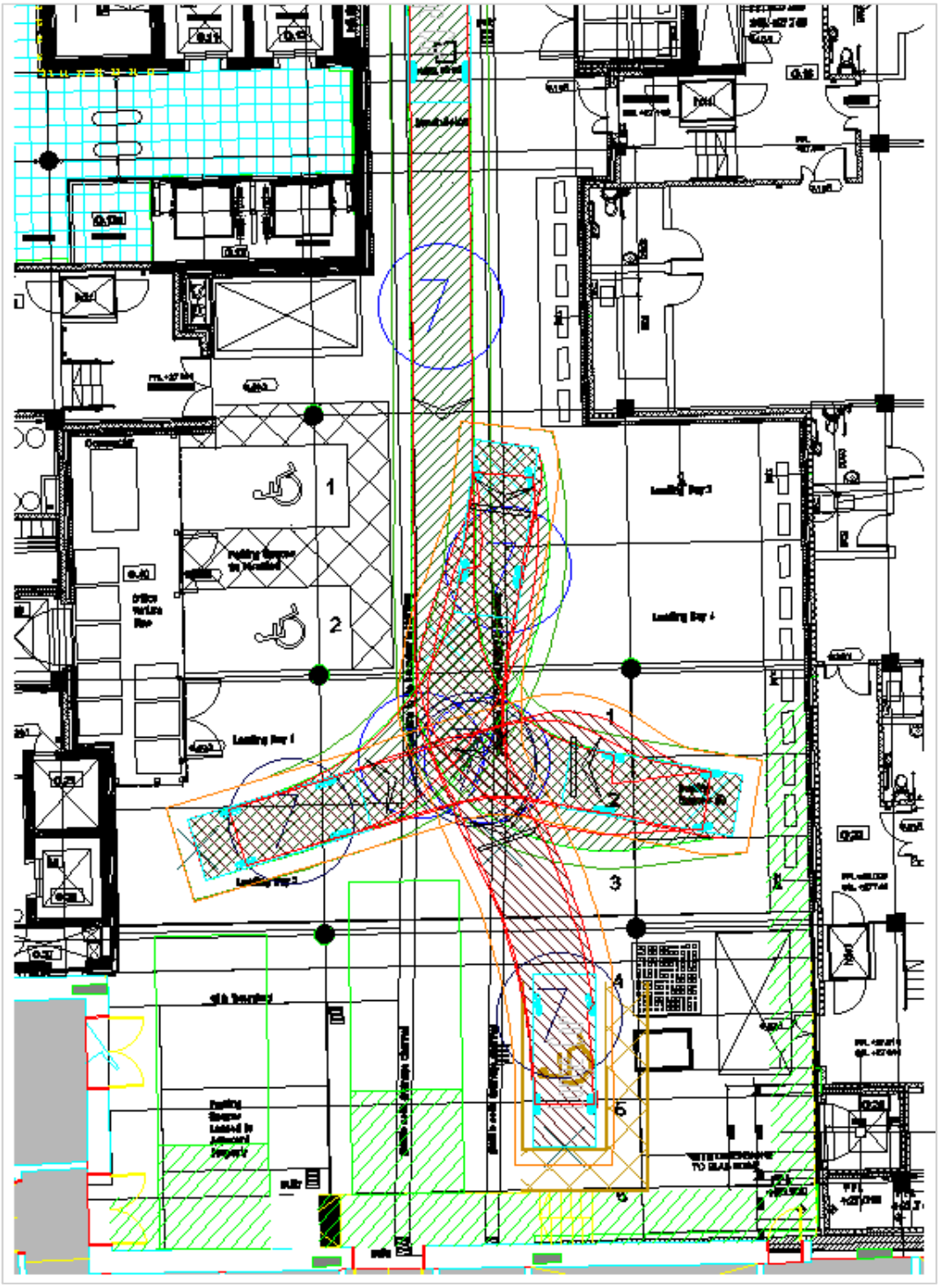
B3 Small Refuse Vehicle In



B4 Small Refuse Vehicle Out



B5 Large Car In



B6 Large Car Out