4.0
PROPOSALS

4.29 Proposed Bloomsbury Street Elevation - Exterior Materials + Massing

1. New timber sash window
2. Original brickwork
3. Original stonework
4. Existing dormer to be replaced
5. New slate roof
6. New revolving door + pass doors
7. Proposed LO7 extension in brickwork
8. Proposed metal balustrade
9. New accessible entrance + fire egress door
10. Existing faux chimney stacks to be replaced with brick slip
11. Original chimney stacks to be retained
12. Timber frame casement window
13. Steel frame crittall window
14. Glazed acoustic barrier

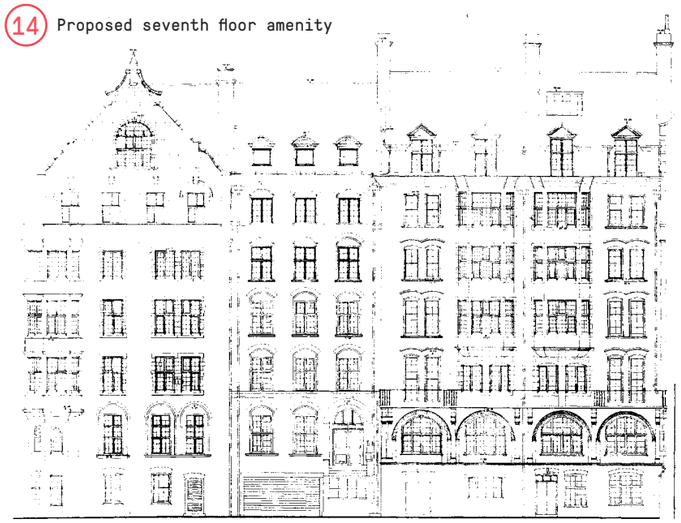
Original Bloomsbury Street Elevation (Date from 1890')

Proposed Bloomsbury Street Elevation

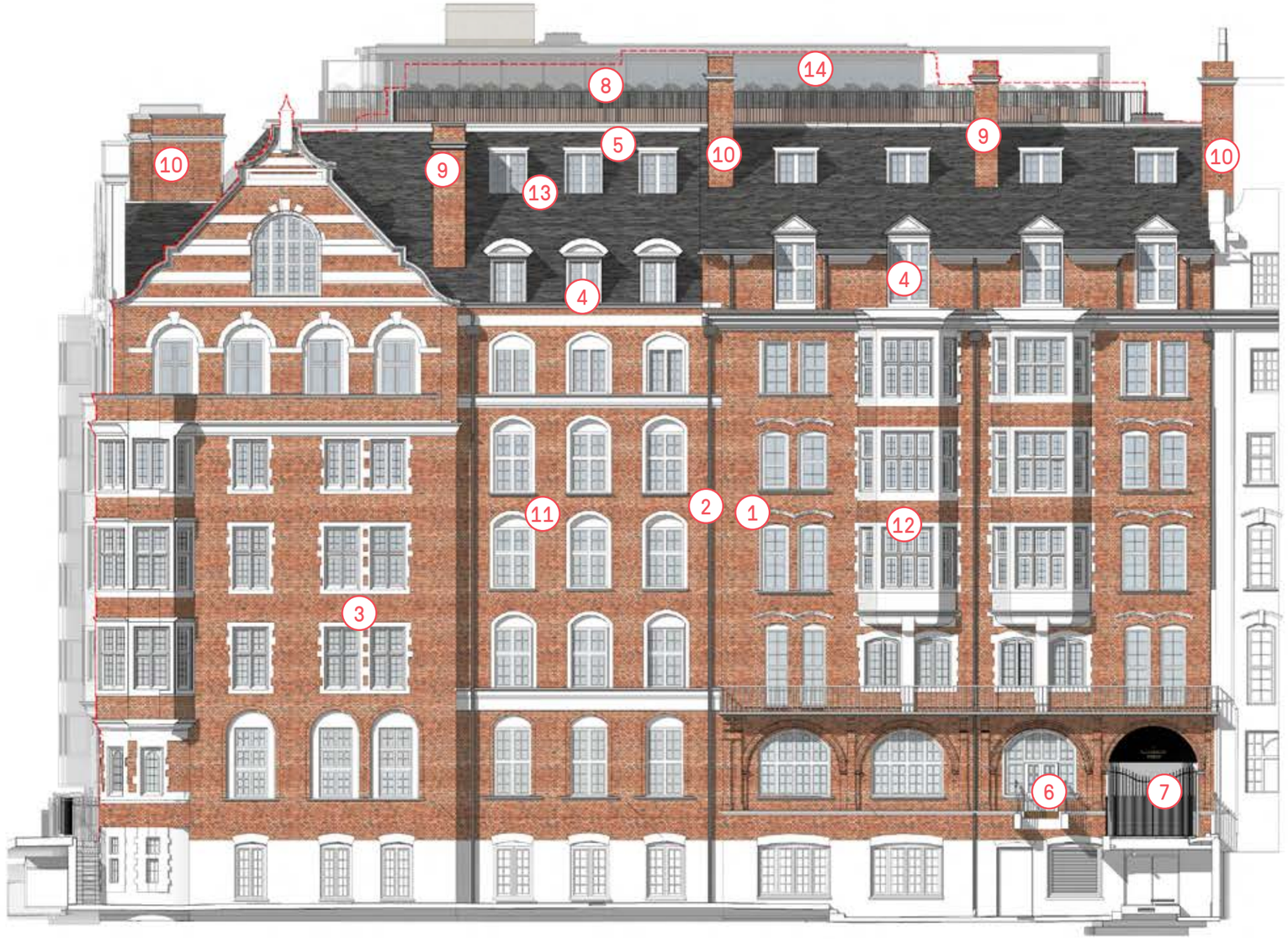
4.0
PROPOSALS

4.30 Proposed Bedford Avenue Elevation - Exterior Materials + Massing

1. New timber sash window
2. Original brickwork
3. Original stonework
4. Existing dormer to be replaced
5. New slate roof
6. New fire egress door
7. Proposed gated EOT entrance with decorative metalwork
8. Proposed metal balustrade
9. Existing faux chimney stacks to be replaced with brick slip
10. Original chimney stacks to be retained
11. Timber frame casement window
12. Steel frame crittall window
13. Proposed sixth floor dormer
14. Proposed seventh floor amenity



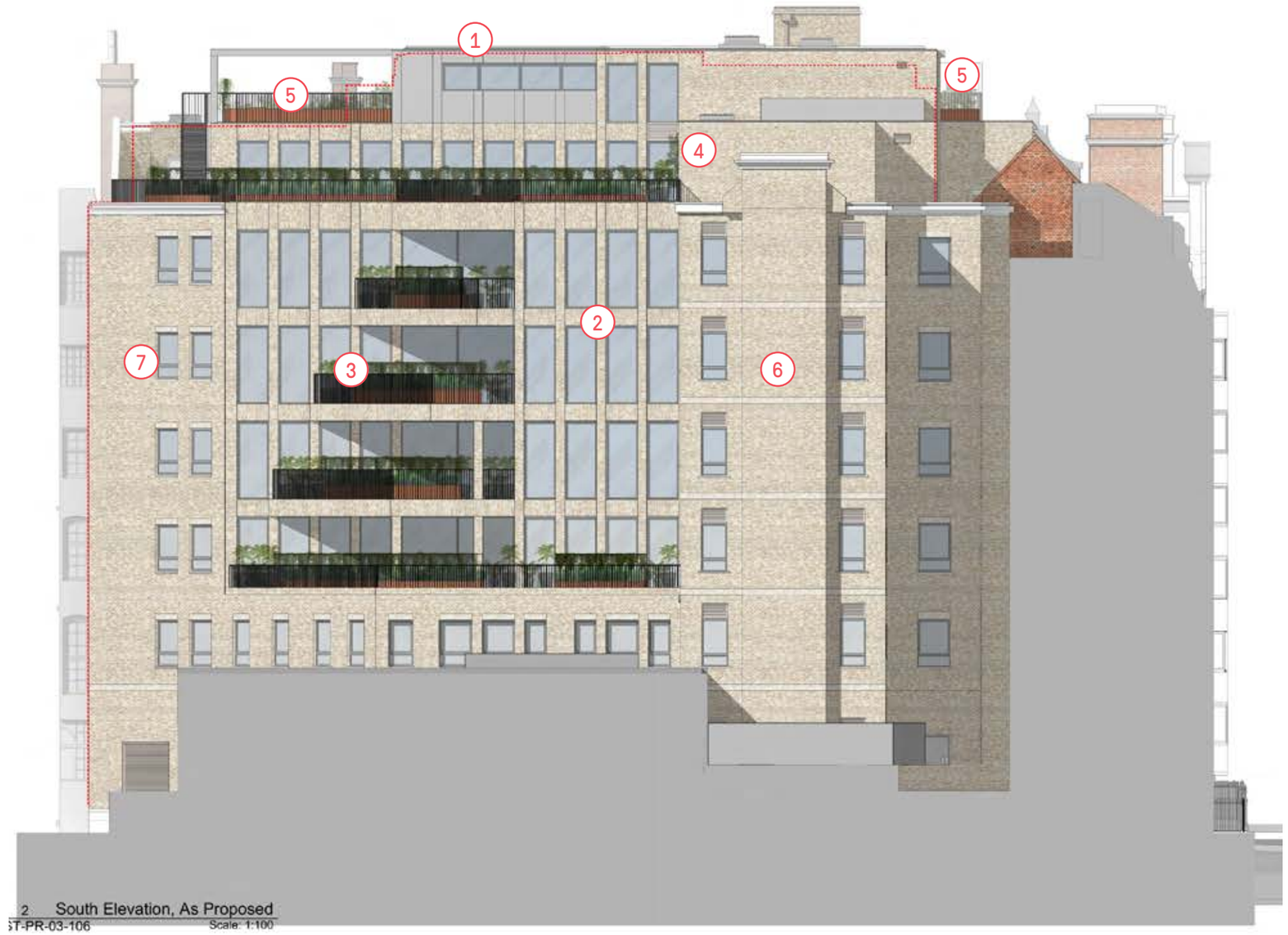
Original Bloomsbury Street Elevation (Date from 1890')



Proposed Bedford Avenue Elevation

4.31 Proposed Rear Elevation - Exterior Materials + Massing

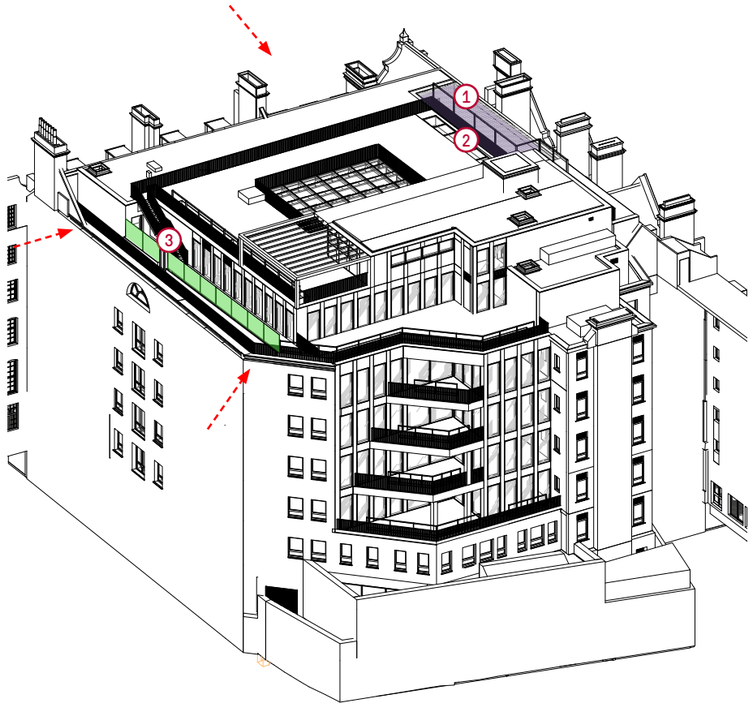
1. Proposed seventh floor extension
2. Proposed rear extension
3. Proposed rear terraces
4. Proposed sixth floor extension
5. Proposed roof terrace balustrade
6. Existing brick
7. New aluminium windows in PPC finish



Proposed South Elevation

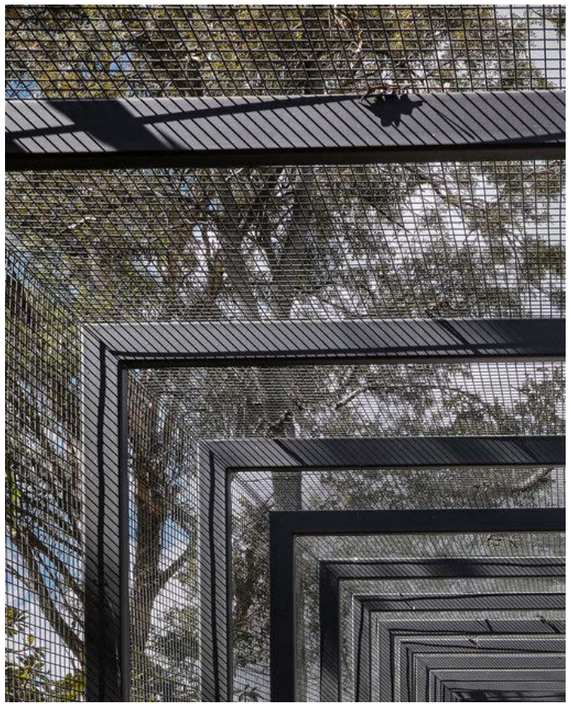
4.32 Proposed Plant Roof at Sixth Floor

1. High quality mesh roof to L06 central plant
2. Glazed screening to mitigate noise to roof garden
3. Improved sightlines to adjacent sensitive neighbouring properties through plant arrangement + urban greening

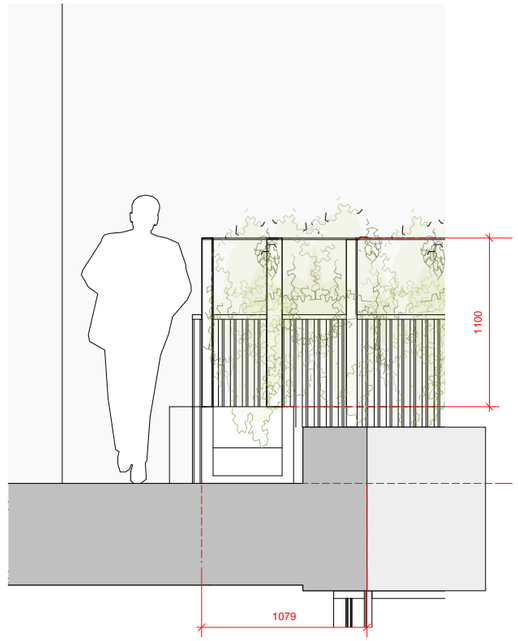


Proposed isometric view - Corner of Bedford Ave & Bloomsbury St

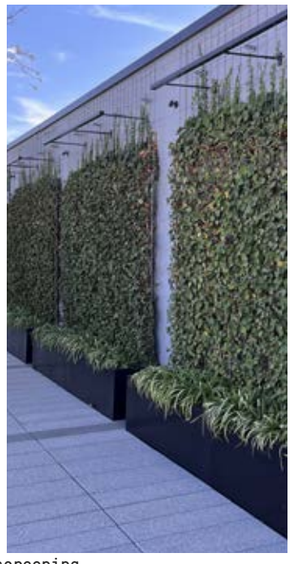
Key:
Metal mesh plant roof
Landscape
Sensitive views from neighbouring properties



Proposed Plant Mesh Roof Material Mood Image



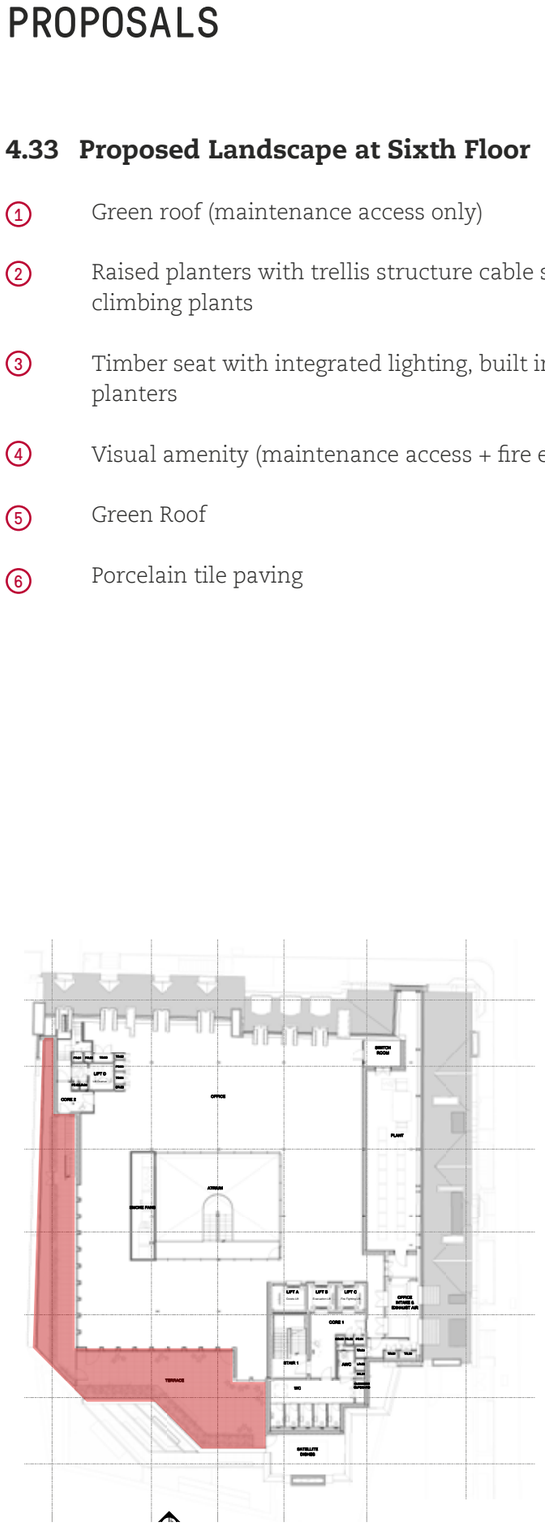
Proposed section of planted screening



Precedent images of planted screening

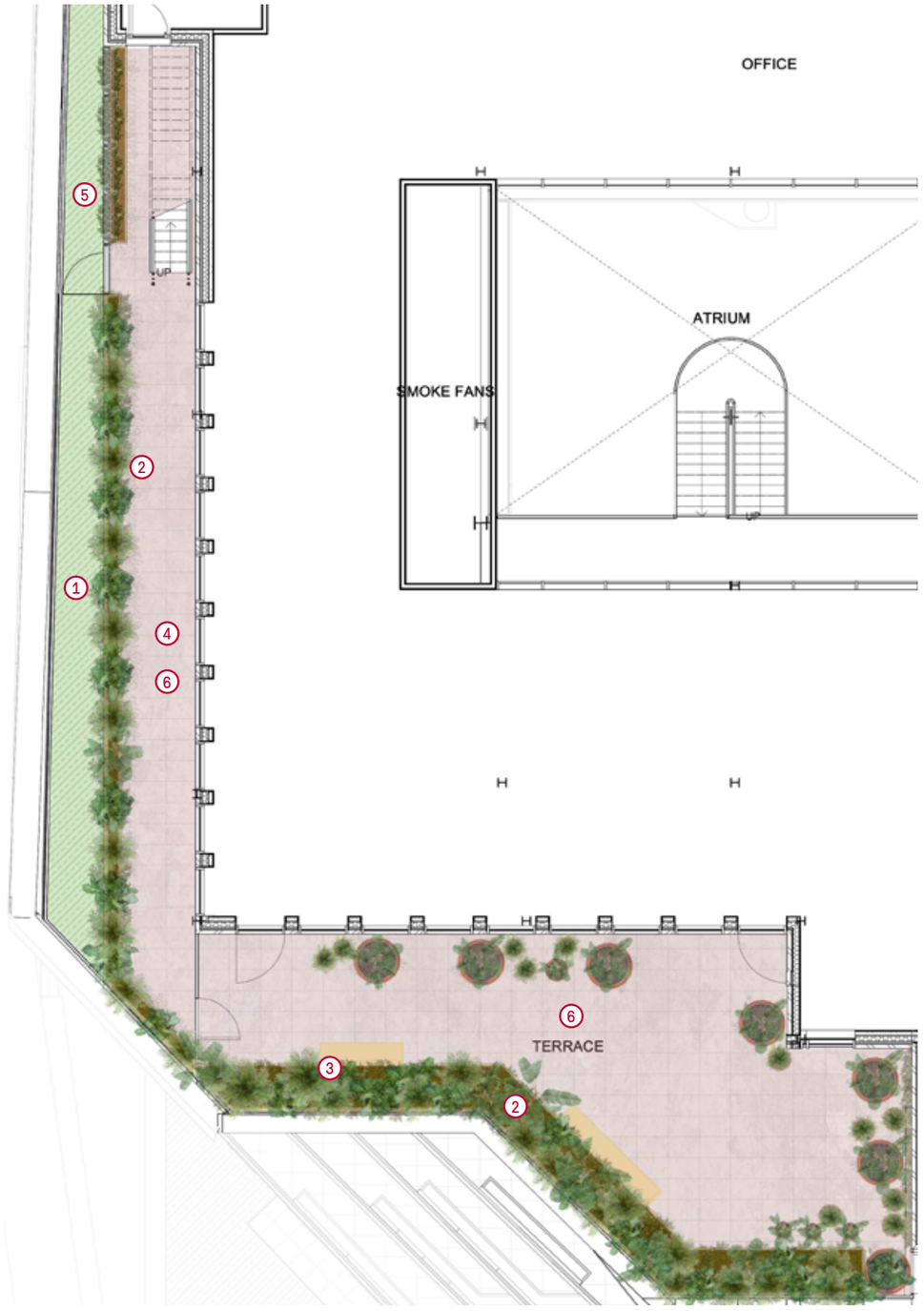
4.33 Proposed Landscape at Sixth Floor

1. Green roof (maintenance access only)
2. Raised planters with trellis structure cable supports for climbing plants
3. Timber seat with integrated lighting, built into side of raised planters
4. Visual amenity (maintenance access + fire escape only)
5. Green Roof
6. Porcelain tile paving



Proposed Sixth Floor Plan

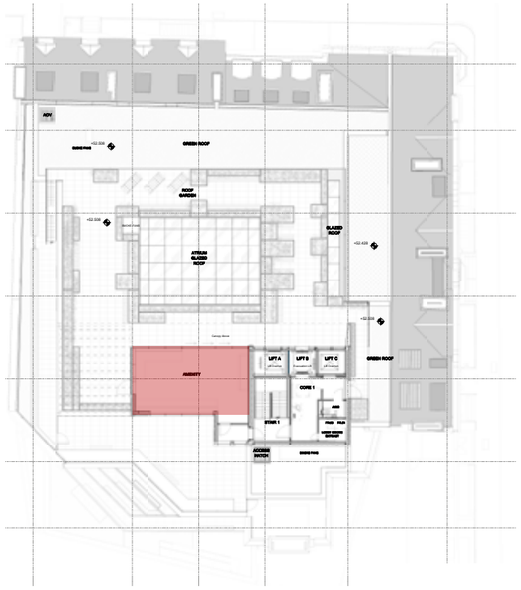
Green roof and climbing plants appropriate for aspect and elevation



Proposed Sixth Floor Landscape Plan

4.34 Proposed Seventh Floor Amenity - Exterior

1. Top hung external door with PPC metal frame
2. Fixed glazing with PPC metal frame
3. Metal cladding in PCC finish with lighting wash
4. PPC metal canopy with timber reveal
5. High level corner windows with PPC metal frame to rear facade
6. Lift overrun



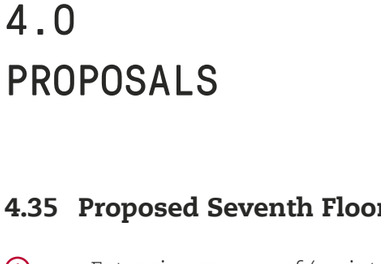
Proposed Seventh Floor Plan

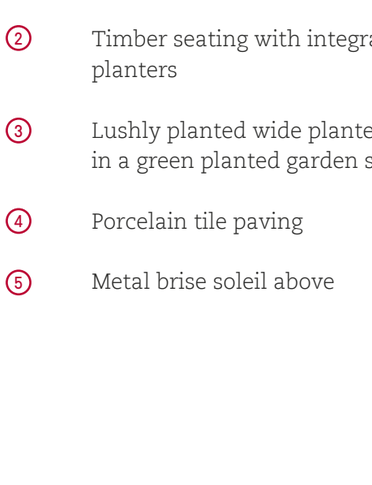
Reference image of external + internal timber soffit

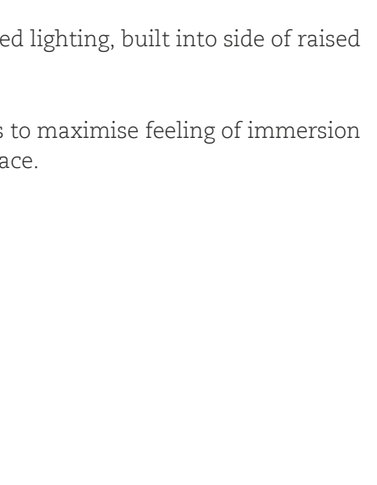
Reference image of metal cladding

4.35 Proposed Seventh Floor Roof Garden

1. Extensive green roof (maintenance access only)
2. Timber seating with integrated lighting, built into side of raised planters
3. Lushly planted wide planters to maximise feeling of immersion in a green planted garden space.
4. Porcelain tile paving
5. Metal brise soleil above







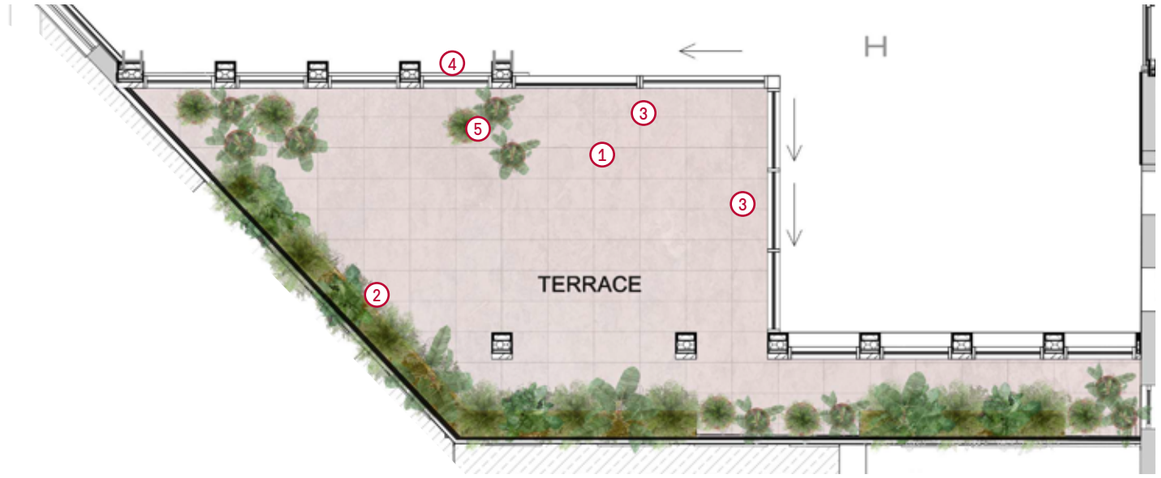
Landscape Plan at L07

4.36 Proposed Amenity + Roof Garden CGI

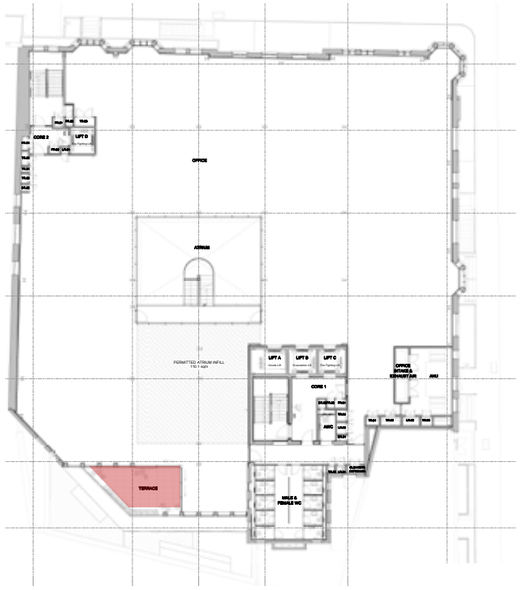
4.0
PROPOSALS

4.37 Proposed Rear Terraces

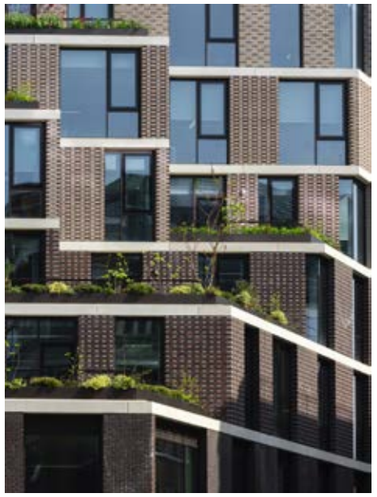
1. Porcelain tile floor finish
2. Perimeter raised planters with planting mix of flowering evergreen shrubs and grasses
3. PPC frame sliding doors
4. Full height fixed glazing
5. Loose planters



Landscape Plan at L02



Proposed Typical Floor Plan



Reference images

4.38 Window And Building Maintenance

The Façade Access and Maintenance (FAM) shall be designed to provide a safe means of access to service the building facade in terms of routine cleaning and general maintenance. Major activities such as replacement of glazing and cladding will be further developed in detail design. The FAM strategy shall be in line with the Working at Height Regulations, and British Standard BS 8560.

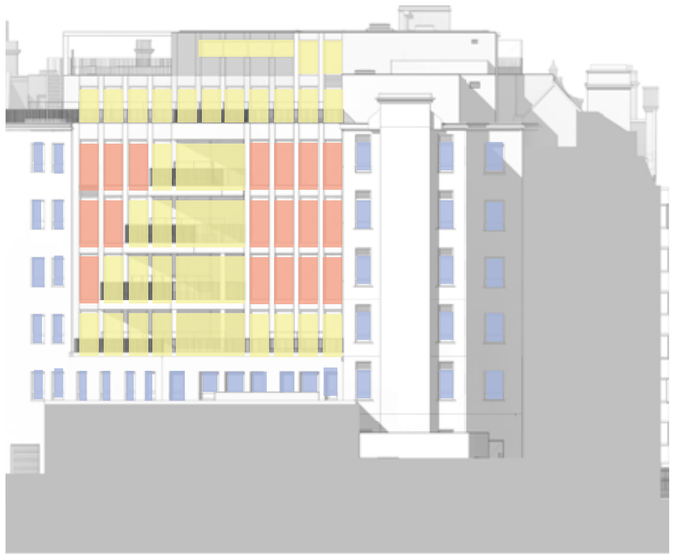
The existing FAM strategy is to generally clean access from internal areas for inwardly opening windows where possible and to utilise rope access/cleaning poles to serve lower levels from street.

Proposed cleaning strategy is annotated on the diagrams to the right and is as follows:

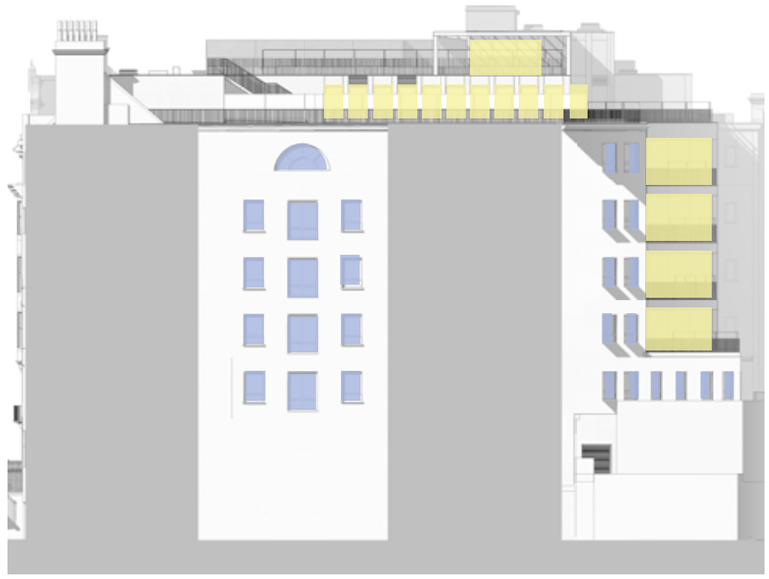
- Cleaning access from ground level using direct hand access and extendable equipment.
- Cleaning access from terrace/roof level using direct hand access and extendable equipment.
- Cleaning access from internal areas for inwardly opening windows or balconies.
- Cleaning access via rope access davits/anchors from roof/ terrace levels.

Proposed East Elevation

Proposed North Elevation



Proposed South Elevation



Proposed West Elevation

4.0
PROPOSALS

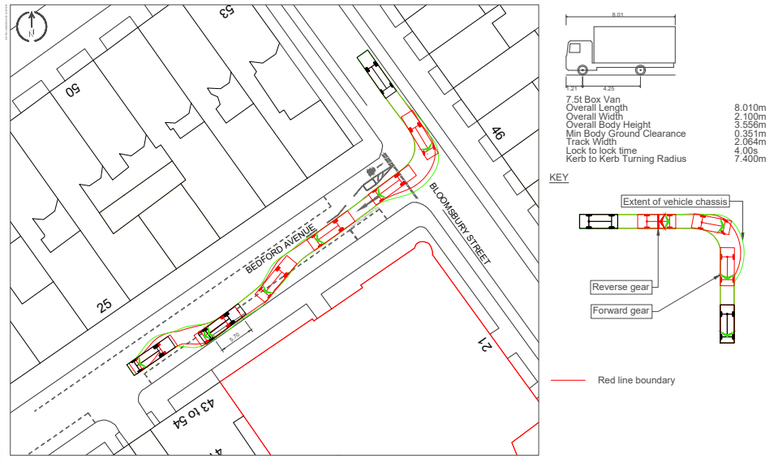
4.39 Highways and Servicing

There is an existing off-street loading bay within the building at 21 Bloomsbury Street, which is accessed from Bedford Avenue. However, the entrance is narrow and has a restricted height of approx. 2.4 m which limits the size of vehicle able to access the building at this location. Vehicle tracking has also been undertaken, which indicates that even a 5.9m light van cannot access and use the existing facility.

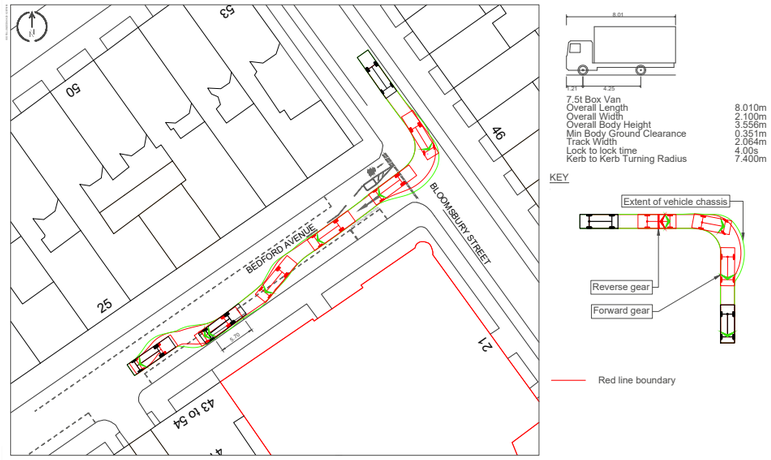
Provision of a formal on-street loading bay in Bedford Avenue has been considered, but this would required the loss or relocation of residents on-street parking bays. TfL kerbside guidance indicates that a forward-in, forward-out on-street loading bay would require a 21.25m length to accommodate an 8m box van. The space required would be reduced if reverse entry was permitted. However, vehicles are required to access the bay in a forward gear by LB Camden.

A cargo-bike orientated delivery strategy is therefore being recommended, where we would target 75% of deliveries to be made by cargo bike, via a local micro-consolidation, last-mile logistics centre. This would be set out in the delivery and servicing plan, which would look to maximise the percentage of deliveries by cargo bike. For other deliveries, unable to be made via cargo bike, there is a section of kerb with a single yellow line further west in Bedford Avenue which could be used for these deliveries.

It is proposed that a formal facility to accommodate cargo bikes within the existing on-site servicing area would be provided for receipt of the deliveries.



7.5T BOX VAN



7.5T PANEL VAN

4.6T LIGHT VAN

4.0
PROPOSALS

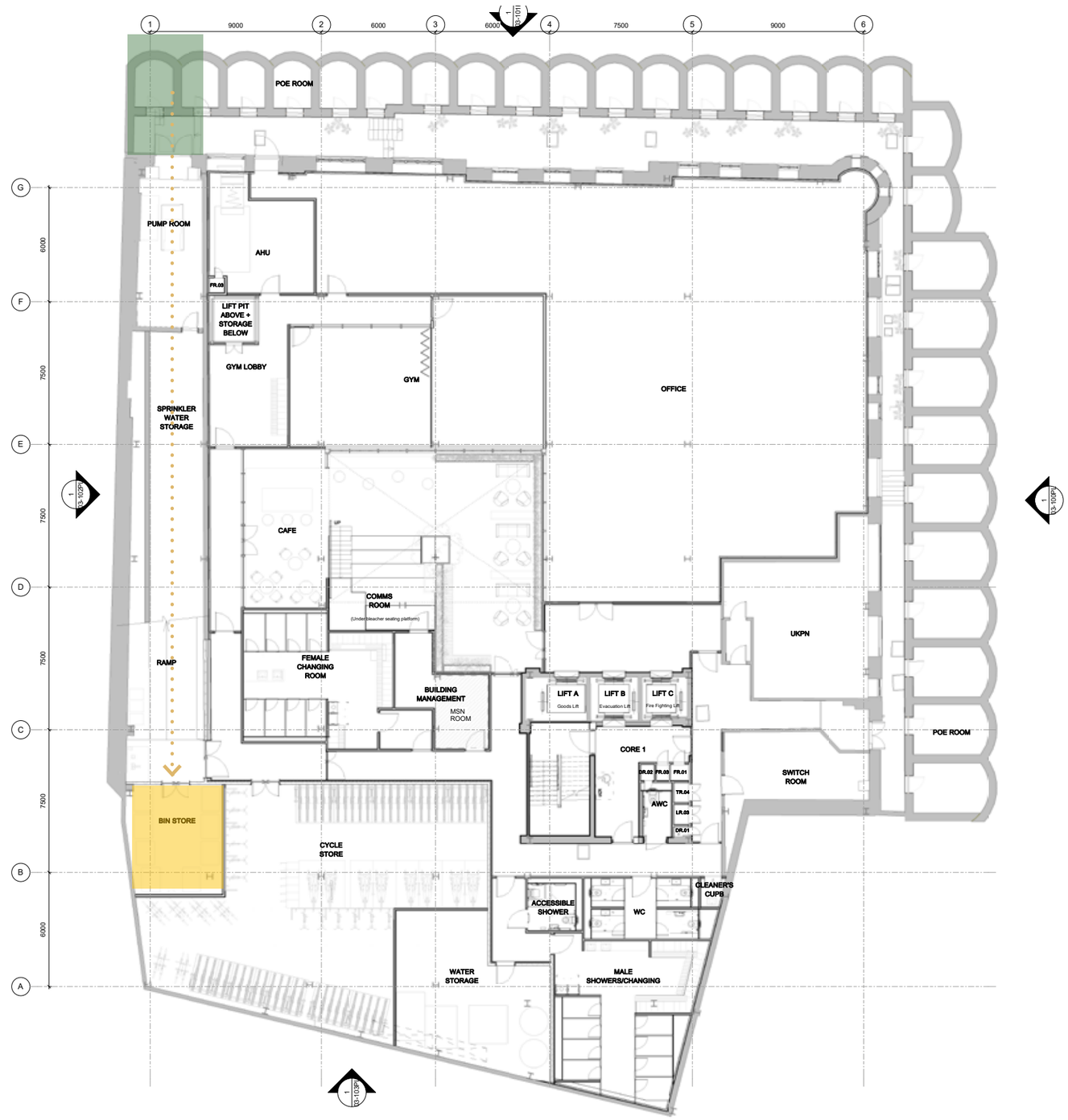
4.40 Transportation + Servicing

Waste Storage & Collection

The existing waste storage will be relocated. Currently waste is stored within the lower ground car parking area in a bay. The proposed waste storage will have an allocated room placed externally from the end of trip facilities at the end of the existing ramp accessed via Bedford Avenue. Waste storage for the proposal has been designed in line with the Camden Council guidance waste storage specifications, which amounts to 8 x 1,100L Eurobins + 3 x 240L food waste bins shared between all office floorspace, including allowance for both recyclable material and residual waste. Food waste bins will be stored at the lower end of the ramp. Waste collection vehicles will continue to stop on Bedford Avenue, as per the existing situation, to collect waste containers directly from the store and ramp.

Key

- Office Entrance
- Bicycle access
- Wheelchair Accessible Entrance
- Fire Egress
- Waste Store
- On-street Waste Collection and Servicing location
- Waste Transfer route
- Delivery + Servicing Route



Proposed Lower Ground Floor Plan

4.0
PROPOSALS

4.41 End of Trip Provision

+ The proposal includes removal of existing car parking and provision of dedicated cycle parking at lower ground floor and ground floor in accordance with the Adopted London Plan (2021)

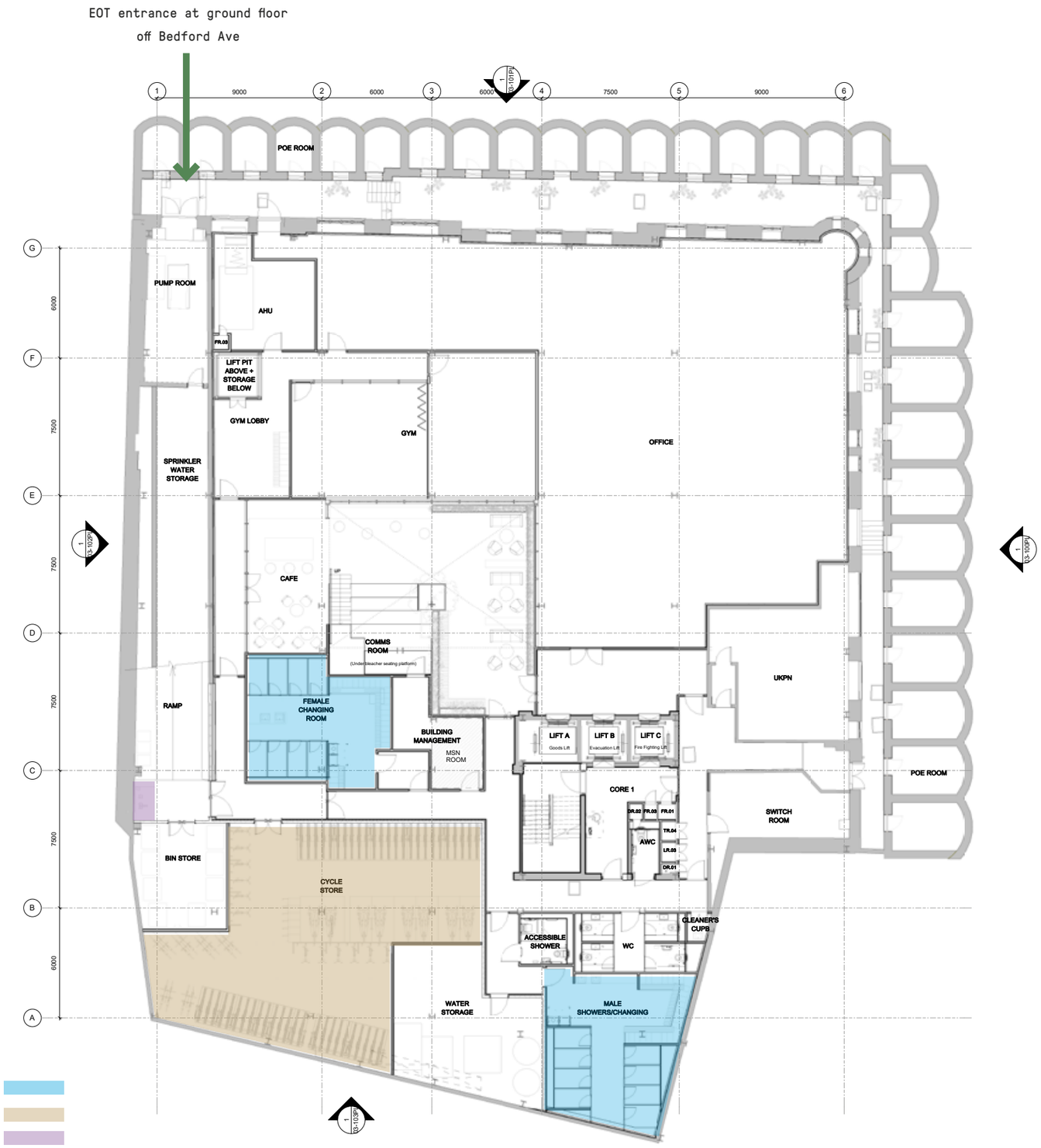
+ Designing in line with BREEAM and BCO guidelines, end of trip facilities will provide showers, accessible WCs and lockers.

	LONDON PLAN		
	Long Stay		Short Stay
	Number	Percentage	
Two Tier	100	62%	
Wall Mounted	24	15%	
Brompton	18	10%	
Sheffield	12	8%	12
Adapted Cycles	8	5%	
Sub Total	162	100%	12
Total	**174**		

	PROPOSED
Showers	17
Lockers	112

Cycle + shower + cycle provision based on proposed GEA (12,103 sqm)

Example images of cycle store



Key:
Shower/Changing
Cycle store
Cycle Repair Point

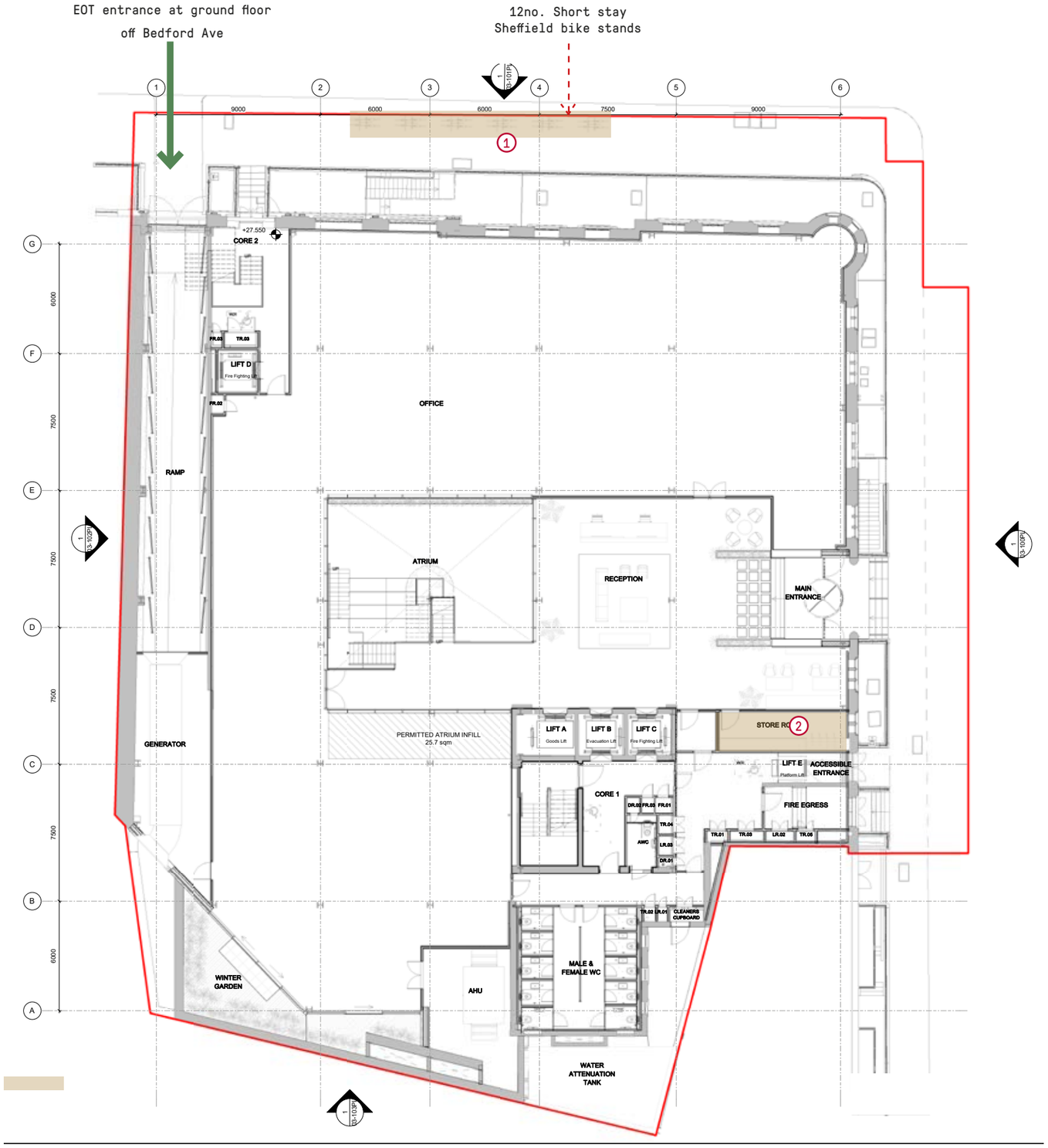
Proposed Lower Ground Floor Plan

4.0
PROPOSALS

4.42 End of Trip Provision

1. 12no. Short stay on Bedford Avenue
2. 18no. Long stay Brompton bike lockers in ground floor store

Example images of Sheffield bike rack + folded bike lockers



Key:

Cycle store

Proposed Ground Floor Plan

4.0
PROPOSED DESIGN

4.42 Accessibility - Summary

Access aims

The proposed 21 Bloomsbury Street redevelopment will be designed to be as inclusive as possible, given the constraints of the site/existing structure, so that it can be comfortably and independently used by people working in and visiting the development, and the wider community.

The development has the potential to meet the guidance of Approved Document M Volume 2, and the access and inclusive design policies of the Greater London Authority as a minimum.

Where possible, the design of the proposed redevelopment will also consider and incorporate the following:

+ Design guidance stated in relevant British Standards and other current good practice guidance about meeting the requirements of disabled people; and
+ Contemporary requirements and expectations

Summary of access provisions

The proposals for the redevelopment at this stage demonstrate that a good level of inclusive design will be achieved by the finished scheme, given the constraints of the site/existing structure.

The key access provisions for the proposed redevelopment include:

+ Incorporation of the principles for inclusive design wherever possible.
+ Accessible cycle parking spaces to lower ground and ground level for staff and visitors in line with the London Plan;
+ Upgraded wheelchair-accessible entrance to the existing location
+ Wheelchair-accessible sanitary facilities alongside cycling facilities and in all locations where WCs are provided.
+ Platform lift provision with wheelchair accessible entrance.
+ Refuge space provision within both cores assisting wheelchair users in the event of a fire.
+ Step-free access to all parts of the buildings, including balconies and roof terraces (that are not strictly for maintenance access)
+ The use of fire-fighting / evacuation lifts as part of the evacuation strategy.
+ Evacuation chairs provided in both cores at lower ground, ground level and sixth floor level as part of the evacuation strategy.

4.0
PROPOSED DESIGN

4.43 Accessibility - Arrival

Pedestrian Access

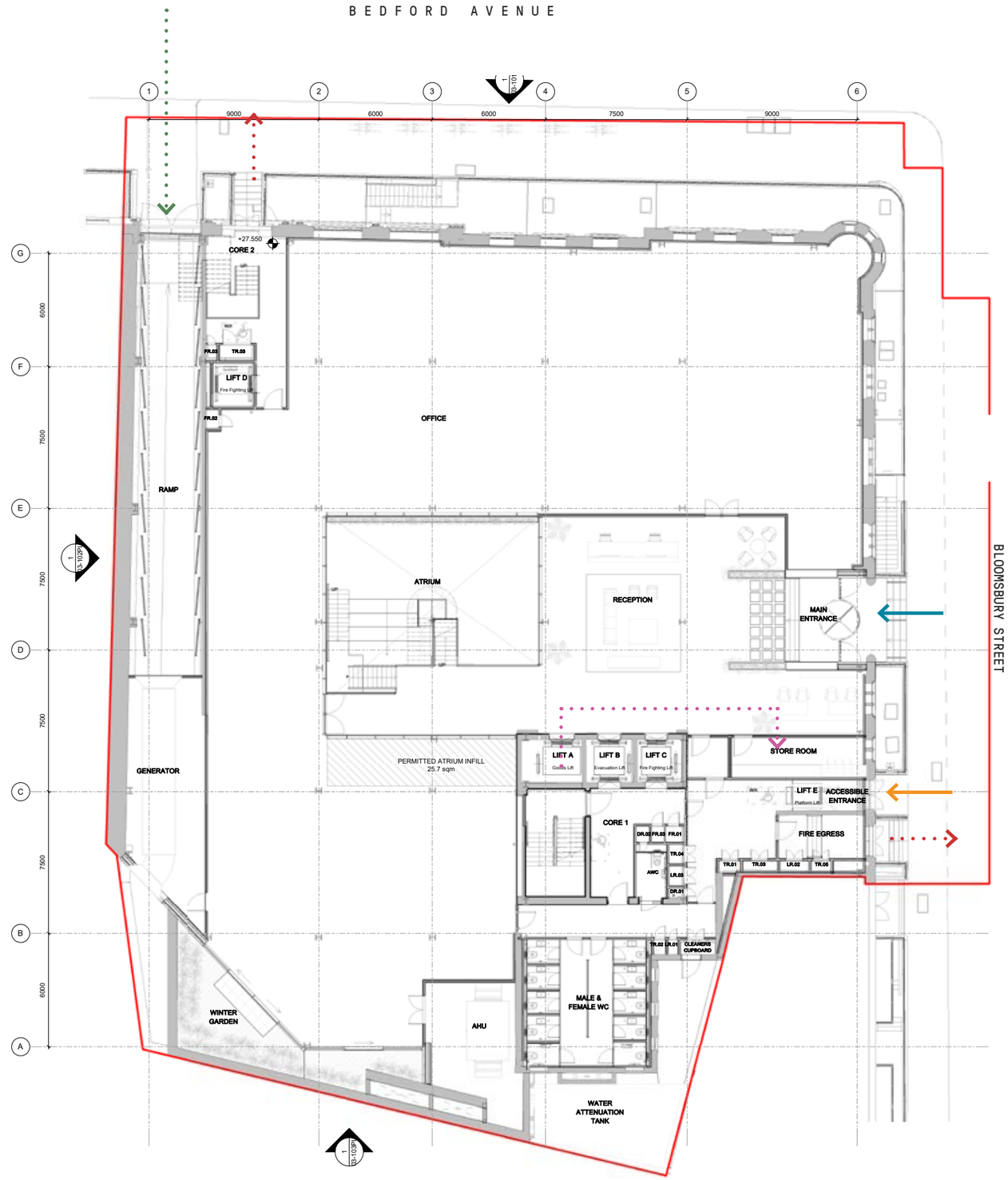
21 Bloomsbury Street is surrounded by existing footways. The footways are generally of a gentle gradient and in good condition with minimum trip hazards. A dedicated cycle lane runs alongside pedestrianised access. There are no obstructions for wheelchair users but it should be noted that Bloomsbury Street footpath is less wider than Bedford Avenue footpath. This is due to the additional cycle lane on Bloomsbury Street, whereas Bedford Avenue does not accommodate a cycle lane.

Approaches to main entrances

The approach to the main entrances is via existing footways. There is a more generous footway on Bedford Avenue compared to Bloomsbury Street. Existing wheelchair accessible entrance on Bloomsbury Street is ramped and will be retained for these purposes. There is currently no kerb directly in front of the proposed cycle entrance. The existing condition of the ramped access to the cycle parking is poor and will be upgraded.

Key

- Office Entrance
- Bicycle access
- Wheelchair Accessible Entrance
- Fire Egress
- Waste Store
- On-street Waste Collection and Servicing location
- Waste Transfer route
- Delivery Route



Proposed Ground Floor Access Overlay

4.0
PROPOSED DESIGN

4.43 Accessibility - Arrival

Car Parking

No car parking is provided on site as part of the proposed refurbishment. The existing site historically included provision of 5 no. car parking spaces, now superseded by cycle parking accessed via a ramp from Bedford Avenue. Provision for 40 cycling spaces and 6 lockers is located in the car parking area.

However, all car parking is to be removed as part of the proposals to achieve a car-free development and provide additional cycle parking and changing facilities. This is a refurbishment/extension and therefore “Adopted London Plan” is not applicable.

There is one disabled parking on-street in the vicinity of the site, approx 20m, in the event a blue badge holder requires access to the building. On-street ‘disabled badge holder’ parking is available on Morwell Street (both approximately 161m from the main entrance),

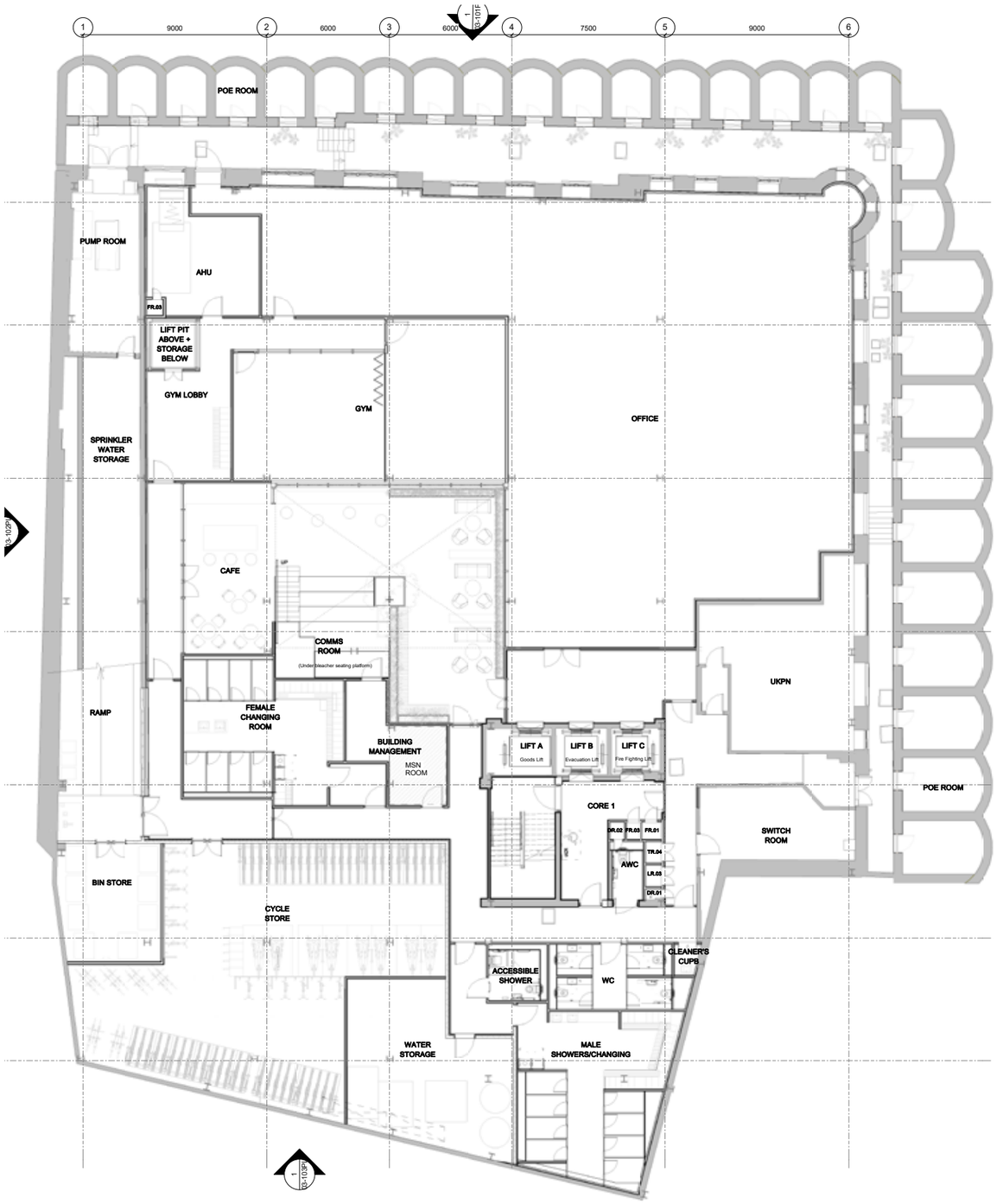
Cycles and mobility scooters

A total of 163 cycle parking spaces will be provided at lower ground level. Eight (approximately 5%) of the long-stay spaces will be capable of accommodating larger / non-standard cycles as per the London Cycling Design Standards (LCDS), which is referenced by the London Plan. Twelve additional Sheffield stands are proposed, which can be used by cyclists who are unable to safely or comfortably use stacked or semi-vertical racks.

A dedicated cyclist entrance off Bedford Avenue will be provided; a hinged swing door with a clear opening width of at least 2000mm is proposed. The door will be power operated in line with LCDS guidance. CCTV operation is proposed to monitor access to the lower ground cycle facilities. There are no additional doors to negotiate en route to cycle parking spaces. Access to the lower ground cycle store is via ramped access from Bedford Avenue. There is an additional storage for cycles on the ground level in reception that can be accessed from the main entrance on Bloomsbury Street.

Cyclist shower and changing facilities are proposed at lower ground level; these will include separate-sex ‘standard’ shower facilities, and a wheelchair-accessible shower and WC room.

Refer to Momentum’s report for further details



Proposed Lower Ground Floor Plan

4.0
PROPOSED DESIGN

4.43 Accessibility - Building Features

The building is currently office use, with office space located from Lower Ground to sixth floor, office terraces between L02-L07, and lower ground cycle parking facilities. Tenant fit-out of office areas will be subject to separate applications, though as the building is not listed there would be no requirement for planning for internal works.

Entrance(s)

There are entrances located on both Bloomsbury Street and Bedford Avenue. All entrances level landing and stepped access will remain as existing. There are existing steps internally beyond the revolving doors and will be retained.

The location of the main entrance to the building will be retained and a replacement new revolving door and pass door will be installed. A slightly wider revolving door drum is proposed to meet occupancy numbers and maintain a steady space temperature and minimises loss of heating/cooling for the building. A clear opening width of 1000mm and a level threshold will be provided to the adjacent accessible proposed automated door. The pass door will be automated to assist the people who need an alternative entry to the building.

As noted , a dedicated cyclist entrance with a power-operated, hinged swing door with a clear opening width of at least 2000mm is proposed off Bedford Avenue via the ramped access leading towards the cycle and shower facilities at lower ground level.

Reception and Lobby

Details of lobby and reception areas will be developed at subsequent stages of design development, however these areas will be designed to meet AD M Vol.2 including, but not limited to, the provision of fixed hearing enhancement system(s) at reception and lower sections of desk / counter that are permanently accessible to wheelchair users.
The reception desk will be visible from its respective entrance.

A wheelchair-accessible WC (AWC) will be provided near the main reception, within the existing core 1. Seating in the office reception will be provided and can be accessed via the platform lift from the accessible entrance via a lobby to the reception.

A recommended and schematic security strategy within reception will be a mix of access fob as well as power assisted doors.

Horizontal circulation

Details of horizontal circulation for the base-build will be developed further at a subsequent stage of design development; details of tenant fit-out of areas will form a separate application usually only in case of external works. Elements of horizontal circulation such as internal doors, internal lobbies, and corridors will be designed to meet the guidance of AD M Vol.2; good practice recommendations of BS 8300-2:2018 will be also be considered. Consideration will be given to materials and finishes at the appropriate stage of design development in order to avoid the use of visually and acoustically reflective surfaces and the use of bold patterns that could create visual confusion or be mistaken for changes in level.

4.0
PROPOSED DESIGN

4.43 Accessibility - Vertical Circulation

Lifts

Details of new and refurbished lifting devices will be developed at a subsequent stage of design development, however lifts will be designed to meet the guidance of AD M Vol.2, and, for passenger lifts, BS EN 81-70:2018.
The existing platform lift will be refurbished to address the change in level between the accessible entrance and the ground floor level.

Existing lift cars will be replaced. The main lift core includes one goods lift, one dual evacuation/ passenger lift from lower ground to seventh floor and one dual evacuation/fire-fighting lift; they can all be used as part of the evacuation strategy. An additional fire-fighting lift is proposed within core 2, which can also be used as part of the evacuation strategy.

Existing door openings for lifts will be increased to accommodate 1000mm door width. The proposed lift landings at all levels achieves a 1500mm x 1500mm unobstructed space directly in front of the lift door.

Stairs

New and refurbished internal stairs will be designed to meet the requirements of Part K for 'general access stair' (except where noted below), and will be detailed at a later stage, including dimensions that suit ambulant disabled people, tonal contrast to aid people with impaired sight, and handrails that extend 300 mm beyond the top and bottom riser. It is understood that young children will not be regular users of the office areas of the building. Should young children be anticipated to be regular users of the building, the design of stairs, guarding, etc. in those areas will take this into account.

New internal stairs are proposed in core 2 to improve circulation and extend floor levels to sixth floor. New stairs are also proposed within core 1 to accommodate new office level at sixth floor and amenity space at seventh floor. New stairs provided will be to match the existing width which is subject to internal survey dimensions. The proposed stair width will be compliant with AD K and M Vol. 2, but will undergo Building Control agreement once dimensions are confirmed.

A new timber stair is also proposed in the atrium to serve the office areas at Lower Ground to Sixth Level. Stairs in Cores 1 and 2 are existing and are to be retained. Core 2 has been adjusted to comply with Building regulations.

Ramps and gradients

Existing ramped escape route at lower ground and street level will be retained. The ramped escape route on Bedford Avenue does not comply with Part K in a majority of the section. The ramp is split in three, the entrance area is level, then the ramp gradient transitions to 1:20 for 3000mm and transitions again for 25000mm at 1:10. These figures are based on the archive drawings and are subject to confirmation once we receive a measured internal survey.

4.0
PROPOSED DESIGN

4.43 Accessibility - Access to Facilities

Terraces

Terraces for tenant / building use are located from second - seventh floor levels. Additional terraces for maintenance use only are located at sixth and seventh floors. Details of terraces will be further developed at subsequent stages of design development, however terraces (that are not for maintenance use only) will be designed to meet AD M Vol.2, including accessible thresholds and terrace doors. Sliding doors with a clear opening of more than 1000mm are currently proposed.

Refreshment facilities

Shared refreshment facilities—where provided—will be designed to meet the guidance of AD M Vol.2 including worktop surfaces 850mm AFFL with knee clearance beneath of at least 700mm AFFL and 800mm wide, and the provision of taps that are easily operable one-handed using a closed fist.

Sanitary provision

New sanitary facilities are proposed at all occupied floor levels (lower ground through seventh floor). Self-contained WCs (basin and toilet within each compartment) are proposed.
A wheelchair-accessible WC (AWC) will be provided near the office reception. An AWC will also be provided in each location that toilets are provided from lower ground through seventh floor. A choice of transfer layout will be provided on alternate floors. The travel distance to reach an AWC may slightly exceed 40m from the further parts of some floor plates, however the existing condition will be improved; the new WCs will be located in the same vicinity as the existing WCs.

A unisex WC compartment for use by people with ambulant mobility impairments will be provided in each location that WCs are provided.

Cyclist shower and changing facilities are proposed at lower ground level; these will include separate-sex ‘standard’ shower facilities, and a unisex wheelchair-accessible shower and WC room (AWC/shower). The AWC/shower should have the same level of amenity as the ‘standard’ showers, including grooming facilities and ready access to lockers.

Doors to sanitary compartments will have emergency release mechanisms so doors can be opened outwards from the outside in event of emergency. All sanitary facilities will be designed to meet the guidance of AD M Vol.2; the good practice guidance of BS 8300-2:2018 will be also be considered. Guidance on lockers in AD M Vol.2 and, where feasible, BS 8300-2:2018 will also be considered detail design development.

4.0
PROPOSED DESIGN

4.43 Accessibility - Access to Facilities

Signage

A consistent signage and wayfinding strategy will be developed at the relevant stage of design development. Good practice guidance, such as BS 8300:2018 and Sign Design Guide, will be considered.

Emergency egress

The fire strategy for 21 Bloomsbury Street will take precedence over this section. The strategy should include best practice procedures for the evacuation of disabled people from all parts of the buildings, based on BS 9999:2017 and Regulatory Reform (Fire Safety) Order Supplementary Guidance.
The following measures for the evacuation of disabled staff and visitors should be considered:

+ Designated escape routes from each part of the building that allow wheelchair users and others to reach a safe area to await assistance;
+ Provision of safe refuge [900mmx1400mm clear space] with a two-way communications system, within reach of a wheelchair user, to allow direct communication with the fire controlling authority in accordance with BS 9999:2017;
+ Alarm systems that provide visual as well as audible signals in isolated locations such as WCs;
+ Use of fire-fighting lifts as part of the evacuation strategy. Note the (not yet adopted) Intend to Publish London Plan (Policies D5 Inclusive Design and D12 Fire safety) Fire safety) will require a lift suitable for evacuation regardless of building height; and
+ Management procedures that include the appointment and regular training of staff to assist with the evacuation of disabled people.

Evacuation chairs are designed to carry people to a place of safety in areas accessed by stairs. Upwards evacuation will require motorised chairs. Evacuation chairs should be considered a last resort for the safe evacuation of wheelchair users. They should be regularly maintained and inspected, and relevant staff trained in their use.

The use of suitable warning systems, such as vibrating pagers may be considered for individual members of staff, following a Personal Emergency Egress Plan (PEEP) assessment.

4.0
PROPOSED DESIGN

4.43 Office Design : Quality of Space

The flexible office spaces have been designed to the highest standards to provide a comfortable and enjoyable environment for occupants and visitors.

Improved floor to ceiling heights to maximise natural daylight, improve well being and to appeal to a broad range of occupiers.

Windows will provide high quality natural light.

The offices will be supplied with a mechanical ventilation strategy powered from new central plant run off sustainable low energy equipment.

Access to - and circulation throughout the offices - will be fully accessible.

WCs - including the accessible washroom is accessed from the lift lobby on each office floor.

Offices will enjoy terraced amenity space at 2nd - 7th floor (refer to associated page for more information).

The new 6th floor storey is formed of lighter weight construction principles employing a CLT engineered timber solution.

The new 2nd-7th floor glazed fenestrations will involve the use of high quality DGU's in a PPC aluminium window system.

CGI of the proposed CAT-A office

4.0
PROPOSED DESIGN

4.44 Services Design

Mechanical + Electrical

+ A sustainable heating and cooling strategy has been developed to embrace the principals of the circular economy and maximise on site resources. The development will be served by an HVRF system consisting of external VRF condenser units in the level 06 plant area. There will be one unit provided per office tenancy, plus an additional landlord unit to serve lower ground / ground landlord areas.

  The VRF units at roof level will each feed a 2-pipe refrigerant loop to HBC controller units located at high level within the space being served. The controller unit provides a hydraulic break between the incoming refrigerant pipework and the hot / cold water which it then supplies to the terminal units to provide either heating or cooling. The implementation of the HVRF system as opposed to a regular VRF system allows a reduced refrigerant load to be used for the same amount of thermal capacity.

  The individual VRF units will be sized and used to meet the annual simultaneous peak heating and cooling load for each of the demises within the building.

  Fan coil units provided at high level within the office floor plate are proposed for all floor levels and these will provide heating and cooling to meet the office comfort requirements.

+ Office areas will be ventilated by on-floor air handling units (AHUs), with one AHU per floor, and each serving up to two tenancies.

  The on-floor AHUs will be fed by a single intake and exhaust riser shaft located adjacent to core 1. The units on levels 01 - 05 will connect to these risers which will draw intake air down and exhaust air up to the roof level connection point. The units on lower ground, ground and level 06 will have dedicated local connections to outside for intake and exhaust air.

  The AHUs will include filtration and heat recovery, and integral heat pump units which take warmth / cool out of the outgoing air flow and deliver it into the supply. Office air distribution will be via fresh air provision to the back of fan coil units and return air grilles.

+ Ventilation for the WC areas will be provided by local dedicated heat recovery units on each floor. The units will also be complete with air filtration. Air will be extracted from above toilet cubicles via a ductwork system and discharged to atmosphere from the building façade at each level. Fresh Air intakes will also be located on the façade at each floor and will be suitably positioned to avoid contamination with the exhaust air.

The scheme also includes:

+ High performance glazing to all windows.

+ High efficiency heating/cooling systems.

+ Low energy lighting (LED lamp sources) with PIR occupancy control.

Fire Protection Services

The existing atrium is currently protected by window sprinklers. Existing window sprinkler system will be replaced to protect the glazing around the atrium from lower ground to the sixth floor.

Fire curtains will be installed between cafe + Atrium, Atrium + reception to reduce a fire load at the Atrium base.

There is currently a dry riser in Core 1 and this will be replaced. Additional dry riser main will be provided in Core 2 to improve fire safety.

Vertical Transportation

Core 1 - Main core evacuation / firefighting / goods lift:
The main core lift provision will comprise of three electric traction machine roomless lifts.

All existing lifts will be replaced with new lift cars and evacuation lift will serve various floors from lower ground to level 7 and firefighting/ goods lift will stop at level 6.

Core 2 - Firefighting lift:
New secondary core will serve from level 0 to level 5 and will also be used as evacuation lift.

The traffic analysis has been carried out in accordance with BCO Guide 2019 design criteria and is compliant with the BCO recommendations.

The passenger lifts will be controlled by a hall call destination control system.

Additionally, the existing platform lift will be replaced and address the level change to the ground floor level.

4.0
PROPOSED DESIGN

4.45 Sustainability

BREEAM

The aim is to deliver a future-proofed building with lower energy consumption and healthier speculative office development in London that targets BREEAM Outstanding. Current pre-assessments show a BREEAM score of 85.77%.

The design team has been involved in BREEAM workshops to ensure that the requirements to achieve Outstanding are understood by the team and all relevant actions for Stages 1, 2 and 3 have been completed or are in hand.

Energy

The Proposed Design adopts a range of passive design measures for the new build extension that are integral to the design.

These include:

+ High thermal envelope performance to reduce uncontrolled heat transfer through the building fabric.
+ New glazing to benefit from low g-values through solar control glazing and high visible light transmittance to allow for good daylight penetration.
+ Best practice construction techniques to reduce air permeability.

In addition to these passive measures, the proposal includes active efficiency measures such as:

+ High efficiency heat recovery hybrid variable refrigerant flow (VRF) system
+ A microprocessor-based digital Building Management System
+ Landlord meters being connected and interfaced with BMS to enable energy consumption data
+ EC/DC Motors for fan coil units
+ Ventilation heat recovery system
+ Interior lighting system with high efficacy fittings and controls

The combination of these measures is expected to reduce regulated carbon emissions by 38% over the corresponding existing building baseline in line with methodology detailed in Part L2A 2013 of the Building Regulations and the London Plan. Beyond this reduction in regulated energy use, the development intends to measure energy use with high resolution to enable highest level of operational performance, and corrective action where it is needed. A fabric first approach to the buildings energy strategy has been taken through the design of a high thermal performance building envelope, with optimised glazing, to limit uncontrolled heat transfers. This approach allows the heating / cooling loads of the building to be minimised and hence reduce both the size and running time of the plant that is required.

Whole Life Carbon

The Proposed Development is targeting an 'upfront' embodied carbon intensity that is in line with the 'aspirational' targets as set out within the LA London Plan Guidance Whole Life Carbon Assessments document (March 2022), with an intensity of <600kgCO2e/m2 GIA (A1-A5).

This is in-line with a LETI 'C' rating within LETI's Embodied Carbon Target Alignment (June 2021) publication, described as 'current best practice'.

Water

The proposed development will minimise the consumption of potable water in sanitary applications. Water-efficient fixtures and fittings, such as dual-flush WCs and low flow rate wash hand basin taps, shower heads and kitchen taps, will be installed in the proposed toilets, changing facilities and kitchens/kitchenettes.

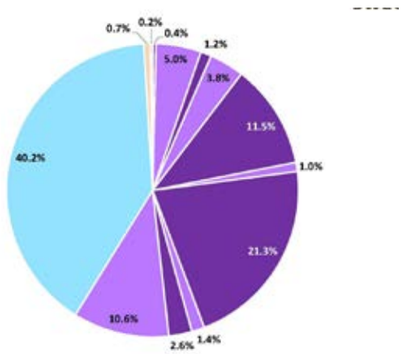
A water meter with pulsed or other open protocol communication output to enable connection to an appropriate utility monitoring and management system, e.g. a building management system (BMS), will be specified on the mains water supply to the building. Additional sub-meters of the same type will be fitted on the supply to individual water-consuming plant or building areas. This metering strategy will ensure water consumption can be monitored and managed, therefore encouraging reductions.

A leak detection system capable of detecting major water leaks on the mains water supply within and to the building will be installed to reduce the impact of major water leaks that may otherwise go undetected.

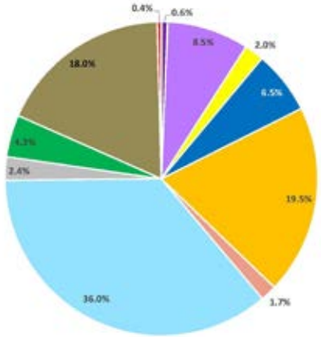
Flow control devices will be fitted to the toilet facility to minimise water leaks and wastage from sanitary fittings.

Assessment	Scheme	Scope	Minimum Target
Office	BREEAM UK Non-domestic Refurbishment and Fit-out 2014	Shell & Core Parts 1, 2 & 3	'Excellent' (score of ≥70%) with aspiration for 'Outstanding'

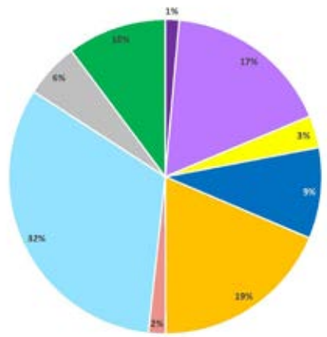
BREEAM Target and Aspiration



Distribution of existing embodied and operational carbon of 21 Bloomsbury



Distribution of proposed embodied and operational carbon of 21 Bloomsbury



Distribution of upfront Embodied Carbon

4.0
PROPOSED DESIGN

4.45 Sustainability

Embodied Carbon - Structural

Sustainability is a key influencer in the decision-making process of construction projects, with sustainable projects being desirable to not only the client and construction team, but wider community. As part of the structural design, the embodied carbon of materials is considered.

The embodied carbon of the structural elements for the refurbishment of 21 Bloomsbury Street have been calculated by calculating the volume of materials and multiplying this by typical values of embodied carbon per kg of material.

The embodied carbon values are presented as the embodied carbon per meter squared of floor space (as shown in the table). For refurbishment projects, such as 21 Bloomsbury, the embodied carbon values are reported as the embodied carbon for all proposed elements per meter squared of new floor space.

The values stated in the table will need to be revised following the investigation works to determine the extent of strengthening works required to the existing structure. Steel and concrete can be carbon heavy elements, the strengthening works will be undertaken in these materials. An allowance for the strengthening materials has been considered, but the values may increase or decrease following the results of the investigation works.

Often, a high percentage of the embodied carbon values come from the floor plates. The existing structure is steel and composite deck. This form of construction has a high embodied carbon, but for architectural reasons, such as the desire for exposed soffit and the fire considerations, the same floor construction has been considered. Cross Laminated Timber (CLT) floors for the new floors where possible, such as the new roof structure.

The timber will sequester carbon, i.e. it will absorb carbon from the atmosphere in the growing process and store this in the material. At the end of the life cycle of the timber element when the timber element is disposed of, it will release this carbon back into the environment. This is the sequestered value shown in the table.

The proposed embodied carbon values for refurbishment projects tend to be on the higher side than those of new build structures and can often struggle to match LETI targets. For an office building approximately 65% of the embodied carbon is considered in the sub-structure and superstructure in stage A, i.e. until practical completion of the project. As such a LETI target for an office project completing in 2025 is 261kgCO2e/m2. 21 Bloomsbury Street embodied carbon value is clearly higher than the target, but this is expected due to the project being a refurbishment, the extent of strengthening works, the existing column grid not being as efficient as would be suggested for a new build, complex load transfers around existing structure and material palate which is dictated by the existing structure. The value of 410kgCO2e/m2 is in keeping with similar projects undertaken by Heyne Tillett Steel.

Existing GIA	10167	m2
Additional GIA	1141	m2
Retained/Avoided	292	kgC02e/m2
Sequestered	-75	kgC02e/m2
Proposed	410	kgC02e/m2

HTS Embodied Carbon Calculation

4.0
PROPOSED DESIGN

4.46 Circular Economy and Materials

Business as usual in the built environment is based on a linear economy where materials are extracted, manufactured, used over a certain period of time and finally disposed of as waste. In a circular economy waste is no longer disposed of; it is used as a resource for future production processes. Waste ceases to exist as a by-product, ending the current unsustainable practice of exploiting the resources of our planet without replenishment. As one of the most resource intense industries, construction has a responsibility to address this issue.

In order to facilitate the re-use of building materials in the future this has to be considered during the design stages of buildings today. The following circular economy principles are being considered during this process:

+ Conservation of virgin resources
+ Designing for adaptability
+ Designing for longevity
+ Designing for disassembly, re-use and recycling
+ Designing out waste
+ Managing waste sustainably

The proposed development targets the first and foremost principle of Circular Economy, by promoting the reuse of a significant proportion of the existing building, whilst promoting changes that will ensure that current regulations and standards are exceeded through restoration of any required elements and provision of new plant. This will lead to a reduction in embodied carbon over the lifetime of the building, along with minimised waste arisings and new resource depletion.

Subsequently, disassembly of relevant elements will be carefully carried out, materials will be appropriately recycled and/or reused off-site.

Responsibly sourced materials for key building elements, including thermal insulation materials, will be specified, wherever feasible. Additionally, timber used in these elements will be specified as being responsibly sourced (e.g. FSC certified). The intent of the project is to select suppliers who can provide an environmental management system (EMS) certificate (e.g. EMAS/ISO 14001 certificate).

By retaining the existing steel structure and providing new structural supports where appropriate, the development will substantially reduce the embodied carbon content when compared to typical structural solutions.

Health and Wellbeing

Internal and external lighting will be designed in line with best practice for visual performance and comfort. Daylight dimming and/ or occupancy sensors will be specified inside the building, where possible. A time switch and daylight or occupancy sensors will be applied to external space lighting.

The building will achieve adequate indoor ambient noise levels and appropriate sound insulation levels as appropriate for different uses. All water systems in the proposed refurbishment will be designed in order to reduce the risk of legionellosis in operation.

In order to deliver a high level of indoor air quality, an Indoor Air Quality Plan (IAQP) will be developed in accordance with BREEAM requirements, considering the following air quality issues specific to the building location:

+ Removal of contaminant sources
+ Dilution and control of contaminant sources
+ Procedures for pre-occupancy flush out
+ 3rd party testing and analysis.

The IAQP will be implemented during the design, construction and operation of the building. It will be included within any tender documentation provided to potential Contractors.

4.47 Climate Change Resilience

The building extension and servicing strategy have been designed to ensure the building can withstand more extreme weather events as a result of climate change and changing weather patterns. This will ensure the building's resilience and reduce the need for future maintenance or repair, along with reducing future risks to building users.

The following hazards have been identified, along with the actions considered to address and mitigate these.

Hazards:

+ Overheating
+ Colder temperatures and increased snowfall
+ High wind speeds
+ Increase in precipitation
+ Flooding
+ UV damage

Mitigation:

+ Higher flexibility for rapid temperature changes and accommodation of higher cooling and heating loads.
+ Light coloured reflective roof materials and provision of external vegetated areas to reduce urban heat island effect.
+ New roof areas designed in accordance with applicable standards which account for increased loads due to snowfall and increased wind speeds.
+ Provision of attenuation tank to decrease run-off from development and avoidance of overloading public sewers.
+ External materials specified to increase UV durability and suitable lifespan durability, such as aluminium cladding

4.0
PROPOSED DESIGN

4.48 Structural Design

Project Overview

HTS have been appointed by Capital 38 to provide Structural and Civil Engineering design services for the proposed re-development and extension at No. 21 Bloomsbury Street.

Condition of existing structure

All HTS understanding of the existing structure is based upon limited visual inspections and incomplete architects archive drawings. At this stage, no intrusive investigations have been undertaken. The existing foundations are assumed to be piled, but the diameter and depth of the piles are unknown and as such the capacity of the.....

Existing Superstructure

The 1990's designed superstructure is a steel frame with a metal re-entrant deck with a concrete slab. The beams sit below the slabs and are assumed to be acting compositely. Based on a visual site survey, the existing services appear to pass through penetrations in the existing beams.
There is an existing atrium to the centre of the building. The atrium roof is supported on a series of trusses equally spaced running from west to east of the building and supported on steel columns. The remainder of the roof slab is a metal deck flooring system supported by beams and columns.
The building steps back in the south with part of the current structure stopping at level 1 and the roof at level 2 being used as an external terrace, this area is assumed to be constructed the same way as the main building.
All columns in the current structure are assumed to be steel, completely vertical and continuous throughout the building. Spliced connections are expected given the height but these have not been confirmed at this stage. There are various transfers at ground floor and 1st floor for the step backs on the southern boundary and the atrium.
As part of the 1990's development the masonry façade on Bedford Avenue and Bloomsbury Street were retained, these are likely to be supported at the base and restrained at each level up the structure. The cavity wall façade installed during the 1990's development is supported at each level.

Existing Substructure

Basement construction and foundations are unknown. The external vaults below the pavement have been locally confirmed as masonry construction, with either a capping beam or a pile cap supporting the perimeter columns. The internal columns are assumed as supported on piles and the retained façade will have a strip footing.
The lower ground level slab is formed from a reinforced concrete slab laid to falls either spanning between pile caps or ground bearing. Investigation works will be required to confirm the assumptions.

Atrium Infill

The atrium is to be partially infilled to increase lettable area [permitted under certificate application 2022/0189/p] and to improve connectivity between floor plates. A new central staircase will serve this infilled area. The infill shall be formed from steel beams and a metal deck floor spanning between the existing frame and new columns.

To limit deflection of the existing steelwork supporting the proposed atrium infill, the existing steels may require strengthening. Intrusive investigations will be required to determine the size of the existing beams to allow the extent of strengthening works to be determined.
It is expected that the existing beams will have web penetrations for the existing services to pass through. There are 5 columns and 5 beams at each level which will require strengthening works to increase the capacity for the new loads. The extent of strengthening will be dependent on the outcome of the investigation works.

Rear Extension

The proposed rear massing extension is from levels 2 to 5. The extension is unlikely to need beam strengthening as the removal of the façade cavity wall construction will offset the additional floor weight, however, until investigation works are undertaken strengthening works should be considered. The extension is to be formed with steel beam and metal deck to maintain the same floor to ceiling heights. There are columns and foundations impacted by the rear extension are likely to require strengthening throughout until sizes are established via intrusive investigations. As with the atrium infill, the foundation strengthening here will be provided by proposed mini-piles.

Level 6

Currently the roof area has plant and is accessible for access, hence may have been designed for a range of different loads. Generally, due to the plant loading allowance, beam strengthening is not required, however, allowance has been made for strengthening where existing beams become transfer beams supporting the new level 7.

The current roof of the atrium will be removed and rebuilt in a glulam timber structure. This provides the interior finish. Also reducing the need for additional materials to then line and finish the new storey.

To create more useable space, the top level of mansard roof is to be rearranged to remove the columns at the ridge location. The new cranked steels will also support the false chimneys, which are to be constructed from metsec, clad with brick slips. Investigation works will be required to determine the location of the existing structure for the new mansard structure to connect to.

Level 7 Extension

The proposed 7th floor extension is stepped back and wraps around the atrium. The additional storey is to mainly be formed by extending steel columns from the floors below. Where this is not possible due to the position of the floor above new columns sitting on transfers on the 6th floor, 6no beam will require strengthening on level 6. The other columns are built from beams forming the atrium infill.

To limit the extent of strengthening to columns and foundations the form of the extension will be utilising timber CLT floors in a steel-timber hybrid. The 7th floor extension will increase the load on 35 no columns and foundations.

4.0
PROPOSED DESIGN

4.49 Fire Strategy Summary

The fire strategy for the non-residential areas is based on guidance in BS9999: 2017 Fire safety in the design, management and use of buildings – Code of practice.

The existing building does not have any fire-fighting shafts so new fire-fighting shafts have been proposed to core 1 and 2. The lifts are to be replaced with a new motor roomless lift. Core 1 lift will extend to the new seventh floor and core 2 to the new sixth floor. Proposed inlets will be at street level on Bloomsbury Street and Bedford Avenue.

Core 1

+ To be upgraded to a fire fighting core
+ An additional dry riser will be provided
+ A fire fighting lift will be installed
+ An evacuation lift will be installed
+ An AOV installed for smoke clearance at the top of the stair + lift lobby
+ A disabled refuge will be provided
+ A fire curtain will be added at all floor levels in front of the lifts to maintain compartmentation
+ The exits and stairs will be sufficient for the office floor plates designed to 6 m2/person.

Core 2

+ To be upgraded to a fire fighting core
+ At ground the egress route will remain
+ Stairs reconfigured at ground - first floor
+ The exits and stairs will be sufficient for the office floor plates designed to 6 m2/person.
+ An additional dry riser will be provided

4.0
PROPOSED DESIGN

4.50 Water Attenuation

HTS are appointed as civil engineer to design below ground drainage for the project and have advised on the attenuation volume and receiving catchment area required to achieve BREEAM Pol03 credits.

From site observation there is no surface water attenuation system within the building, and it is likely that surface water drains unattenuated via gravity to the sewer below Bedford Avenue or Bloomsbury Street at an unrestricted rate.

As the development is expected to be submitted as a minor development, there is no requirement for SuDS under the NPPF or London Plan 2021.

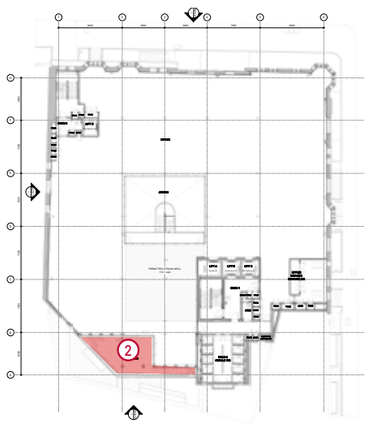
However, some level of attenuation storage is required to achieve the BREEAM targets for the development. Opportunities to incorporate a blue roof into the development were explored but this was not feasible as there are not enough surface areas to provide adequate waterproofing with concrete slab roof build ups.

It is proposed to utilise an above ground attenuation tank to provide surface water attenuation storage. The minimum attenuation volume was given as 60m3, serving a minimum catchment area of 1080m2. The calculations were carried out based on the following:

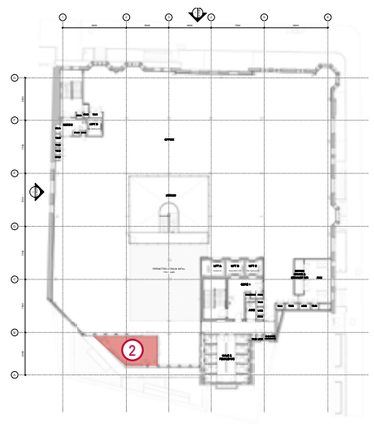
+ Total Site Area: c. 1,615 m2
+ Rainfall Data: FSR
+ Rainfall Intensity (existing): 98.9 mm/hr ~ 1 in 100 year storm event
+ Rainfall Intensity (proposed): 138.4 mm/hr ~ 1 in 100 year +40% climate change storm event
+ Existing Run-off rate (modified rational method): 3.65 x A x i = 58.3 l/s ~ 1 in 100 year storm event
+ Maximum Proposed run-off rate for whole building: 29.15 l/s ~ 1 in 100 year +40% climate change storm event

Level	Sqm
Roof	162
L07	498
L06	323
L05	12
L04	18
L03	24
L02	43
L01	-
L00	-
Total	**1080**

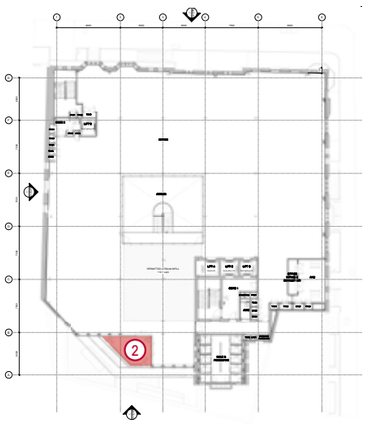
Proposed Ground Floor Plan



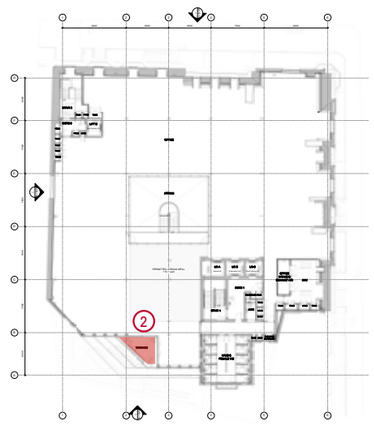
Proposed Second Floor Plan



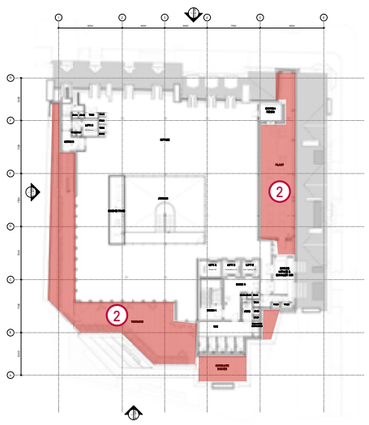
Proposed Third Floor Plan



Proposed Fourth Floor Plan

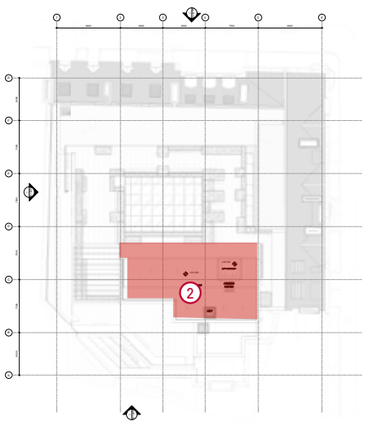


Proposed Fifth Floor Plan



Proposed Sixth Floor Plan

Proposed Seventh Floor Plan



Proposed Roof Plan

Key

Proposed roofs to be attenuated
1 Proposed water tank location at L00 (60 m3)
2 Total required attenuation roof area: 1080 sqm