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Client: Comer Homes

Project: North London Business Park

Report: North London Business Park Circular Economy Statement

QUALITY ASSURANCE

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1.0 EXECUTIVE SUMMARY

Greengage Environmental Ltd have been commissioned by Comer Homes (the "Applicant") to prepare a Circular Economy Statement in relation to a planning application for the North London Business Park (NLBP) redevelopment, a residential-led mixed use development in New Southgate N11 1GN.

The site located in Brunswick Park, East Barnet bound by the East coast mainline railway, with connection to Central London. The site is c.17 hectares of brownfield site, which is predominantly undeveloped across grasslands, a lake and unplanned vegetation cover. Existing structures on site include a large office building, a parking structure, and a school.

The assessment has been conducted at RIBA Stage 2 to inform the Applicant, the design team and the Greater London Authority (GLA) on the proposed targets and strategies considered and included as part of the submitted hybrid planning application.

The hybrid planning applications comprises:

- A detailed element comprising up to 461 residential units in five blocks reaching 9 storeys, the provision of a 5-form entry secondary school, a gymnasium, a multi-use sports pitch and associated changing facilities and improvements to open space and transport infrastructure, including improvements to the access from Brunswick Park Road.
- An outline element comprising up to 1,967 additional residential units in buildings ranging from three to twelve storeys, up to 7,148m^2 of non-residential floor space (use Class E) and 20,250m^2 of open space. Associated site preparation/enabling work, transport infrastructure and junction work, landscaping and car parking.

This Circular Economy Statement was produced in response to the policies and aspirations of the GLA (Policy SI7) and London Borough of Barnet and will be submitted as part of the hybrid planning application for the Proposed Development.

The statement has been carried out in line with the Circular Economy Statements Guidance document[1] produced by the GLA.

1.1 CIRCULAR ECONOMY PRINCIPLES AND APPROACH

Circularity principles of building in layers; designing out waste; designing for longevity/adaptability/flexibility/disassembly; and using materials that can be reused or recycled have been used as the fundamental principles that underpin the circular economy strategy.

As existing building structures on the site are scheduled to be demolished, the circularity approach for this stage is for hardcore and inert waste streams to be crushed into secondary aggregate and reused on site where feasible. Pre-demolition audits are to be undertaken at each phase of the scheme to inform where salvageable materials can be reused later in the scheme.

The new building has been designed with an approach that enables flexibility, adaptability and disassembly for each layer of the building to maintain longevity. Design elements that facilitate this include the construction of a stacked structural grids to minimise transfer structures and associated

concrete volumes; the offsite prefabrication of a number of building elements, the modularisation of various building components and optimising concrete design to maximise recycled content.

Material specifications will look to maximise recycled content wherever possible including in key materials such as concrete specifications and steel reinforcement. The project target is a minimum 20% recycled content by value.

Management of waste materials has been considered to initially reduce the waste and ensure any generated from construction, demolition, excavation and operation is diverted from landfill, achieving targets of 95% landfill diversion (for construction, demolition and excavation waste) and 65% recycling of municipal waste.

Implementation plans are provided to ensure all targets can be achieved and the circularity of all materials is maximised. End of life procedures are also considered for each building material to ensure the circular economy approach is continued throughout the full building lifecycle.

2.0 CONTEXT AND DESCRIPTION OF THE DEVELOPMENT

Comer Homes Group are submitting a Hybrid Planning Application for residential-led redevelopment of the North London Business Park, Brunswick Park, N11.

The hybrid planning application is submitted to the London Borough of Barnet for the comprehensive phased redevelopment of existing commercial site comprising phased demolition of existing offices and construction of a mixed-use development.

The proposed development consists of a mixed-use residential development of 2,412 dwellings plus a 5 Form of Entry secondary school (1,050 pupils) at the existing North London Business Park site in the LBB. There is no strategic commercial use planned for the site. Phases are shown in Figure 2.1.

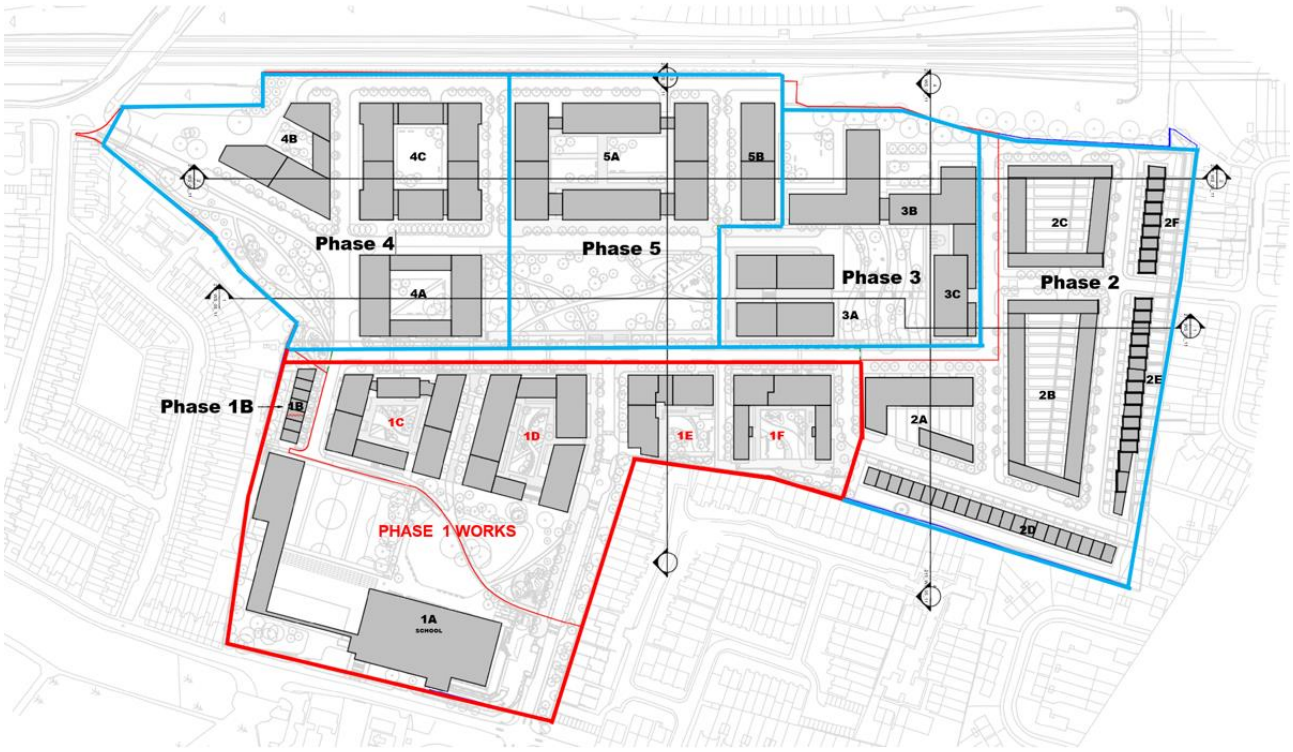


Figure 2.1 Phases for the redevelopment of the NLBP

The Detail Planning Area (Phase 1) is proposed to accommodate 461 new residential units, with a mixture of houses, duplexes, and apartments. The Detail Planning Area (Phase 1) will also include the 5th Form of Entry secondary school, which will replace the existing temporary school building on site accommodating the St Andrew the Apostle School.

All associated site works, landscaped areas (including Brunswick Lakeside Park), transport infrastructure and car parking required to support the delivery of the Detail Planning Area (Phase 1) is included in the Detail Planning Application.

The Outline Planning Area (Phases 2-5) is proposed to accommodate the balance of the 2,412 residential units proposed for the site. The Outline Planning Area (Phases 2-5) will also accommodate a small number of non-residential uses.

These ancillary uses are intended to complement and support the planned residential community on the site and include Café/Retail Use, Community Use and Incubator Office Use.

The site is located in Brunswick Park in the east of the London Borough of Barnet. The site measures c.17 hectares of brownfield site, which is predominantly undeveloped across grasslands, a lake and unplanned vegetation cover.

Existing structures on site include a large office building, a parking structure and the St Andrew the Apostle School on a temporary basis. The site is bound by the East coast mainline railway, with connection to Central London.

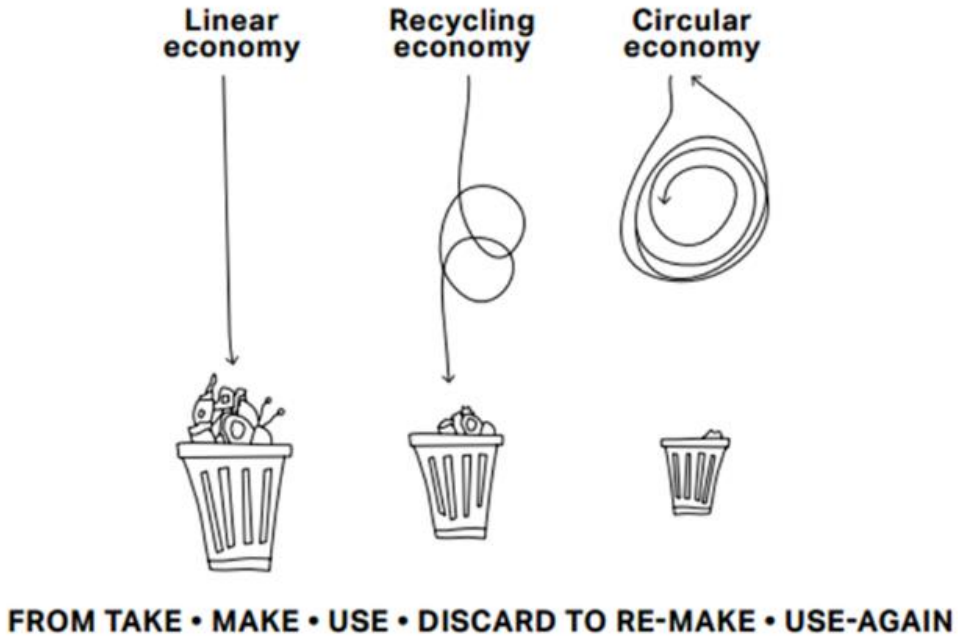
3.0 CIRCULAR ECONOMY PRINCIPLES

3.1 WHAT IS THE CIRCULAR ECONOMY?

A Circular Economy is defined in London Plan Policy SI7, 'Reducing waste and supporting the Circular Economy', as one where materials are retained in use at their highest value for as long as possible and are then reused or recycled, leaving a minimum amount of residual waste.

The end goal is to retain the value of materials and resources indefinitely, with no residual waste at all, see Figure 3.1. This is possible, requiring transformational change in the way that buildings are designed, built, operated and deconstructed.

Figure 3.1 Circular Economy diagram. Source: Circular Flanders



3.2 WHY IS THE CIRCULAR ECONOMY IMPORTANT?

Apart from the continuous consumption of finite resources, all processes involved in the extraction, manufacturing and processing of materials, as well as their ultimate disposal, has a significant impact on the global environmental system and the climate.

The built environment sector is a major consumer of natural resources. There is growing industry consensus that the way buildings are designed, built, operated and disposed of needs a major overhaul to prevent waste and increase efficiency. There is a large scope of opportunity that this shift in approach will create across the entire supply chain.

Mitigating the impacts of carbon emissions from the built environment and reducing waste generation associated with the sector becomes key to lessen the climate change impacts associated with its design, construction and operation.

3.3 KEY PRINCIPLES OF CIRCULAR ECONOMY

The core principles when applying a circular economy approach to the built environment promote a regenerative and restorative whole-systems approach applied from the top down. This supports the waste hierarchy so that avoiding or reducing waste is prioritised.

There are a number of key principles of the circular economy that should be embedded as part of the design in order to ensure it can address as many issues as possible. However, applying these principles and changing the construction system can be complex, and there will be many trade-offs and compromises that need to be made in order to optimise the design, construction, and deconstructability of a scheme.

The six key circular economy principles, as set out within the GLA Circular Economy Statements Guidance are:

1. Building in layers - ensuring that different parts of the building are accessible and can be maintained and replaced where necessary;
2. Designing out waste - ensuring that waste reduction is planned in from project inception to completion, including consideration of standardised components, modular build, and reuse of secondary products and materials;
3. Designing for longevity;
4. Designing for adaptability or flexibility;
5. Designing for disassembly; and
6. Using systems, elements or materials that can be reused and recycled.

4.0 POLICY, REGULATIONS AND GUIDANCE

The Proposed Development is submitted within the context of national, regional and local planning policies that seek to address the challenges of climate change and sustainable development. The policies outline how the Government, the Mayor of London, and London Borough of Barnet are striving to improve the way Circular Economy principles are embedded into the built environment.

4.1 NATIONAL POLICY

Climate Change Act 2008 (2050 Target Amendment)[2]

On 26th November 2008, the UK Government published the Climate Change Act 2008, the world's first long-term legally binding framework to mitigate against climate change. The Act initially set legally binding targets for greenhouse gas emission reductions of 80% by 2050 (from 1990 levels). This was amended in 2019 to a revised target of a 100% reduction in carbon emissions by 2050, over the 1990 baseline emissions levels, known as the net-zero target. In addition, there are interim carbon budget levels, which provide stepping stones to achieve the overall target.

National Planning Policy Framework, 2021[3]

The National Planning Policy Framework (NPPF) was published in July 2021 and updated in September 2023, replacing the previous NPPF that was adopted in February 2019. The NPPF sets out the Government's planning policies for England and how they are expected to be applied. It sets out a framework that aims to achieve sustainable development throughout the planning system with three overarching objectives – economic, social and environmental.

At the heart of the NPPF is a 'presumption in favour of sustainable development', which requires Local Authorities as part of any plan-making or decision-making, to provide clear guidance on how the presumption should be applied locally.

4.2 REGIONAL POLICY

Greater London Authority, London Plan, 2021[4]

The London Plan was adopted in March 2021 and sets out the overall strategic plan for London over the next 20-25 years.

The London Plan includes the requirement for a Circular Economy Statement to be submitted for referable developments as part of Policy SI7 'Reducing waste and supporting the circular economy'. This states the following:

"Resource conservation, waste reduction, increases in material re-use and recycling, and reductions in waste going for disposal will be achieved by the Mayor, waste planning authorities and industry working in collaboration. Referable applications should promote circular economy outcomes and aim to be net zero-waste. A Circular Economy Statement should be submitted to demonstrate:

- *How all materials arising from demolition and remediation works will be re-used and/or recycled.*
- *How the proposal's design and construction will reduce material demands and enable building materials, components and products to be disassembled and re-used at the end of their useful life.*
- *Opportunities for managing as much waste as possible on site.*
- *Adequate and easily accessible storage space and collection systems to support recycling and re-use.*
- *How much waste the proposal is expected to generate, and how and where the waste will be managed in accordance with the waste hierarchy.*
- *How performance will be monitored and reported."*

Some key overarching targets set out in this policy are:

- Zero biodegradable or recyclable waste to landfill by 2026;
- 65% of municipal waste recycled by 2030;
- 95% of construction and demolition waste reused/recycled/recovered; and
- 95% of excavation waste put to beneficial use.

Policy D3 'Optimising site capacity through the design-led approach' requires developments to aim for high sustainability standards that account for the principles of the circular economy.

Policy SI2 'Minimising greenhouse gas emissions' requires major developments to be net zero-carbon and for a whole life-cycle carbon (WLC) assessment to be submitted.

London Plan Guidance: Circular Economy Statements

In support of Policy SI7 - Reducing Waste and Supporting the Circular Economy, the GLA Circular Economy Statement Guidance (March 2022) explains how to prepare a Circular Economy Statement as well as how designing new buildings, and prioritising the reuse and retrofit of existing structures, can promote circular economy outcomes.

The guidance sets out how circular economy principles, the concept of building in layers and appropriate design approaches should inform referable applications.

4.3 LOCAL POLICY

London Borough of Barnet Local Plan (2012)

The London Borough of Barnet published their Local Plan (2012) to inform planning decisions and manage sustainable growth & development in the Barnet area. The Local Plan is a collection of development plan documents (DPD) and Supplementary Planning Documents (SPD) that work alongside national policy and the Mayor's London Plan.

While there are no detailed requirements relating to the circular economy directly in the Local Plan (2022), a number of core strategy policies (CS) incorporate various circular principles into sustainable planning, design and construction.

Policy CS13 Ensuring the efficient use of natural resources

"We will seek to minimise Barnet's contribution to climate change and ensure that through the efficient use of natural resources the borough develops in a way which respects environmental limits and improves quality of life."

Policy CS14 Dealing with our waste

This policy intends to encourage sustainable waste management with the following actions:

"promoting waste prevention, re-use, recycling, composting and resource efficiency over landfill.

Requiring developments to provide waste and recycling facilities which fit current and future collection practices and targets.

Designating sites through the NLWP to meet an aggregated apportionment target across the seven North London boroughs. These sites will be the principal locations considered suitable for waste facilities.

Safeguarding all existing waste facilities in Barnet including a Waste Management Facility in the Brent Cross – Cricklewood Regeneration Area."

The North London Waste Plan

The North London Waste Plan (NLWP) was developed by the North London Local Planning Authorities of Barnet, Camden, Enfield, Hackney, Haringey, Islington and Waltham Forest as the principal waste management framework in the North London Boroughs until 2036. The NLWP was adopted by Barnet on March 1st 2022 when it first came into effect.

The circular economy is integrated into the NLWP through the inclusion of Aim C to encourage the co-location of facilities and activities between North London councils. The plan also adopts the London Plan's (March 2021) target of a 95% reuse/recycling/recovery rate for C&D wastes and 95% beneficial use of excavation wastes.

5.0 METHODOLOGY

The methodology for the implementation of a circular economy at the Proposed Development as well as the content of this document has been set out in line with the Circular Economy Statement Guidance document produced by the GLA.

5.1 CORE PRINCIPLES

The circular economy strategy for the development is based around the core principles set out within the GLA guidance, see section 3.3, which have been used to guide the approach.

5.2 REPORT STRUCTURE

This circular economy statement aligns with the requirements in the GLA guidance document and covers these as outlined in the table below.

Requirement	Where demonstrated
How all materials arising from demolition and remediation works will be reused and/or recycled.	Section 6.5 Pre-demolition audit (Appendix A)
How the proposal's design and construction will reduce material demands and enable building materials, components and products to be disassembled and reused at the end of their useful life.	CE design approaches - section 6.2 CE design principles by layer - section 6.3 End of life strategy - section 9.0 CE targets
Opportunities for managing as much demolition, excavation, construction, and operation waste as possible on-site.	Section 6.4 - 6.7 Pre-demolition audit (Appendix A) Recycling & waste reporting
Adequate and easily accessible storage space and collection systems to support recycling and reuse during operation.	Section 6.7 Operational waste management plan (Appendix B)
How much waste the demolition, construction and operation phase of the proposal is expected to generate, and how and where the waste will be managed in accordance with the waste hierarchy.	Section 6.5 - 6.7 Operational waste management plan (Appendix B) Recycling & waste reporting
How performance will be monitored and reported, during the demolition, excavation, construction, and operation phases.	Section 8.1 Operational waste management plan (Appendix B) CE targets

5.3 WORKSHOP

A circular economy workshop was held on 27th July 2021, attended by Plus Architecture (the Architect), Comer Homes (the Structural Engineer and applicant), Peter Bushnell Associated (Cost Consultant). The workshop enabled the development's circularity principles and approaches to be discussed as well as setting out targets and how the design team would work towards these.

Minutes from the workshop are provided in Appendix C.

5.4 CIRCULAR ECONOMY TARGETS

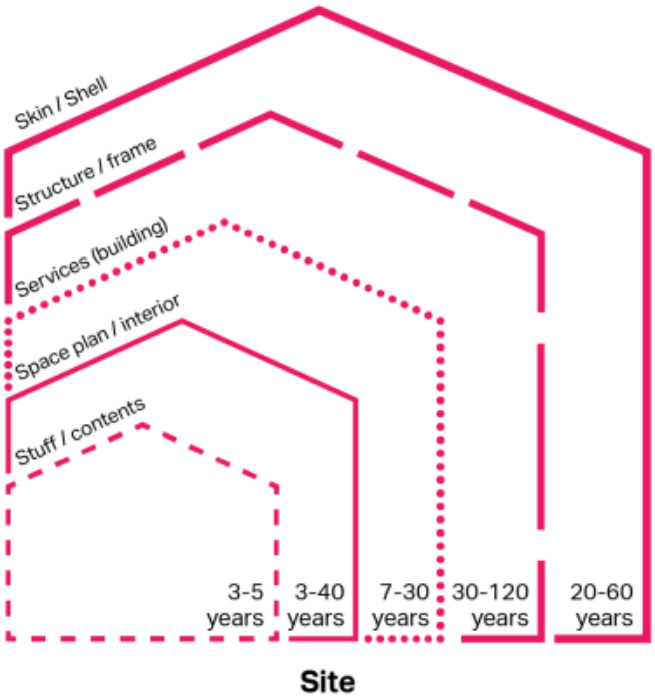
The Proposed Development has set targets in line with policy requirements and industry best practice.

While specific values and levels of ambition have been defined for some of the metrics, it is recognised that these are preliminary targets and commitments which will be reviewed and may be adjusted as appropriate during the detailed design.

5.5 BUILDING IN LAYERS APPROACH

In achieving circular principles within the development, the design team have explored certain approaches within each building element or layer. As shown in the indicative diagram below, each layer will have its own life cycle, life span and therefore relevant design approach.

Figure 5.1 Building layers (Source: GLA)



The table below confirms the building layers that have been considered as per GLA guidance.

Table 5.1 Building layers as per GLA guidance

Layer	Summary and Constituent Elements	RICS Reference
Site	The geographical location, context, external works, earth works and landscaping.	NRM 8
Substructure	Excavations, foundation, basements and ground floors.	NRM 1
Superstructure	Load-bearing elements above plinth including roof-supporting structure.	NRM 2.1. 2.2 & 2.4– frame, upper floors, stairs,
Shell/Skin	The layer keeping out water, wind, heat, cold, direct sunlight and noise. Includes exterior surfaces and façade.	NRM 2.3, 2.5, 2.6 – roofs, external walls, windows and external doors
Services	Installations to ensure comfort, practicality, accessibility and safety.	NRM 5
Space	The layout, internal walls, ceilings, floors, finishes, fixtures, doors, fitted furniture.	NRM 2.7, 2.8 & 3
Stuff	Anything that could fall if the building was turned upside down.	Fittings, furnishings and equipment
Construction materials	Any temporary installations/works/materials, packaging and equipment	NRM 0

5.6 SUPPORTING DOCUMENTATION

To support this assessment, Greengage have reviewed the following documents produced in support of the planning application:

- Construction Management plan by Faithful+Gould
- Whole Life Carbon Assessment prepared by Greengage Environmental
- Energy Strategy for St Andrews the Apostal School prepared by Couch Perry Wilkes
- Ground Investigation and Remediation Method Statement prepared by RSK
- Energy Statement including Overheating Assessment, prepared by MKGG
- Waste Management Plan, prepared by Stomor
- Operational Waste Management Strategy prepared by Velocity
- BREEAM Pre-Assessment prepared by Brooks Development.

6.0 CIRCULAR ECONOMY STRATEGY

This section of the Circular Economy Statement demonstrates how the criteria of the London Plan Policy SI7 have been followed through the design strategy.

6.1 CIRCULAR ECONOMY TARGETS

Circular economy targets have been set as a minimum in line with those set out in the London Plan Policy SI7 and Guidance as set out below:

- Minimum 95% construction and demolition waste for reuse/recycling/recovery;
- Minimum 95% excavation waste diverted from landfill for beneficial use;
- Municipal waste recycling 65% by 2030; and
- Minimum 20% by value of materials to be comprised of recycled or reused content.

The design team will continually review the design as it develops to ensure the targets are met and look to identify methods through which the targets could be exceeded.

Further detail on how these targets will be met through design as well as implementation and monitoring is provided in the GLA Circular Economy Statement template accompanying this report.

6.2 CIRCULAR ECONOMY DESIGN APPROACHES

The design approach for the development supports the implementation of the circular economy principles and has informed the initial land-use planning and design.

Existing site

The Existing site is located on a 16.2 hectare brownfield site, comprising of five structures interspersed by both hardstanding, soft landscaping and an artificial lake. Figure 6.1 shows the existing site and structures.

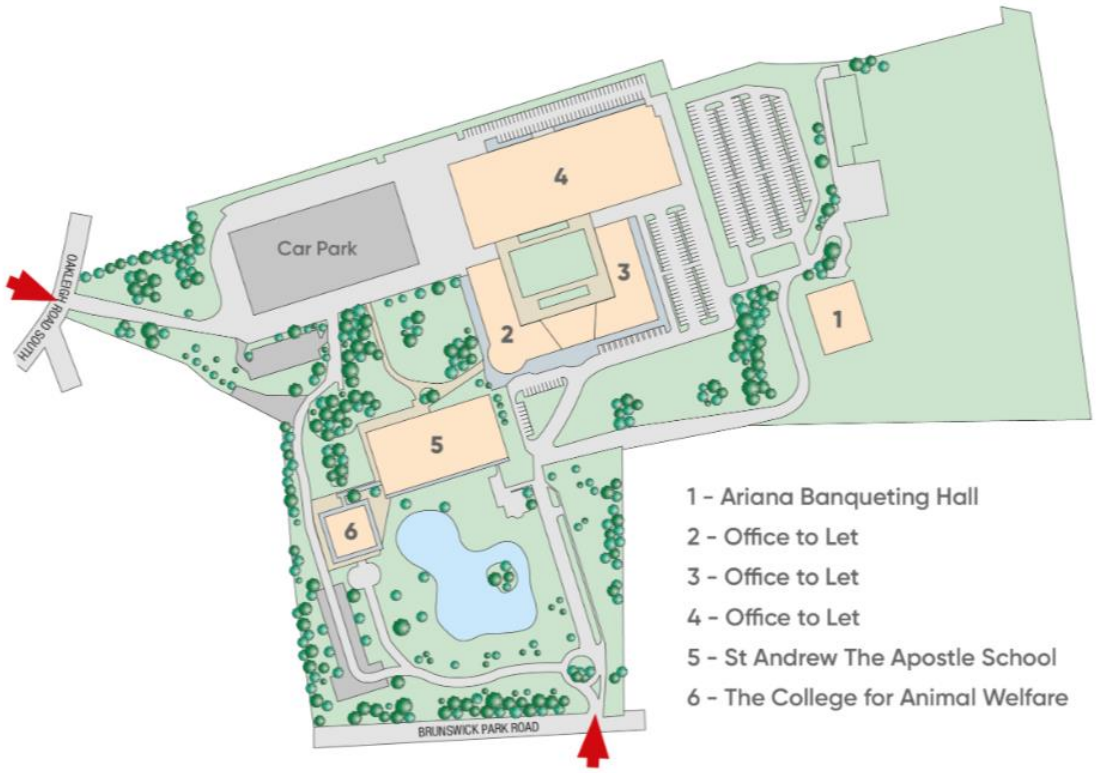
To the Southwest of the site, lays a double-story car park, with a superstructure constructed from concrete. The surrounding area of the building is hardstanding, including tarmac roads, paved footpaths, with a multi-use games area adjacent to the parking structure.

The existing site includes a 380,000 sqft office complex, split into three separate structures situated north of the car park. The office building facade comprises of a glazed window face and various cladding designs, with office block 4 having a further extension on the southside of the building. All three buildings are interconnected by linking corridors with glass facades.

To the east of the park, next to the artificial lake, sits St Andrew the Apostle Greek Orthodox School and the CAW Business School. The main school building superstructure consists of a concrete beam structure with a brick façade. The building also includes a double-storey extension on the south-east side, constructed from a concrete block façade. The CAW Building design is similar to the south-east

extension to St. Andrews school, however it has been reported this structure has already been demolished.

Figure 6.1 Existing site layout (Source: North London Business Park)



The Ariana Banqueting hall situated to the north of the site, is a single storey building constructed with a brick wall façade and simplistic (steel) roof.

The circular economy hierarchy has been used to guide the approach and maximise the use of existing materials.

The table below sets out the circular economy design approaches for the existing building and confirms to what extent they have been adopted.

Table 6.1 Existing building circular economy approach

Approach	Response
Retain and retrofit	Due to the scope of works of the proposed scheme in creating new residential housing stock, existing building structures needed to be cleared. Therefore, full retention and retrofit was not a suitable route for this development.
Partial retention and refurbishment	Throughout the early design stages, the partial retention and refurbishment of existing building structures was explored, as set out in the pre-

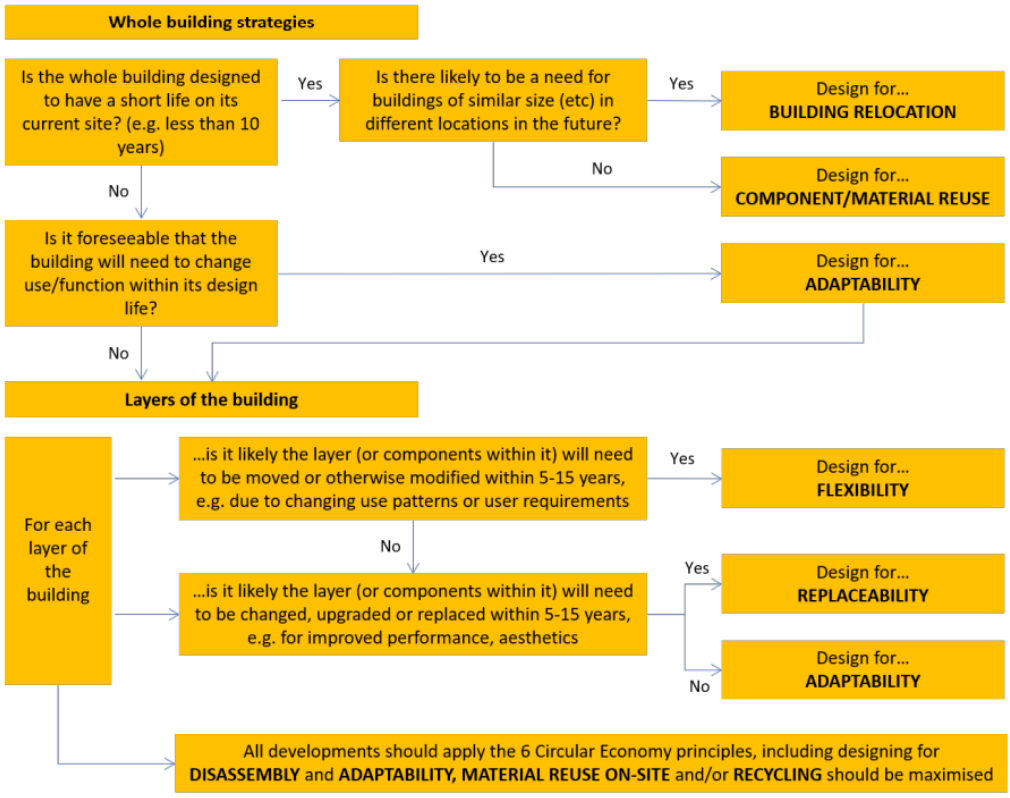
Approach	Response
	redevelopment audit (Appendix A). Existing building structures on site were deemed unsuitable for retention and refurbishment due to the additional structural requirements that may be required across the lifetime of the development. Therefore, a partial retention and refurbishment of existing building elements was not suitable for this development
Disassemble and reuse	Deconstruction of existing structure and reclaiming components or materials is considered as unfeasible due to the relatively low-quality nature of the building materials and structural design. Some building elements were identified to have potential to be reclaimed such as brick facades or disassembled for potential reuse such as HVAC in St. Andrews the Apostle school.
Demolish and recycle	At this stage in the development, the intention for the existing site is a phase-by-phase demolition or disassembly of existing buildings with waste arisings either being reused, downcycled or recycled according to the waste hierarchy. This will be explored at later design stages to see if reused is feasible over recycling. As shown within the pre-demolition audit (Appendix A), some of the materials from the demolition can be reused, such as the MEP equipment on site and the kitchens and bricks off-site. Careful removal of the

The proposed approach is for the demolition of all existing structures on site, with new building structures being constructed in place. The materials and waste arisings from demolition works will be segregated on site and sorted following the waste hierarchy. Phase by phase pre-demolition audits will inform best practices to maximise the reuse and recycling of materials where possible.

New development

The London Plan guidance encourages design teams to use the decision tree (see Figure 6.2 below) to determine the appropriate design approach for new buildings.

Figure 6.2 Decision tree for design approach for the new building (Source: GLA)



The table below sets out the circular economy design approaches that have been followed in line with the decision tree and explains how they have been implemented in the new development.

Approach	Response
Building relocation	Due to the buildings being intended to be long-term permanent structures on site, building relocation is not applicable.
Component or material reuse	The buildings are designed to have a long lifespan and therefore materials are not required to be designed for reuse. However, wherever possible, the buildings will be designed so any materials not at the end of their natural life can be reused. Substructure and superstructure materials, for example, have been chosen to allow for recovery and recycling at end of life. The concrete and reinforcement can be separated; concrete can be crushed for use as aggregate and the reinforcement can be recycled back into the steel industry.
Adaptability	Building designs allows for a future change in the building through the following: • The concrete frame allows for the addition of a further floor in future, should this be required. • Individual columns allow for spaces to be adapted • All windows are also designed for adaptability.

Approach	Response
Flexibility	• Spaces have been designed to be adaptable for future uses of the building, including flexible floor plate layouts and structural grids • All internal partitions are non-load bearing, which allows them to be removed and adapted to suit the needs of any future occupant without requiring major works.
Replaceability	Certain layers of the buildings will need to be replaced within the lifespan of the buildings. The design enables this to be done without affecting other layers through the following examples: • Create a suitable and simplified maintenance strategy. Provide safe access to M&E services for maintenance and replacement. • Building materials are designed to last the lifespan of the building or can be replaced/ maintained easily (as discussed in A1). • Core Building services are provided within a dedicated room with easy access to existing pipework. This facilitates easy maintenance of building services enabling grater repair of units opposed to replacement. The extends product lifespan and reduced the buildings embodied carbon emissions.
Disassembly	• Substructure and superstructure materials have been chosen to allow for recovery and recycling at end of life. The concrete and reinforcement can be separated; concrete can be crushed for use as aggregate and the reinforcement can be recycled back into the steel industry. • Specify low health impact materials such as low VOC content in paints to facilitate safe disassembly and reuse.
Longevity	The development proposals will ensure longevity is prioritised in the design of the building, through material selection. Given the predominant use of the scheme as residential, it will be unlikely significant change to the overall structure and design will take place within the buildings' lifespans. Therefore, selection of durable and resilient materials is key. Concrete, for the superstructure, and brick, for the facades, have been chosen for robustness and durability.

Each of the above approaches has been considered separately for each layer of the building, where appropriate.

6.3 CIRCULAR ECONOMY DESIGN PRINCIPLES BY BUILDING LAYER

A summary of the most significant design features for each circular economy design principle is presented below.

Designing out waste

Building designs have been optimised to reduce the total amount of materials procured for the scheme with an effort to reduce the use of carbon intensive materials (i.e. Portland cement mixes). Specific measures include:

- Building elements will be standardised, prefabricated and modular manufactured off-site to minimise on-site waste from cuttings.
- Building elements will be designed for disassembly/ adaptability where possible to promote reuse and avoid waste at end of life.
- Use structural efficiency measures to reduce resultant construction and demolition waste.
- Standardisation of building elements have been considered for the windows and door sizes across the building as well as for the floor layouts. In adopting these methods, material wastage and off-cuts on site are reduced as well as construction efficiency improving, due to less variation. Furthermore, energy loads and transport emissions are minimised from reduced variation in installation method and the material source.
- Off-site manufacturing is being considered for the façade panels and bathroom pods. The façade panels could be manufactured off site and delivered as the final products, then installed directly onto the building frame.
- Bathroom pods will be manufactured off-site then installed on site via a crane as one singular unit, removing the need to install all elements such as sanitaryware, therefore speeding up construction. However, pods will likely be constructed in Spain, Italy or Poland which would increase the associated transport emissions.

Further ways that waste has been designed out through lean design are explored in Appendix E.

Designing for longevity

The development proposals will ensure longevity is prioritised in the design of the building to minimise maintenance and replacement, though where required this should be easy to undertake. The reinforced concrete frame facilitates a long service life, however disassembly and reuse at the end-of-life stage can be difficult as a result, where crushing may be required to prevent the material going to waste.

At this stage, it is difficult to quantify any material efficiency considerations, however it will remain a consistent goal throughout the design and construction process.

Similarly, in future the roof will be accessible to allow maintenance on the façade panels. A façade access system will be in place to ease this maintenance process, however the need for maintenance of the façade is significantly reduced through the adoption of durable building material such as brick.

Designing for adaptability or flexibility

The design of the development's building structures ensures adaptability of a building's spaces for any future uses.

The concrete frame that is part of the superstructures within the development enables the addition of further floor space in future, should this be required. While the design includes non-permanent elements, such as non-load bearing partitions, allowing easy adaptation to any future use of a space. Furthermore, vertical service distribution routes in the building designs have been identified and generously sized allowing for future retrofitting of building services and modification of service strategy.

Adaptability scenarios are explored further in Appendix E.

Designing for disassembly

Various building elements have been designed with construction for assembly and disassembly in mind at the end-of-life stage of a building's life cycle.

The most predominant aspect to enable this is that material specification for buildings consist of low health impact materials such as low VOC content in paints. This will facilitate safe conditions for disassembly and reuse of various building elements.

The inclusion of non-permanent elements in building designs enable disassembly at the building end-of-life stage. Prefabricated building elements such as removable façade panels and non-load bearing walls enable building materials, components, and products to be disassembled and re-used at the end of their useful life.

Using systems, elements or materials that can be re-used and recycled

Substructure and superstructure materials have been chosen to allow for recovery and recycling at end of life. The concrete and reinforcement can be separated; concrete can be crushed for use as aggregate and the reinforcement can be recycled back into the steel industry.

In relation to reusing on site material, through the Circular Economy Workshop it was determined very little material is available on site which can be directly reused for the development. However, there is a possibility of waste being crushed and reused as piling mat.

Building materials are designed to last the lifespan of the building or can be replaced/ maintained easily. In addition, as the scheme façade contains brick courses and various cladding panels, these can be reclaimed and re-use at the end-of-life stage in their highest form.

6.4 DEMOLITON WASTE

In line with London Plan Policy SI7, a minimum 95% of non-hazardous demolition waste will be targeted for diversion from landfill for reuse, recycling or recovery.

A pre-demolition audit (PDA) was conducted on the 4th of January 2024 by Velocity Transport Planning, to estimate the anticipated waste arisings from demolition works on the five existing structures.

The PDA forecasted that 35,278.62 tonnes of demolition waste arisings will be produced from this scheme, as calculated by a structural engineer. From the generated demolition waste identified in the audit, with the assumption that materials would be removed and recycled off site, gave an overall recycling rate of 99.83%. This given recycling rate surpasses the ≥95% recycling rate for uncontaminated demolition waste.

Furthermore, 96.18% of demolition wastes consisted of key demolition products, quantified as 89.50% being inert wastes and 6.68% being metals (both ferrous and non-ferrous). Recommendations for the potential applications for these materials include reclaiming bricks, downcycling inert waste into secondary aggregate through crushing (on or off-site) and segregating of scrap metals for recycling.

As part of its role, the contractor will provide the following upon appointment:

Provide written evidence that the destination landfill(s) have the capacity to receive waste.

During construction, applicants should record the source of all waste arising and monitor using SmartWaste or a similar waste management tool.

Provide a designated area will be provided for the segregation of demolition waste.

A resource management plan will be produced during the construction process to set out ways to minimise the amount of waste generated on site, set targets and monitor the amount of waste generated.

6.5 EXCAVATION WASTE

In line with London Plan Policy SI7, a minimum 95% of excavation waste will be targeted for diversion from landfill for beneficial reuse.

Through a land contamination survey, low levels of contamination were found on site, enabling the reuse of excavation material. As much material as possible will be reused on site and nearby sites, with the remaining waste disposed as engineered fill for quarries.

It is expected that 360,000 m^3 (381,600 tonnes) of excavation waste will be produced, which has been calculated by a structural engineer. Cut and fill calculations (see Appendix F) show that there will be 109,155m^3 surplus material following the cut and fill exercise. The team will investigate areas where the surplus could be used in the local area to maximise re-use.

The design team will aim to divert 95% of uncontaminated excavation waste from landfill.

6.6 CONSTRUCTION WASTE

In line with London Plan Policy SI7, a minimum 95% of construction waste will be targeted for diversion from landfill for reuse, recycling, or recovery.

In order to minimise construction waste, this development has implemented benchmark targets for both residential and commercial. BRE's Site Waste Reduction Performance metric has been adopted aiming to achieve 6.5 tonnes of waste /100m^2 of floor area for all the commercial elements of the proposed development.

For the developments residential element, an appropriate metric from the Home Quality Mark (HQM) Technical Manual SD239 of 4.9 tonnes of site waste / 100m^2 of floor area has been applied.

Calculations from a structural engineer has estimated that approximately 15,542 tonnes of construction waste may be produced during all phased of the Proposed Development. The target construction waste diversion of ≥95% will be enforced within the contractor's package requirements.

A designated area will be provided for the segregation of construction waste. This will contain skips of different material streams.

Off site and standardised elements will aid in reducing construction waste as detailed in previous sections and improve on construction efficiency.

6.7 OPERATIONAL WASTE

Velocity Transport Planning were commissioned by Comer Homes to produce a dedicated Operational Waste Management Strategy (OWMS) for all phases of the scheme. Four separate operational waste proposals were produced covering all commercial and residential waste strategies. Each waste strategy provides details of residential and commercial waste storage, presentation, and collection. In line with London Plan Policy SI7, a minimum recycling rate for municipal waste of 65% by 2030 will be targeted.

The OWMS anticipated that 836,495 litres of weekly waste from residential areas, with a further 74,856 litres of waste would be produced weekly from the commercial elements of the development. The targeted 65% recycling rate will be achieved through the provision of segregated bins within dwellings for occupants to separate the waste prior to collection. This will then be placed in larger separation bins provided in the basement.

It is anticipated commercial waste will be collected multiple times per week by a private waste contractor. In accordance with London Plan targets, a contract will be sought specifying zero waste to landfill and confirmation of the destination for each waste stream.

Residual waste is sent to an Energy from Waste (EfW) facility located at Eco Park, Advent Way, London, N18 3AG and operated by North London Waste Authority, providing power to approximately 80,000 homes.

DMR is taken to a Materials Recycling Facility (MRF) operated by Biffa at Unit 2, Aztec, 406 12 Ardra road, London, N9 0BD; recyclable materials are segregated for onward processing at a network of in-house and external facilities. Segregated materials include:

- Paper;
- Cardboard;
- HDPE;
- PET;
- Glass; and
- Metal tins/cans.

Any segregated non-recyclable material is sent to an EfW facility for disposal.

Residential food and garden waste is sent to an in-vessel composting facility, also located in the Eco Park in Advent Way.

The potential for alternate measures for handling operational waste has been explored as part of this Circular Economy statement. The following measures have been investigated:

- Communal composting scheme: This involves a central composting facility which is used by those within the building. This can help divert organic waste from landfill. Where this is a potential for the site additional services and facilities will need to be installed on site, which carries an associated cost. LBB offer a garden waste bin, however, do not offer food waste bins currently. Consequently, the provision of a composting scheme could be suitable for this site. This will be explored at a later design stage, to determine the feasibility for implementation.
- Smart Logistics: Incorporating smart logistics into the development such as smart bins or Automatic Waste Collection Services (AWCS) is a possibility. This would allow monitoring of bin levels to facilitate more efficient collection of waste. Big Belly Solar UK who produce smart bins with sensors powered by solar energy could supply the facility to do this on site. It is currently difficult to determine the viability of such a scheme, as such this may be explored further at a further stage of detailed design by a specialist waste consultant.
- Community led waste minimisation schemes: This would involve the community or building occupiers organising and following principles to reduce waste. Schemes have been conducted across London including Love Food Hate Waste (LFHW) and Zero Waste Brixton. A similar scheme could be conducted within the current development, though this would require engagement from the community or building owners. Similarly, it is currently difficult to determine the viability of such a scheme, as such this may be explored further at a later stage of detailed design by a specialist waste consultant.

7.0 BUILDING MATERIALS

The circular economy strategy for the development has been developed in parallel with the WLC assessment to ensure the strategies are complimentary and the circular economy outcomes also reduce the WLC of the development.

The GLA Circular Economy Statement template includes a bill of materials setting out the material quantities for each building element and the weight of these materials. The bill of materials has been produced using software OneClick LCA, which calculates the mass of each building element based on its component materials. More detailed building weight calculations will be carried out as the design develops.

Recycled content

In line with London Plan Circular Economy Statement guidance, the development is targeting a minimum recycled content of 20% by value. In order to achieve this, the following materials are expected to have a proportion of recycled content:

- Reinforcement steel will be sourced responsibly and sustainably, achieving a minimum 96% recycled content.
- Reduced cement consumption will be targeted using Ground Granulated Blast Furnace Slag (GGBS), with 20% minimum replacement for the superstructure and substructure, with the opportunity to increase this upon further investigation of the UK supply.
- The concrete frame could allow for 50% implementation of GGBS, offering large improvements to embodied carbon. The opportunity to increase GGBS content in specification will be investigated further to the UK supply.
- Carpets and fitted furniture, such as kitchens, shall be considered for recycled content in the detailed design.

8.0 REPORTING CIRCULAR ECONOMY OUTCOMES

The appointed contractor will use their sustainability processes and systems to report against the team's targets set out in this Circular Economy Statement. Where the contractor is forecast to fall short of targets, they will put in place measures to address this.

8.1 PLANS FOR IMPLEMENTATION AND MONITORING

Short term

To ensure design targets highlighted in this report are met, the design team must follow the methodology detailed in this report. The project team will incorporate the requirements of this strategy into their specifications and contract documents., which will set out clear performance requirements for each of the targets and proposals outlined in this statement and will specify appropriate materials and solutions to meet these.

Relevant members of the team will report on the progress for their respective targets. The MEP engineers will analyse energy and the resultant energy reduction from relevant measures. Elements including incorporating standardised elements or designing out waste will be carried out by the architect, which will likely be registered within RIBA stage reports and the Design and Access Statement providing the narrative for achieving each target.

Certain design elements that will be reviewed in the next stage are as follows:

- Confirm the final mix of concrete, associated percentages of GGBS and recycled aggregate, and choice of admixtures;
- Hard landscaping design shall consider where high recycled content materials can be specified;
- Specification of materials with high recycled content for finishes, fittings and furniture;
- Consideration shall be given to the recyclability of building services materials at end of life; and
- Further analysis to guide material efficiencies in the structure shall be incorporated in the next stages.

Medium term

Many of the principles will be the responsibility of the contractor upon appointment. Consequently, for such principles including material sourcing, off site manufacturing, material specification, waste targets and on-site reuse of material, practices will be explored by the contractor.

Circular economy opportunities to explore with the contractor include, but are not limited to:

- In the later stages of the design, and in consultation with the contractor, consideration will be made for consolidated and smart logistics such as a just in time delivery strategy; and
- Identify likely waste destinations and obtain confirmation from receiving waste sites that sufficient capacity is available to receive waste.

Within this, the development must produce framework documentation, including the Site Waste Management Plan (SWMP), to which the contractor must adhere to achieve the targets highlighted in this report.

During construction, site managers or supervisors will ensure those under their control follow the best practice environmental procedures, abiding by the relevant plans and documentation for each task.

Throughout the further stages of the development the following monitoring procedures will be in place to ensure compliance with the commitments set out within this statement

- Monitoring of construction waste, including reuse and recycling rates;
- Regular site inspections to ensure construction plans and targets are being fulfilled;
- Site managers or supervisors will ensure those under their control follow the SWMP, applying the best practice environmental options. Site managers or supervisors will complete a SWMP check list and data sheet at relevant stages of site operations; and
- To ensure smooth implementation of the plans listed above, the relevant team will report back regularly on any potential improvements or justification for deviation from the plans to the contracts manager. The contracts manager will then take on board the concerns or recommendations, putting them to the managing director where necessary.

Long term (Post Completion)

Following project completion, an update to the Circular Economy Statement will be prepared. This updated statement will detail progress against the targets and commitments defined in this statement and report the outcomes and lessons learned.

Throughout the operational phase, an operational performance review will be undertaken to analyse how the building is being used in comparison to the designed use and whether there are further avenues for improvement.

Operational waste management plans will likely include physical documentation of refuse bins filled per week, allowing typical waste volumes to be determined and monitoring of waste production across the site.

A detailed operational waste management plan will be finalised at a further stage of the detailed design.

Post Completion Report

The contractor tender documentation will include a requirement to produce a Post Completion Report and submit this to the relevant local authority and the GLA within three months of completion. This report will set out the predicted and actual performance against numerical targets and provide a final bill of materials.

9.0 END OF LIFE STRATEGY

This section sets out the end-of-life strategy for the main building materials.

The building's design and construction will reduce material demands as set out in the previous sections. Consideration has been given to how the building materials, components and products can be disassembled and reused at the end of their useful life.

Disassembly measures implemented within the design including non-load bearing internal walls allow for these elements to be easily removed and directly reused off site or recycled.

The following activities will be carried out at the building end-of-life to disassemble and reuse materials, where possible:

- Concrete crushed and recycled; reinforcement recycled.
- Bricks reclaimed or crushed to form aggregate.
- Glass recycled.
- Products and MEP reclaimed or recycled where possible. As services have been designed for easy access for maintenance, these mechanical services can be easily removed from the building for reuse, refurbishment or recycling.
- Arrangements should be made for fixtures, fittings and furniture to be taken away by a company for refurbishment for reuse, recycle or sold/ given away in a local salvage market.
- The remaining building elements will likely require demolition or crushing, such as the concrete into RCA for further use as concrete replacement in a new site.

A BIM model may also be used to aid this process, where building information can be provided to the future occupier facilitating a better understanding of the building prior to deconstruction. This encourages material reuse and a reduction in demolition/ deconstruction waste. Following the design stages, the Design Team will pass the 3D construction model on to the Contractor at RIBA Stage 5.

At handover, the building design and maintenance information will be captured in the O&M Manual produced by the Contractor. This will include the as-built drawings, system descriptions, and contact details for product and material suppliers. The O&M shall contain a section on the envisaged end-of life strategy.

A barrier to successful end-of-life is lack of awareness by those demolishing the building at the end-of-life stage of these measures. As such, communication with the future owner or those who will be demolishing the building is key.

APPENDIX A PRE-REDEVELOPMENT & PRE-DEMOLITION AUDIT

NORTH LONDON BUSINESS PARK

PRE-REDEVELOPMENT AND PRE-DEMOLITION AUDIT

PROJECT NO. 24/004 DOC NO. D014

DATE: JANUARY 2024

VERSION: 1.0

CLIENT: COMER HOMES GROUP

Velocity Transport Planning Ltd

www.velocity-tp.com

VELOCITY

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Authorised By	Tom Mabelson	12/01/2024

Notes

The document reference number, revision number and date are given on the footer of each page

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1 PROJECT INTRODUCTION

1.1 INTRODUCTION

1.1.1 This Pre-Redevelopment Audit (PRA) and Pre-Demolition Audit (PDA) has been prepared by Velocity Transport Planning on behalf of Comer Homes Group Ltd, to support a planning application for a proposed development located at the North London Business Park (hereafter referred to as the 'Site') in the London Borough of Barnet (LBB).

1.1.2 The PRA is a tool for understanding whether the existing building, structures and materials can be retained, refurbished, or incorporated into the new development to any extent. The audit fully explores the available options for retention or refurbishment of structures, materials, and the fabric of existing building.

1.1.3 The purpose of the PDA is to identify and quantify where the key materials and components are present within the existing building, and to further identify the potential recycling or reuse strategy for them.

1.1.4 The information in this report will help to demonstrate the benefits of recycling and re-use of Key Demolition Products (KDPs) based on economic value, the number of units and viability of deconstruction, as well as potential schemes for re-use and recycling of these materials.

1.1.5 The findings and values contained in this report represent the best estimate of the materials and components based on the information available for the structures within the scope of the project. Estimates were made using the following information (where available):

- Architectural Plans;
- Consultant Reports;
- Site surveys; and
- Photographs.

1.2 COMPETENCY – PROJECT MANAGER

1.2.1 The project manager was Peter Hambling who is a Chartered Waste Manager working for the past 12 years within the resource and waste management industry. His background began in environmental compliance and his experience includes contract management, waste stream analysis, collection methodologies and infrastructure development. With experience working for a construction waste contractor, commercial waste contractor and within a local authority as well as development planning, he has comprehensive understanding of the subject matter.

1.3 AIMS AND OBJECTIVES

1.3.1 The PRA and the PDA will cover the following content:

- Provide brief overview of the existing buildings and their condition;
- Identification and quantification of the key materials where present on the project;
- Potential applications and any related issues for the re-use and recycling of the key materials in accordance with the waste hierarchy;
- Identification of local re-processors or recyclers for recycling materials;

- Identification of overall recycling rate for all Key Demolition Products (KDPs);
- Identification of reuse targets where appropriate; and
- Identification of overall landfill diversion rate for all key materials.

1.4 PROJECT SCOPE

1.4.1 The scope of the project includes an assessment of structures making up the North London Business Park, including a number of office buildings, a secondary school, a banquet hall, ancillary structures, multi-story car park, and surrounding hardstanding.

1.4.2 This PRA element of this report will look to understand whether elements of the existing structures can be retained, refurbished, or incorporated into the proposed development.

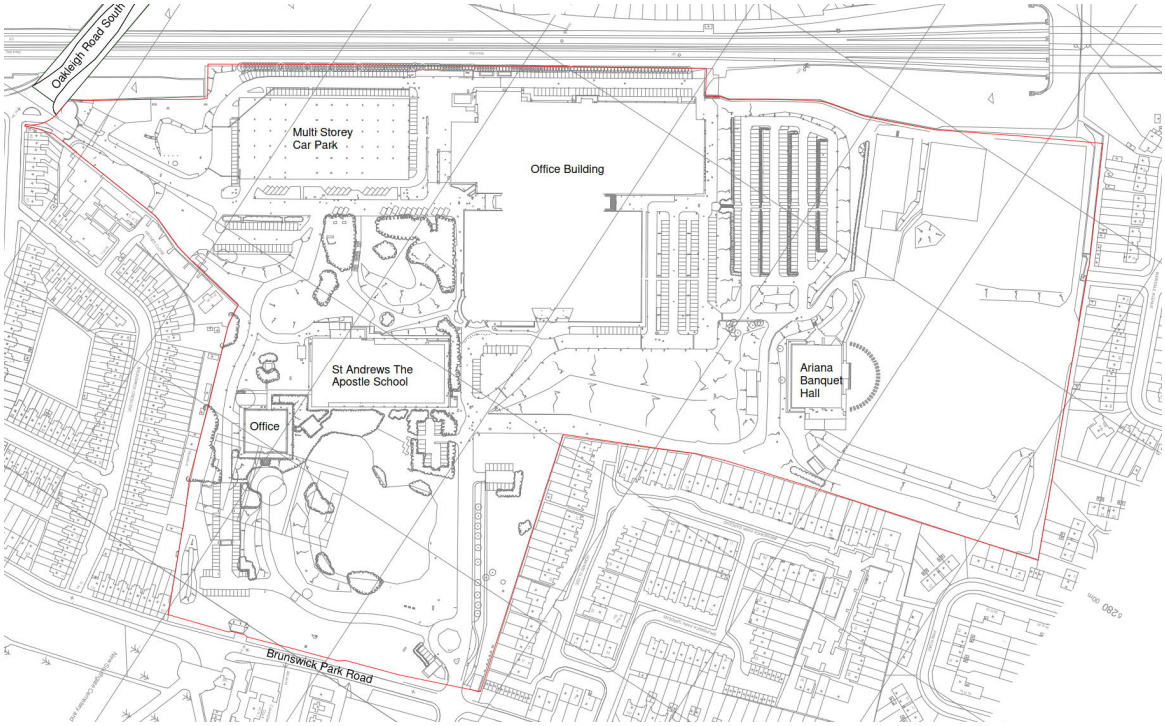
1.4.3 The PDA will subsequently identify materials and components associated with any demolition of the structures and categorise them in their regard to their position within the waste hierarchy.

1.5 SITE LOCATION

1.5.1 The site is situated in a predominantly residential neighbourhood, positioned between the New Southgate and Oakley Park railway stations. The business park is bound by suburban housing to the north, east and south, along with a mainline rail line to the west. The main access into the Site is from Brunswick Park Road to the east.

1.5.2 The site location is shown in Figure 1-1 below.

Figure 1-1 Site Location



1.6 AUDIT METHODOLOGY

1.6.1 This audit is based on a site visit was conducted on Thursday 4th January by the project team, employing non-intrusive survey methodology.

1.6.2 The structures and external areas were inspected where possible. Areas deemed inaccessible, such as roofs and some commercially occupied spaces were omitted from the survey.

1.6.3 Basic site plans by the project architect were provided, though detailed internal surveys were not available at the time of the audit.

1.6.4 Where details of construction methodology were not included on the plans, appropriate assumptions have been made to facilitate the audit results, based on industry knowledge.

1.6.5 The scope of the audit does not include any loose items or furniture but does include fittings such as kitchens and bathrooms where they were encountered during the site visit.

1.6.6 Where information is not available to inform the audit results, suitable assumptions have been made using relevant published material and prior knowledge based on industry experience.

1.6.7 Following the site visit and desktop study, the information was analysed to identify the principal material types present within the building. These materials were consolidated and established as the KDPs with total quantities provided in addition to recommendations for their reuse, recycling, or disposal. These recommendations are based on assumptions regarding material conditions and should be considered indicative, subject to refinement by the appointed demolition contractor.

1.7 HAZARDOUS MATERIALS

1.7.1 Due to the period in which some of the structures were completed, it is assumed asbestos is present in a number of the building components.

1.7.2 It is assumed that all Asbestos Containing Material (ACM) will be removed by an appropriately trained and licenced contractor in advance of the demolition works.

1.7.3 For the purposes of this PDA, the ACM on site has not been quantified by weight and will not be accounted for as an overall percentage of the demolition totals.

1.8 KEY DEFINITIONS

1.8.1 To inform the audit process and results, key definitions were established.

1.8.2 Reclamation is reuse of a material or product in the same form. An example of reclamation is the removal of carpet tiles from an office for reuse in another location.

1.8.3 Recycling is reprocessing of a material of product for an alternative use. An example of recycling is crushing of house bricks (on- or off-site) for use within secondary aggregate materials.

1.8.4 Closed loop recycling is the process by which a product is used, recycled, and then made into a new product again without losing any of its material properties. An example of materials suitable for closed loop recycling are aluminium cans, which can be reprocessed multiple times into the same product.

1.8.5 Open loop recycling is where the recycled materials are converted into both new raw materials and waste product. Typically, materials recycled through open-loop recycling go on to be used for purposes different from their former purpose. This means that the input into the recycling process is converted to a new raw material, which can be used as an input into another manufacturing process. An example of open loop recycling is plastic water bottles that are reprocessed to provide material for sleeping bags or fleece jackets.

1.8.6 Circular economy is defined in the London Plan Policy SI7 'Reducing waste and supporting the Circular Economy' as one where materials are retained in use at their highest value for as long as possible and are then reused or recycled, leaving a minimum of residual waste. The end goal is to retain the value of materials and resources indefinitely, with no residual waste at all. This is possible, requiring transformational change in the way that buildings are designed, built, operated, and deconstructed.

1.8.7 Embodied carbon means all the CO_2 emitted in producing materials and is estimated from the energy used to extract and transport raw materials, as well as emissions from manufacturing processes. The embodied carbon of a building can include all the emissions from the construction materials, the building process, all the fixtures and fittings inside and the deconstruction or demolition process at the end of life.

1.8.8 Whole Life-Cycle Carbon (WLC) emissions are the carbon emissions resulting from the materials, construction, and the use of a building over its entire life, including its demolition and disposal.

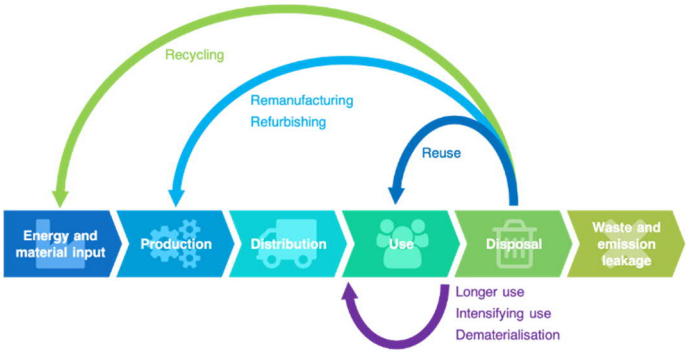
1.9 CIRCULAR ECONOMY

1.9.1 During the audit process, materials and components will be reviewed for their suitability for reuse or recycling, either on- or off-site.

1.9.2 The contractor responsible for the demolition process should approach it from the perspective of a circular economy, which gives priority to reuse of materials or components on-site over recycling.

1.9.3 Figure 1-2 below shows a visual representation of the principles of a circular economy.

Figure 1-2 Circular Economy Process[1]



[1] *Circular business models: A review (2020) M. Geissdoerfer et al.*

1.9.4 An integral part of this process is maintaining materials further up the waste hierarchy during the demolition process.

1.9.5 Figure 1-3 below shows the waste hierarchy, which prioritises reuse over recycling.

Figure 1-3 Waste Hierarchy

1.9.6 It is anticipated that some components or materials generated by the demolition process may be suitable for reuse or recycling, maintaining them further up the waste hierarchy.

1.9.7 The decision to reuse or recycle materials or components generated by the demolition process will typically need to consider the following:

- Removal process, including demounting or deconstructing;
- On-site safety;
- Short term storage of materials or components on-site;
- Long term storage of materials or components on- or off-site;
- Value of recovered materials or components;
- Availability of specialist contractors; and
- Volume or quantity of materials available.

1.9.8 Embodied carbon values will be calculated for the materials identified within this PDA and these should be considered within the context of WLC.

1.9.9 Energy is required to demolish a building, then remove, process, and dispose of waste materials generated by the process, with further CO_2 potentially released through associated chemical processes.

1.9.10 Building a new replacement requires more materials and energy, creating more embodied carbon.

1.9.11 Negative impacts associated with embodied carbon as part of the demolition process could potentially be mitigated and offset through the following measures:

- Reusing or recycling of building materials;
- Using construction products that are made from locally available raw materials, through energy efficient and low emission processes and by manufacturers local to the construction site;
- Transporting materials with low carbon vehicles;
- Designing the construction process to minimise waste and reuse or recycle products where possible;

- Using systems and products that have long life spans; and
- Designing the building to be able to change its use over time to minimise future refurbishments.

2 OVERVIEW OF EXISTING STRUCTURES

2.1 INTRODUCTION

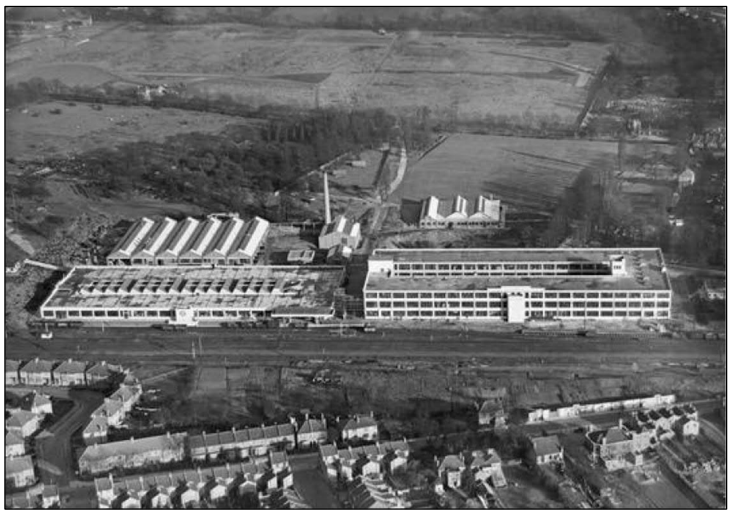
2.1.1 This section provides an overview of the existing structures on the development site.

2.2 SITE HISTORY

2.2.1 The Standard Telephone and Cable developed the site as the New Southgate Works in the 1920s and has a historic association with telecommunications. During WW2, it was a strategic industrial centre making it a target for bombing. Northern Telecom (Nortel Networks) acquired the site in 1989, and in 2000 began construction for an 'Optical Centre for Excellence' to provide an EU base for internet and wireless development. However, in 2002 during the construction period Nortel decided to relocate and vacated the site.

2.2.2 Figure 2-1 below shows a historic photo of the site as former Standard Telephones and Cables Building.

Figure 2-1 Archive Photo



2.3 EXISTING SITE

2.3.1 The site measures 16.37 hectares (ha), of which approximately 13ha comprises areas of disused open space and car parking. The site is bounded by the East Coast Mainline railway along the entire western boundary, with residential development and Brunswick Park Road adjacent to the eastern boundary.

2.3.2 Principal Structures on site include c. 380,000 sqft of office buildings, an above-ground car-parking structure, and an office building currently in use as a secondary school, a Free School opened in the last number of years, Saint Andrew the Apostle Greek Orthodox School. Numerous other small structures occupy the site, including security huts, a banqueting hall and unoccupied office buildings.

2.3.3 The site has two principal entry and exit points, to the south onto Oakleigh Road South, and to the East onto Brunswick Park Road. A redundant and unused site entry and exit point is positioned on the northern boundary of the site, opening onto Ashbourne Avenue, and connecting to Russell Lane.

2.3.4 Figure 2-2 below shows the existing structures on site in green. Building 6 (shown in red) has been demolished, and therefore has not been included within the scope of this report.

Figure 2-2 Site Plan

2.4 EXISTING STRUCTURES

2.4.1 The following section provides details of the existing structures on site, which vary in form and composition, dating from various periods.

2.4.2 For the purposes of the audit, the existing structures have been separated into the following four distinct groups:

- Building 5;
- Office Structures;
- Banqueting Hall and Nursery Structure; and
- Ancillary Structures.

BUILDING 5

2.4.3 Building 5 forms the main school structure on site, a former office building which was converted for use as a secondary school in 2013.

2.4.4 It is thought to be a post war concrete frame structure with brick infill, including a large basement level that covers most of the building footprint.

2.4.5 The northern section of the building is single storey with an overhang element and a flat metal roof.

2.4.6 The southern section of building 5 comprises of a 2-storey structure with a central void above ground level and a flat metal and asphalt roof.

2.4.7 Externally, the building cladding has been updated to aluminium panelling.

2.4.8 Figure 2-3 to Figure 2-6 below show the external façades of Building 5.

Figure 2-3 Building 5 (Northern Façade)

Figure 2-4 Building 5 (North-Eastern Façade)

Figure 2-5 Building 5 (Western Façade)

Figure 2-6 Building 5 (South-Western Façade)

2.4.9 Internally Building 5 is fitted out for use as a school, having been refurbished from an office block approximately ten years ago.

2.4.10 The nature of the fit out is typical of time of refurbishment, with internal stud walls separating spaces on both floor levels.

2.4.11 A suspended aluminium frame ceiling accommodates the services required for the building to function, including telecommunications, water, and HVAC.

2.4.12 Flooring consists of either vinyl or carpet tiles in classrooms and communal areas.

2.4.13 The majority of the rooms are fitted out as either classrooms (including some science laboratories) or administration offices.

2.4.14 Though refurbished within the last ten years, the building is in relatively poor condition and is showing signs of degradation, particularly at basement level, where there is evidence of water ingress.

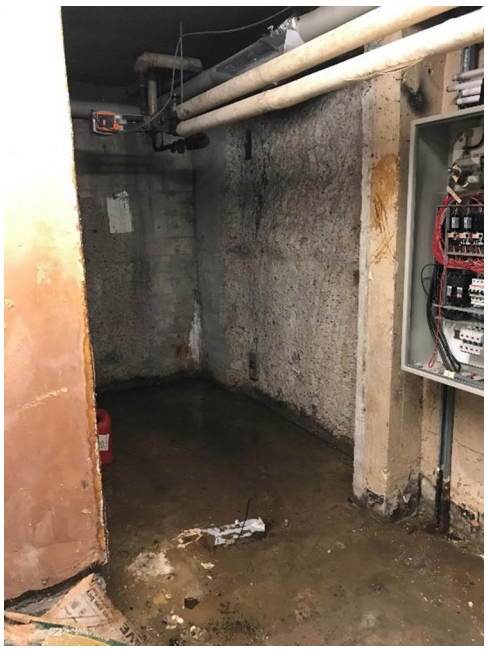
2.4.15 Figure 2-7 to Figure 2-10 below show a number of internal spaces within Building 5 which includes the basement, student canteen, a first-floor classroom, and science laboratory.

Figure 2-7 Building 5 Student Canteen

Figure 2-8 Building 5 Example Classroom

Figure 2-9 Building 5 Example Science Lab

Figure 2-10 Building 5 Basement Level



OFFICE STRUCTURES

2.4.16 The majority of the structures on site are office buildings, dating from different periods.

2.4.17 The office structures on site include:

- Buildings 2 and 3; and
- Building 4.

BUILDINGS 2 AND 3

2.4.18 Buildings 2 and 3 were constructed during the early 2000s and are almost identical in layout, joined by a single storey link building between them.

2.4.19 Both structures are the same height but Building 2 includes an additional lower-ground level due to a difference in site level between the two structures and comprises 4-storeys, whilst Building 3 comprises 3-storeys.

2.4.20 The structures are concrete frame with metal and glass façade, which is considered to be typical of the construction period.

2.4.21 Both buildings include MEP at roof level, whilst with the remainder of the roof is flat.

2.4.22 Figure 2-11 to Figure 2-13 below show the external façades of Building 2.

Figure 2-11 Building 2 (Northern Façade)

Figure 2-12 Building 2 (Northern-Western Facade)

Figure 2-13 Building 2 (South-Western Façade)

2.4.23 Figure 2-14 to Figure 2-17 below show the external facades of building 3.

Figure 2-14 Building 3 (Northern Façade)

Figure 2-15 Building 3 (Eastern Façade)

Figure 2-16 Building 3 (Western Façade)

Figure 2-17 Building 3 (Northern Façade)

2.4.24 Internally each of the building are configured to provide large open-plan office floors, with central amenity areas including toilets, kitchenettes, and meeting rooms.

2.4.25 Each building has a central atrium with lift providing gallery access to the office floors.

2.4.26 Figure 2-18 to Figure 2-20 show a number of internal spaces within Building 2 which includes the lower ground entrance, internal atrium at ground level, and one of the open plan offices on the first floor.

Figure 2-18 Building 2, Lower Ground Floor Building Entrance

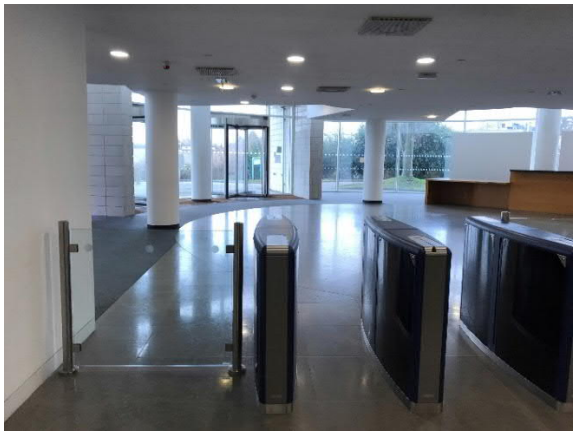


Figure 2-19 Building 2, Ground Floor Internal Atrium

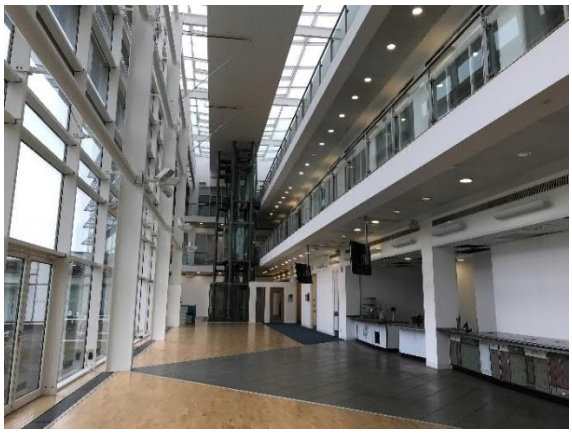


Figure 2-20 Building 2, First Floor Open Plan Office

BUILDING 3

2.4.27 Building 3 is accessed via the single-storey link building between the two structures.

2.4.28 Figure 2-21 to Figure 2-23 below show Building 3 internally at ground level.

Figure 2-21 Building 3, Internal Entrance

Figure 2-22 Building 3, Reception Area

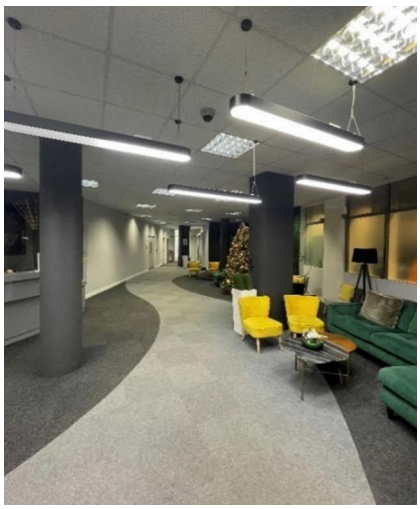
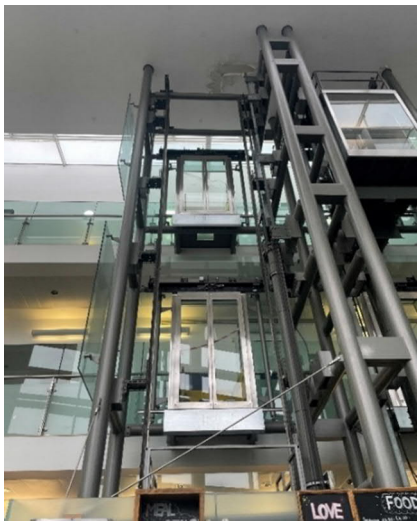


Figure 2-23 Building 3, Internal Lift



BUILDING 4

2.4.29 Building 4 is a 3-storey office structure thought to been constructed post-war and refurbished during the 1980s and latterly by Nortel Networks who were the site owners until 2002.

2.4.30 The building is 'O' shaped with office floors centred around a large central void from the first floor.

2.4.31 The structure is thought to be concrete frame with brick infill, with white powered coated aluminium cladding panels, external brick, and uniform glazing on each level.

2.4.32 Figure 2-24 to Figure 2-27 below show the external façades of Building 4.

Figure 2-24 Building 4 (North-Western Façade)

Figure 2-25 Building 4 (South-Western Façade)

Figure 2-26 Building 4 (Southern Façade)

Figure 2-27 Building 4 (South-Eastern Façade)

2.4.33 Internally the majority of the floors are configured to provide large open-plan office areas, with central amenity areas including toilets, kitchenettes, and meeting rooms.

2.4.34 One of the floors has been fitted out for use by the on-site school, with these works completed in 2018.

2.4.35 Figure 2-28 to Figure 2-29 show a number of internal spaces within Building 4 which includes the ground level lobby area, second floor classroom, example office area and assembly hall.

Figure 2-28 Building 4, Ground Floor Lobby

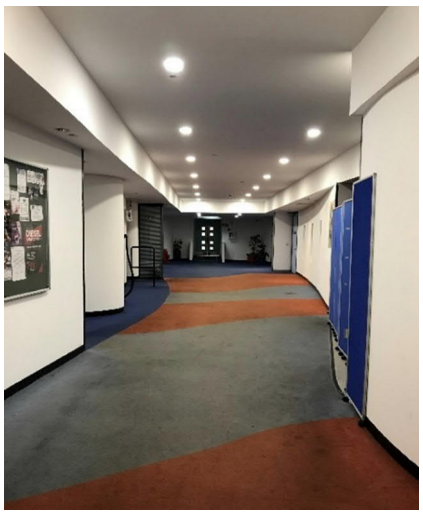


Figure 2-29 Building 4, Second Floor Science Lab

Figure 2-30 Building 4, Assembly Hall

Figure 2-31 Building 4, Example Office

BANQUETING HALL AND NURSERY STRUCTURE

2.4.36 The Banqueting Hall and Nursery was constructed in 1985 as a social club and is a single storey brick-built structure with a pitched aluminium roof.

2.4.37 A nursery is located to the northeast section of the building with separate access.

2.4.38 Figure 2-32 to Figure 2-36 below show the external façades of the structure.

Figure 2-32 Banqueting Hall (Western Façade)

Figure 2-33 Banqueting Hall (Southern Façade)

Figure 2-34 Banqueting Hall (Northern Façade)

Figure 2-35 Nursery Entrance (Eastern Façade)

Figure 2-36 Nursery Entrance and Playground (Eastern Façade)

2.4.39 Internally, the Ariana Banqueting Hall utilises most of the space within the building and comprises of a large open plan venue with adjoining conservatory space, a number of smaller rooms and a commercial kitchen.

2.4.40 The nursery has been divided in to smaller spaces by a mixture of load- and non-load- bearing walls.

2.4.41 The level of fit-out is different between the two areas of the building, designed to suit individual business need.

2.4.42 Figure 2-37 to Figure 2-41 below show the internal areas of the Banquet Hall and Nursery.

Figure 2-37 Banqueting Hall, Internal Entrance

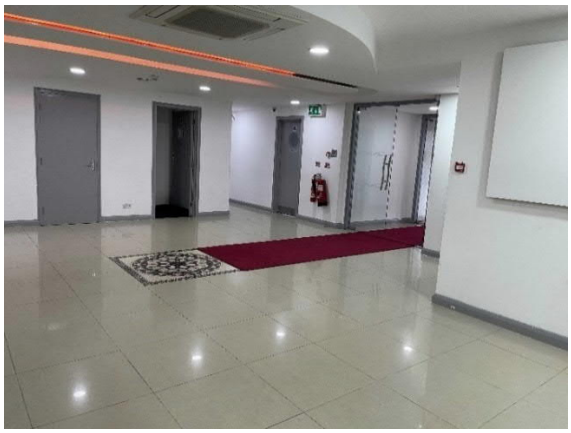
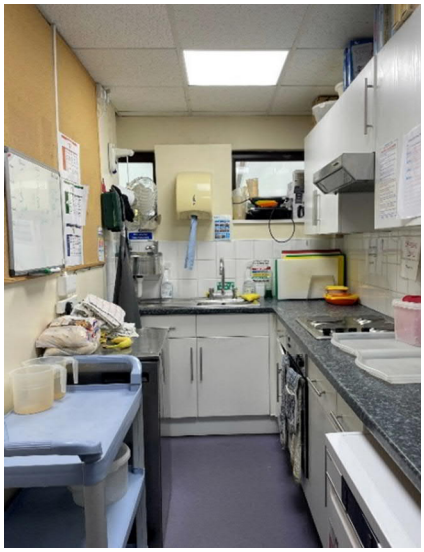


Figure 2-38 Banqueting Hall, The Main Hall Interior

Figure 2-39 Banqueting Hall, Kitchen Interior

Figure 2-40 Nursery Internal Entrance

Figure 2-41 Nursery Kitchen



ANCILLARY STRUCTURES

2.4.43 There are a number of ancillary structures on-site, built to support the main functional buildings, including:

- Multi-Storey Car Park;
- Security Building; and
- Unidentified Ancillary Structure.

2.4.44 It is estimated that the security building and unidentified ancillary building were constructed in the mid-late 20th century and comprise simple low-level brick structures with flat roofs.

2.4.45 Figure 2-42 to Figure 2-45 below show the ancillary structures on site included a two-storey carpark largely comprised of concrete, though to have been constructed in the late 1980s.

Figure 2-42 Security Building (North-Western Façade)

Figure 2-43 Unidentified Ancillary Structure (Northern Façade)

Figure 2-44 Multi-Storey Car Park (South-Eastern Façade)

Figure 2-45 Multi-Storey Car Park, Ground Level

3 PRE-REDEVELOPMENT CONSIDERATIONS

3.1 EXISTING SITE ANALYSIS

3.1.1 As part of the assessment consideration was given at a high level for the suitability of the existing structures on site to be retrofitted or elements reused as part of any new development proposals.

3.2 BACKGROUND INFORMATION

3.2.1 The site benefits from planning permission for redevelopment. The original application was submitted in hybrid form and planning permission was granted at appeal in February 2020 (LBB ref. 15/07932/OUT and PINS ref. APP/N5090/W/17/3189843) for:

3.2.2 *"the phased comprehensive redevelopment of the North London Business Park to deliver a residential led mixed-use development. The detailed element comprises 360 residential units in five blocks reaching eight storeys, the provision of a 5 Form Entry Secondary School, a gymnasium, a multi-use sports pitch and associated changing facilities, and improvements to open space and transport infrastructure, including improvements to the access from Brunswick Park Road, and; the outline element comprises up to 990 additional residential units in buildings ranging from two to nine storeys, up to 5,177 sqm of non-residential floor space (Use Classes A1-A4, B1 and D1) and 2.54haof public open space. Associated site preparation/enabling works, transport infrastructure and junction works, landscaping and car parking."*

3.3 DEVELOPMENT BRIEF

3.3.1 The development brief consists of a mixed-use residential development of approximately 2,428 dwellings plus a 5-form entry secondary school (1,050 pupils) at the existing North London Business Park site in the London Borough of Barnet. There is no strategic commercial use planned for the site.

3.3.2 The Detail Planning Area (Phase 1) is proposed to accommodate 461 new residential units, with a mixture of houses, duplexes, and apartments. The Detail Planning Area (Phase 1) will also include the 5th form entry secondary school, which will replace the existing temporary school building on site accommodating the St Andrew the Apostle School.

3.3.3 All associated site works, landscaped areas (including Brunswick Lakeside Park), transport infrastructure and car parking required to support the delivery of the Detail Planning Area (Phase 1) will be included in the Detail Application.

3.3.4 The Outline Planning Area (Phases 2-5) is proposed to accommodate the balance of the 2,428 residential units proposed for the site.

3.3.5 The Outline Planning Area (Phases 2-5) will also accommodate a small amount of non-residential uses. These ancillary uses are intended as uses that will compliment and support the planned residential community on the site and include:

- Mixed Use Building Block 3A
    - 960 msq Childcare/ nursery space
    - 474msq Café/ Retail Space
    - 960msq dedicated community space

- 474msq Incubator Office Space

- Oakleigh Avenue Entrance Building 4A
  - 673msq Retail
- Oakleigh Avenue Entrance Building 4B
  - 1,120msq Retail
- Oakleigh Avenue Entrance Building 4C
  - 323 msq Retail
- Block 5A fronting New Brunswick Park (south)
  - 285msq Retail
  - 1,879msq Incubator Office Space

3.4 SCENARIOS

3.4.1 The following section outlines the overarching principles and considerations for three different scenarios of redevelopment proposals.

3.4.2 Three broad scenarios were considered to fulfil the project brief:

- Light refurbishment;
- Refurbishment and extension; and
- Redevelopment.

3.4.3 A number of factors were considered as part of the review, including the following:

- Spatial Capacity;
- Proposed Development Use; and
- Building Structure and Capacity.

3.4.4 The following section outlines the overarching principles to be considered for each of these factors.

3.5 SPATIAL CAPACITY

3.5.1 The existing buildings onsite includes made up of three large buildings predominantly used as office space, a secondary school, banqueting hall with an adjoined nursery and a number of ancillary structures.

3.5.2 Though not all floors within each building were surveyed internally, it is anticipated that the internal walls are comprised of a mixture of non- and load bearing walls, comprising of brick materials or timber and plasterboard in some instances.

3.5.3 As low-level structures, ranging from two to four stories in height, all of the buildings on site are not suitable for extension to the extent required to meet the development brief. Whilst they could be refurbished to meet modern building standards, they are located within the part of the site where the highest massing of development is proposed.

3.5.4 The existing structures have been designed for use as commercial spaces and would be unlikely to meet the needs of modern residential development without significant modification.

3.6 PROPOSED DEVELOPMENT USE

3.6.1 The proposed development includes the demolition of the existing buildings and redevelopment of the North London Business Park in LBB to provide a residential led mixed-use scheme of up to 2,348 dwellings, 2,353sqm of workspace, 3,835 sqm flexible non-residential floorspace and a new 5FE school building with an anticipated 1,050-pupil capacity.

3.6.2 The LBB has designated the site as a Regeneration and Development Area in Barnet's Local Plan (Core Strategy)[2] (September 2012) which identifies the site as suitable for housing growth. Along with several other sites they are expected to provide in the range of 2,200 new homes between 2011/12 to 2025/26.

3.6.3 The London Plan[3] identifies LBB's 10-year housing target (2019/20-2028/29) as 23,640 homes. This is based on the Strategic Housing Land Availability Assessment (SHLAA)[4] (2017) which shows LBB as having one of the highest targets when compared to the other London boroughs. The proposed development would seek to work towards the 10-year target for net housing completions.

3.6.4 Both the site allocation and the project brief require a significant uplift in the number of residential units, and which the Site currently does not have representing a significant densification compared to the existing uses.

3.6.5 The development brief includes delivery of high-quality residential accommodation across the site, meeting all relevant contemporary design standards, including:

- Accessibility
- Amenity space;
- Circulation;
- Spatial quality;
- Aspect and outlook;
- Privacy;
- Daylight and sunlight;
- Indoor air quality and noise;
- Thermal comfort;
- Environmental sustainability; and
- Urban greening.

[2] Barnet Local Plan, *https://www.barnet.gov.uk/sites/default/files/assets/citizenportal/documents/planningconservationandbuildingcontrol/PlanningPolicy/LocalPlan/DPD/LocalPlanCoreStrategyDPDSeptember2012.pdf* (2012)

[3] The London Plan, *https://www.london.gov.uk/sites/default/files/the_london_plan_2021.pdf* (2021)

[4] The London Strategic Housing Land Availability Assessment, https://www.london.gov.uk/sites/default/files/2017_london_strategic_housing_land_availability_assessment.pdf (2017)

3.6.6 The project brief would seek to develop the useable space on site to the fullest extent possible and would seek to deliver high quality environments for residential occupiers to meet their needs, in accordance with all prevailing legislation and contemporary standards.

3.6.7 Consideration for retrofitting existing structures should be weighed up against the needs of future inhabitants and the benefits that densification of the site could bring.

3.7 BUILDING STRUCTURE AND LOAD CAPACITY

3.7.1 The loadbearing capacity of the structures has not been formally assessed at this stage, but it appears that the structural form would not be suitable to accommodate additional load set out in the development brief.

3.7.2 Unless foundations of overly generous proportions were provided, it is anticipated that the majority of the buildings are supported on spread foundations bearing into the silt and clay materials, which would likely not be sufficient to adequately support larger structures that tend to require piled foundations.

3.7.3 Significant additional load on the existing foundations would likely cause overstress of the soils and associated structural movement.

3.7.4 Given the method of construction and unknown capabilities of the existing building superstructure and foundations it is considered unfeasible that extension of the buildings is possible in a manner that would meet the needs of the future occupiers.

3.7.5 Requirement A3 of the Building Regulations 2010 requires buildings to be constructed so that in the event of an accident the building will not suffer collapse to an extent disproportionate to the cause.

3.7.6 The anticipated scale of the development proposals will require specific measures to meeting Building Regulations. Concrete frame buildings such as the ones on site will not be easily adaptable to incorporate any measures necessary to provide a compliant design to prevent disproportionate collapse.

3.8 WHOLE LIFE CARBON

3.8.1 The emissions attributed to a building across its lifetime are commonly split into *operational* and *embodied*.

3.8.2 Operational carbon emissions are those associated with the energy required to run a building for lighting, power, heating, cooling, ventilation, and water services).

3.8.3 Embodied carbon emissions are those associated with all the non-operational aspects of a building including from the extraction, manufacture and assembly of materials and components, repair, maintenance, and refurbishment, as well as end of life activities).

3.8.4 Strategies to reduce the whole life carbon emissions of buildings include:

- Assessing the need for the construction of new buildings versus repurposing existing ones;
- Adapting the design of a building to reduce the quantity of material used while maximising operational efficiency;
- Selecting alternative materials and construction products that have lower embodied carbon emissions; and
- Utilising materials that are durable, require minimum maintenance and can be dismantled, reused, or recycled.

3.8.5 A deep retrofit or extension can save significant levels of embodied carbon compared to a new build but will typically require further structural works during the lifetime of the building.

3.8.6 In this case the existing structures on site are not suitable to be retrofitted in their current form.

3.9 CONCLUSION

3.9.1 The existing structures on site are not well suited for alteration to meet the development brief without significant redevelopment. The opportunities to retrofit or reuse the existing structures on site are extremely limited.

4 DEMOLITION PROPOSALS

4.1 OPPORTUNITIES FOR REDEVELOPMENT

4.1.1 Further to the existing site analysis in Chapter 3, it is suggested that full demolition existing buildings and ancillary structures is the most appropriate action to facilitate redevelopment of the site.

4.2 EXTENT OF DEMOLITION

4.2.1 The demolition proposals include the complete demolition of the existing structures which comprise of three office buildings, a secondary school, a banquet hall, ancillary structures, multi-story car park, and surrounding hardstanding.

4.2.2 Deconstructing the existing structures due for demolition to reclaim components or materials (rather than traditional methods) is considered unfeasible due to the relatively low-quality nature of the building materials.

4.2.3 Further, the existing buildings are constructed in a manner that does not facilitate repurposing specific elements or reclamation of materials, with demolition considered the only viable option.

4.2.4 The development proposals comparatively represent significant improvements in terms of energy efficiency, future climate adaptation and overall quality for residents.

4.2.5 The new development proposals will represent a move towards methods of construction that incorporate circular economy principles.

4.2.6 On-site works would include complete demolition of the existing structures to facilitate the construction of the proposed development, comprising of up to 2,348 dwellings, 2,353sqm of workspace, 3,835 sqm flexible non-residential floorspace and a new 5FE school building with an anticipated 1,050-pupil capacity.

4.2.7 Figure 4-1 below shows the structures within the scope of the PDA due for demolition in red.

Figure 4-1 Structures Due for Demolition

5 PRE-DEMOLITION AUDIT RESULTS

5.1 REUSE AND RECLAMATION POTENTIAL

5.1.1 As per the objectives for the PDA, during the on-site audit opportunities for reclamation of the materials were considered.

5.1.2 This section will outline any potential opportunities identified for reuse of material on site, as well as the limitation associated.

LIMITATIONS

5.1.3 Given the structure and composition of the buildings within the scope of the PDA, it is anticipated that the opportunities for reuse are extremely limited. The following limitations have been considered as part of assessing whether any elements of the structures are suitable for reuse:

- It was not possible to survey all of the buildings internally;
- The materials used as part of the construction of the building are predominantly low quality in nature, typical of post-war construction;
- Due to the period during which many of the structures were constructed, it is anticipated that a proportion of the materials on site may contain asbestos;
- Structures have not been built for disassembly – extracting potentially reusable elements is not feasible in many instances;
- It would not be possible to prove that light fittings were safe and compliant without individual testing and certifying by an electrician;
- Fire performance of existing doors cannot be ascertained and are likely to have been trimmed and repaired rendering them unsuitable for potential reuse; and
- It is unlikely that windows and glazing will meet current thermal or sound insulation standards.

OPPORTUNITIES FOR REUSE

BRICKS

5.1.4 Externally much of the façade comprises of typical brick construction. There may be a value to these bricks if recovered as part of the demolition process due to their uniformity across the site.

5.1.5 Though dependent on the exact demolition methodology, it is anticipated that due to the location of the brickwork on much of the external façade, it could be possible to recover some of the bricks for reuse.

5.1.6 Figure 5-1 below shows the external brickwork within the façades of some of the structures on site.

Figure 5-1 External Brickwork

5.1.7 Overall, the potential for reuse of this material is low, but should be considered as part of any demolition method statement.

KITCHENS

5.1.8 Based on the level of internal fit-out viewed within the residential dwelling, it is anticipated that that the kitchens could be removed for reuse off-site, assuming uniformity across each of the dwellings.

5.1.9 Due to the standard nature of fixed kitchen components, it is a straightforward process to demount each element without damaging the structural integrity or material finish.

5.1.10 Figure 5-2 below shows several examples of kitchens present across the buildings on-site.

Figure 5-2 Example Kitchens Onsite

5.1.11 Though it is not considered feasible to reuse on site as part of the new development, it is anticipated that the strip-out contractor could list the kitchen on a reuse platform such as Globechain[5] for a smaller-scale project locally.

5.2 BUILDING 5 MEP

5.2.1 Within Building 5, a number of items have been identified for reuse within the new school structure, as they will be within their usable life and will provide cost savings for the school.

5.2.2 During the site visit, the on-site representative from the school identified items associated door access and with Heating, Ventilation and Cooling (HVAC) systems that would be removed for use in the new school.

5.2.3 Figure 5-3 and Figure 5-4 below show an example HVAC unit and door access system respectively.

Figure 5-3 Example HVAC Unit

Figure 5-4 Door Access System

[5] https://globechain.com/

5.3 OVERALL VOLUMES OF WASTE PRODUCED FROM DEMOLITION

5.3.1 Where elements of the buildings on site are not suitable for reuse, the materials generated by the demolition process have been estimated and separated by type.

5.3.2 The tonnage of recyclable material present within the existing structures has been calculated based on best-practice recycling rates for each of the material types.

5.3.3 Table 5-1 below shows the estimated weight of materials generated by the demolition process.

Table 5-1 Summary of Demolition Waste Generated

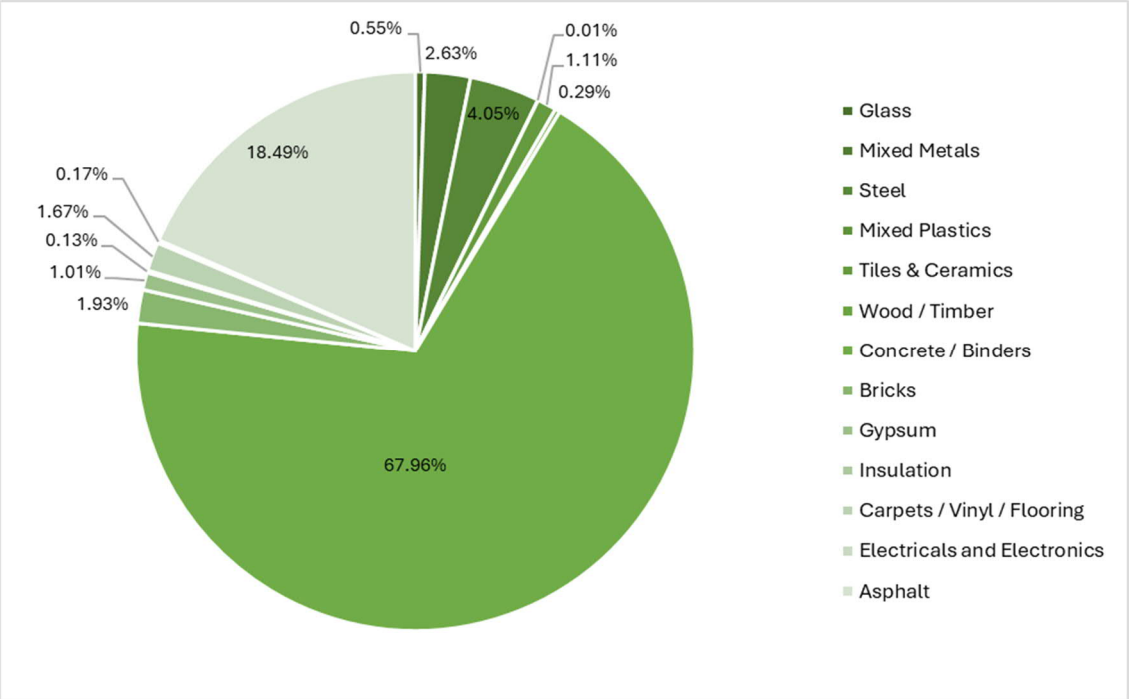
Material	Best Practice Recycling Rate (%)	Tonnes	% By Weight	Recycled Material (Tonnes)	Material for Disposal (Tonnes)
Glass	100	193.54	0.55	193.54	-
Mixed Metals	100	927.41	2.63	927.41	-
Steel	100	1,430.41	4.05	1,430.41	-
Mixed Plastics	95	4.77	0.01	4.53	0.24
Tiles & Ceramics	100	391.95	1.11	391.95	-
Wood / Timber	95	101.30	0.29	96.24	5.07
Concrete / Binders	100	23,975.84	67.96	23,975.84	-
Bricks	100	682.52	1.93	682.52	-
Gypsum	95	355.93	1.01	338.14	17.80
Insulation	95	44.80	0.13	42.56	2.24
Carpets / Vinyl / Flooring	95	588.81	1.67	559.36	29.44
Electricals and Electronics	90	58.32	0.17	52.49	5.83
Asphalt	100	6,523.02	18.49	6,523.02	-
Total		35,278.62	100.00	35,218.01	60.61

5.3.4 For the purposes of the audit, it is assumed that all recycling would be conducted as per best practice off-site, and that all unrecyclable material would be diverted from landfill.

5.3.5 The overall recycling rate for the demolition waste generated on-site is therefore considered to be 99.83%.

5.3.6 Figure 5-5 below shows the percentage of each waste stream by weight, as per Table 5-1.

Figure 5-5 Waste Streams by Weight (%)



5.4 EMBODIED CARBON CALCULATIONS

5.4.1 The embodied carbon for the demolition of the site has been calculated using data the ICE Database[6], assumptions of which can be found in Table 5-2 below.

[6] https://circularecology.com/embodied-carbon-footprint-database.html

Table 5-2 Energy Consumed to Make Building Material

Material	kg/CO_2e per Tonne	Assumption
Glass	1.44	General
Mixed Metals	1.99	Steel Rebar
Steel		
Mixed Plastics	3.1	PVC General
Tiles & Ceramics	0.24	General
Wood / Timber	0.493	Timber - Average of all Data - No Carbon Storage
Concrete / Binders	0.103	General
Bricks	0.21	General
Gypsum	0.39	Plasterboard
Insulation	1.28	Mineral Wool Insulation
Carpets / Vinyl / Flooring	3.19	Vinyl
Electricals and Electronics	2.73	Steel - Finished Cold-Rolled Coil
Asphalt	0.08	Relevant EPD Sourced

5.4.2 Applying the tonnage of demolition waste summarised in Table 5-1 to the metrics detailed in Table 5-2, Table 5-3 produces the estimated embodied carbon arisings for the site.

Table 5-3 Embodied Carbon Arisings

Material	Volume (m^3)	Tonnes	CO_2 Equiv (t)	% Weight	% Embodied Carbon
Glass	77.42	193.54	278.70	0.55	2.65
Mixed Metals	370.96	927.41	1,845.54	2.63	17.58
Steel	183.99	1,430.41	2,846.52	4.05	27.12
Mixed Plastics	3.67	4.77	14.79	0.01	0.14
Tiles & Ceramics	217.75	391.95	94.07	1.11	0.90
Wood / Timber	253.26	101.30	49.94	0.29	0.48
Concrete / Binders	11,987.92	23,975.84	2,469.51	67.96	23.52
Bricks	426.57	682.52	143.33	1.93	1.37
Gypsum	593.22	355.93	138.81	1.01	1.32
Insulation	447.99	44.80	57.34	0.13	0.55
Carpets / Vinyl / Flooring	452.93	588.81	1,878.29	1.67	17.89
Electricals and Electronics	97.20	58.32	159.21	0.17	1.52
Asphalt	2,965.01	6,523.02	521.84	18.49	4.97
Total	18,077.89	35,28.62	10,497.89	100	100%

5.4.3 The total carbon emissions associated with the construction of the entire building studied was determined to be approximately 10,497.89 tCO2e.

5.4.4 This figure reflects the embodied carbon generated were the existing structures to be constructed today using the materials identified by the PDA.

6 KEY DEMOLITION PRODUCTS

6.1 IDENTIFICATION OF KEY DEMOLITION PRODUCTS

6.1.1 This section of the report discusses the KDPs that have been identified for the site following analysis of the PDA findings. The KDPs present on site represent an estimated 96.18% of all waste occurring on site.

6.1.2 Inert materials and mixed metals were found to make up the majority of demolition waste on-site.

6.2 BEST PRACTICE METHODOLOGIES

6.2.1 There are some general methods of good practice to be considered during any demolition project looking to maximise the reuse and recycling of materials. These measures include the following:

- Agree targets for reclamation and recycling as part of the demolition management plan;
- During the demolition phase, details of the actual materials arising, and the waste management methods used should be recorded to compare actual with forecast and to assess performance against the targets set.
- Following completion of the project, any barriers to achieving the targets should be reviewed to ensure that in future projects these barriers can be overcome.
- Early promotion of available materials for reclamation through appropriate channels, particularly community projects;
- Contact local architectural salvage contractors to discuss if there are items they would be interested in reclaiming;
- Provide space on site for reclaimed materials in addition to segregated containers per waste stream;
- Use resources such as SalvoWeb[7] or Globechain[8] that provide a directory of business dealing with salvaged items;
- Provide separate containers per waste stream on site to maximise recycling rates;
- Ensure demolition operatives are appropriately trained to recognise materials and understand how to segregate them correctly;
- Where it is not possible to recycle materials due to their composition, seek a commercial waste contractor who diverts waste from landfill and sends residual waste for energy recovery.

[7] https://www.salvoweb.com/

[8] https://globechain.com/

6.3 INERT MATERIALS

6.3.1 The predominant KDP on site has been identified as inert materials, representing 89.50% of the total material on site. The inert materials are a group of materials that are handled and processed in the same manner during demolition and subsequent processing.

6.3.2 The inert materials generated by the demolition process are located within the following elements on site:

- Structural building frame;
- Internal walls;
- External walls; and
- Hard landscaping.

6.3.3 Figure 6-1 below shows examples of inert materials present on site.

Figure 6-1 KDP Example – Inert

6.3.4 Table 6-1 below summarises the quantities of these materials on site generated by the demolition process, categorised by European Waste Catalogue (EWC) code.

Table 6-1 Quantity of Inert Materials

Material	EWC Code	Tonnage	Recommended Processing (%)	
			Reclamation	Recycling
Bricks	17 01 02	682.52	0	100
Tiles and Ceramics	17 01 03	391.95	0	100
Concrete / Hardcore	17 01 07	23,975.84	0	100
Asphalt	17 03 02	6,523.02	0	100
Total		31,573.33	0	100

RECOMMENDATIONS

6.3.5 Inert materials are the predominant KDP generated by the demolition process on site. The potential for reclamation of inert materials is relatively low due to their use, composition, and material qualities.

6.3.6 It is possible to reclaim bricks for reuse within another structure, though for this to be feasible the bricks are required to be of high quality to justify the resource and space required to recover them on site.

6.3.7 It is expected that all the inert materials generated by the demolition process will be recycled to form secondary aggregate either on- or off-site.

6.3.8 Inert materials are processed using a crusher which reduces their fraction size.

6.3.9 Figure 6-2 shows an example crusher being loaded with inert materials.

Figure 6-2 Example Crusher

6.3.10 Crushed materials could be used for engineered fill on- or off-site, and at is expected that the material would be processed in accordance with prevailing guidance to ensure the secondary aggregate meets all requirements with regard to material properties.

6.3.11 The most efficient method of processing the materials would be to phase the demolition to allow space for on-site crushing, though this may not be possible due to the small footprint of the site and the proximity to neighbouring residential properties.

6.3.12 Crushing the inert materials on site would reduce the number of vehicle movements associated with the demolition process. If the material is being used on-site as engineered fill, the requirement for imported material is decreased, and if it is being transferred for use off-site the volume of the material is reduced when loaded.

6.3.13 On-site crushing would be subject to the demolition contractor obtaining a permit from the relevant authority, to ensure operations would not adversely impact the environment with noise or dust generated.

6.3.14 If it is not possible to crush the inert materials on site, they would be transferred an appropriately licenced nearby facility for processing and subsequent use.

6.3.15 It is anticipated that crushed inert material would be transported in 32-tonne tipper lorries.

6.3.16 Figure 6-3 below shows a 32-tonne tipper lorry being loaded with crushed concrete.

Figure 6-3 Example 32-Tonne Tipper Lorry

6.3.17 The landfill diversion rate for the inert materials on site would be anticipated to be 100%.

6.4 METALS (FERROUS/NON-FERROUS)

6.4.1 The second KDP on site has been identified as mixed metals, and steel with use across all structures for a number of purposes, representing 6.68% of the total material on site.

6.4.2 The metals generated by the demolition process are located within the following elements on site:

- Aluminium façade panels;
- Structural building frame;
- Doors and windows;
- Walls;
- Stairs; and
- Ceiling.

6.4.3 Figure 6-4 below shows examples of metals present on site.

Figure 6-4 KDP Example – Metal

6.4.4 Table 6-2 below summarises the quantities of metals on site generated by the demolition process, including the EWC code.

Table 6-2 Quantity of Metals

Material	EWC Code	Tonnage	Recommended Processing (%)	
			Reclamation	Recycling
Mixed Metals	17 04 07	927.41	0	100
Steel	17 04 05	1,430.41	0	100
Total		2,357.82	0	100

RECOMMENDATIONS

6.4.5 Metal is the second most prevalent material expected to be generated by the demolition process. A number of metal types are to be found within the structures, fixtures, and fittings.

6.4.6 Reuse of structural metal (such as rebar within reinforced concrete) is not possible due to the manner in which it is extracted.

6.4.7 Whilst there is a minor potential that some of the metals within the external areas such as fencing could be reused, this is considered unlikely due to logistical constraints. Reuse of these elements would likely require designated locations to transfer directly to at the time of demolition.

6.4.8 It is recommended that segregated containers for metal generated by the demolition process are used to ensure that all waste metal is captured.

6.4.9 Scrap metal is usually stored in skips or roll-on roll-off containers on site for before transfer to an appropriately licenced facility.

6.4.10 An example 40yd^3 container is shown in Figure 6-5 below.

Figure 6-5 Example 40yd^3 Roll-On Roll-Off Container

6.4.11 Scrap metal has a value by weight and will generate a rebate based on the quality of the material.

6.4.12 The landfill diversion rate for the metals on site would be anticipated to be 100%.

6.5 LOCAL LICENCED WASTE CARRIERS

6.5.1 Table 6-3 below details a selection of licenced waste carriers local to the site that could be contracted to facilitate removal of waste materials.

Table 6-3 Local Waste Carriers

Waste Contractor	Waste Carrier Licence	Address	Contact	Distance (Miles)	EWC Codes
O'Donovan Waste Disposal	CBDU116673	82 Markfield Road, N15 4QF	0208 801 9561	7.9	17 – Construction and Demolition Waste (01-09)
GBN Services	CBDU90075	GBN Services, Gibbs Rd, N18 3PU	0203 887 5345	5.7	
Greenline Environmental	CBDU199088	14 Austin Friars, EC2N 2HE	0800 644 1248	10.1	
Powerday PLC	CBDU123332	Jeffrey's Road, Brimsdown, Enfield, EN3 7UA	0208 960 4646	8.2	

6.5.2 Materials would be transferred from site to suitably licenced waste facilities for reprocessing or onward to transfer to specialist contractors.

7 SUMMARY AND CONCLUSIONS

7.1 SUMMARY

7.1.1 The purpose of the PRA is to understand whether the existing building, structures and materials can be retained, refurbished, or incorporated into the new development to any extent. The audit fully explores the available options for retention or refurbishment of structures, materials, and the fabric of existing building.

7.1.2 The purpose of the PDA is to identify and quantify where the key materials and components are present within the existing building, and to further identify the potential recycling or reuse strategy for them.

7.1.3 The information in this report demonstrates the benefits of recycling and re-use of the KDPs based on economic value, the number of units and viability of deconstruction, as well as potential schemes for re-use and recycling of these materials.

7.1.4 The scope of the project includes a number of structures at North London Business Park, Oakleigh Road South, London, N11 1GN due for demolition as part of the redevelopment of the site, located within the administrative boundary of LBB.

7.1.5 The two KDPs on site identified are as follows:

- Inert Materials; and
- Metals.

7.1.6 The two KDPs present on site represent an estimated 96.18% of all waste occurring on site.

7.1.7 The landfill diversion rate for the KDPs on site would be anticipated to be 100%.

7.1.8 There are a number of waste carriers within the local area licenced to carry waste materials from site.

7.2 CONCLUSION

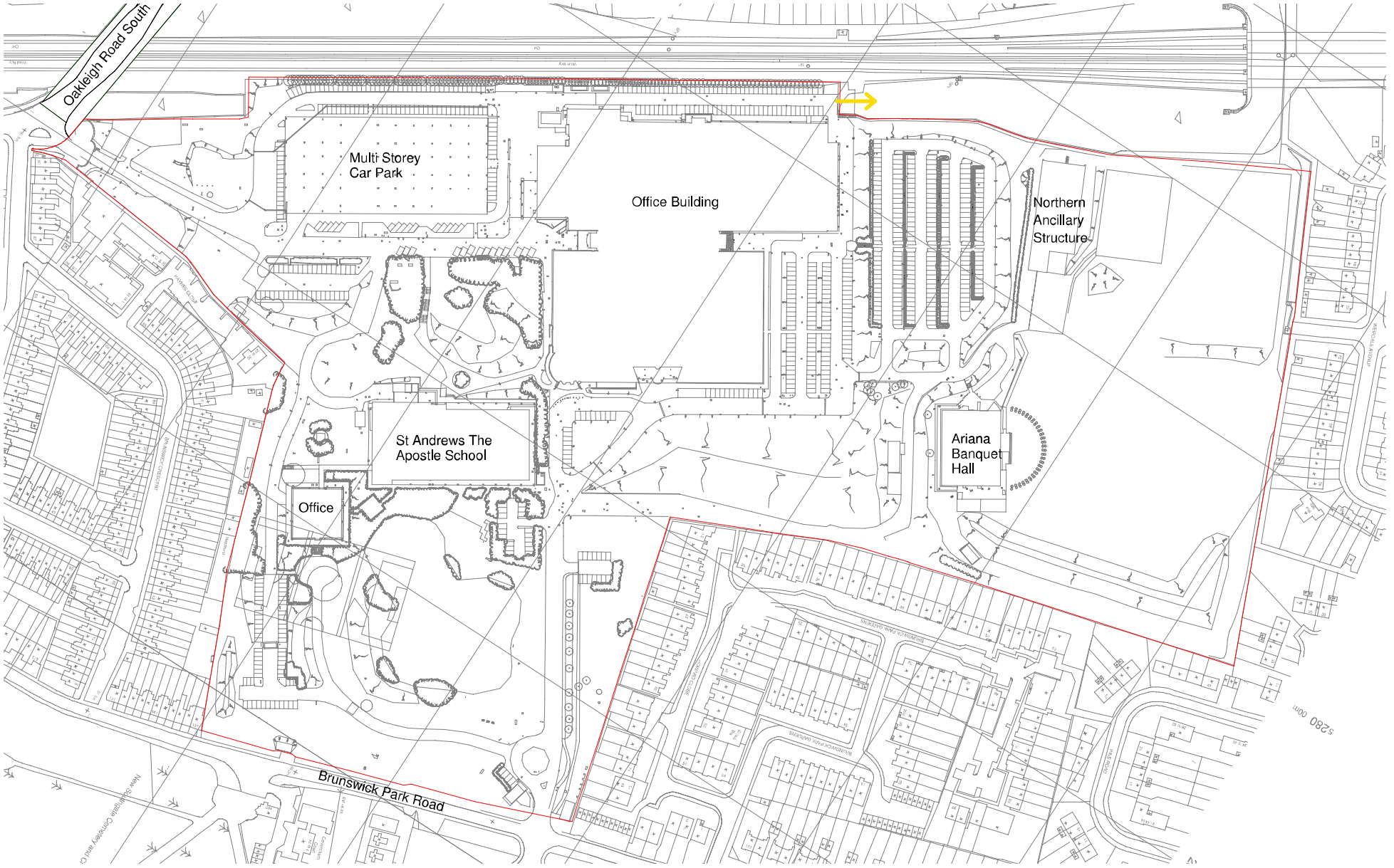
7.2.1 This Pre-Demolition Audit has taken into account the need to lessen the overall impact of waste generation through the reclamation and recycling of materials from the demolition phase of the building.

7.2.2 This Pre-Demolition Audit has been prepared to demonstrate compliance with Policy SI 7 of the London Plan (2021).

7.2.3 The proposals set out in this strategy meet the requirements of relevant waste policy and follow applicable guidance.

APPENDIX A

INFORMATION SOURCES



General Notes

1. Development Zones (within which development can occur) and public open spaces are identified on drawing number 211_WS_02_01
2. Access and circulation routes are identified on Drawing number 211_WS_02_02.
3. Landscape treatments are identified on drawing number 211_WS_02_03
4. Allowable uses at ground floor frontages are identified on Drawing number 211_WS_02_04
4. Allowable uses at ground floor frontages are identified on Drawing number 211_WS_02_04
5. Proposed site ground levels, heights, allowable horizontal and vertical deviations are identified on Drawing number 211_WS_02_05

Legend

Planning Application Boundary

NOTES:

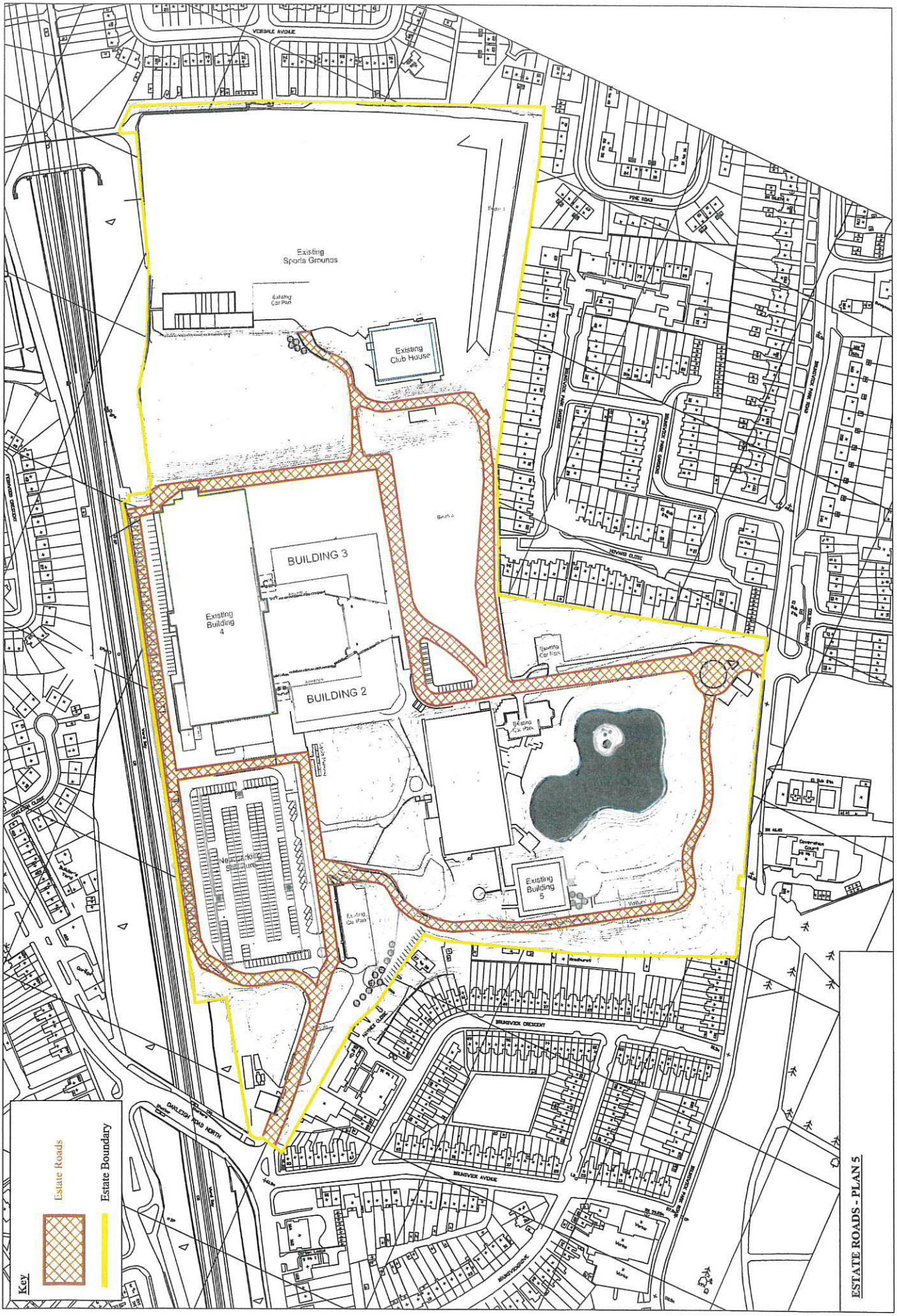
REV.	DATE:	DETAILS:	INITIALS:

NORTH POINT:

KEY PLAN:

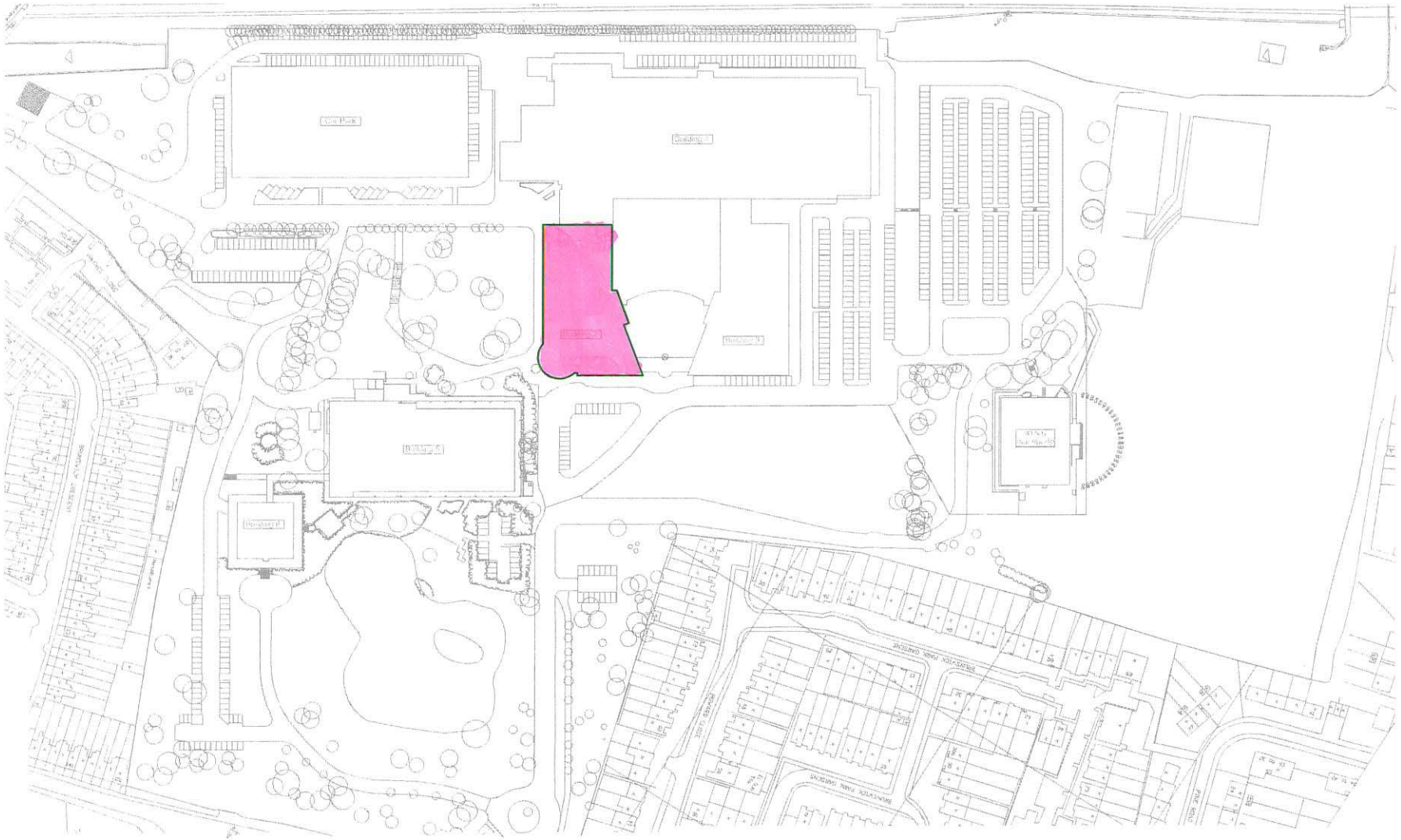
PLUS ARCHITECTURE Chancery Lane, Dublin 8, Ireland. W: www.plusarchitecture.ie T: 353 (0) 1 524 3578

PROJECT: North London Business Park	PROJECT: 211	DATE: 21/06/2121
CLIENT: The Corner Group	DRAWING NO.: 211_WS_02_00	REVISION NO.:
TITLE: Existing Site Plan / Red Line Boundary Plan	DRAWN BY: AH	SCALE AT A1 : 1 : 1000
ISSUE TYPE: Planning	CHECKED BY: YT	SCALE AT A3 : 1 : 2000



ESTATE ROADS - PLAN 5

SCALE 1:500 @ A1



Revision Schedule				
Revision	Revision Description	Issue Date	Issued By	Checked By
P01	Issue Plan	18.12.20	MG	DD

Layers:

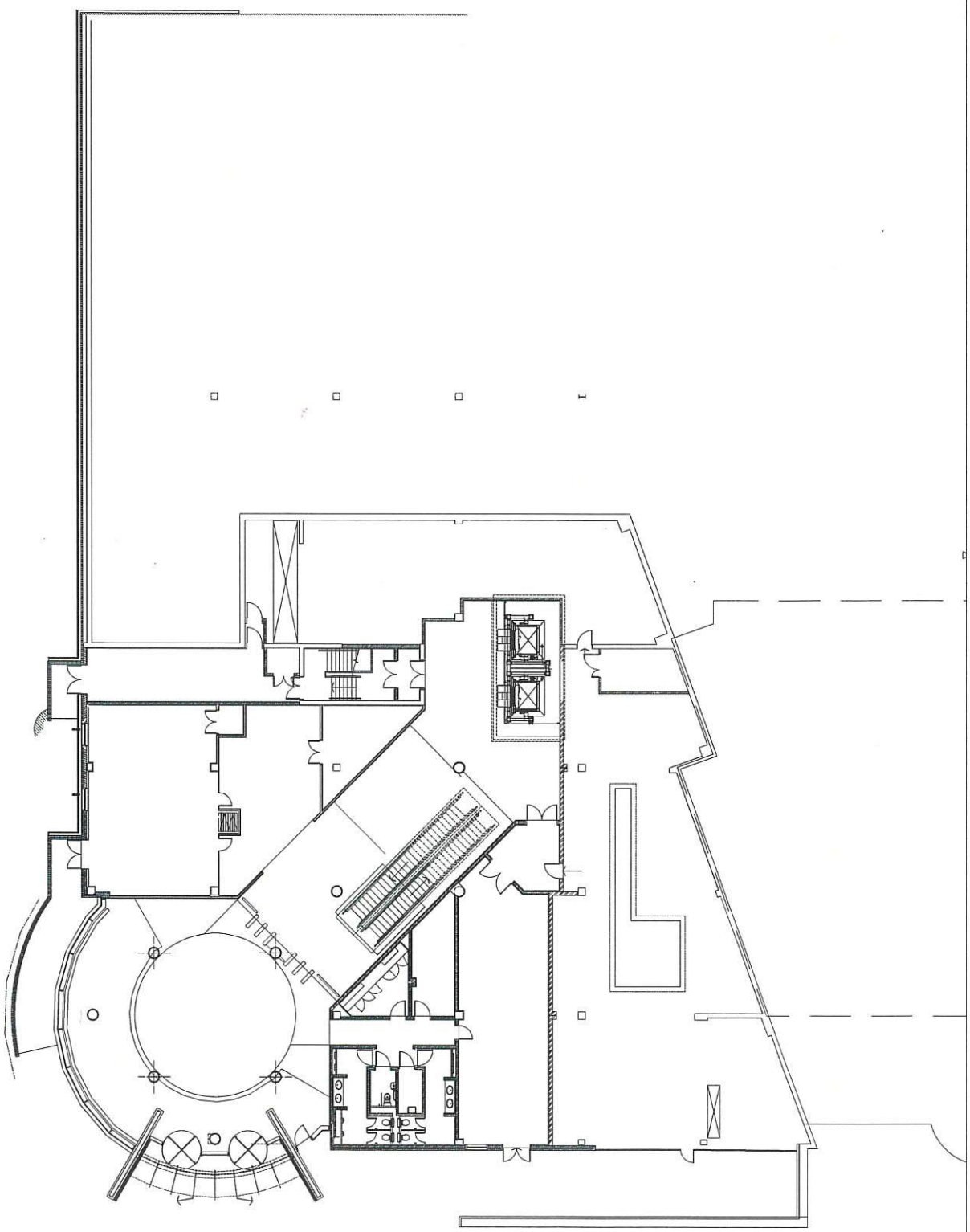
Client: COMER HOMES GROUP

Project: North London Business Park

Title: Building 2 - Estate Plan

Project Reference Number: CH1031	Scale: 1 : 500		Original Paper Size: A1
Revision: P01	Status: S2		
Description: Preliminary	Suitability: For Information		
Drawing Name:			
Project	Originator	Volume	Level	Type	Role	Number
NLBP	CHAD	S2	00	DR	A	0200

CH
AD

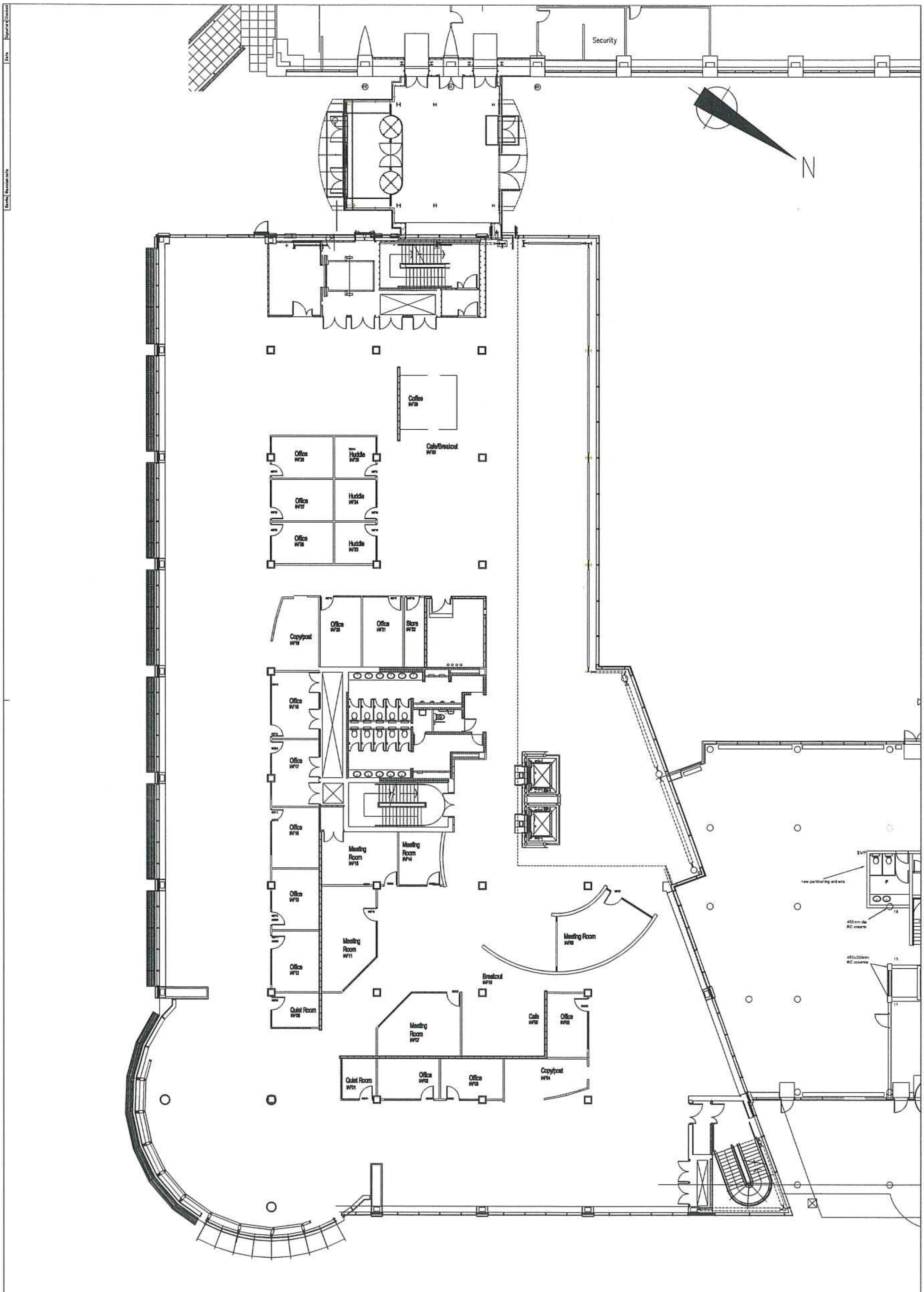


BUILDING 2 – NORTH LONDON BUSINESS PARK – LOWER GROUND FLOOR PLAN

COMER HOMES GROUP

COMER HOMES GROUP
Princess Park Manory
Royal Drive, London N11 3FL

SCALE 1:250 | 20 - 02 - 01



BUILDING 2 – NORTH LONDON BUSINESS PARK – GROUND FLOOR PLAN

COMER HOMES GROUP

COMER HOMES GROUP
Princess Park Manory
Royal Drive, London N11 3FL
Tel.: 0208 361 2424, Fax / Answer Phone: 0208 361 3806

SCALE 1:250	20 - B2 - 02

CIRCULATION AREA

ADJACENT DEMISE

COMMON AREAS

LOCK OFF

DEMISE LINE/ AREA

AREA:

FRONT OF HOUSE:	
Ground Floor	838.6sqm
First Floor	1750.7sqm
BACK OF HOUSE:	
Ground Floor	214.0sqm
GRAND TOTAL	2803.3sqm

GENERAL NOTE:

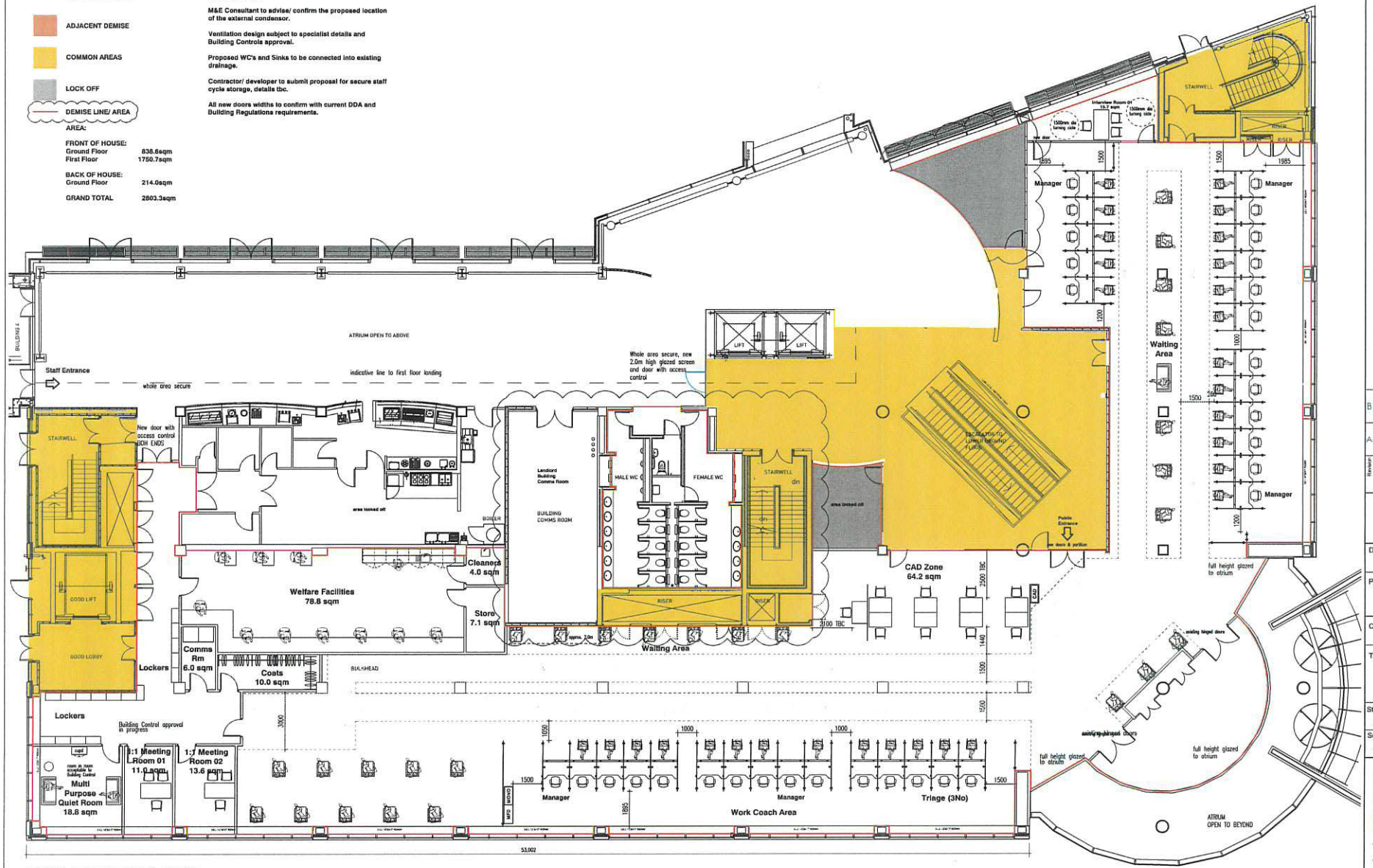
M&E Consultant to advise/ confirm the proposed location of the external condensor.

Ventilation design subject to specialist details and Building Controls approval.

Proposed WC's and Sinks to be connected into existing drainage.

Contractor/ developer to submit proposal for secure staff cycle storage, details tbc.

All new doors widths to confirm with current DDA and Building Regulations requirements.



GROUND FLOOR PLAN

0 1m 4m
1:100 2m 8m

Notes:

Revision	Revision description	Date	Drawn by	Checked by	Project Check
B					
A					

PRELIMINARY

Dwg.	20-046 PR0G
Project	Building 2, North London Business Park Brunswick Park Road, London N11
Client	DWP Estates
Title	Ground Floor Proposed General Arrangement Plan

Start Date 03.11.20	Drawn By PDW	Revision B
Scale 1:100 @ A1	Checked by	

Instant
RETHINKING WORKSPACE
The Blue Fin Building,
110 Southwark Street,
London, SE1 0TA.
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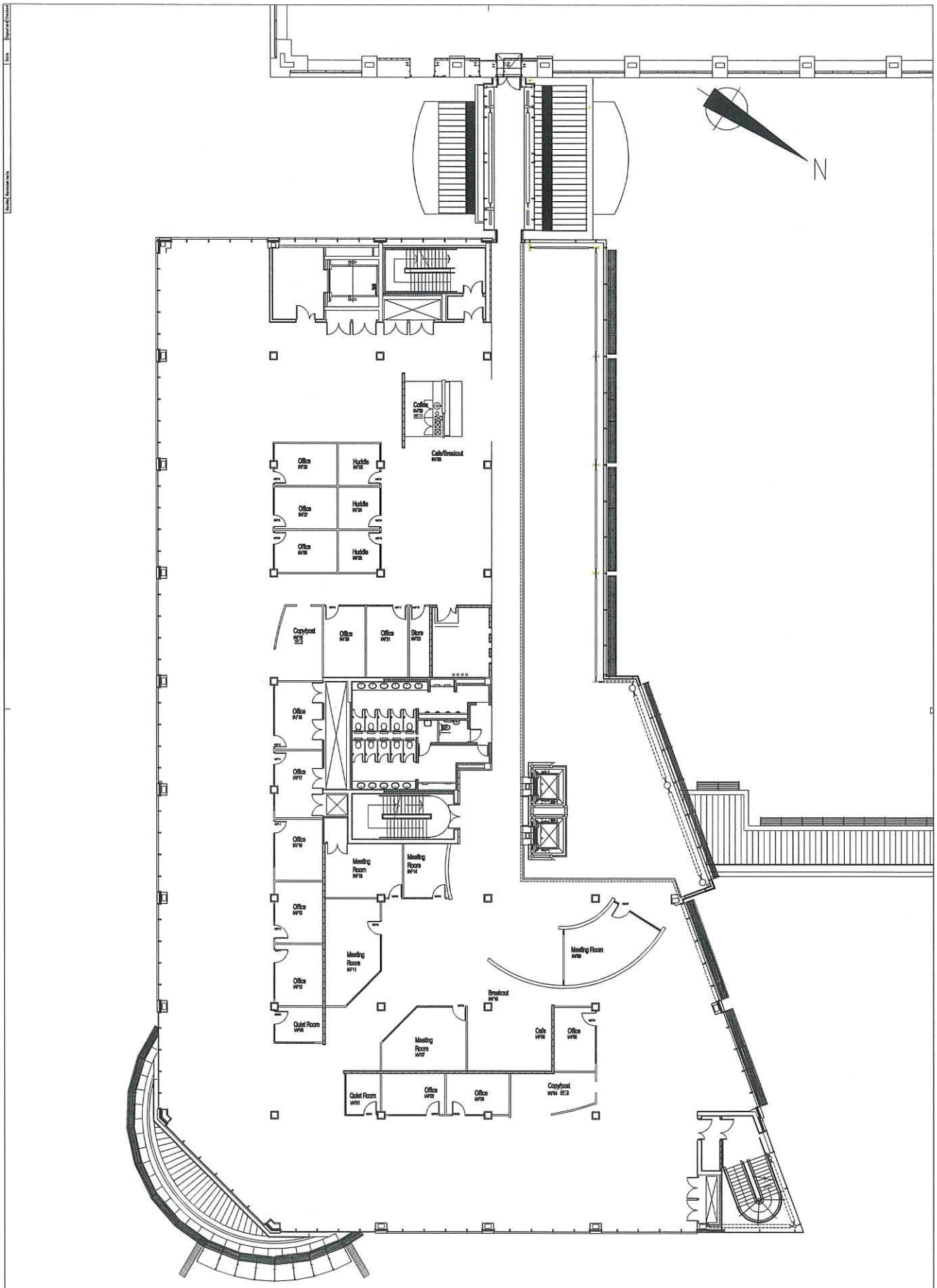
www.theinstantgroup.com
www.instantoffices.com



BUILDING 2 – NORTH LONDON BUSINESS PARK – FIRST FLOOR PLAN

COMER HOMES GROUP

COMER HOMES GROUP
Princess Park Manory
Royal Drive, London N11 3FL

SCALE 1:250 | 20 - B2 - 03

CIRCULATION AREA

- ADJACENT DEMISE
- COMMON AREAS
- LOCK OFF
- DEMISE LINE/ AREA

AREA:

FRONT OF HOUSE: First Floor	1750.7sqm
BACK OF HOUSE: First Floor	000.0sqm
GRAND TOTAL	1750.7sqm

GENERAL NOTE:

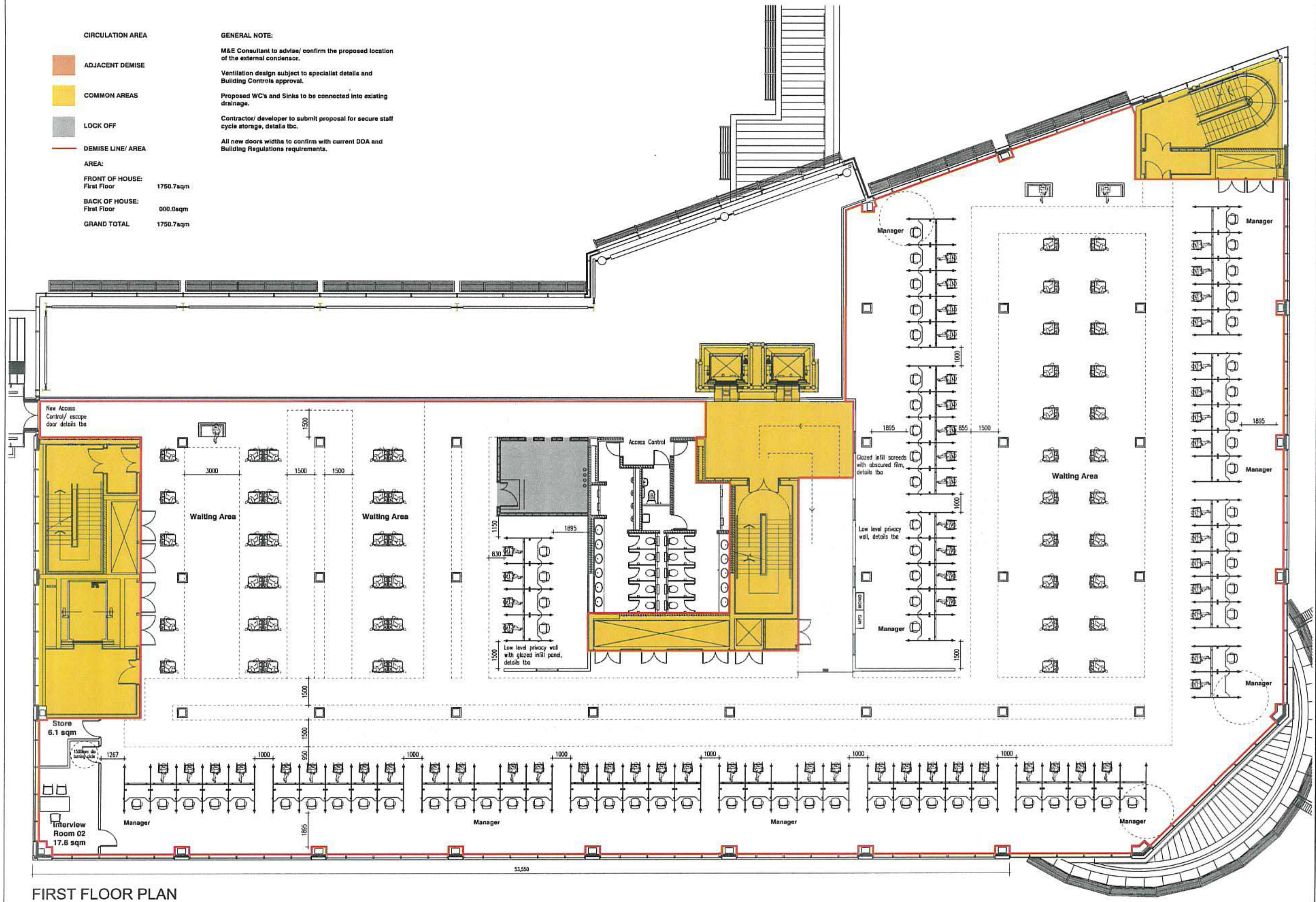
M&E Consultant to advise/ confirm the proposed location of the external condensor.

Ventilation design subject to specialist details and Building Controls approval.

Proposed WC's and Sinks to be connected into existing drainage.

Contractor/ developer to submit proposal for secure staff cycle storage, details tbc.

All new doors widths to confirm with current DDA and Building Regulations requirements.



FIRST FLOOR PLAN

1:100

All dimensions to be checked on site and used in preference to those given or scaled from this drawing, and must be brought to the attention of the surveyor. Copyright of this drawing remains with the designers.

Notes:

Revision	Revision description	Date	Drawn by	Checked by	Project Status
B					
A					

PRELIMINARY

Dwg.	20-046 PR01
Project	Building 2, North London Business Park, Brunswick Park Road, London N11
Client	DWP Estates
Title	First Floor Proposed General Arrangement Plan

Start Date	Drawn By	Revision
03.11.20	PDW	B
Scale	Checked by	
1:100 @ A1		

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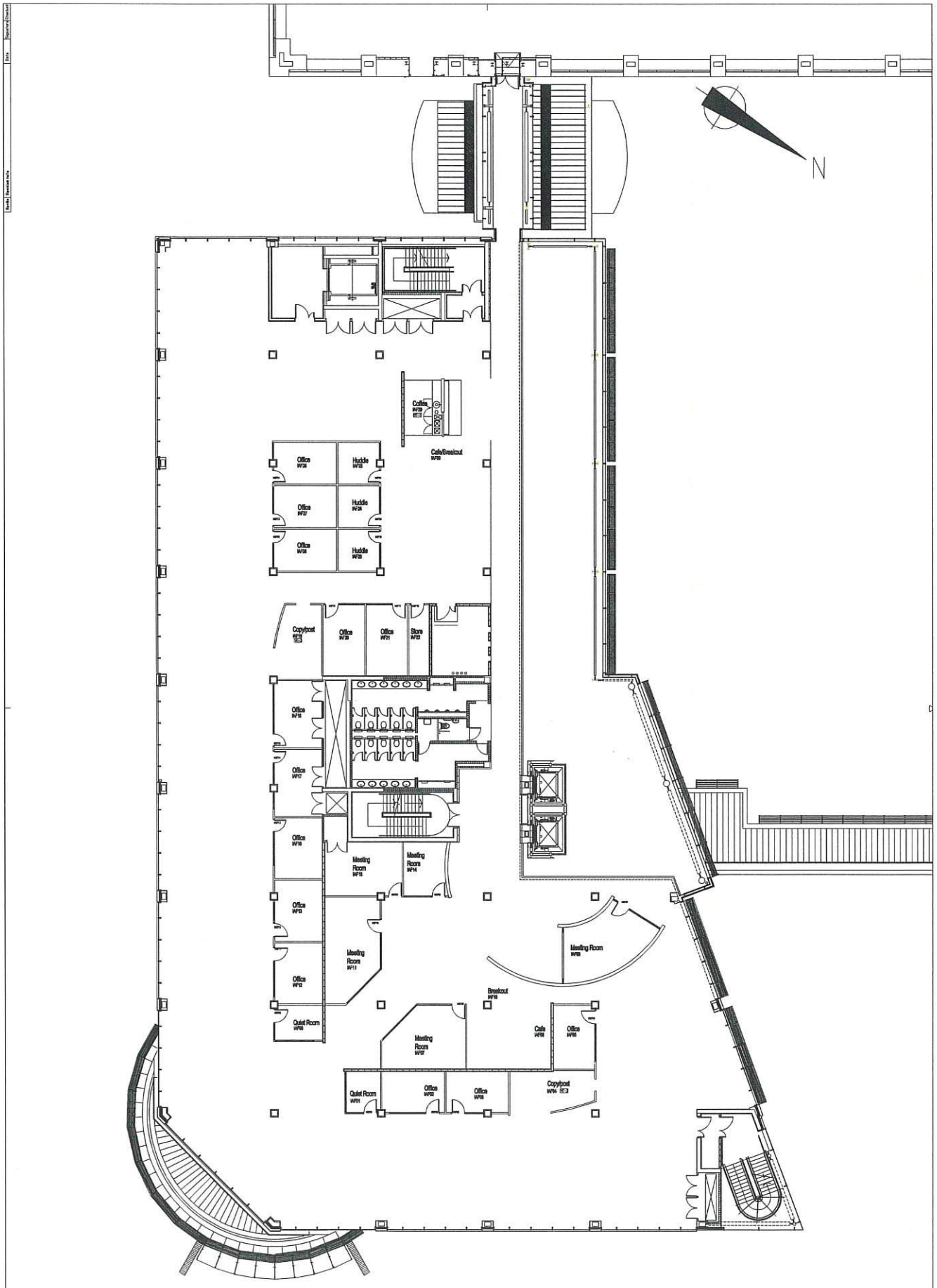


BUILDING 2 – NORTH LONDON BUSINESS PARK – SECOND FLOOR PLAN

COMER HOMES GROUP

COMER HOMES GROUP
Princess Park Manor
Royal Drive, London N11 3FL

SCALE 1:250

20 - B2 - 04

ESTATE ROADS - PLAN 5

Key

Estate Boundary

Estate Roads

BUILDING 2

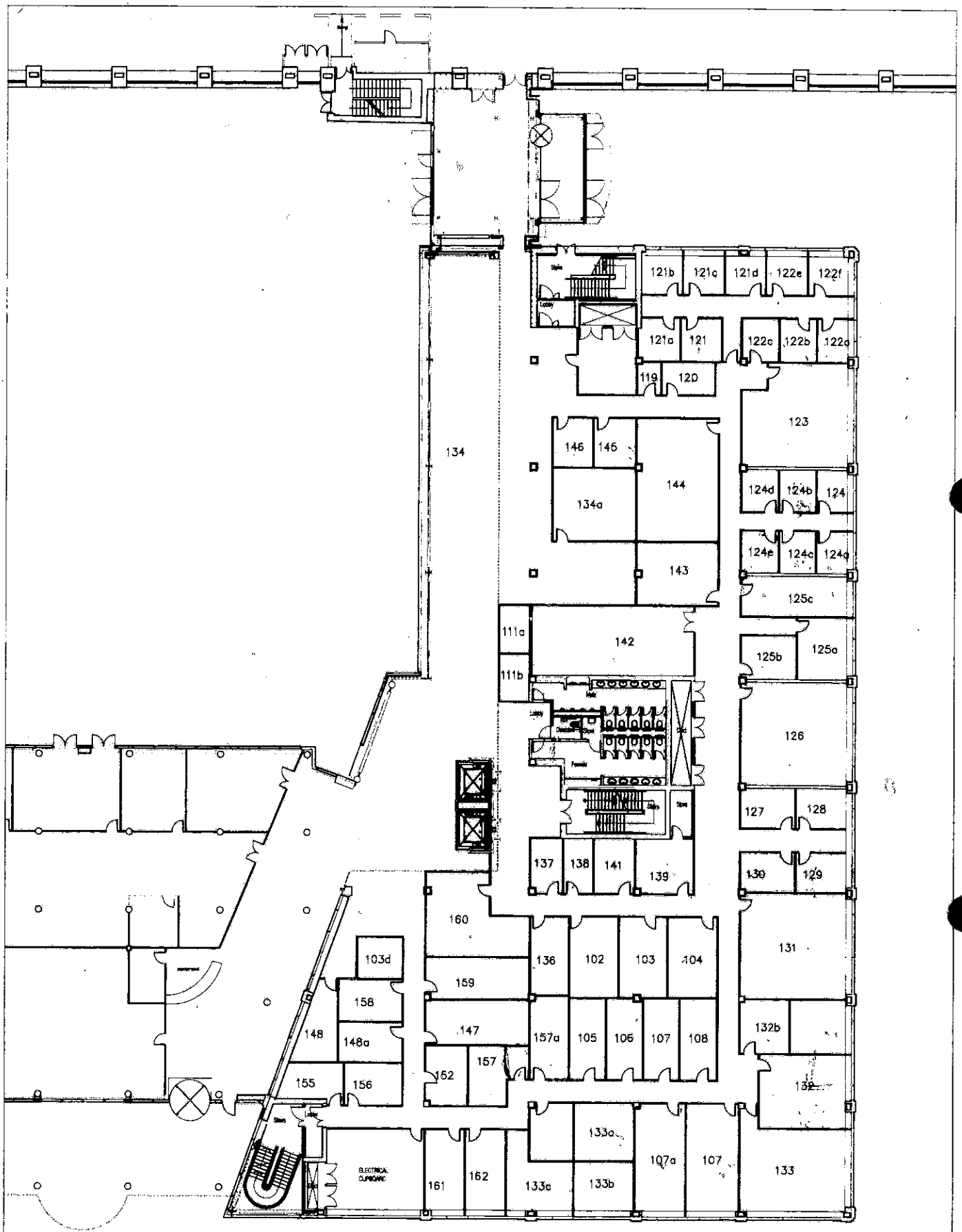
BUILDING 3

Existing Building 4

Existing Building 5

Existing Club House

Existing Sports Grounds

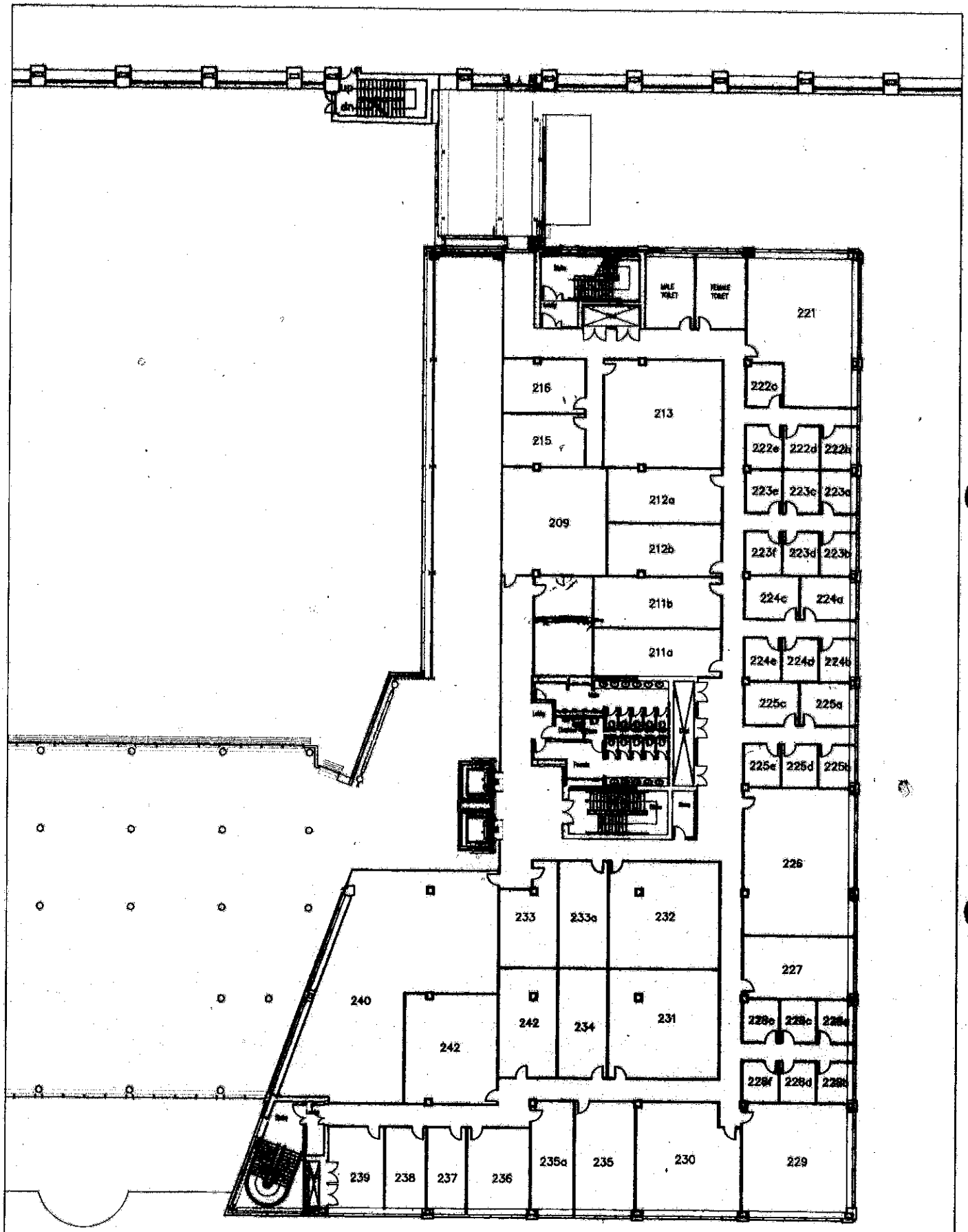


BUILDING 3 NORTH LONDON BUSINESS PARK – GROUND FLOOR PLAN

0 metres 5 10 15 25

COMER HOMES GROUP

SCALE 1:250 @ A3

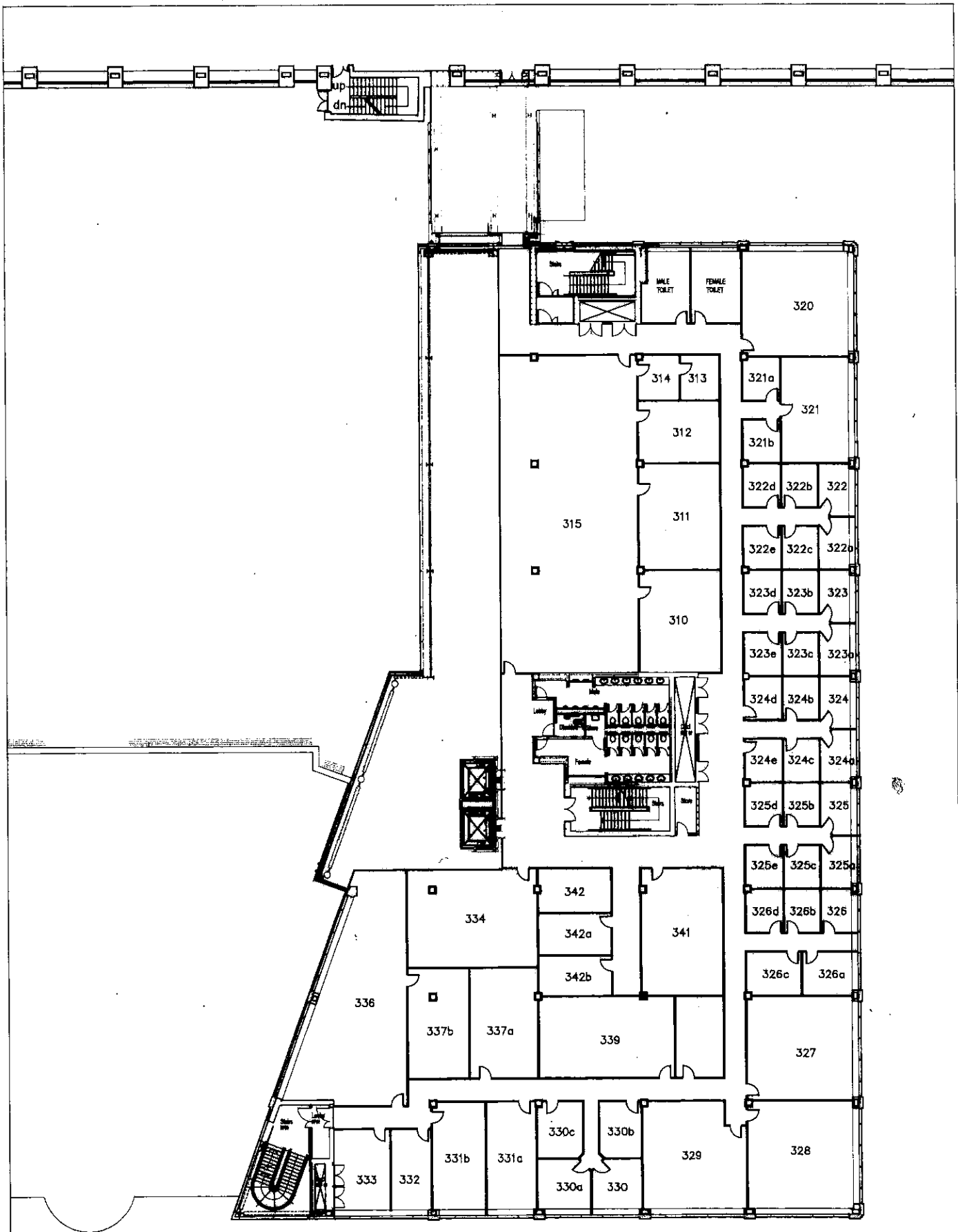


BUILDING 3 NORTH LONDON BUSINESS PARK – FIRST FLOOR PLAN

0 metres 5 10 15 25

COMER HOMES GROUP

SCALE 1:250 @ A3

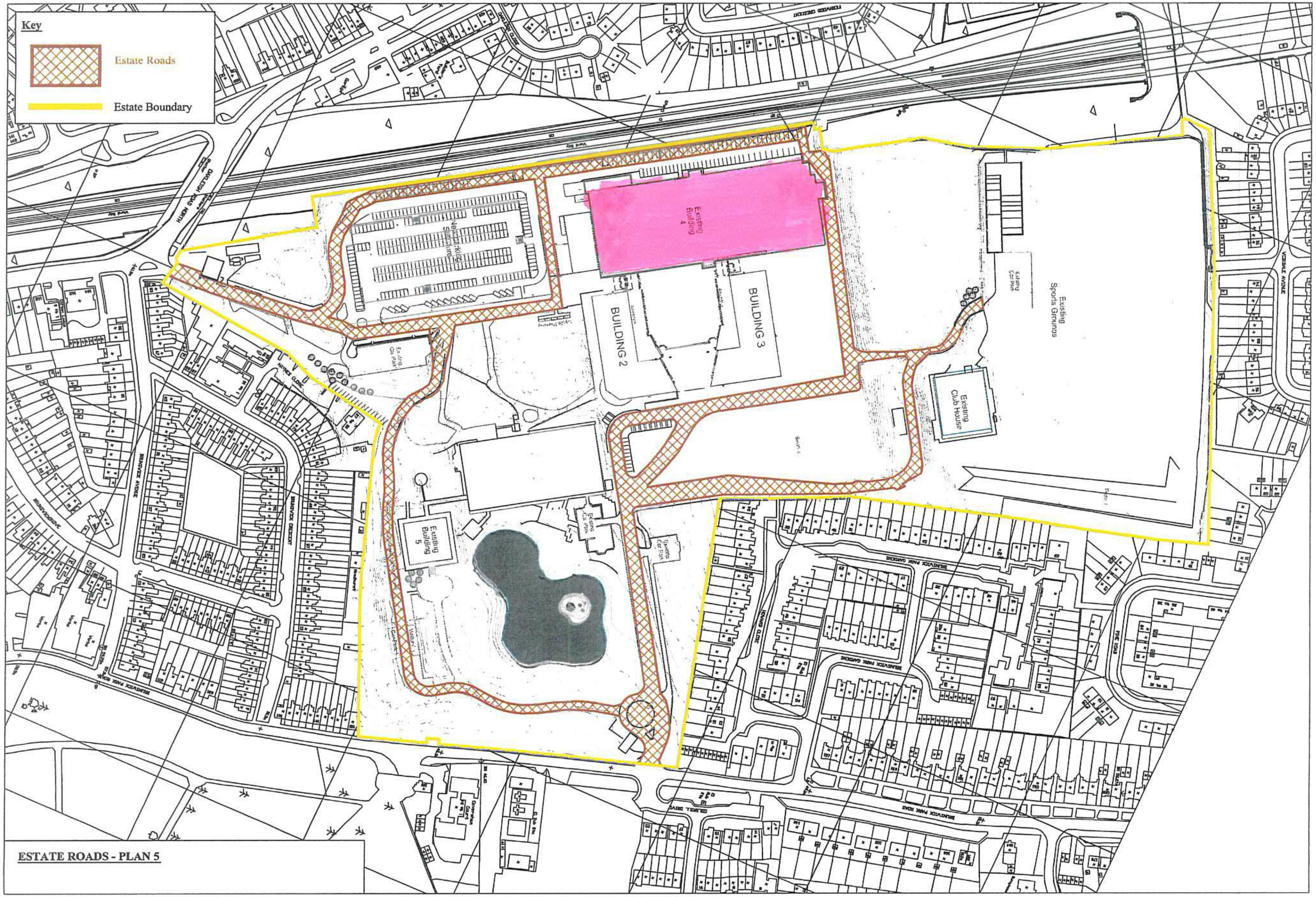


BUILDING 3 NORTH LONDON BUSINESS PARK – SECOND FLOOR PLAN

0 metres 5 10 15 25

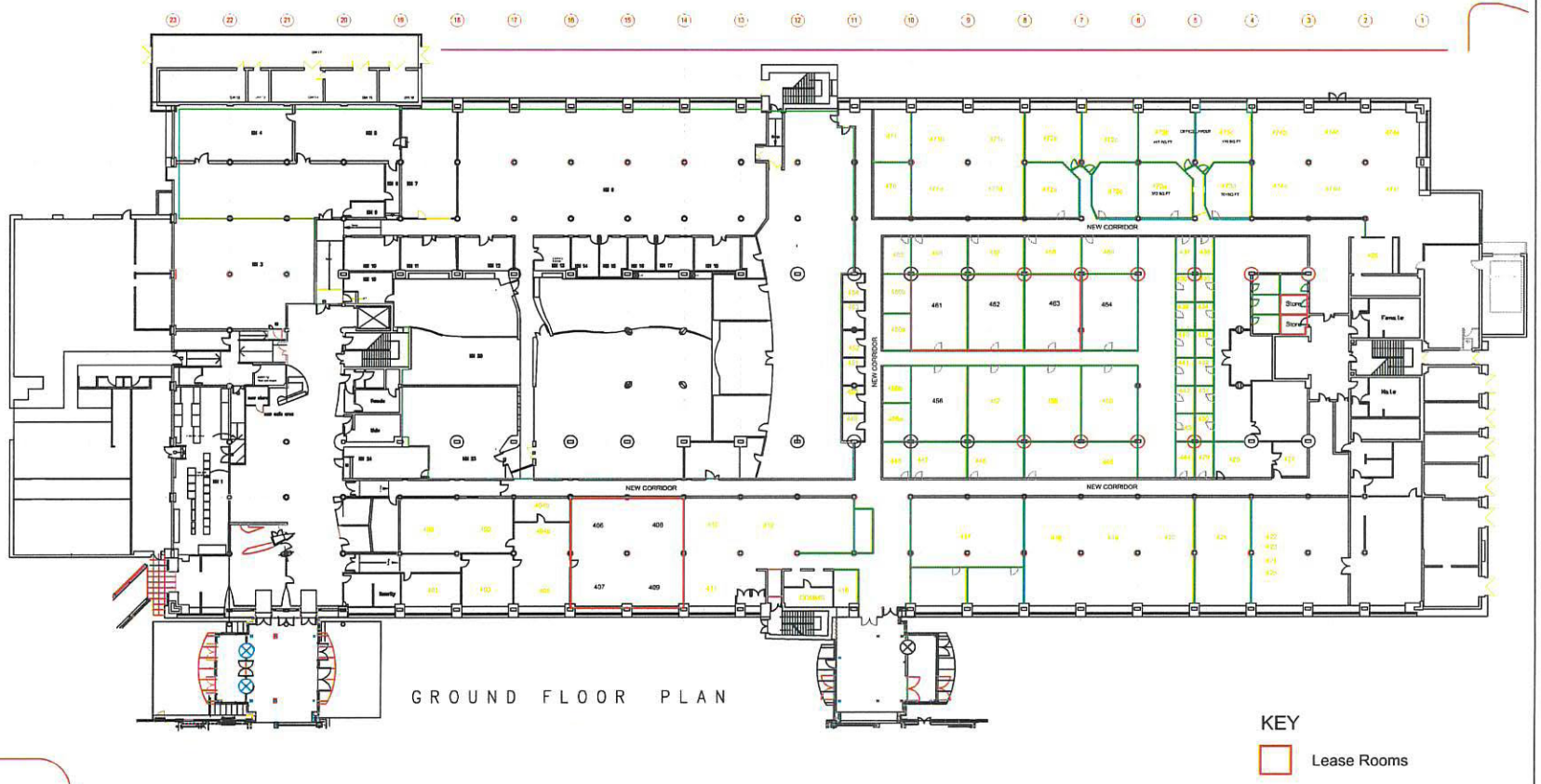
COMER HOMES GROUP

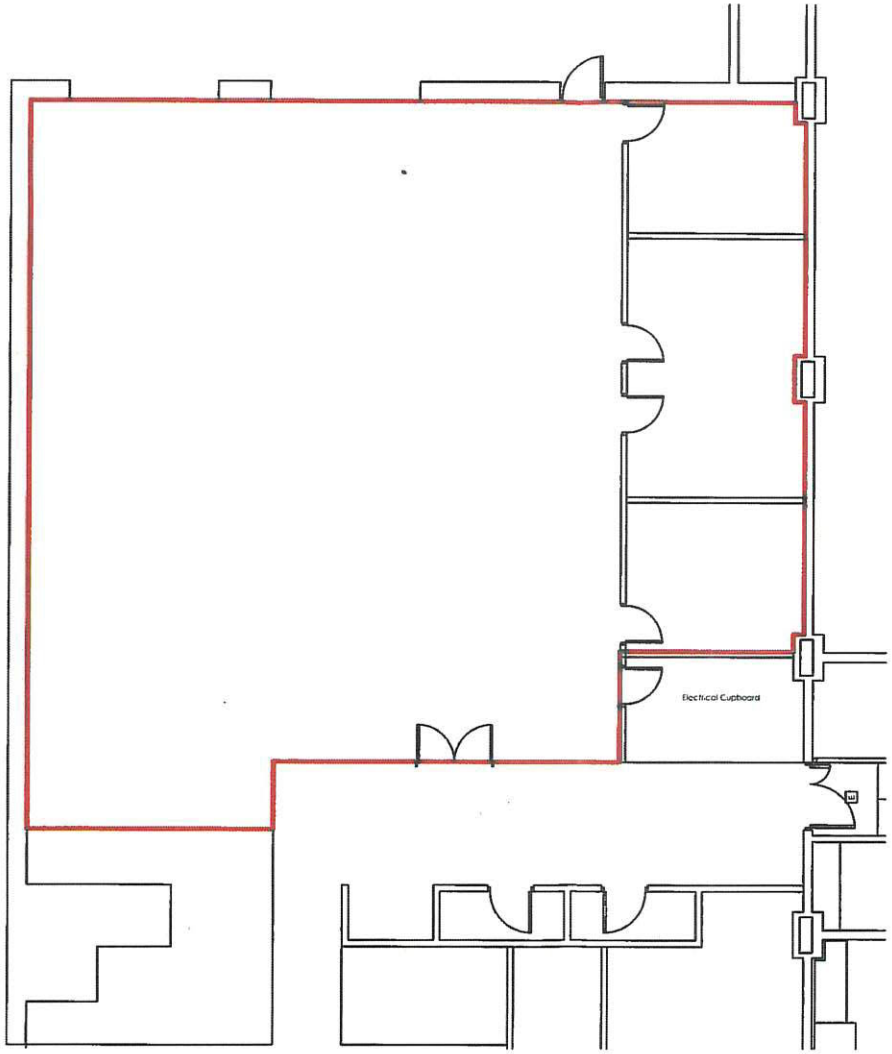
SCALE 1:250 @ A3


Key
Estate Roads
Estate Boundary
Existing Building 4
BUILDING 2
BUILDING 3
Existing Building 5
Existing Club House
Existing Sports Grounds
Existing Car Park
ESTATE ROADS - PLAN 5

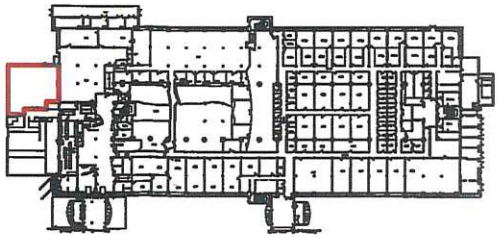
North London Business Park - Building 4 - Ground Floor Plan

LEASE PLAN 2





Building 4 - Ground Floor Warehouse Unit



Key Plan

AL

JF

Legend

Extents of unit

Rev	Amendment Description	Issued Date	Issued By	Checked By
C01	First Issue	22.04.20	AS	DD

COMER HOMES GROUP

Project: North London Business Park

Title: Building 4 - Ground Floor Warehouse Unit

Original Paper Size: A1

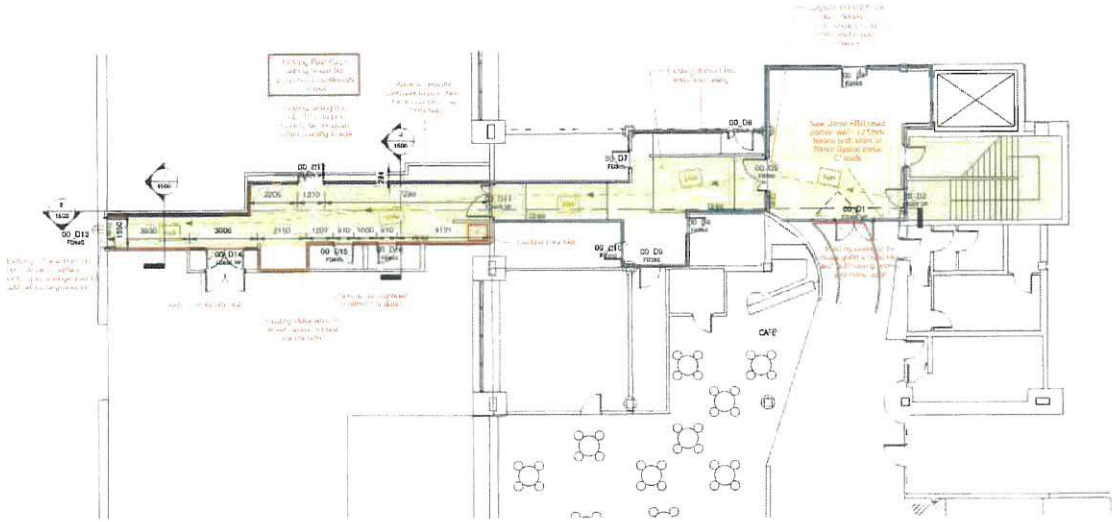
Scale: 1:100

Status: S2

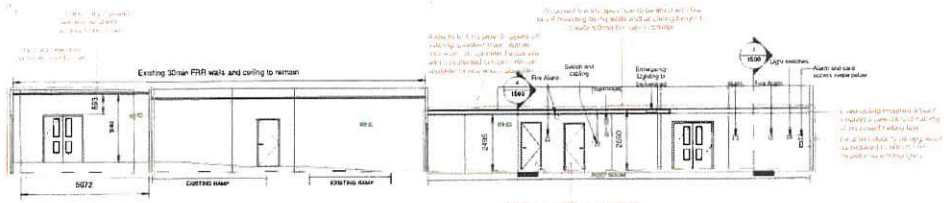
Description: For Information

NLBP – CHAD – 04 – 00 – DR – A – 0401

CH
AD



1 00 Ground Floor
1 : 100



2 Ground Floor Fire Escape - Section 1
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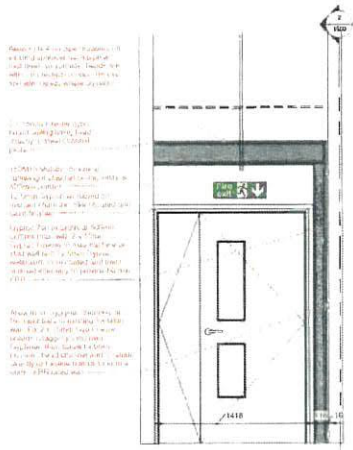
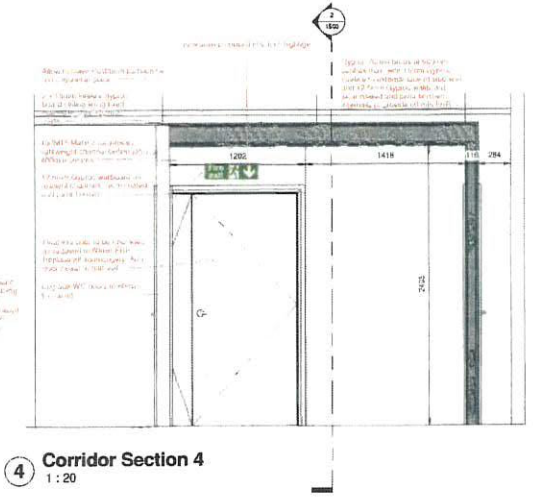


3 Corridor Section 3
1 : 20



4 Corridor Section 4
1 : 20

FIRE STRATEGY KEY

	30 minute fire resistant compartment wall/divide
	60 minute fire resistant compartment wall/divide
	90 minute fire resistant compartment wall/divide
	120 minute fire resistant compartment wall/divide
	Means of escape route
EXIT AHEAD 'FE1'	EXIT DOWN 'FE4'
EXIT LEFT 'FE2'	EXIT DOWN LEFT 'FE5'
EXIT RIGHT 'FE3'	EXIT DOWN RIGHT 'FE6'
FD30	30 minute fire rated door
FD30s	30 minute fire rated door with intumescent strips and smoke seals - 'Fire Door Keep Shut' signage required
FD60	60 minute fire rated door with intumescent strips and smoke seals - 'Fire Door Keep Shut' signage required
FD90	90 minute fire rated door with intumescent strips and smoke seals - 'Fire Door Keep Shut' signage required
FD120	120 minute fire rated door with intumescent strips and smoke seals - 'Fire Door Keep Shut' signage required
FD30 VP	30 minute fire rated door with fire rated vision panels
FD30s VP	30 minute fire rated door with fire rated vision panels and intumescent strips and smoke seals - 'Fire Door Keep Shut' signage required
FD60 VP	60 minute fire rated door with fire rated vision panels and intumescent strips and smoke seals - 'Fire Door Keep Shut' signage required
FD90 VP	90 minute fire rated door with fire rated vision panels and intumescent strips and smoke seals - 'Fire Door Keep Shut' signage required
FE	Fire Exit - 'Fire Escape' signage required
	Fire escape and travel distance (mm)

EMERGENCY LIGHTING AND ILLUMINATED RUNNING MAN ESCAPE SIGNAGE TO BS 5499 TO BE PROVIDED TO ESCAPE ROUTES AND STAIRCASES IN ACCORDANCE WITH THE MECHANICAL AND ELECTRICAL ENGINEERS/CONTRACTORS DETAILS AND SPECIFICATION.

SMOKE DETECTION AND FIRE ALARM SYSTEM TO BE PROVIDED TO BUILDING IN ACCORDANCE WITH THE MECHANICAL AND ELECTRICAL ENGINEERS/CONTRACTORS SPECIFICATION

ANY UPVC SERVICE PIPES PASSING THROUGH FLOORS/WALLS BETWEEN SERVICE DUCTS OR LIFT THROUGHWAYS TO BE 'FIRE STOPPED' WITHIN THE WALL/FLOOR CONSTRUCTION USING PROPRIETARY INTUMESCENT COLLAR/SLEEVE IN ACCORDANCE WITH ACOUSTIC ENGINEER. BALAIR TO FITTED IN ACCORDANCE WITH THE MANUFACTURERS INSTRUCTIONS OR BALAIR APPROVED TO ACHIEVE MIN 1 HOURS FIRE RESISTANCE

ALL WALLS & LOOKS TO BE FIRE STOPPED EXTERNALLY WITHIN THE CAVITY AS INDICATED ON THE ARCHITECTS 120 AND 134 WALL SPECIFICATIONS

NOTICES AND SIGNS

NOTICES OF THE ACTION TO BE TAKEN IN CASE OF FIRE SHOULD BE PROVIDED AND SITED ADJACENT TO FIRE ALARM CALL POINTS AND STAFF NOTICE BOARDS

ILLUMINATED 'RUNNING MAN' EXIT SIGNS ARE TO BE PROVIDED AND SITED ABOVE FIRE DOOR TO ALL ESCAPE ROUTES REFER TO THE MECHANICAL AND ELECTRICAL ENGINEERS SPECIFICATION

A FIRE DOOR KEEP LOCKED SHUT WHEN NOT IN USE IS TO BE PROVIDED ON THE OUTSIDE OF ALL FIRE DOORS NOT REQUIRED TO BE SELF CLOSING eg CUPBOARDS

AN AUTOMATIC FIRE DOOR KEEP CLEAR SIGN IS TO BE PROVIDED TO DOORS FITTED WITH AUTOMATIC HOLD OPEN DOOR CLOSER DEVICES LINKED TO THE FIRE ALARM SYSTEM

ALL FIRE STRATEGY SIGNS AND GRAPHIC SYMBOLS SHOULD COMPLY WITH BS 5499

EMERGENCY LIGHTING SYSTEM

AN EMERGENCY LIGHTING SYSTEM IS REQUIRED TO OPERATE IN THE EVENT OF A MAINS POWER CIRCUIT FAILURE AND PROVIDE SUFFICIENT ILLUMINATION FOR PERSONS TO SAFELY LEAVE THE PREMISES IS TO BE PROVIDED AS DESIRED BY THE MECHANICAL AND ELECTRICAL ENGINEER. COMPLYING TO BS 5266

AUTOMATIC FIRE DETECTION

AN AUTOMATIC FIRE DETECTION SYSTEM FOR LIFE AND PROPERTY PROTECTION IS TO BE PROVIDED IN PLANT ROOMS, ASSOCIATION RODAD, EXTRACT DUCTIONS AND CORRIDORS. THE SYSTEM IS TO COMPLY WITH BS 5839 IN ACCORDANCES WITH THE SPECIFICATION DEMISED BY THE MECHANICAL AND ELECTRICAL ENGINEER

THE SMOKE DETECTION SYSTEM AND WARNING SYSTEM IS TO BE COUPLED TO THE MAIN CONTROL PANEL TOGETHER WITH AN EXTERNAL FLASHING BEACON LIGHT PROVIDED TO ENABLE STAFF TO IDENTIFY THE LOCATION INVOLVED

FIRE WARNING SYSTEM

AN AUDIBLE FIRE WARNING SYSTEM IS TO BE PROVIDED TO BS 5839 AS DESIGNED BY THE MECHANICAL AND ELECTRICAL ENGINEER WITH BREAK GLASS ALARM POINTS

FIRE NOTICE SIGNS

OPERATOR SPECIFIC FIRE NOTICE SIGNS ARE TO BE PROVIDED BY THE OPERATOR UPON COMPLETION OF THE FIRE RISK ASSESSMENT

Drawn 60mm A1 original sheet size

NOTE:
Drawings are not based on survey data so location of services are for indicative purposes. If you notice any discrepancies please report them to HLN Architects.

Revision Schedule

Revision Number	Date	By	CHK	Revision Description
	31.08.17	TS	TS	Ground floor fire strategy plan added, notes and signs amended following Building Control comment
	21.09.17	TS	TS	Ground floor fire strategy updated
	28.09.17	TS	TS	Construction Issue

Longard Construction

St Andrew the Apostle Free School
2nd Floor Remedial Works

GROUND FLOOR FIRE STRATEGY

FOR CONSTRUCTION APPROVAL

LG | TS | 21/09/17 | As Indicated | 101750 | -HLN-SA-00-DR-A-1500 | S4 3

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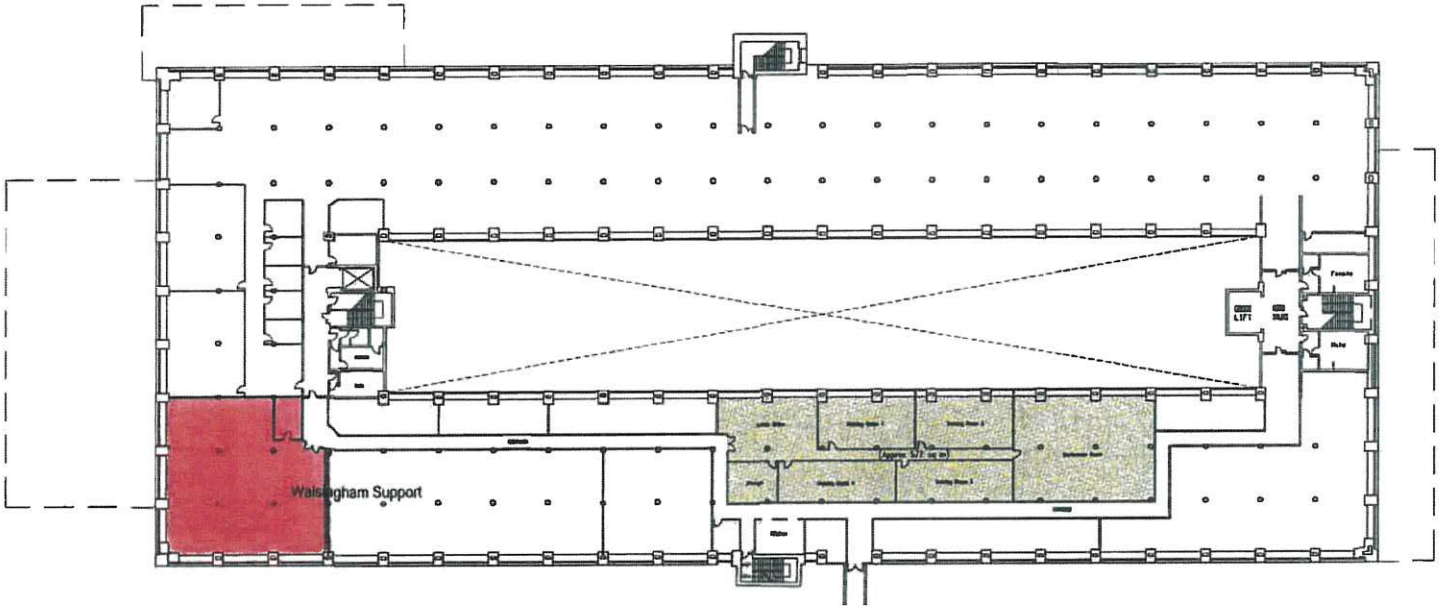
t: 0845 375 3298
e: info@hlngroup.co.uk w: www.hlngroup.co.uk

RIBA CARDIFF BROMSGROVE LONDON

North London Business Park - Building 4 - Existing First Floor Plan



FIRST FLOOR PLAN

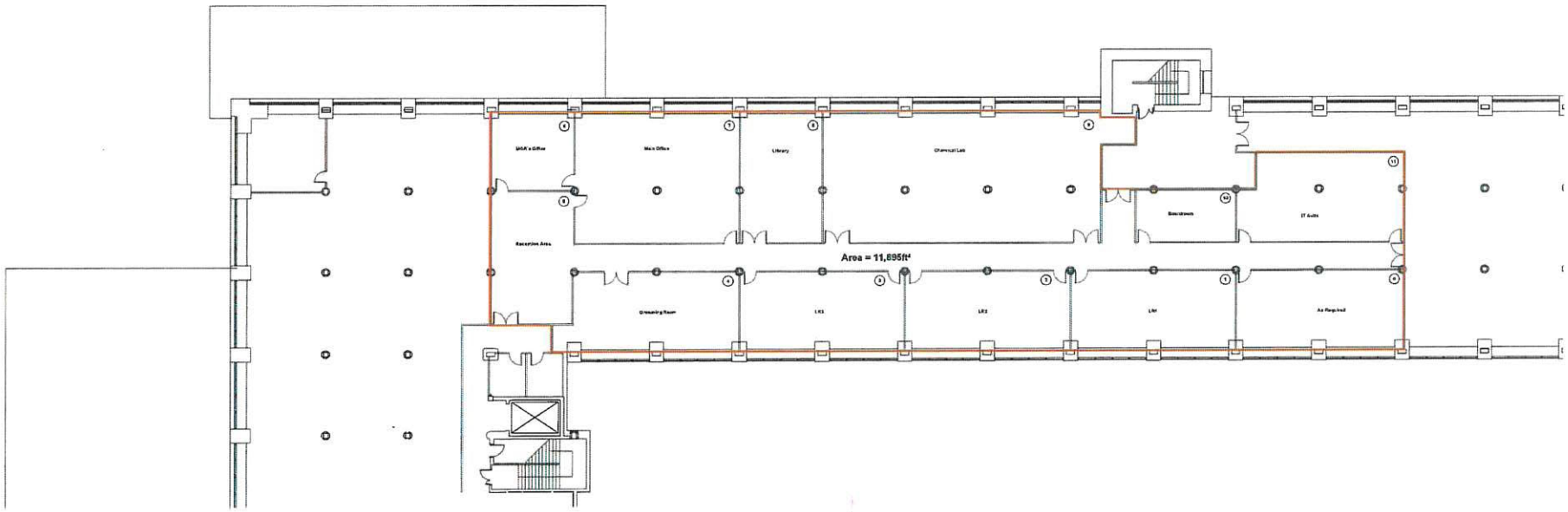
COMER HOMES GROUP

Building 4	1:250 @ A1
North London Business Park	
04-1-03	14/03/11

PLAN 1

0 metres 5 10 15

SCALE 1:200 @ A3



Revision	Revision Description	Issue Date	Issued By	Checked By
P01	Lease Plan	25.11.21	MO	JOE
P02	Amended Lease Plan	31.01.21	MO	JOE

Legend

COMER HOMES GROUP

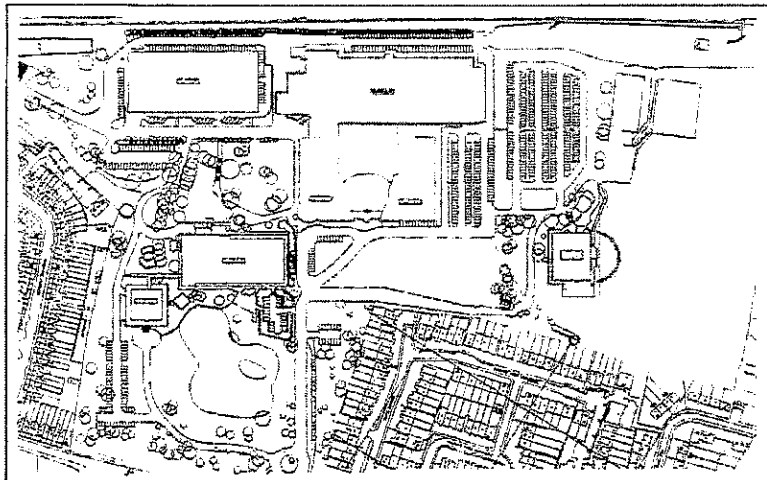
Project
North London Business Park

Title
Building 4 First Floor

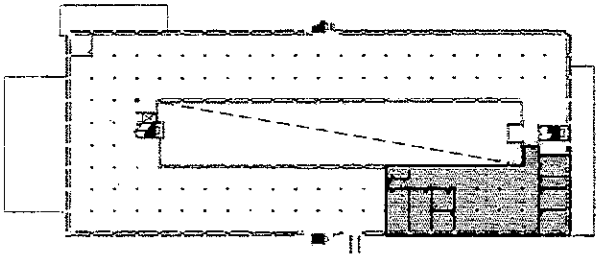
Project Reference Number: CHAD01
Scale: 1 : 200
Original Paper Size: A3
Revision: P01
Status: S2
Description: Preliminary
Suitability: For Information

Drawing Number
Project | Originator | Volume | Level | Type | Role | Number
NLBP – CHAD – S4 – 01 – DR – A – 0406

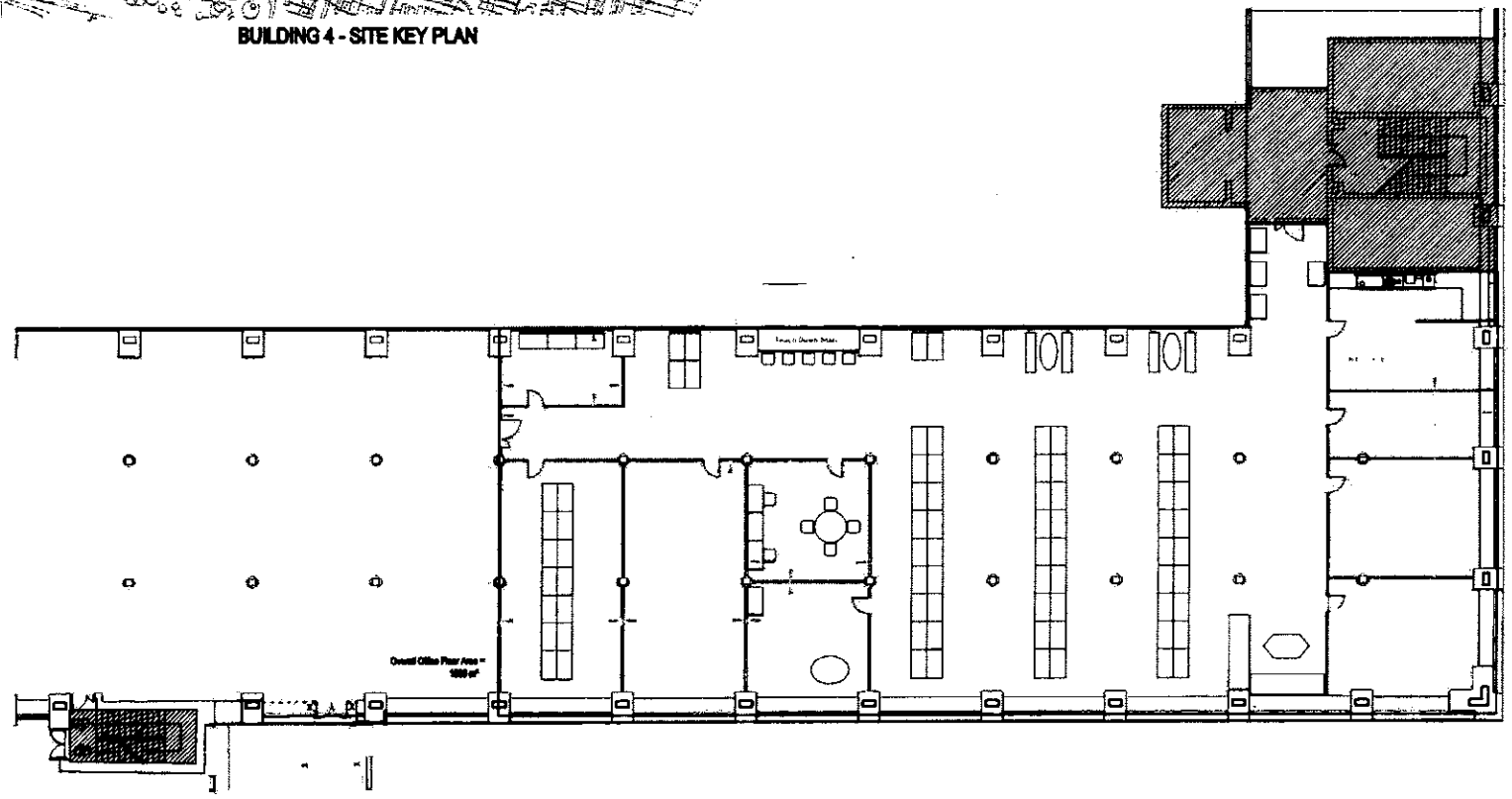
CH
AD

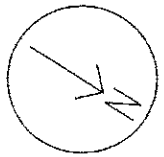


BUILDING 4 - SITE KEY PLAN



BUILDING 4 - FIRST FLOOR KEY PLAN





G:\Mast Quay\mmar logo.PNG

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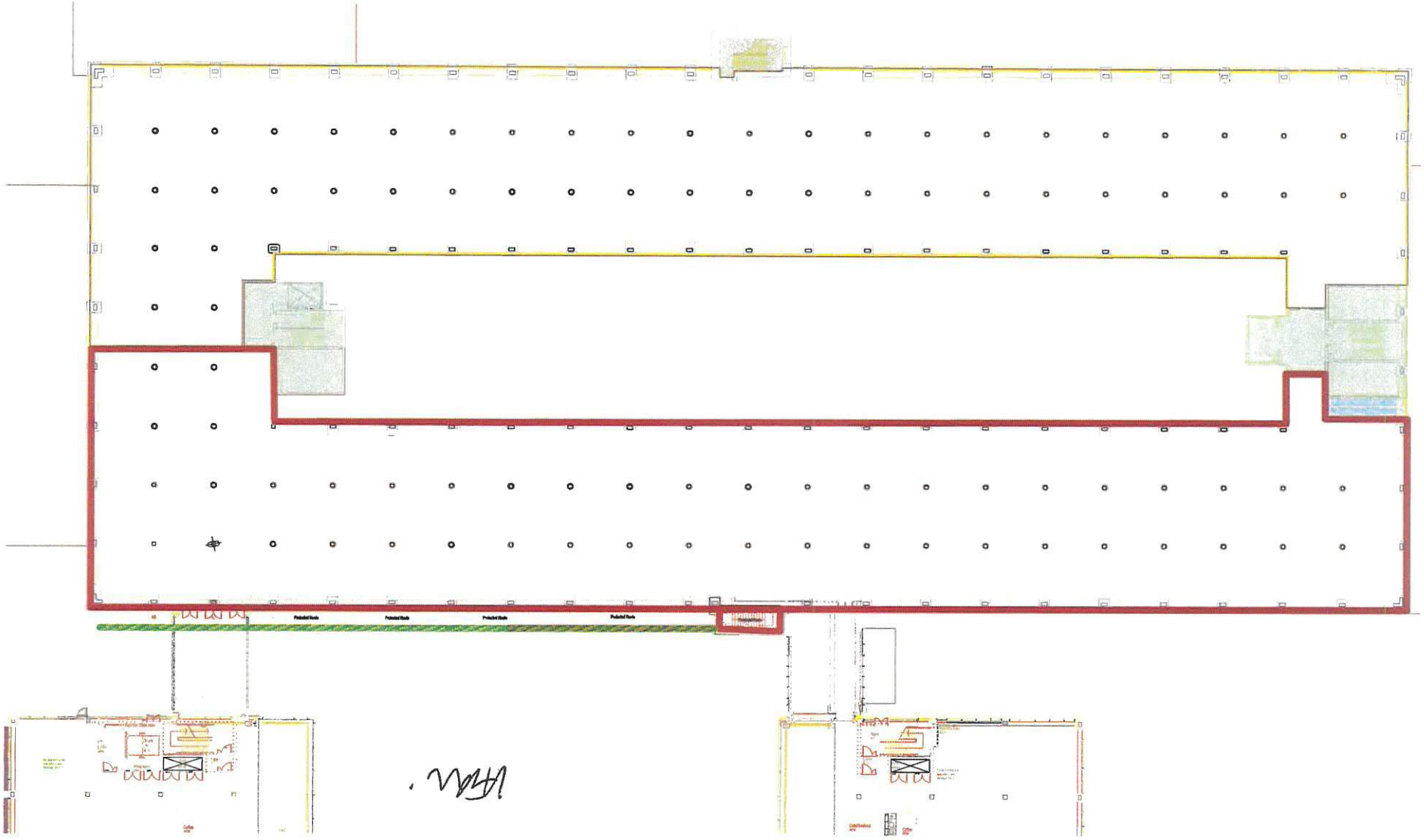
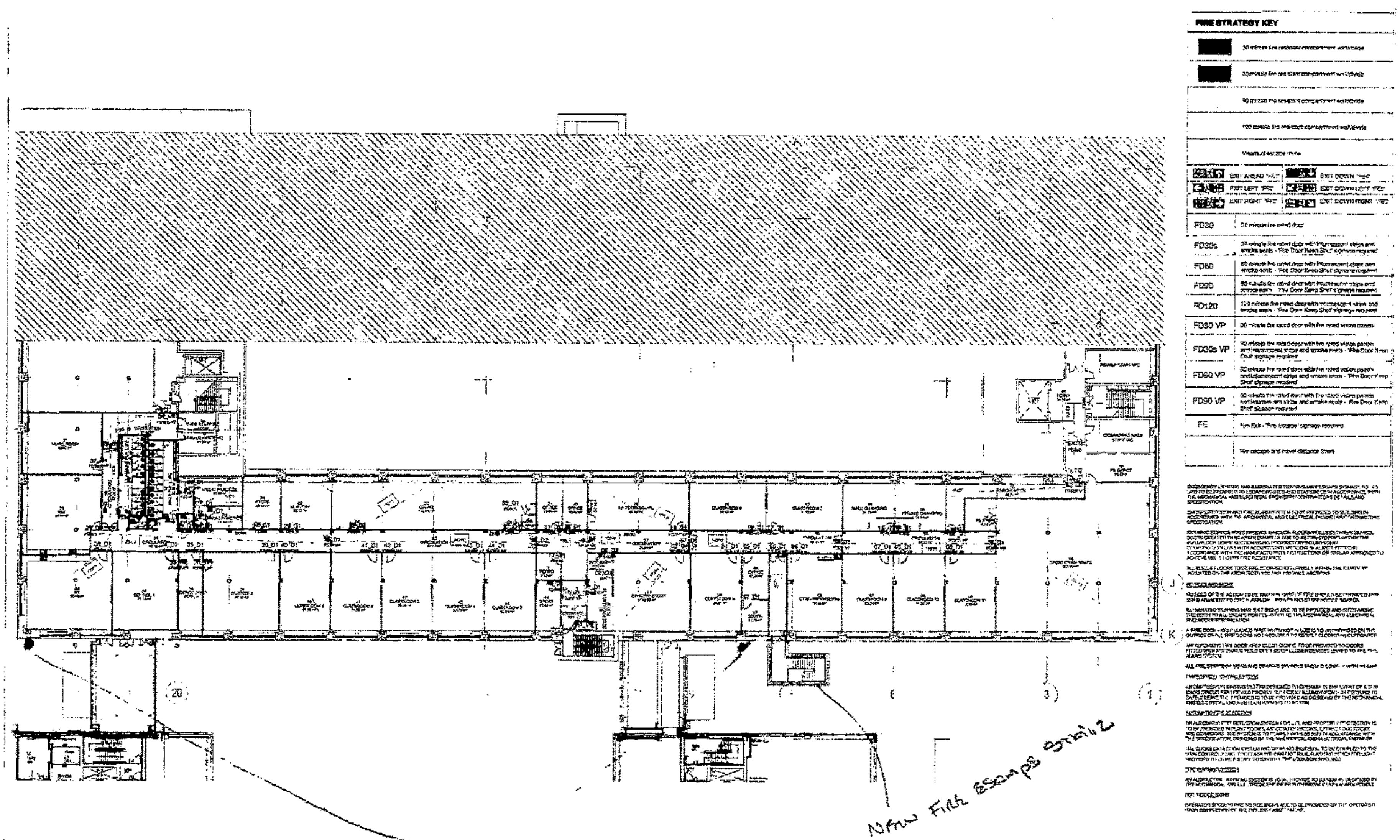
Job: North London Business Park	Drawn: MM
Number: 04-01.501	Date: 07.05.29



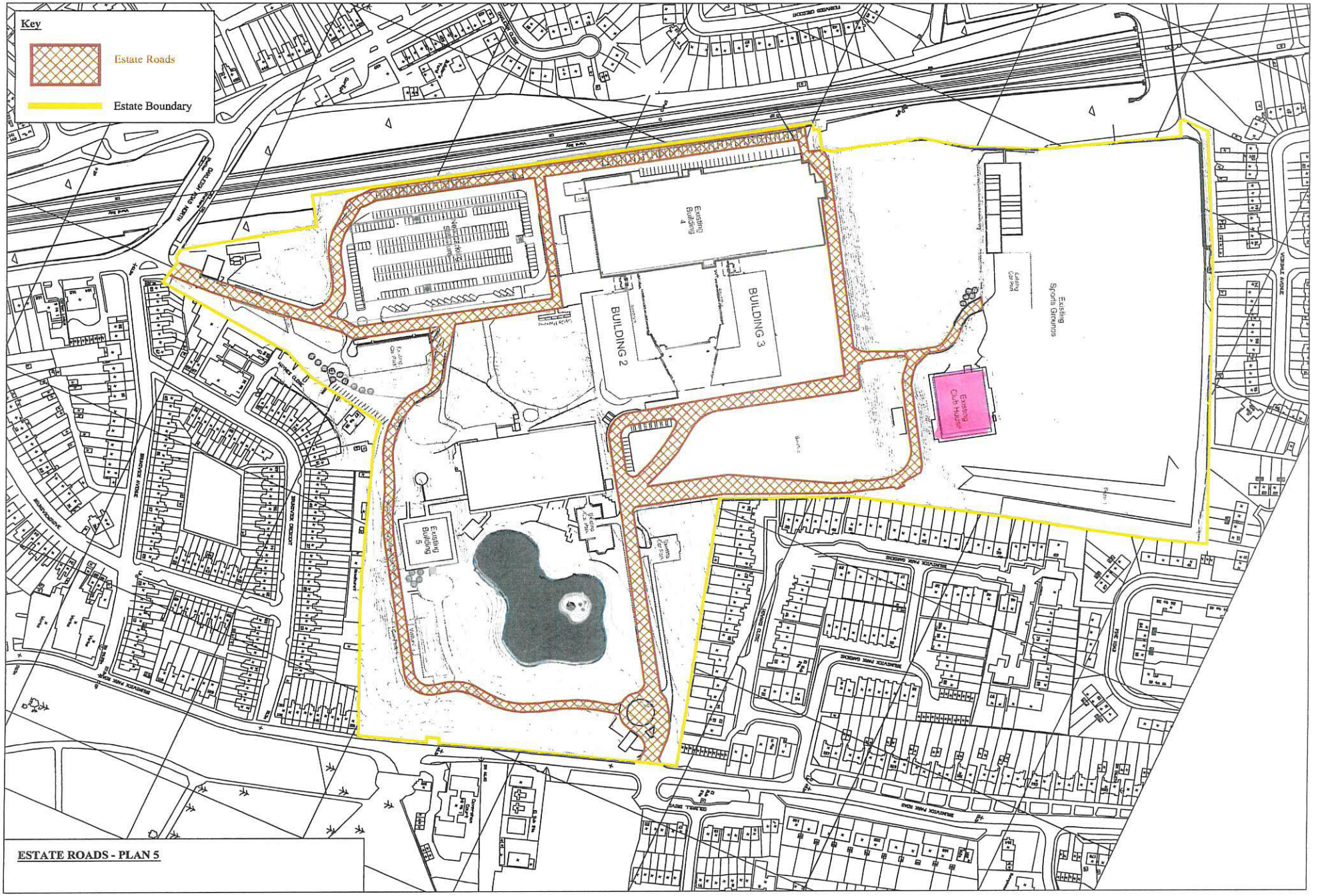


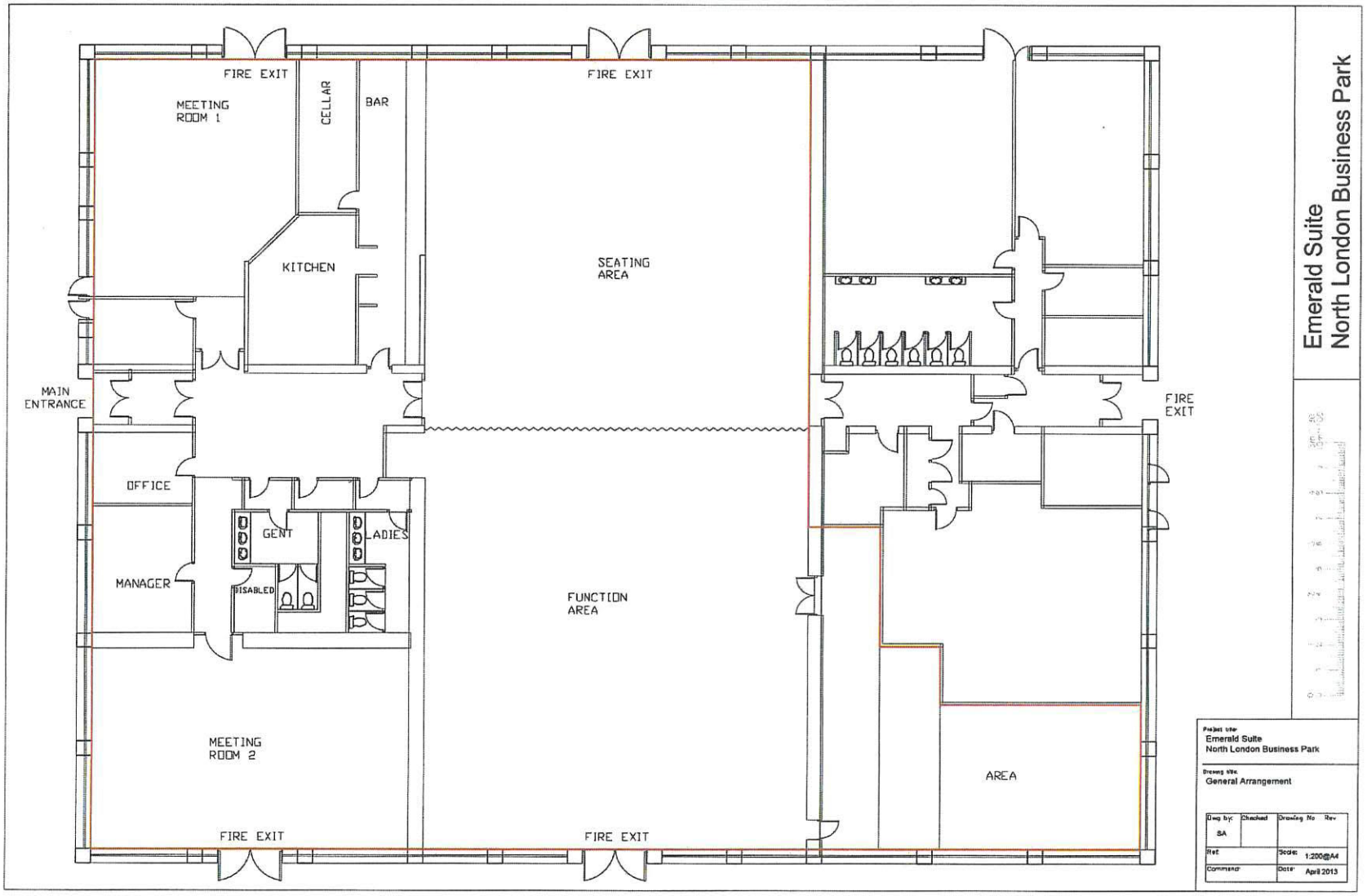
1 02 Second Floor Fire Plan
1 : 200

Lengard Construction	St Andrew the Apostle Free School 2nd Floor Remodel Works	SECOND FLOOR FIRE STRATEGY PLAN
FOR CONSTRUCTION	As indicated	101750 - HLN-SA-02-DR-A-1502 A4

HLN Architects Ltd, 12 The Croft, Buntsford Drive, Stoke Heath, Bromsgrove, B60 4JD
t: 0845 373 3298
www.hlnarchitects.co.uk

HLN


Key
Estate Roads
Estate Boundary
Existing Building 4
BUILDING 2
BUILDING 3
Existing Building 5
Existing Club House
Existing Sports Grounds
ESTATE ROADS - PLAN 5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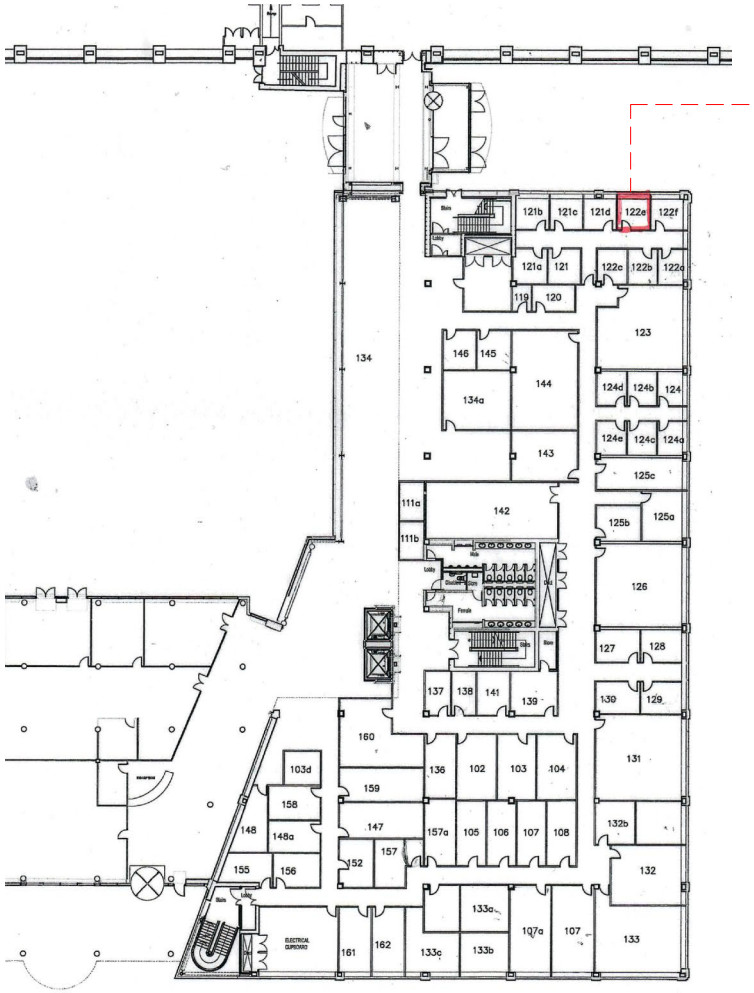
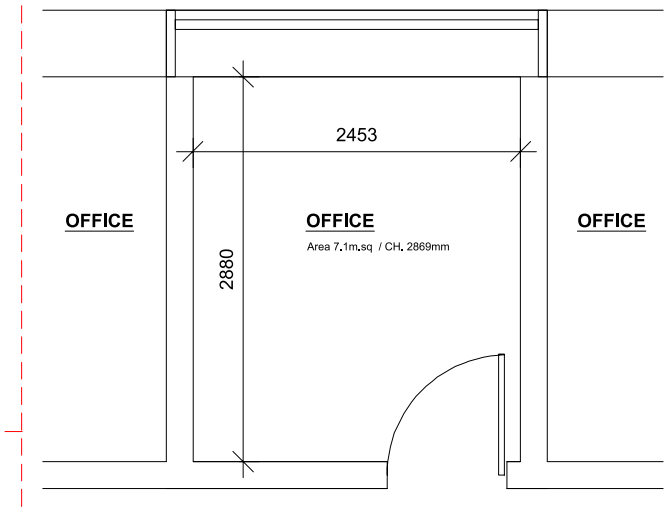
MEETING ROOM 1
CELLAR
BAR
FIRE EXIT
KITCHEN
SEATING AREA
MAIN ENTRANCE
FIRE EXIT
OFFICE
GENT
LADIES
MANAGER
DISABLED
FUNCTION AREA
MEETING ROOM 2
AREA
FIRE EXIT
FIRE EXIT
Emerald Suite
North London Business Park
Project title
Emerald Suite
North London Business Park
Drawing title
General Arrangement
Drwg by: SA
Checked
Drawing No
Rev
Ref
Scale: 1:200@A4
Comment
Date: April 2013

SITE IMAGES



BUILDING 3 NORTH LONDON BUSINESS PARK – GROUND FLOOR PLAN

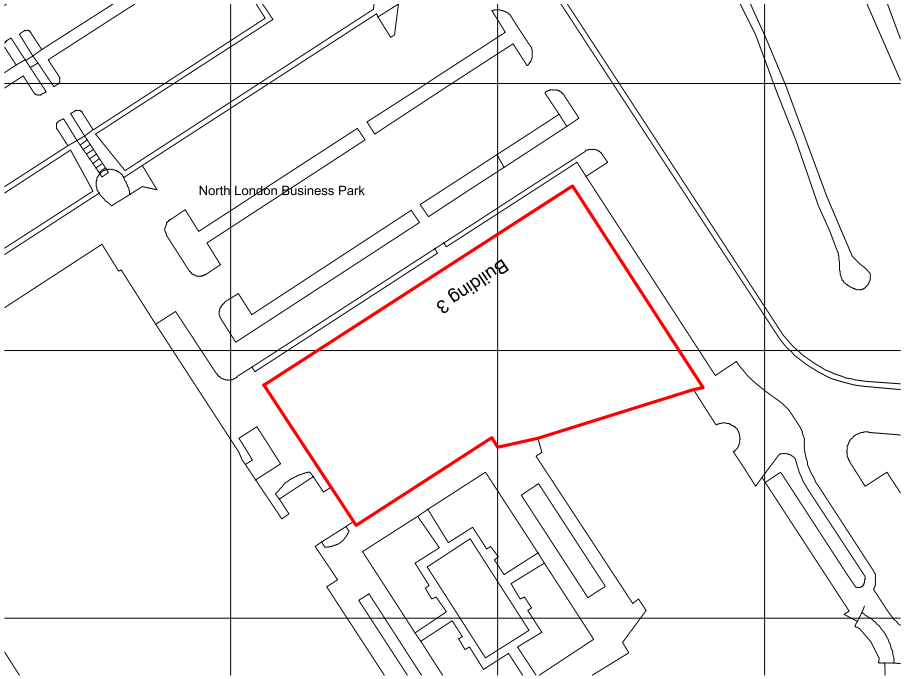
Scale 1:200 (metres)



EXISTING OFFICE LAYOUT

scale 1:20 @ A1 / area = 7.1 m.sq

Scale 1:20 (metres)



SITE PLAN

scale 1:500 @ A1

Scale 1:500 (metres)

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creating beautiful spaces
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E : info@scshawdesigns.co.uk
M: 079 8382 2179

Axis:

General Notes:

ALL LEVELS, ANGLES AND DIMENSIONS TO BE CHECKED ON SITE PRIOR TO COMMENCEMENT OF WORKS.

THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL RELEVANT STRUCTURAL ENGINEERS AND MECHANICAL AND ELECTRICAL ENGINEERS DRAWINGS, DETAILS AND SPECIFICATIONS.

Date	Issue	Revision	Initial

Status:
LAWFUL DEVELOPMENT

Client:
Mohamed Ali Abdalla

Project:
Lawful Development application for Existing Use

Site Address:
Office 122E, Ground Floor Building
3 North London Business Park, New Southgate, London, N11 1GN

Sheet Title:
- Site Plan
- Building 3 Floor Plan
- Office Plan
- Site Images

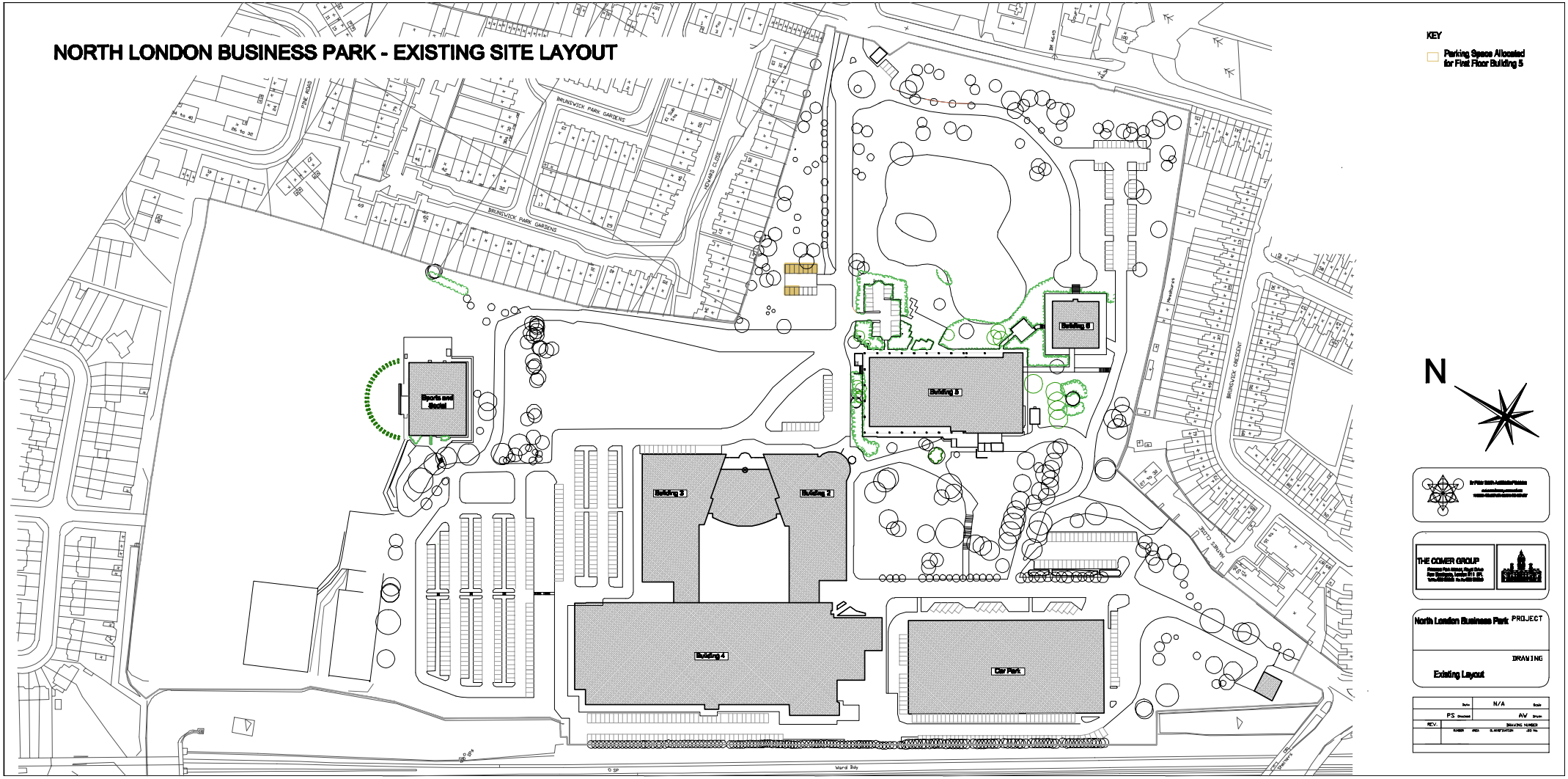
Scale:	Date:	Drawn:	Checked:
As Shown @ A1	Aug 2023	SCS	SCS

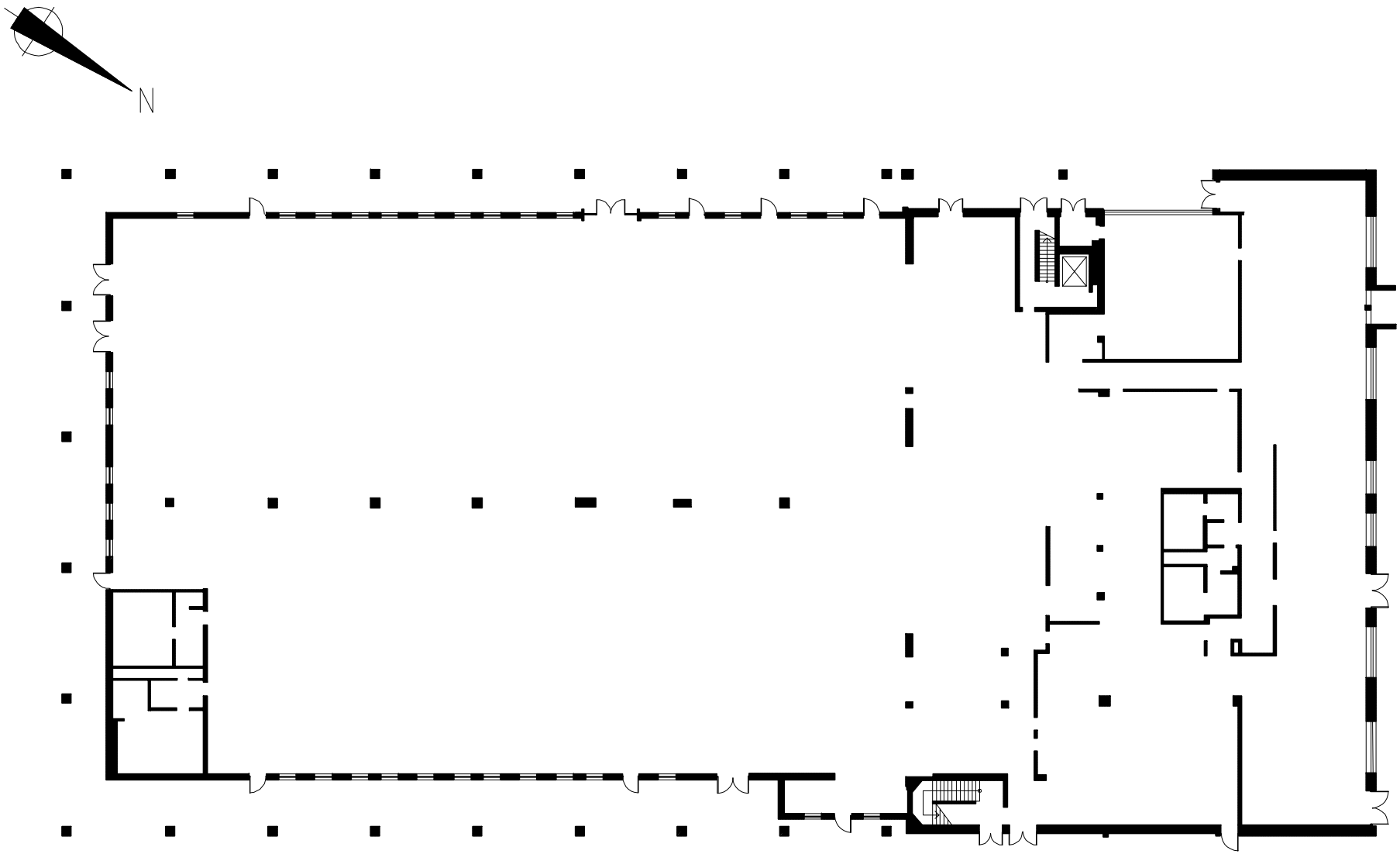
Drawing Ref.
SCSD0243_385

Sheet No.
A-01

Revision No.:

NORTH LONDON BUSINESS PARK - EXISTING SITE LAYOUT

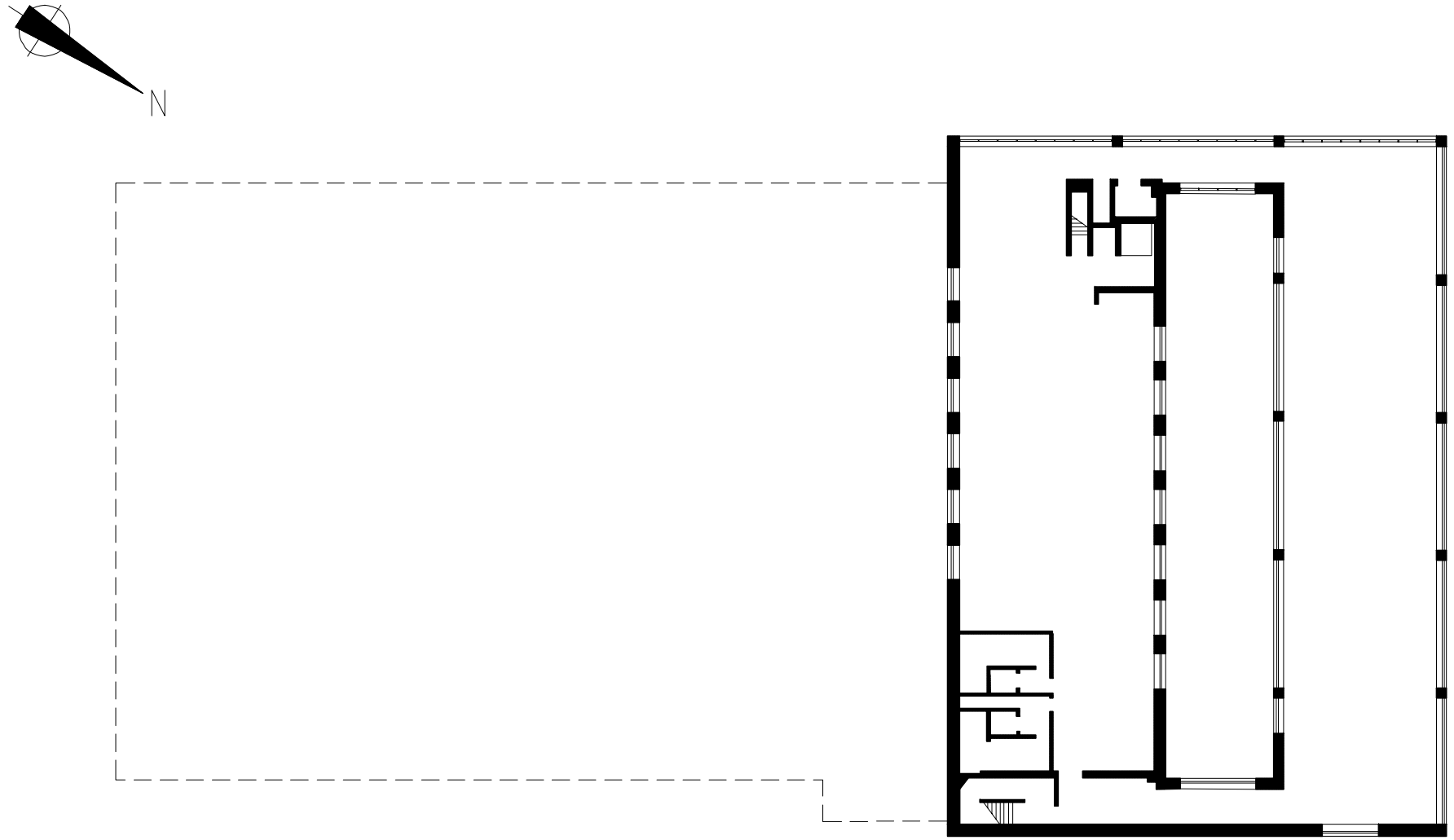




BUILDING 5 – NORTH LONDON BUSINESS PARK – GROUND FLOOR PLAN

COMER HOMES GROUP

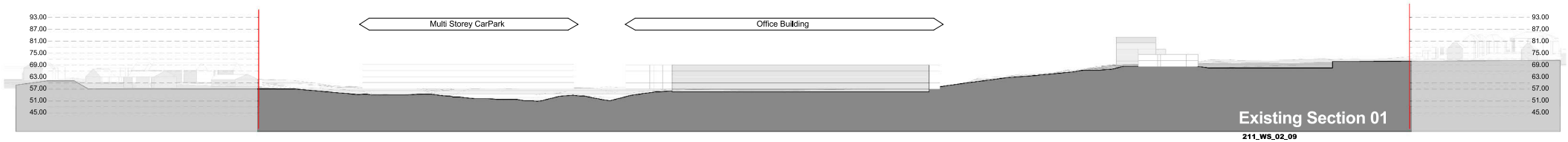
COMER HOMES GROUP
Princess Park Manory
Royal Drive, London N11 3FL

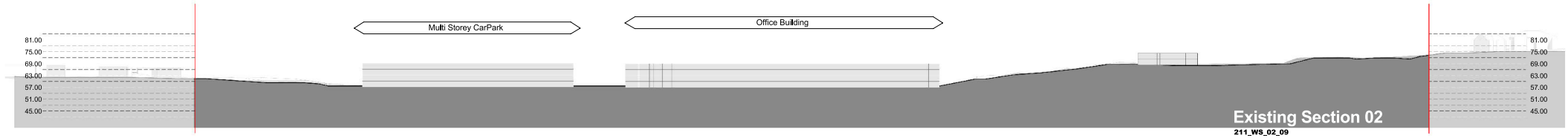


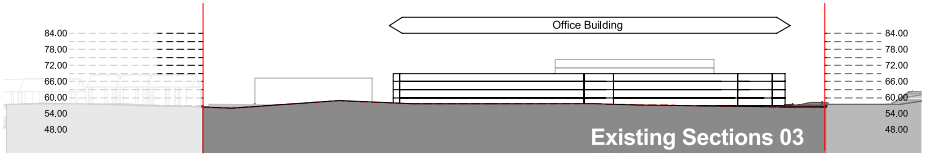
BUILDING 5 – NORTH LONDON BUSINESS PARK – FIRST FLOOR PLAN

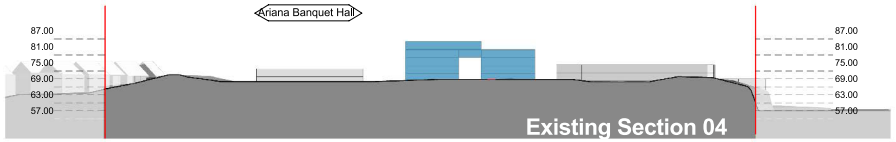
COMER HOMES GROUP

COMER HOMES GROUP
Princess Park Manor
Royal Drive, London N11 3FL









General Notes

1. Developmentment Zones (within which development can occur) and public open spaces are identified on drawing number 211_WS_02_01
2. Access and circulation routes are identified on Drawing number 211_WS_02_02.
3. Landscape treatments are identified on drawing number 211_WS_02_03
4. Allowable uses at ground floor frontages are identified on Drawing number 211_WS_02_04
4. Allowable uses at ground floor frontages are idnetified on Drawing number 211_WS_02_04
5. Allowable horizontal limits of deviations are identified on Drawing number 211_WS_02_05
6. Proposed site ground levels and allowable vertical deviations are identified on Drawing number 211_WS_02_06
7. Heights and allowable vertical deviations are identified on Drawing number 211_WS_02_07
8. Basement extents and allowable horizontal and vertical deviation are identified on drawing number 211_WS_02_08

NOTES:

REV.	DATE:	DETAILS:	INITIALS:
A	27/04/2016	General revision	DT
B	10/03/2017	General revision	SDG

Legend

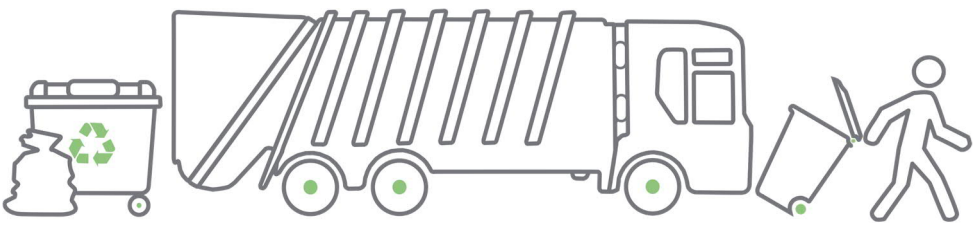
Planning Application Boundary

NORTH POINT:

KEY PLAN:

PLUS ARCHITECTURE Exchequer Chambers, Exchequer Street, Dublin 2, Ireland. W: www.plusarchitecture.ie T: 353 (0) 1 521 3378

PROJECT: North London Business Park	PROJECT: 211	DATE: 10/03/17
CLIENT: The Corner Group	DRAWING NO.: 211_WS_05_11	REVISION NO.: B
TITLE: Exisiting Section 1-4	DRAWN BY.: SDG	SCALE AT A1 .: 1 : 1000
ISSUE TYPE: Planning	CHECKED BY.: DT	SCALE AT A3 .:



VELOCITY

APPENDIX B OPERATIONAL WASTE MANAGEMENT PLAN

NORTH LONDON BUSINESS PARK

OPERATIONAL WASTE MANAGEMENT STRATEGY

PROJECT NO. 24/004 DOC NO. D012

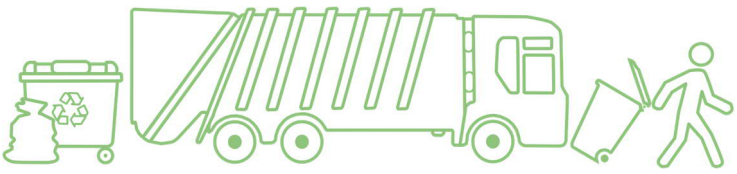
DATE: JANUARY 2024

VERSION: 1.0

CLIENT: COMER HOMES GROUP

Velocity Transport Planning Ltd

www.velocity-tp.com



DOCUMENT CONTROL SHEET

Document Reference

Project Title	North London Business Park
Document Title	Operational Waste Management Strategy
Project Number	24/004
Document Number	D012
Revision No.	1.0
Document Date	JANUARY 2024

Document Review

	Name	Date completed
Prepared By	Peter Hambling	12/01/2024
Reviewed By	Tom Mabelson	12/01/2024
Authorised By	Tom Mabelson	12/01/2024

Notes

The document reference number, revision number and date are given on the footer of each page

TABLE OF CONTENTS

FIGURES

TABLES

APPENDICES

1 INTRODUCTION

1.1 PROJECT INTRODUCTION

1.1.1 Velocity Transport Planning has been commissioned by Comer Homes Group ("The Applicant") to prepare an Operational Waste Management Strategy (OWMS) in support of a Hybrid Planning Application for the regeneration of the North London Business Park to provide a mixed-use development of up to 2,428 dwellings, 2,353sq.m of workspace, 3,835 sqm flexible non-residential floorspace, which could be used for community use, medical use, retail, offices, cafes etc. and a new 5FE school building with an anticipated 1,050-pupil capacity.

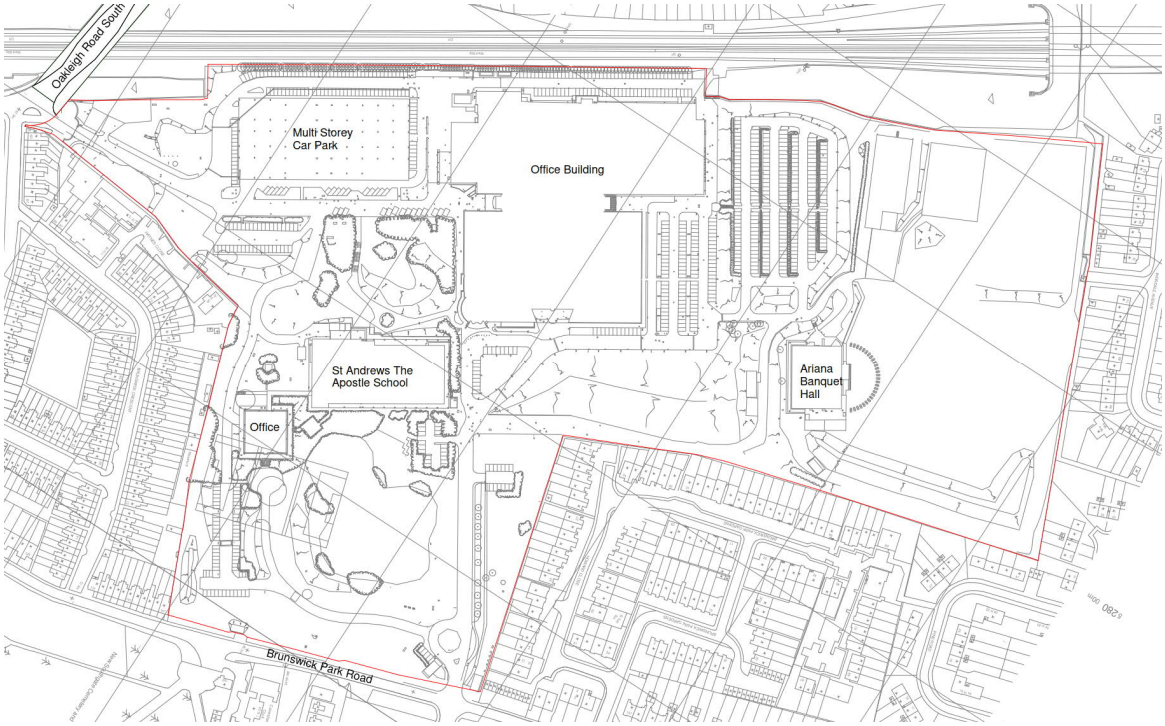
1.1.2 The hybrid planning application is formed of detailed development proposals in respect of Phase 0-1 for which no matters are reserved ("Detailed Proposals") and outline development proposals for the remainder of the Site (Phases 2-5) with all matters reserved ("Outline Proposals"). The Detailed Proposals and Outline Proposals together are referred to as the "Proposed Development".

1.2 SITE LOCATION

1.2.1 The Proposed Development is located to the west of Southgate and to the south of East Barnet, within the administrative boundary of the London Borough of Barnet (LBB).

1.2.2 Figure 1-1 shows the location of the Proposed Development.

Figure 1-1: Site Location



1.3 SITE DESCRIPTION

1.3.1 The site measures 16.37 hectares (ha), of which approximately 13ha comprises areas of disused open space and car parking. The site is bounded by the East Coast Mainline railway along the entire western boundary, with residential development and Brunswick Park Road adjacent to the eastern boundary.

1.3.2 Principal structures on site include c. 380,000 sqft of office buildings, an above-ground car-parking structure, and an office building currently in use as a secondary school, a Free School opened in the last number of years, Saint Andrew the Apostle Greek Orthodox School. Numerous other small structures occupy the site, including security huts, a banqueting hall and unoccupied office buildings.

1.3.3 The site has two principal entry and exit points, to the south onto Oakleigh Road South, and to the East onto Brunswick Park Road. A redundant and unused site entry and exit point is positioned on the northern boundary of the site, opening onto Ashbourne Avenue and connecting to Russell Lane.

1.4 BACKGROUND INFORMATION

1.4.1 The site benefits from planning permission for redevelopment. The original application was submitted in hybrid form and planning permission was granted at appeal in February 2020 (LBB ref. 15/07932/OUT and PINS ref. APP/N5090/W/17/3189843) for:

1.4.2 *"the phased comprehensive redevelopment of the North London Business Park to deliver a residential led mixed-use development. The detailed element comprises 360 residential units in five blocks reaching eight storeys, the provision of a 5 Form Entry Secondary School, a gymnasium, a multi-use sports pitch and associated changing facilities, and improvements to open space and transport infrastructure, including improvements to the access from Brunswick Park Road, and; the outline element comprises up to 990 additional residential units in buildings ranging from two to nine storeys, up to 5,177 sqm of non-residential floor space (Use Classes A1-A4, B1 and D1) and 2.54haof public open space. Associated site preparation/enabling works, transport infrastructure and junction works, landscaping and car parking."*

1.5 PROPOSED DEVELOPMENT

1.5.1 The Proposed Development is described as follows:

'Hybrid planning application for the phased comprehensive redevelopment of the North London Business Park to deliver a residential-led mixed use development. The detailed element comprises up to 452 residential units in five blocks reaching 9 storeys, the provision of a 5 form entry secondary school, a gymnasium, a multi-use sports pitch and associated changing facilities and improvements to open space and transport infrastructure, including improvements to the access from Brunswick Park Road and; the outline element comprises up to 1,967 additional residential units in buildings ranging from three to twelve storeys, up to 7,148 sqm of non-residential floor space (use Class E and F) and public open space. Associated site preparation/enabling work, transport infrastructure and junction work, landscaping and car parking:

1.5.2 The Proposed Development comprises six phases of development; Table 1-1 summarises these phases.

Table 1-1 Development Phases

Phase	Application	Building
0	Detailed	School
1		1B-1F
2	Outline	2A-2F
3		3A-3C
4		4A-4C
5		5A-5B

1.5.3 Figure 1-2 shows the configuration and phasing of the Proposed Development.

Figure 1-2 Proposed Development Configuration

1.6 PLANNING APPLICATION STRUCTURE

1.6.1 The Hybrid planning application seeks Full Planning Permission for Phases 0 and 1 and Outline Planning Permission, with all matters reserved, for the rest of the site (which includes Phases 2-5).

1.6.2 The design framework for all associated site works, land-scaped areas (including New Brunswick Park), transport infrastructure and car parking required to support the delivery of the Outline Planning Area (Phases 2-5) will be described in the Parameter Plans and the Design Principles Document, to accompany the Outline Planning Area (with all matters reserved for approval at a later date through Reserved Matters Applications).

1.6.3 Future Reserved Matters submissions may cover multiple Buildings and public realm areas or single Buildings.

PRIMARY CONTROL DOCUMENTS

1.6.4 The development of North London Business Park will be regulated by three documents that have been produced as part of the Hybrid Planning Application:

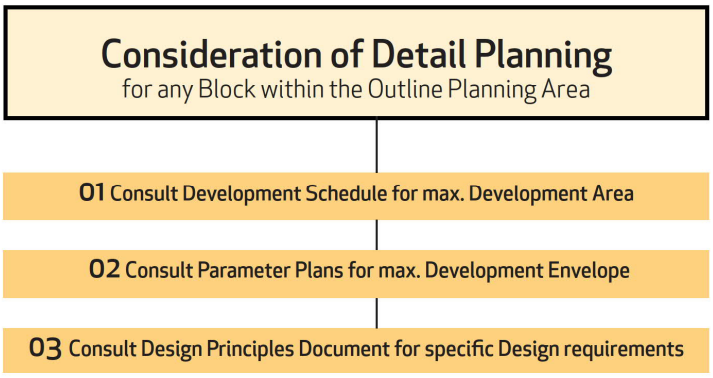
- The Parameter Plans;
- The Development Schedule; and
- The Design Principles Document.

1.6.5 These documents contain the Primary Controls for the Proposed Development.

1.6.6 An Illustrative Masterplan has been developed to illustrate one way in which the parameters and principles could be interpreted, however the Proposed Development for approval is set out in the Primary Control Documents.

1.6.7 Figure 1-3 below shows the consideration for any detailed planning applications within the masterplan.

Figure 1-3 Detailed Planning Structure



1.6.8 Any phase of works that comes forward for a Reserved Matters Planning Application under the consented Outline Planning Permission is to be guided in its design and planning in the following way:

- The proposed development area is to fit within the Development Schedule of the consented Outline Planning Scheme
- The Proposed Development Envelope is to fit within the development envelope prescribed in the Parameter Plans of the consented Outline Planning Scheme

1.6.9 Furthermore, detail development of each development Phase and the buildings within each Phase are to be governed by this Design Principles Document.

1.7 THE DESIGN PRINCIPLES DOCUMENT

1.7.1 The Design Principles Document applies to the Outline Proposals and has been closely developed to Phases 0-1, the Detailed Proposals.

1.7.2 The purpose of the Design Principles Document is to provide a design framework for the outline components of the Hybrid Planning Application. This document seeks to regulate the appropriate character, quality and diversity of future detailed components. This document specifies the design principles that any future Reserved Matters Application should follow unless there is a justified reason to depart from them. It identifies design principles to be read alongside the development parameters set out in the Development Schedule and Parameter Plans which, together with this document, contain the Primary Controls for the Proposed Development.

1.7.3 The design principles are not intended to be prescriptive but rather will provide the over-arching design philosophy which should be followed, while allowing flexibility to encourage richness and variety in the detailed designs. Future designers of individual blocks will therefore be required to demonstrate how they respond to the design principles associated with the Development Zone and surrounding streets and spaces.

1.8 DOCUMENT STRUCTURE

1.8.1 This report is set out in the following format:

- Section 2: Waste Legislation, Policy, and Guidance – details of the national legislation and local waste policy that have relevance to the Proposed Development.
- Section 3: Principles of Residential Waste Management – outlines the overarching waste management principles, design standards and estimated waste generation for the residential elements of the Proposed Development.
- Section 4: Detailed Proposals: Phase 1 Residential Waste Management Strategy – provides details of residential waste storage, presentation, and collection for Phase 1 of the Proposed Development once operational.
- Section 5: Outline Proposals: Phases 2-5 Residential Waste Management Strategy – provides details of residential waste storage, presentation, and collection for Phases B-E of the Proposed Development once operational.
- Section 6: Detailed Proposals: Phase 0 School Waste Management Strategy – provides details of commercial waste storage, presentation, and collection for Phase 0 of the Proposed Development once operational.
- Section 7: Outline Proposals: Phases 2-5 Commercial Waste Management Strategy – provides details of commercial waste storage, presentation, and collection for Phases 2-5 of the Proposed Development once operational.
- Section 8: Summary & Conclusions
- Appendix A: Waste Legislation, Policy, and Guidance
- Appendix B: Swept Path Analysis

2 WASTE LEGISLATION, POLICY & GUIDANCE

2.1 INTRODUCTION

2.1.1 The UK is no longer a member of the European Union. EU legislation as it applied to the UK on 31 December 2020 is now a part of UK domestic legislation, under the control of the UK's Parliaments and Assemblies.

2.1.2 This section focuses on the details of the national legislation that are relevant to the Proposed Development, in addition to waste policy and guidance at a local level, reviewed as part of the preparation of this Waste Management Strategy.

2.2 NATIONAL LEGISLATION

2.2.1 A list of relevant items of national waste legislation is outlines below in reverse chronological order:

2.2.2 The Waste (Circular Economy) (Amendment) Regulations (2020) – these regulations came into force on 1 October 2020 and amended a raft of primary and secondary legislation on waste, to introduce a revised legislative framework to support the EU's Circular Economy Package (CEP) identifying steps for the reduction of waste and establishing an ambitious and credible long-term path for waste management and recycling.

2.2.3 Waste Management, The Duty of Care Code of Practice (2018 update) - This code of practices replaces the 1996 Code and is pursuant to Section 34(9) of the Environmental Protection Act 1990. It sets out practical guidance on how to meet waste duty of care requirements and is admissible as evidence in legal proceedings i.e. its rules will be taken into account where relevant in any case based on breach of the duty of care.

2.2.4 The Waste (England and Wales) Regulations 2011 (as amended) - Waste collection authorities must collect waste paper, metal, plastic, and glass separately. This legislation also imposes a duty on waste collection authorities, from the date, when making arrangements for the collection of such waste, to ensure that those arrangements are by way of separate collection.

2.2.5 Environment Protection Act 1990 - Part II of the act was originally implemented by the Duty of Care Regulations 1991. The Duty of Care is a legal requirement for those dealing with certain kinds of waste to take all reasonable steps to keep it safe and is set out in Section 34 of the Act. The Waste (England and Wales) Regulations 2011 repealed the Environmental Protection (Duty of Care) Regulations 1991 and apply the Duty of Care requirements included within the Environmental Protection Act 1990.

2.3 NATIONAL, LONDON & LOCAL WASTE POLICY

2.3.1 The relevant national, London and local waste policy reviewed during the preparation of this OWMS is outlined below and further detail provided in APPENDIX A.

- Department for Levelling Up, Housing and Communities (DLUHC), National Planning Policy Framework (2023);
- DLUHC, National Planning Policy for Waste (2014);
- Department for Environment, Food and Rural Affairs (DEFRA), Our Waste, Our Resources: A Strategy for England (2018);
- HM Government, A Green Future: Our 25 Year Plan to Improve the Environment (2018);
- Greater London Authority (GLA), The London Plan 2021 (March 2021);

- GLA, London Environment Strategy (2018);
- North London Waste Authority (NLWA), North London Joint Waste Strategy (2009);
- NLWA, North London Waste Plan: Proposed Submission Plan (January 2019)
- LBB, Barnet's Local Plan (Core Strategy) Development Plan Document (September 2012);
- LBB, Local Plan Supplementary Planning Document: Residential Design Guidance (October 2016);
- LBB, Municipal Recycling and Waste Strategy and Future Delivery for Barnet 2016 to 2030 (2016); and;
- LBB, Information for Developer and Architects: Provision of Household Recycling and Waste Service (January 2021).

2.4 CIRCULAR ECONOMY CONSIDERATIONS

MANAGEMENT OF MUNICIPAL WASTE

2.4.1 Once operational, residential waste will be managed in accordance with the waste hierarchy.

2.4.2 The London Plan Policy SI 7 target will be targeted, which involves 65% of any municipal waste to be recycled by 2030.

2.4.3 The target set in the London Environment Strategy which expects 75% business waste recycling by 2030 will be targeted.

2.4.4 Residential recycling rates are dictated by the collection authority; facilities have been designed in accordance with LBB requirements stated in their guidance. As recycling performance increases, the waste storage can be adapted to reflect these changes and meet the relevant targets.

2.4.5 Residential waste streams will include:

- Residual waste;
- DMR; and
- Food waste.

2.4.6 LBB currently do not segregate DMR into individual waste streams (card, paper, mixed plastics, metals, or glass).

2.4.7 As the overall storage capacity would not increase (only the number of separate waste streams) the residential waste stores could be configured to accommodate further waste stream segregation should it become necessary due to changes to the LBB collection contract or prevailing legislation.

2.4.8 A total of 1,956 and 8,939 tonnes of municipal waste is estimated to be generated by the detailed and outline areas respectively within the Proposed Development per annum once operational based on the storage capacity and proposed collection frequencies.

OPERATIONAL WASTE REPORTING

2.4.9 The developer will be contractually responsible for all operational waste reporting for the Proposed Development. This reporting will be based either on number of container lifts per waste stream, or collection weight data if available. Data requirements and reporting methods will be agreed with the relevant authorities once all elements are occupied.

SMART LOGISTICS & WASTE MINIMISATION

2.4.10 It is anticipated community-led waste minimising initiatives will be encouraged, such as charity partnership for the bulky waste storage areas. Additionally, shared composting facilities within the green areas could be explored. The LBB waste management department will be encouraged to engage with residents upon occupation, to ensure they are aware of how to minimise their waste. These measures could include, providing information on what materials can be recycled, ways to reduce avoidable food waste, and minimising the use of single use items.

3 PRINCIPLES OF RESIDENTIAL WASTE MANAGEMENT

3.1 INTRODUCTION

3.1.1 This section outlines the principles for residential waste management within both Outline and Detailed Proposals of the Proposed Development, which will comprise multiple phases of residential buildings as part of the regeneration of the estate.

3.1.2 Residential waste will be managed in accordance with LBB's *'Information for Developers and Architects; Provision of House Recycling and Waste Service'* (hereafter referred to as 'the Guidance') which was updated in January 2021.

3.2 CURRENT WASTE MANAGEMENT SERVICES

3.2.1 Table 3-1 summarises the waste services available to residents in LBB.

Table 3-1 Current Residential Waste Services in LBTH

Service	Details
Residual Waste Collection	Collected weekly in black bins
Dry-Mixed Recycling (DMR) Collection	Collected weekly in blue bins
Garden Waste Collection	Collected fortnightly in green bins
Small Waste Batteries	Collected weekly in clear plastic bags.
Bulky Waste Collection	Chargeable collection service
Local Recycling Points	A number are located across the borough
Reuse and Recycling Centres	A reuse and recycling centre is available for residents to use at Summers Lane, North Finchley, London N12 0RF

3.3 PRINCIPLES OF DESIGN

3.3.1 This section summarises the design principles applied to the management of residential waste within the Proposed Development.

WASTE STORAGE FACILITIES

3.3.2 Within the Proposed Development, all waste facilities will be designed to British Standard BS5906:2005 *Waste Management in Buildings – Code of Practice* standards. In summary, the waste facilities will include the following:

- A suitable water point in close proximity to allow washing down;
- All surfaces will be sealed with a suitable wash proof finish (vinyl, tiles etc.);
- All surfaces will be easy to clean;
- Suitable floor drain; and
- Suitable lighting and ventilation.

3.3.3 As per the Guidance, the following design parameters will be followed when designing waste storage facilities:

- All containers will be positioned with 150mm clearance around the back and sides;

- All containers will be positioned with 1.5m clearance in front to allow the transition of bins; and
- Access doors will be minimum 1.5m wide.

WASTE COLLECTION ACCESS

3.3.4 In accordance with the Guidance, within the Proposed Development, the route between any waste storage facilities and the Refuse Collection Vehicle (RCV) will:

- be free from steps or kerbs;
- have a solid foundation;
- have a smooth solid surface; and
- be level and have a gradient of no more than 1:12, with a minimum width of 2 metres.

3.3.5 The RCV will be able access and egress the Proposed Development in a forwards gear and no waste collection will be conducted from public highway.

3.3.6 Where necessary, to facilitate collection access within 10m of waste collection points as per the Guidance, sufficient space will be provided for the RCV to manoeuvre.

3.3.7 APPENDIX B includes swept path analysis for the RCV within the Proposed Development.

INTERNAL RESIDENTIAL WASTE STORAGE

3.3.8 Each residential property will be provided with a segregated waste bin, which will be fixed in to an appropriate kitchen unit.

3.3.9 Figure 3-1 shows an example of a commercially available segregated kitchen bin.

Figure 3-1 Example Segregated Kitchen Bin[1]

3.3.10 The segregated waste bin shown in Figure 3-1 includes the following bin capacities:

[1] Example Kitchen Bin https://www.hafele.co.uk/en/product/pull-out-waste-bin-for-hinged-door-cabinets-2x-10-1x-20-litres/0000008e000185f900040023/#SearchParameter=&Category=DMPAqBtGW4gAAAFP5sY4Inbm&checkbox_fs_waste_bin_installation=Bottom+Mounted&FF.followSearch=9950&@P.FF.followSearch=9997&PageNumber=1&OriginalPageSize=12&PageSize=12&Position=7&OrigPos=287&ProductListSize=18

- Residual Waste: 10 litres;
- Recyclables: 20 litres; and
- Food Waste: 10 litres.

3.3.11 The proposed segregated waste bin will be fitted in to a single kitchen unit with a minimum width of 500mm.

3.4 RESIDENTIAL WASTE STORAGE REQUIREMENTS

3.4.1 This section outlines the residential waste storage requirements as per the Guidance.

INDIVIDUAL DWELLINGS

3.4.2 Individual residential dwellings are required to provide storage for bins within the curtilage of the property.

3.4.3 Table 3-2 below details the container requirements for individual dwellings, extracted from the Guidance.

Table 3-2 LBB Container Requirements - Individual Dwellings

	Waste Stream			
	Residual Waste	DMR	Food Waste	Garden Waste
Container Type	240-Litre Wheeled Bin	240-Litre Wheeled Bin	23-Litre Food Caddy	240-Litre Wheeled Bin

3.4.4 Table 3-3 below summarises the dimensions of the containers detailed in Table 3-2.

Table 3-3 Container Dimensions

Container	Dimensions (mm)		
	Height	Width	Depth
240-Litre Wheeled Bin	1,100	580	740
23-Litre Food Caddy	630	320	400

COMMUNAL WASTE STORAGE

3.4.5 Estimated volumes of residential waste generated at the Proposed Development for properties with communal waste storage once operational have been quantified using waste generation metrics extracted from the Guidance and agreed with the LBB Account Manager within the Collection Services and Innovations Team on previous developments within the borough.

3.4.6 Table 3-4 below details the residential waste metrics applied to the Buildings with communal waste storage within the Proposed Development.

Table 3-4 Residential Waste Metrics – Communal Waste Storage

Unit Type	Storage Provision (Litres)		
	Residual Waste	DMR	Food Waste
1-Bed	100	100	23 Litres per 5no. Residential Units
2-Bed	170	170	
3-Bed	240	240	
4-Bed (+)	310	310	

3.4.7 Residual waste and DMR will be stored in 1,100-litre Eurobins and food waste will be stored in 240-litre wheeled bins.

3.4.8 Table 3-5 below summarises the dimensions of the containers for buildings with communal waste storage.

Table 3-5 Container Dimensions

Container	Dimensions (mm)		
	Height	Width	Depth
1,100-Litre Eurobin	1,370	1,250	980
240-Litre Wheeled Bin	1,100	580	740

4 DETAILED PROPOSAL: PHASE 1 RESIDENTIAL WASTE STRATEGY

4.1.1 The following section summarises the residential waste strategy for properties within Phase 1 of the Proposed Development, forming the Detailed Proposals.

4.1.2 Phase 1 includes both individual dwellings and properties with communal waste storage.

4.1.3 Figure 4-1 shows the locations of Phase 1 within the Proposed Development.

Figure 4-1 Proposed Development Phase 1

4.2 ACCOMMODATION SCHEDULE

4.2.1 Table 4-1 below summarises the accommodation schedule for the Detailed Proposals including whether waste will be stored individually per dwelling, or communally by core.

Table 4-1 Accommodation Schedule – Detailed Proposals

Building	Storage Type	Number of Residential Units				
		1-Bed	2-Bed	3-Bed	4-Bed	Total
1B	Individual	0	0	0	7	7
1C	Communal	48	83	18	0	149
1D	Communal	56	49	56	1	162
1E	Communal	32	32	4	0	68
1F	Communal	16	34	16	0	66
Total		152	198	94	8	462

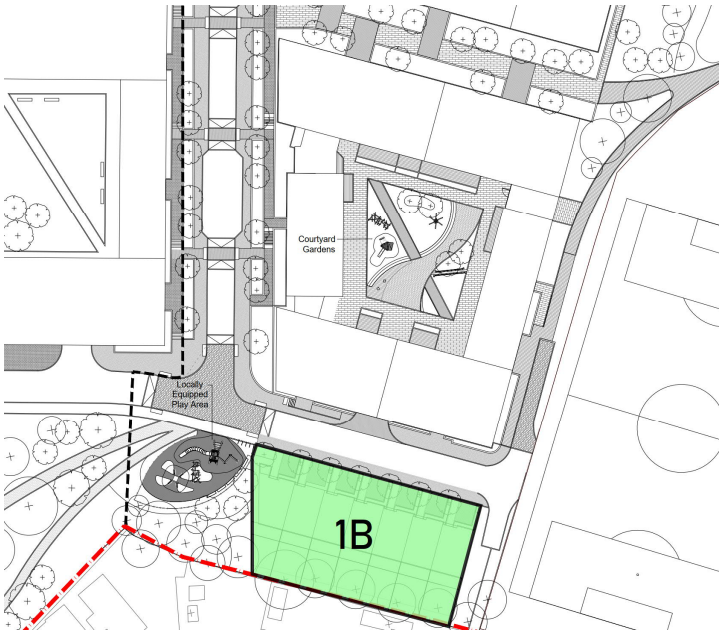
4.3 RESIDENTIAL WASTE STRATEGY – INDIVIDUAL DWELLINGS (BUILDING 1B)

4.3.1 The following section details the principles of residential waste management within Phase 1 for individual dwellings.

4.3.2 This section of the waste management strategy relates to the individual dwellings within Building 1B, located in the southern part of Phase 1.

4.3.3 The individual dwellings receiving kerbside collections are shown in Figure 4-2 below.

Figure 4-2 Building 1B Individual Dwellings



4.3.4 Each kerbside property will be provided with a dedicated waste storage facility sufficient in size to store the containers summarised in Table 3-2.

4.3.5 The waste storage facility will be within the curtilage of each property and allow the bins to be stored on a solid base which can be accessed via a pathway.

4.3.6 The bins should not be presented for collection on the public footway or highway.

4.3.7 The LBB collection operatives will collect the bins directly from the boundary of each property and drag them to the adjacent waiting Refuse Collection Vehicle (RCV).

4.3.8 Once the bins have been emptied, the LBB collection operatives will return them to the collection point.

4.4 RESIDENTIAL WASTE STRATEGY – COMMUNAL WASTE STORAGE (BUILDINGS 1C-1F)

4.4.1 The following section details the principles of residential waste management within Phase 1 for units with communal waste storage.

WASTE GENERATION MODELLING

4.4.2 Applying the waste metrics summarised in Table 3-4 to the accommodation schedule in Table 4-1, Table 4-2 summarises the estimated weekly waste generation for the Detailed Proposals with communal waste storage.

Table 4-2 Estimated Weekly Waste Generation – Communal Waste Storage

Building	Weekly Waste Generation (Litres)			
	Residual Waste	DMR	Food Waste	Total
1C	23,230	23,230	685	47,165
1D	27,680	27,680	745	56,105
1E	9,600	9,600	313	19,513
1F	11,200	11,200	304	22,744
Total	71,730	71,730	2,047	145,507

RESIDENTIAL WASTE STORAGE

4.4.3 Each Building will be provided with a residential waste store at ground floor or basement level. The residential waste stores will accommodate all residual waste, DMR and food waste generated within these Buildings prior to collection.

4.4.4 Based on the estimated residual waste, DMR and food waste generation in Table 4-2, Table 4-3 details the container requirements for Buildings 1C-1F.

Table 4-3 Container Requirements - Buildings 1C-1F

Building	Number of 1,100-Litre Eurobins		Number of 240-Litre Wheeled Bins	Total
	Residual Waste	DMR	Food Waste	
1C	22	22	3	47
1D	26	26	4	56
1E	9	9	2	20
1F	11	11	2	24
Total	68	68	11	147

4.4.5 Residents will be required to transport their own waste from their property directly to the nearest waste store, using the passenger lifts (where necessary), where they will segregate their waste into appropriately labelled bins.

4.4.6 Figure 4-3 and Figure 4-4 show the locations and configurations of the residential waste stores.

Figure 4-3 Building 1C Residential Waste Store (Basement Level)

Figure 4-4 Building 1D Residential Waste Store (Ground Level)

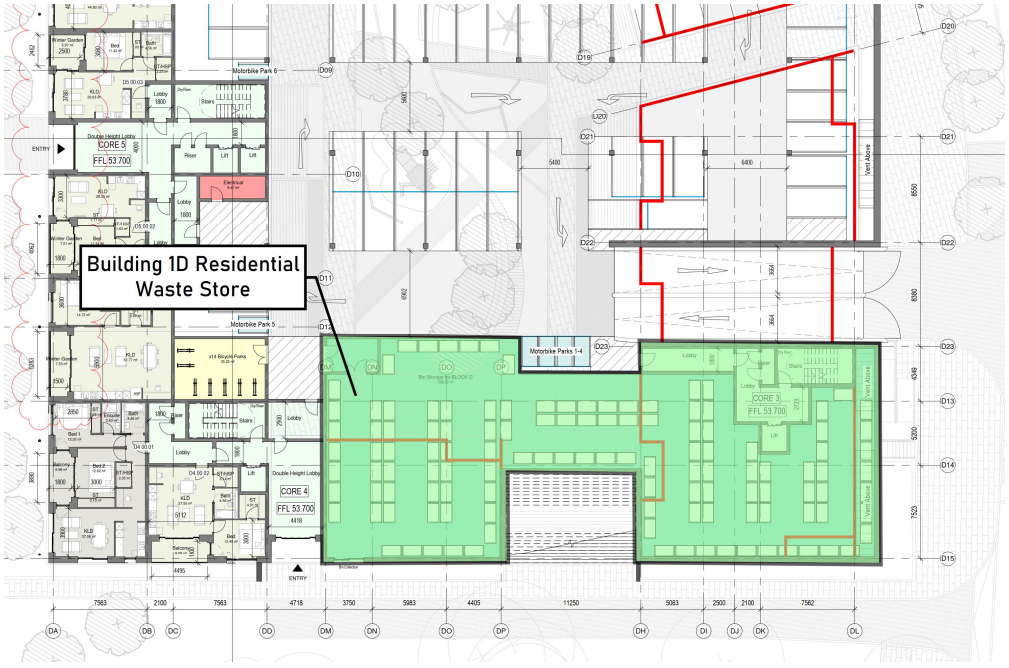


Figure 4-5 Building 1E Residential Waste Stores (Basement Level)

Figure 4-6 Building 1F Residential Waste Store (Basement Level)

RESIDENTIAL WASTE PRESENTATION AND COLLECTION

4.4.7 On nominated collection days the LBB RCV will enter the Proposed Development to collect the bins from each of the Buildings.

4.4.8 The LBB waste collection operatives will access the bins directly from the residential waste store in Building 1D and wheel them out to the parked RCV. Once the bins have been emptied, the operatives will return them to the waste store.

4.4.9 On collection days, the bins within the residential waste stores in Buildings 1C, 1E and 1F will be brought up to ground level via the vehicle access ramp by the on-site Facilities Management (FM) team using a pedestrian tow-tug.

4.4.10 Figure 4-7 below shows an example of a pedestrian tow-tug.

Figure 4-7 Example Pedestrian Tow-Tug[2]

4.4.11 Bins from each Building due for collection will be presented in in a suitable location in the external landscaping within 10m of the RCV, as per the Guidance.

4.4.12 No bins will be presented for collection on the public highway.

4.5 BULKY WASTE STORAGE

4.5.1 As per the Guidance, residents with communal waste storage areas will be provided with access to a bulky waste storage area for large redundant items such as furniture or appliances.

4.5.2 Bulky waste items will be stored within dedicated bulky waste stores or caged areas within the residential waste stores.

4.5.3 If not located in reasonable proximity to the bulky waste storage area, the on-site FM team will assist residents to transfer their items.

4.5.4 The on-site FM team will be responsible for managing the storage of bulky waste at the Proposed Development.

4.5.5 Residents will contact LBB to pay for collection of their bulky items and provide evidence to the on-site FM team, who will provide access to the bulky waste storage area.

4.5.6 On the nominated day, the LBB collection crew will attend the bulky waste storage area and collect the presented items.

[2] *https://www.epowertrucks.co.uk/product/jobmaster-hd-electric-pedestrian-tug/*

5 OUTLINE PROPOSAL: PHASES 2-5 RESIDENTIAL WASTE STRATEGY

5.1 INTRODUCTION

5.1.1 The following section summarises the residential waste strategy for properties within Phases 2-5, including both individual dwellings and communal properties.

5.1.2 Waste management facilities within the Outline Proposals have been designed to align with the maximum parameter scheme, to confirm functionality from a technical perspective.

5.1.3 The Outline Proposals respond to the Design Principles Document referenced in Section 1.7 confirming the maximum parameter scheme adheres to all applicable technical and legislative requirements relating to waste management.

5.1.4 Phases 2-5 will include both individual dwellings and properties with communal waste storage arrangements.

5.1.5 Figure 5-1 shows the configuration of Phases 2-5 of the Proposed Development.

Figure 5-1 Proposed Development Phases 2-5 (Illustrative Scheme)

5.2 ACCOMMODATION SCHEDULE

5.2.1 Table 5-1 below summarises the accommodation schedule for the Outline Proposals, including whether waste will be stored individually per dwelling, or communally by core.

Table 5-1 Accommodation Schedule – Outline Proposals

Phase	Building	Storage Type	Number of Residential Units			Total
			1-Bed	2-Bed	3-Bed	
2	2A	Communal	11	37	107	155
	2B	Individual				
	2C	Individual				
	2D	Individual				
	2E	Individual				
	2F	Individual				
3	3A	Communal	85	315	85	485
	3B	Communal				
	3C	Communal				
4	4A	Communal	129	478	128	735
	4B	Communal				
	4C	Communal				
5	5A	Communal	104	385	103	592
	5B	Communal				
Total			329	1,215	423	1,967

5.3 RESIDENTIAL WASTE STRATEGY – INDIVIDUAL DWELLINGS (BUILDINGS 2B-2F)

5.3.1 This section of the waste management strategy relates to the individual dwellings within Buildings 2B-F.

5.3.2 Each kerbside property will be provided with a dedicated waste storage facility sufficient in size to store the containers summarised in Table 3-2.

5.3.3 The waste storage facility will be within the curtilage of each property and allow the bins to be stored on a solid base which can be accessed via a pathway.

5.3.4 The bins should not be presented for collection on the public footway or highway.

5.3.5 The LBB collection operatives will collect the bins directly from the boundary of each property and drag them to the adjacent RCV.

5.3.6 APPENDIX B includes full swept path analysis for the RCV.

5.3.7 Once the bins have been emptied, the LBB collection operatives will return the bins to their respective collection points.

5.4 RESIDENTIAL WASTE STRATEGY – COMMUNAL WASTE STORAGE (BUILDINGS 2A, 3, 4 & 5)

5.4.1 This section of the waste management strategy relates to the Buildings within Phases 2-5 with communal waste storage.

WASTE GENERATION MODELLING

5.4.2 Applying the waste metrics summarised in Table 3-4 to the accommodation schedule in Table 5-1, Table 5-2 summarises the estimated weekly waste generation for the Buildings within the Outline Proposals.

Table 5-2 Estimated Weekly Waste Generation – Communal Waste Storage

Phase	Building	Weekly Waste Generation (Litres)			Total
		Residual Waste	DMR	Food Waste	
2	2A	33,070	33,070	713	66,853
	2B				
	2C				
	2D				
	2E				
	2F				
3	3A	82,450	82,450	2,231	167,131
	3B				
	3C				
4	4A	124,880	124,880	3,381	253,141
	4B				
	4C				
5	5A	100,570	100,570	2,723	203,863
	5B				
Total		340,970	340,970	9,048	690,988

RESIDENTIAL WASTE STORAGE

5.4.3 Each building will be provided with a residential waste store at ground floor or basement level. The residential waste stores will accommodate all residual waste, DMR and food waste generated within these buildings prior to collection.

5.4.4 Based on the estimated residual waste, DMR and food waste generation in Table 5-2, Table 5-3 below details the container requirements for Phases 2-5.

Table 5-3 Container Requirements Phases 2-5

Phase	Building	No. 1,100-Litre Eurobins		No. 240-Litre Wheeled Bins	Total
		Residual Waste	DMR	Food Waste	
2	2A	31	31	3	65
	2B				
	2C				
	2D				
	2E				
	2F				
3	3A	75	75	10	160
	3B				
	3C				
4	4A	114	114	15	243
	4B				
	4C				
5	5A	92	92	12	196
	5B				
Total		312	312	40	664

5.4.5 Residents will be required to transport their own waste from their property directly to the nearest waste store, using the passenger lifts (where necessary), where they will segregate their waste into appropriately labelled bins.

5.4.6 The on-site FM team will be responsible for overseeing the residential waste stores to ensure residents have access to empty containers for each waste stream at all times.

RESIDENTIAL WASTE PRESENTATION AND COLLECTION

5.4.7 On nominated collection days the LBB RCV will enter the Proposed Development to collect the bins from each of the Buildings.

5.4.8 Where suitable access for the RCV is possible within 10m as per the Guidance, the LBB waste collection operatives will access the bins directly from the residential waste stores and wheel them out to the parked RCV. Once the bins have been emptied, the operatives will return them to the waste stores.

5.4.9 On collection days, the bins within the residential waste stores beyond 10m RCV access will be brought up to ground level via the vehicle access ramp by the on-site FM team using a pedestrian tow-tug, an example of which is shown in Figure 4-7 above.

5.4.10 Bins from each Building due for collection will be presented in in a suitable location in the external landscaping within 10m of the RCV, as per the Guidance.

5.4.11 No bins will be presented for collection on the public highway.

5.5 BULKY WASTE STORAGE (PHASES 2-5)

5.5.1 As per the Guidance, residents with communal waste storage areas will be provided with access to a bulky waste storage area for large redundant items such as furniture or appliances

5.5.2 Bulky waste items will be stored within dedicated caged areas within the residential waste stores.

5.5.3 The on-site FM team will be responsible for managing the storage of bulky waste at the Proposed Development.

5.5.4 Residents will contact LBB to pay for collection of their bulky items and provide evidence to the on-site FM team, who will provide access to the bulky waste storage area.

5.5.5 On the nominated day, the LBB collection crew will attend the bulky waste storage areas and collect the presented items.

6 PRINCIPLES OF COMMERCIAL WASTE MANAGEMENT

6.1 INTRODUCTION

6.1.1 This section outlines the principles for commercial waste management within both outline and detailed elements of the Proposed Development, which will comprise multiple phases of development, with a school and number of commercial areas distributed throughout.

6.1.2 Commercial waste will be managed in accordance with the Guidance and British Standard BS5906:2005 *Waste Management in Buildings – Code of Practice*.

6.2 PRINCIPLES OF DESIGN

WASTE STORAGE FACILITIES

6.2.1 Within the Proposed Development, all commercial waste facilities will be designed to BS5906:2005 standards. In summary, the waste facilities will include the following:

- A suitable water point in close proximity to allow washing down;
- All surfaces will be sealed with a suitable wash proof finish (vinyl, tiles etc.);
- All surfaces will be easy to clean;
- Suitable floor drain; and
- Suitable lighting and ventilation.

WASTE COLLECTION ACCESS

6.2.2 Within the Proposed Development, the route between any waste storage facilities and the RCV will:

- be free from steps or kerbs;
- have a solid foundation;
- have a smooth solid surface; and
- be level and have a gradient of no more than 1:12, with a minimum width of 2 metres.

7 DETAILED APPLICATION : PHASE 0 SCHOOL WASTE MANAGEMENT

7.1.1 The following section summarises the commercial waste strategy for properties within Phase 0 of the Proposed Development, forming the detailed part of the planning application.

7.1.2 Phase 0 includes the reprovision of a secondary school.

7.1.3 The commercial area schedule for Phase A is summarised in Table 7-1 below.

Table 7-1 School Area Schedule

Phase	Use Class	Maximum No. Pupils	GEA (m^2)
0	School	1,050	10,194

7.2 WASTE GENERATION MODELLING

7.2.1 LBB does not provide metrics for waste generation from schools. Waste generation metrics for the proposed school have been sourced from London Borough Richmond upon Thames (LBRuT) Refuse and Recycling Storage and Access Requirements for New Developments.

7.2.2 Table 7-2 summarises the proposed school waste generation metrics, including assumed waste composition.

Table 7-2 Proposed School Waste Generation Metrics

Weekly Waste Metric	Waste Stream	Waste Composition
12.7 litres per pupil	Residual Waste	20%
	DMR	75%
	Food Waste	5%

7.2.3 Applying the waste metrics detailed in Table 7-2 to the number of pupils in Table 7-1, Table 7-3 below summarises the estimated weekly waste arisings for the school within the Proposed Development.

Table 7-3 Estimated School Waste Generation

Weekly Waste Generation (Litres)			
Residual Waste	DMR	Food Waste	Total
2,921	10,954	730	14,605

7.2.4 Based on the estimated school waste generation in Table 7-3, Table 7-4 summarises the commercial waste storage provision assuming a daily collection frequency. To account for unexpected operational issues, a minimum of 2 days' waste storage capacity has been provided as contingency.

Table 7-4 School Waste Storage Provision (Daily Collections)

Number of 1,100-Litre Eurobins		Number of 240-Litre Wheeled Bins
Residual Waste	DMR	Food Waste
2	4	4

7.3 PROPOSED WASTE MANAGEMENT STRATEGY

7.3.1 The proposed strategy to manage school waste has been devised to provide a high-quality service to commercial tenants whilst also being compliant with the Guidance.

WASTE STORAGE

7.3.2 Within the school, temporary internal waste storage will be provided in communal areas, such as classrooms and administrative areas that allows for the segregation of waste at source.

7.3.3 Externally, a commercial waste store will be provided at ground level. The commercial waste store is the location that all commercial residual waste, DMR and food waste generated within the Proposed Development will be stored prior to collection.

7.3.4 As part of standard cleansing duties, segregated waste will be transferred to the school waste store at the front of the school.

7.3.5 The location of the school waste store is shown in Figure 7-1 below.

Figure 7-1 Building F Commercial Waste Store

7.3.6 The commercial waste stores will be sufficiently sized to accommodate the number and types of bins detailed in Table 7-4.

SCHOOL WASTE COLLECTION

7.3.7 A commercial waste contractor will be appointed to service the school once operational.

7.3.8 The commercial waste contractor will collect the bins directly the commercial waste store on an agreed schedule, outside of peak hours to minimise risk of conflict with students.

7.3.9 On collection days the RCV will be positioned in an adjacent servicing bay by the commercial waste contractor.

7.3.10 Once the bins have been emptied, the collection operatives will return the bins to the commercial waste store.

8 OUTLINE APPLICATION : PHASES B-D COMMERCIAL WASTE MANAGEMENT

8.1.1 The following section summarises the commercial waste strategy for Phases 2-5 of the Proposed Development, forming the Outline Proposals.

8.1.2 Waste management facilities within the Outline Proposals have been designed to align with the maximum parameter scheme, to confirm functionality from a technical perspective.

8.1.3 The Outline Proposals respond to the DC referenced in Section 1.6.8, confirming the maximum parameter scheme adheres to all applicable technical and legislative requirements relating to waste management.

8.1.4 Within this section, the illustrative scheme has been used to demonstrate acceptability of the Outline Proposals and this will be clearly indicated.

8.1.5 The commercial area schedule for the outline application is summarised in Table 8-1 below.

Table 8-1 Commercial Area Schedule

Phase	Building	GEA (m^2)			
		Community / Childcare	Retail	Office	Total
3	3A	1,920	474	474	2,868
4	4A	-	673	-	673
	4B	-	1,120	-	1,120
	4C	-	323	-	323
5	5A	-	-	1,879	1,879
	5B	-	285	-	285
Total		1,920	2,875	2,353	7,148

8.2 WASTE GENERATION MODELLING

8.2.1 LBB does not provide metrics for commercial waste generation. Waste generation metrics for the proposed commercial space has been sourced from British Standard BS5906:2005 *Waste Management in Buildings – Code of Practice*.

8.2.2 Table 8-2 summarises the commercial waste generation metrics for the Proposed Development.

Table 8-2 Commercial Waste Generation Metrics

Use	Metric	Weekly Waste Metric	Assumptions	Waste Composition
Community / Childcare	Entertainment Complex / Leisure Centre	Volume per m^2 of floor area [5 litres] x floor area	-	• 20% Residual Waste • 75% DMR • 5% Food Waste
Retail	Restaurant	Volume per number of covers [75 litres] x number of covers	One cover per $6m^2$	
Office	Office	Volume per number of employees [50 litres] x number of employees	One employee per $8m^2$	

8.2.3 For the purposes of estimating waste generation, the restaurant metric has been applied to all retail areas. As the most onerous metric for waste generation, this ensures a robust waste management strategy is maintained throughout each design stage.

8.2.4 Applying the waste metrics detailed in Table 8-2 to the commercial areas detailed Table 8-1, Table 8-3 summarises the estimated weekly commercial waste arisings for Proposed Development.

Table 8-3 Estimated Weekly Commercial Waste Generation

Phase	Building	Weekly Waste Generation (Litres)			
		Residual Waste	DMR	Food Waste	Total
3	3A	3,698	13,866	925	18,489
4	4A	1,683	6,310	421	8,414
	4B	2,800	10,500	700	14,000
	4C	808	3,029	202	4,039
5	5A	2,349	8,808	588	11,745
	5B	713	2,672	179	3,564
Total		12,051	45,185	3,015	60,251

8.3 PROPOSED WASTE MANAGEMENT STRATEGY

8.3.1 The proposed strategy to manage commercial waste has been devised to provide a high-quality service to commercial tenants whilst also being compliant with the Guidance.

8.3.2 Commercial tenants will provide temporary internal waste storage within their commercial area that allows for the segregation of waste at source.

8.3.3 It is anticipated that as the commercial tenants in each building will be provided with access to shared commercial waste stores at ground level. The commercial waste stores are the locations that all commercial residual waste, DMR and food waste generated within the Proposed Development will be stored prior to collection.

8.3.4 As necessary, the commercial tenants will transfer the segregated waste from their temporary internal waste storage to the nearest commercial waste store.

8.3.5 Using the estimated weekly waste generation in Table 8-3, Table 8-4 summarises the commercial waste storage requirements based on daily collections.

Table 8-4 Commercial Waste Storage Requirements (Daily Collections)

Phase	Building	Daily Collections		
		No. of 1,100-Litre Eurobins		No. of 240-Litre Bins
		Residual Waste	DMR	Food Waste
3	3A	1	4	2
4	4A	1	2	1
	4B	1	3	1
	4C	1	1	1
5	5A	1	3	1
	5B	1	1	1

8.3.6 As a minimum, the commercial waste stores will be sized to accommodate a minimum of two days' waste storage.

8.4 COMMERCIAL WASTE COLLECTION

8.4.1 A commercial waste contractor will be appointed to service the Proposed Development once operational.

8.4.2 The commercial waste contractor will collect the bins directly from each of the commercial waste stores on an agreed schedule.

8.5 INDIVIDUAL TENANT WASTE STORAGE

8.5.1 If shared commercial waste stores are not included as part of the RMAs brought forward, commercial tenants will be required to provide waste storage facilities within their tenanted area during the fit-out phase.

8.5.2 The process used to manage the waste generated by the tenant will ultimately be their responsibility to develop and implement, but the facilities must be designed to comply with the prevailing legislation and guidance.

8.5.3 The internal waste storage area provided by the tenant provided as part of the fit-out phase should have sufficient capacity to accommodate the waste generated by their activities. The size of the internal waste storage areas will depend upon:

- The tenant's business activities;
- The space that the tenant occupies; and
- The frequency that the tenant's appointed waste management contractor will collect the waste.

8.5.4 The waste storage facilities must include provisions for the segregation of waste streams.

9 SUMMARY & CONCLUSIONS

9.1 SUMMARY

9.1.1 The Hybrid planning application seeks Full Planning Permission for Phase 0-1 and Outline Planning Permission, with all matters reserved, for the rest of the site (which includes Phases 2-5).

9.1.2 RMAs are required to come forward in compliance with the design principles and guidelines established in the Primary Control Documents.

9.1.3 Waste management facilities within the Outline Proposals have been designed to align with the maximum parameter scheme, to confirm functionality from a technical perspective.

9.1.4 The Outline Proposals respond to the Design Principles Document referenced in Section 1.7 confirming the maximum parameter scheme adheres to all applicable technical and legislative requirements relating to waste management.

RESIDENTIAL WASTE

9.1.5 Residential waste will be managed in accordance with the Guidance and waste facilities designed to BS5906:2005 standards.

9.1.6 Estimated volumes of residential waste generated at the Proposed Development once operational have been quantified using waste generation metrics extracted from the Guidance and agreed with the LBB Account Manager within the Collection Services and Innovations Team.

9.1.7 Each residential property will be provided with a segregated waste bin, which will be fixed in to an appropriate kitchen unit.

PHASE 1 INDIVIDUAL DWELLINGS

9.1.8 Residents in Building 1B will be provided with a dedicated area within the curtilage of their property for the storage of bins as per the Guidance.

9.1.9 On collection days, LBB will collect these bins directly from the property boundaries.

PHASE 1 COMMUNAL WASTE STORAGE (BUILDINGS 1C-1F)

9.1.10 Residents in Buildings 1C-1F will be provided with a residential waste store at ground or basement floor level. The residential waste stores will accommodate all residual waste, DMR and food waste generated within these buildings prior to collection.

9.1.11 Residual waste and DMR will be stored in 1,100-litre Eurobins, with food waste stored in 240-litre wheeled bins.

9.1.12 Residents will be required to transport their own waste from their property directly to their nearest waste store, using the passenger lifts (where necessary), where they will segregate their waste into appropriately labelled bins.

9.1.13 The LBB waste collection operatives will access the bins directly from the residential waste store in Building 1D and wheel them out to the parked RCV. Once the bins have been emptied, the operatives will return them to the waste store.

9.1.14 On collection days, the bins within the residential waste stores in Buildings 1C, 1E and 1F will be brought up to ground level via the vehicle access ramp by the on-site FM team using a pedestrian tow-tug.

9.1.15 Bins from each Building due for collection will be presented in in a suitable location in the external landscaping within 10m of the RCV, as per the Guidance.

9.1.16 No bins will be presented for collection on the public highway.

PHASES 2-5 INDIVIDUAL DWELLINGS (BUILDINGS 2B-2F)

9.1.17 Residents in Buildings 2B-2F will be provided with a dedicated area within the curtilage of their property for the storage of bins as per the Guidance.

9.1.18 On collection days, LBB will collect these bins directly from the property boundaries.

PHASES 2-5 COMMUNAL WASTE STORAGE

9.1.19 Residents in buildings within Phases 2-5 with communal waste storage will be provided with a residential waste store at ground or basement floor level. The residential waste stores will accommodate all residual waste, DMR and food waste generated within these buildings prior to collection.

9.1.20 Residual waste and DMR will be stored in 1,100-litre Eurobins, with food waste stored in 240-litre wheeled bins.

9.1.21 Residents will be required to transport their own waste from their property directly to their nearest waste store, using the passenger lifts (where necessary), where they will segregate their waste into appropriately labelled bins.

9.1.22 On nominated collection days the LBB RCV will enter the Proposed Development to collect the bins from each of the buildings.

9.1.23 Where suitable access for the RCV is possible within 10m as per the Guidance, the LBB waste collection operatives will access the bins directly from the residential waste stores and wheel them out to the parked RCV. Once the bins have been emptied, the operatives will return them to the waste stores.

9.1.24 On collection days, the bins within the residential waste stores beyond 10m RCV access will be brought up to ground level via the vehicle access ramp by the on-site FM team using a pedestrian tow-tug.

9.1.25 Bins from each Building due for collection will be presented in in a suitable location in the external landscaping within 10m of the RCV, as per the Guidance.

9.1.26 No bins will be presented for collection on the public highway.

BULKY WASTE

9.1.27 As per the Guidance, residents with communal waste storage areas will be provided with access to a bulky waste storage area for large redundant items such as furniture or appliances.

9.1.28 Bulky waste items will be stored within dedicated caged areas within the residential waste stores.

9.1.29 The on-site FM team will be responsible for managing the storage of bulky waste at the Proposed Development.

9.1.30 Residents will contact LBB to pay for collection of their bulky items and provide evidence to the on-site FM team, who will provide access to the bulky waste storage area.

9.1.31 On the nominated day, the LBB collection crew will attend the bulky waste storage areas and collect the presented items.

COMMERCIAL WASTE

9.1.32 Commercial waste will be managed in accordance with the Guidance and British Standard BS5906:2005.

PHASE 0 SCHOOL WASTE

9.1.33 Waste generation metrics for the proposed school have been sourced from LBRuT guidance.

9.1.34 Within the school, temporary internal waste storage will be provided in communal areas, such as classrooms and administrative areas that allows for the segregation of waste at source.

9.1.35 Externally, a commercial waste store will be provided at ground level. The commercial waste store is the location that all commercial residual waste, DMR and food waste generated within the Proposed Development will be stored prior to collection.

9.1.36 As part of standard cleansing duties, segregated waste will be transferred to the school waste store at the front of the school.

9.1.37 A commercial waste contractor will be appointed to service the school once operational.

9.1.38 The commercial waste contractor will collect the bins directly the commercial waste store on an agreed schedule, outside of peak hours to minimise risk of conflict with students.

9.1.39 On collection days the RCV will be positioned in an adjacent servicing bay by the commercial waste contractor.

9.1.40 Once the bins have been emptied, the collection operatives will return the bins to the commercial waste store.

PHASES 2-5

9.1.41 Waste generation metrics for the proposed commercial space has been sourced from British Standard BS5906:2005.

9.1.42 Commercial tenants will provide temporary internal waste storage within their commercial area that allows for the segregation of waste at source.

9.1.43 It is anticipated that as the commercial tenants in each building will be provided with access to shared commercial waste stores at ground level. The commercial waste stores are the locations that all commercial residual waste, DMR and food waste generated within the Proposed Development will be stored prior to collection.

9.1.44 As necessary, the commercial tenants will transfer the segregated waste from their temporary internal waste storage to the nearest commercial waste store.

9.1.45 A commercial waste contractor will be appointed to service the Proposed Development once operational.

9.1.46 The commercial waste contractor will collect the bins directly from each of the commercial waste stores on an agreed schedule.

9.1.47 If shared commercial waste stores are not included as part of the RMAs brought forward, commercial tenants will be required to provide waste storage facilities within their tenanted area during the fit-out phase.

9.1.48 The process used to manage the waste generated by the tenant will ultimately be their responsibility to develop and implement, but the facilities must be designed to comply with the prevailing legislation and guidance.

9.1.49 The internal waste storage area provided by the tenant provided as part of the fit-out phase should have sufficient capacity to accommodate the waste generated by their activities.

9.2 CONCLUSION

9.2.1 The OWMS has taken into account the need to lessen the overall impact of waste generation through the recycling of materials from the operational phase of the Proposed Development.

9.2.2 The proposals set out in this strategy meet the requirements of relevant waste policy and follow applicable guidance.

APPENDIX A

NATIONAL, LONDON AND LOCAL WASTE POLICY & GUIDANCE

NATIONAL WASTE POLICY

DLUHC, NATIONAL PLANNING POLICY FRAMEWORK (2023)

The revised National Planning Policy Framework was updated in December 2023 and sets out the government's planning policies for England and how these are expected to be applied. It does not include anything of relevance to waste management that would be applicable to the Proposed Development.

DLUHC, NATIONAL PLANNING POLICY FOR WASTE (2014)

The National Planning Policy for Waste replaces 'Planning Policy Statement 10: Planning for Sustainable Waste Management' (PPS 10) and is to be considered alongside other national planning policy for England - such as in the NPPF and the Waste Management Plan for England. As the primary focus is on planning for waste management facilities, it is not considered relevant to the Proposed Development.

DEFRA, OUR WASTE, OUR RESOURCES: A STRATEGY FOR ENGLAND (2018)

The strategy sets out how England will preserve the stock of material resources by minimising waste, promoting resource efficiency and moving towards a circular economy. At the same time, the country will minimise the damage caused to the natural environment by reducing and managing waste safely and carefully, and by tackling waste crime.

It combines actions the country will take now, with firm commitments for the coming years and gives a clear longer-term policy direction in line with the 25 Year Environment Plan. This is the blueprint for eliminating avoidable plastic waste over the lifetime of the 25 Year Plan, doubling resource productivity, and eliminating avoidable waste of all kinds by 2050.

HM GOVERNMENT, A GREEN FUTURE: OUR 25 YEAR PLAN TO IMPROVE THE ENVIRONMENT (2018)

The 25 Year Environment Plan sets out government action to help the natural world regain and retain good health. Its aim is to deliver cleaner air and water in cities and rural landscapes, protect threatened species and provide richer wildlife habitats. It calls for an approach to agriculture, forestry, land use and fishing that puts the environment first.

With regard to waste management, the plan details aims which include:

- Zero avoidable plastic waste by 2042;
- Reduce food waste; and
- Improving the management of residual waste.

WASTE HIERARCHY

The Waste Hierarchy requires avoidance of waste in the first instance followed by reducing the volume that requires disposal after it has been generated.

It gives an order of preference for waste management options to minimise the volume for disposal, as shown in Figure A1.1.

Figure A1.1: The Waste Hierarchy

The main principles of the Waste Hierarchy are:

- Waste should be prevented or reduced at source as far as possible;
- Where waste cannot be prevented, waste materials or products should be reused directly or refurbished and then reused;
- Waste materials should be recycled or reprocessed into a form that allows them to be reclaimed as a secondary raw material;
- Where useful secondary materials cannot be reclaimed, the energy content of the waste should be recovered and used as a substitute for non-renewable energy resources; and
- Only if waste cannot be prevented, reclaimed or recovered, should it be disposed of into the environment and this should only be undertaken in a controlled manner.

The Waste Hierarchy has been implemented in England and Wales by the Waste (England and Wales) Regulations 2011. These regulations require that an establishment or undertaking that imports, produces, collects, transports, recovers or disposes of waste must take reasonable steps to apply the Waste Hierarchy when waste is transferred or disposed of.

LONDON WASTE POLICY & GUIDANCE

GLA, THE LONDON PLAN 2021 (MARCH 2021)

The London Plan is the overall strategic plan for London, it sets out an integrated economic, environmental, transport and social framework for the development of London over the next 20-25 years.

The strategy includes the following waste management policy that has influenced the development of more specific business waste guidance:

> *'Policy D3 Optimising site capacity through the design-led approach*
> *3.1B.18 Shared and easily accessible storage space supporting separate collection of dry recyclables, food waste and other waste should be considered in the early design stages to help improve recycling rates, reduce smell, odour and vehicle movements, and improve street scene and community safety.'*
> *'Policy SI7 Reducing waste and supporting the circular economy*
> *Resource conservation, waste reduction, increases in material re-use and recycling, and reduction in waste going for disposal will be achieved by the Mayor, waste planning authorities and industry working in collaboration to:*
> *5) design developments with adequate, flexible and easily accessible storage space and collection systems that support, as a minimum, the separate collection of dry recyclables (at least card, paper, mixed plastics, metals, glass) and food.'*

GLA, LONDON ENVIRONMENT STRATEGY (2018)

The Mayor, with the new London Environment Strategy, aims to make London a zero-waste city. By 2026, no biodegradable or recyclable waste will be sent to landfill and by 2030, 65% of London's municipal waste will be recycled.

With regards to waste management within the Proposed Development, the following extracts are of relevance:

> *'To help them achieve the recycling targets, waste authorities should deliver the following minimum level of service for household recycling:*
>
> - *all properties with kerbside recycling collections to receive a separate weekly food waste collection*
> - *all properties to receive a collection of, at a minimum, the six main dry recycling materials, i.e. glass, cans, paper, card, plastic bottles and mixed rigid plastics (tubs, pots and trays)*
>
> *Proposal 7.2.1.c The Mayor will support efforts to increase recycling rates in flats.*
> *The Mayor will encourage Resource London to provide more support and funding to those waste authorities that are working towards achieving higher recycling performance in flats. Through LWARB, the Mayor will seek additional funding to tackle recycling performance in flats. The London Plan requires that all new developments referred to the Mayor include adequate recycling storage for at least the six main dry recyclable materials and food.*

Waste authorities, through the planning application process, should apply the waste management planning advice for flats, including the domestic rented sector, developed by LWARB in partnership with the London Environment Directors Network (LEDNET).'

LOCAL WASTE POLICY & GUIDANCE

NLWA, NORTH LONDON WASTE PREVENTION PLAN (2022)

The Waste Prevention Plan includes waste prevention activity and communications work delivered by NLWA to reduce the level of recycling contamination and increase recycling, supporting on-the-ground activity delivered by the constituent boroughs. The Plan delivers some of the activities included within borough Reduction and Recycling Plans (RRPs) required by the Mayor of the London.

Whilst this document is worthy of inclusion as part of this policy review, there is no direct relevance to operational waste management at the Proposed Development.

LBB, BARNET'S LOCAL PLAN (CORE STRATEGY) DEVELOPMENT PLAN DOCUMENT (SEPTEMBER 2012)

The Local Plan replaces the Unitary Development Plan (UDP) (adopted May 2006). It embodies spatial planning – the practice of 'place shaping' to deliver positive social, economic and environmental outcomes and provide the overarching local policy framework for delivering sustainable development in Barnet. Barnet's Local Plan provides a 'folder' of separate documents, the most important of which is the Core Strategy. This contains the 'vision' for the Local Plan and the most fundamental, cross-cutting objectives and policies that the local authority and its partners will seek to deliver.

The policies which are applicable to waste management and of relevance to the Development are as follows:

'Policy CS14: Dealing with our waste

Will we encourage sustainable waste management by:

- Promoting waste prevention, re-use, recycling, composting and resource efficiency over landfill.
- Requiring developments to provide waste and recycling facilities which fit current and future collection practices and targets.'

LBB, LOCAL PLAN SUPPLEMENTARY PLANNING DOCUMENT: RESIDENTIAL DESIGN GUIDANCE (OCTOBER 2016)

The SPD provides more detailed residential design guidance issues relevant to Barnet such as local character, density, built form, car parking and amenity space standards connected with new build development. Through these changes the SPD sets out the local priorities for protecting and enhancing Barnet's character. It provides a local reference point to the suite of national guidance on good design.

The policies which are applicable to waste management and of relevance to the Development are as follows:

'11. Car parking, cycle storage and waste storage, Barnet's Characterisation

11.9 The design and layout of residential development should normally make satisfactory arrangements for the storage and collection of recycling and waste. The arrangements should comply with the Sustainable Design and Construction SPD (section 2.12) and the councils" "Information for developers and architects – provision of domestic and organic waste services, and recycling facilities".

11.10 Waste and recycling storage can cause a nuisance to neighbours and future occupiers, by reason of odour and noise, and can be visually intrusive in the streetscene. In meeting the council's requirements, the amenity of residents, the appearance of the area, as well as the ease of access should be considered. Waste and recycling storage areas should be integrated within the building or provided on-site and screened within an enclosure or by landscaping avoiding garden areas in front of dwellings.

11.11 Details of refuse storage and management will normally need to be addressed as part of the planning application. Poorly designed, intrusive or inadequately sized facilities give rise to adverse visual impact and will not be acceptable.

11.12 In flatted developments, waste and recycling storage should at an early stage be sensitively designed and located. Careful consideration should be given to access to waste disposal and recycling facilities, particularly for residents on upper floors. Storage areas should be in a position mutually convenient and easily accessible for both residents and waste and recycling collection crews.'

LBB, MUNICIPAL RECYCLING AND WASTE STRATEGY AND FUTURE DELIVERY FOR BARNET 2016 TO 2030 (2016)

This is a municipal recycling and waste strategy that covers all waste that the council has a responsibility for dealing with – including waste generated by both residents and businesses.

The policies which are applicable to waste management and of relevance to the Development are as follows:

'Our planners can influence the design of recycling and residual waste arrangements within new developments and can enforce this. We want new buildings to be designed to enable residents to recycle at least 70 per cent of their waste by giving enough space for recycling and food waste to be stored within flats and the external space for recycling and food waste containers. The challenge is to ensure the recycling systems encourage maximum use by residents while allowing our collection systems to operate cost effectively.'

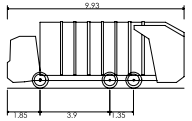
'Our plans: It is very important that new developments are designed to support recycling, for example by including space in the kitchen to allow recycling to be easily separated from residual waste. New developments also provide an opportunity for more efficient ways of collecting materials to be introduced and new technologies to be embraced. We will be working with architects and developers to make sure that when properties are built or refurbished, the design supports our ambition to achieve a 50+ per cent recycling rate.'

LBB, INFORMATION FOR DEVELOPER AND ARCHITECTS: PROVISION OF HOUSEHOLD RECYCLING AND WASTE SERVICE (JUNE 2021)

This document sets out the details of the Council's requirements for its recycling and waste collection services.

APPENDIX B

SWEPT PATH ANALYSIS



Vulture 2225 (with Mercedes Econic 2628LL 6x4 chassis)

Overall Length	9.930m
Overall Width	2.490m
Overall Body Height	3.749m
Min Body Ground Clearance	0.302m
Track Width	2.490m
Lock to lock time	4.00s
Wall to Wall Turning Radius	9.100m

Rev	Description	Date	Drawn	Checked	Apvd.

Project

New Southgate, Royal Brunswick Park
London

Drawing Description

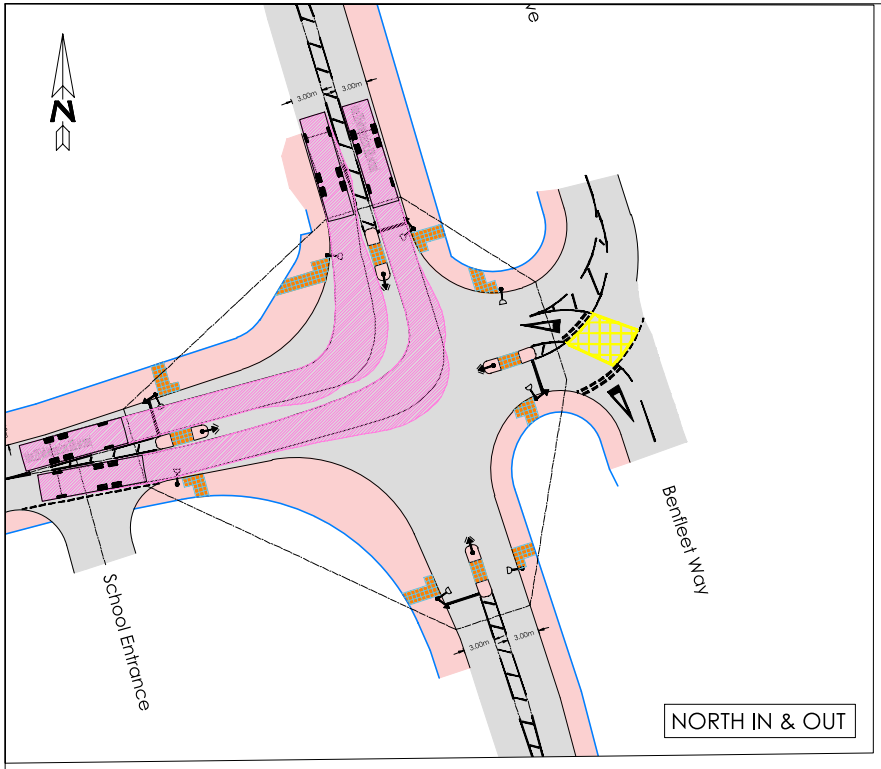
Internal Swept Path Analysis
Refuse Vehicle

Drawing Number	Scale	Date	Drawn	Checked	Approved
ST-3013-12	1:2000@A3	10.06.21	LGM	PLC	SJB

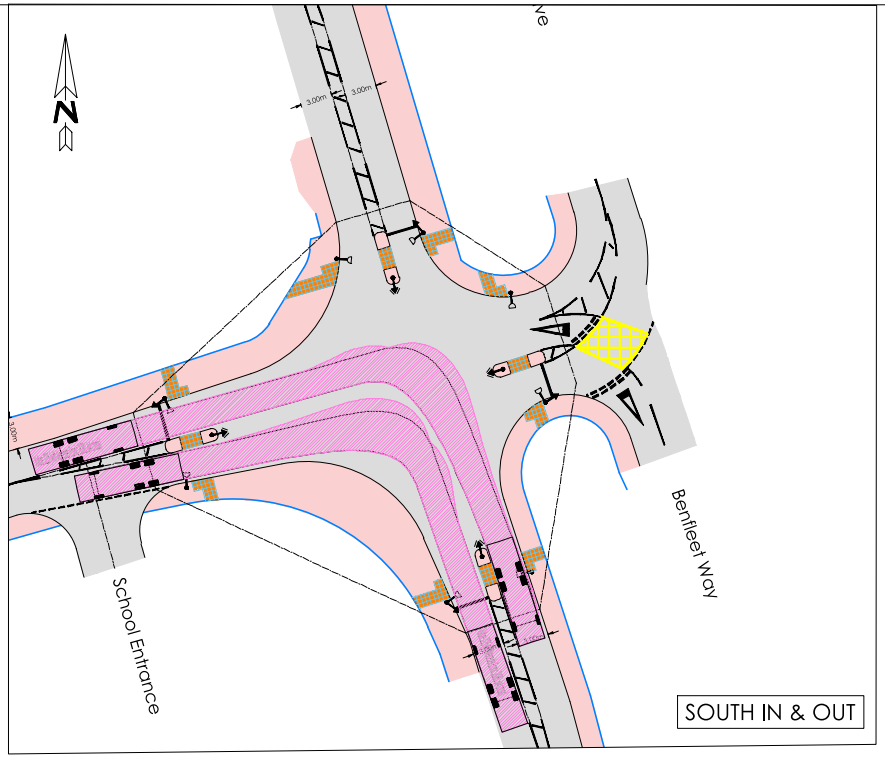
Client

Architect

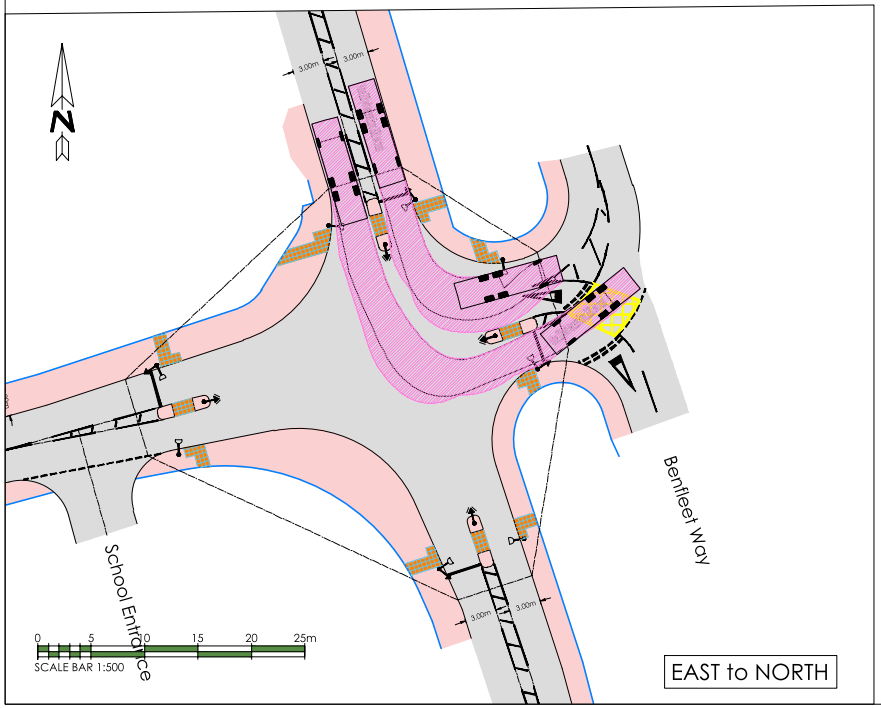
stomor
CIVIL ENGINEERING CONSULTANTS
Suite 2, First Floor, Portmill House,
Portmill Lane, Hitchin, Herts, SG5 1DJ
www.stomor.com | 01462 615433 | info@stomor.com



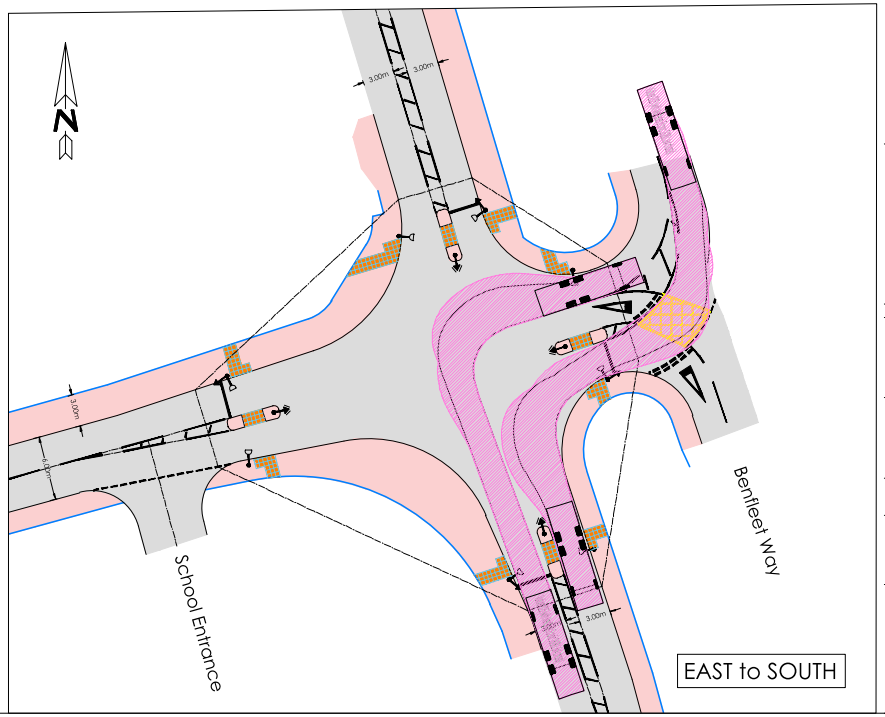
NORTH IN & OUT



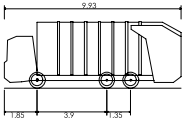
SOUTH IN & OUT



EAST to NORTH



EAST to SOUTH



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Project

New Southgate, Royal Brunswick Park
London

Drawing Description

Swept Path Analysis
Refuse Vehicle

Drawing Number	Scale	Date	Drawn	Checked	Approved
ST-3013-10	1:500@A3	10.06.21	LGM	PLC	TJW

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Architect

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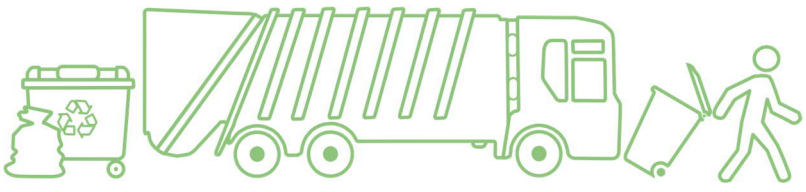

VELOCITY

APPENDIX C CIRCULAR ECONOMY WORKSHOP MINUTES

North London Business Park – Circular Economy Meeting Minutes

Attending	Attendee	Representing
	Andrea Carvajal	Greengage Environmental (GG)
	Ajjay Dhesi	Greengage Environmental (GG)
	Liz Grove	Greengage Environmental (GG)
	Des Twomey	Plus Architecture (PA)
	David Donnellan	Comer Homes (CA)
	Peter Bushnell	Peter Bushnell (PB)
Venue	**Microsoft Teams Meeting**	
Date	**27th July 2021**	
Circulation	**Those within the meeting**	
Subject	**Circular Economy Workshop**	

Item	Owner Action
This workshop was organised with the aim to discuss circular economy initiatives included into the design. The GLA Circular Economy categories were used to structure the discussion. Below are the main points summarised.	
A1 Minimising the quantities of materials used At this stage only few elements have been reviewed regarding standardisation and modularity, including: • Windows and door sized will be standardised. • The structure will be well aligned, and floor layouts will be standardised to improve on construction efficiency. There is little material on site available for reuse, however there is a possibility for demolition waste to be reused as piling mat. Efficiency will be taken into consideration, as there is always a goal to reduce material use on site, however at this stage this is difficult to quantify.	Note
A2 Minimising the quantities of other resources used (energy, water, land) Energy targets and current strategy should be followed up with the MEP designer, Paul Kerwood at MKPG.	Note

Regarding water use on site, rainwater or greywater harvesting systems have not been considered, though irrigation is a possibility. In addition, a costing has been allowed for rainwater harvesting units. Air Source Heat Pumps (AHSP) have been proposed for the development, which would require high performance fabric should this be adopted. There are no sustainability certifications (BREEAM or other) being pursued at the moment, confirmation would be required by the client, however this is not normally conducted.	
A3 Specifying and sourcing materials responsibly and sustainably Currently, a Sustainable Procurement Plan (SPP) is not in place. Regarding procurement of materials: • The concrete frame allows for 50% implementation of GGBS within slabs. • Steel will have a high recycled content, as per the industry standard. • There is very little timber specified within the design (windows will be composite), however all timber will likely satisfy the timber harvesting standards. The GLA require at least 20% of materials within the building to contain recycled content. Reaching this is expected to be achievable due to the implementation of GGBS in concrete mixes and recycled steel. In relation to local sourcing, most materials are considered 'standard practice' such as bricks and concrete which can be sourced locally, whereas this will likely differ for stonework which would likely be sourced from Spain, Italy or China. GG suggest prioritising sourcing local materials, in this case Italy or Spain over China, to reduced transport carbon emissions.	Note
B1 Designing for longevity, adaptability or flexibility and reusability or recoverability These aspects have been accounted with the following: • There will be individual columns allowing flexibility in the future. • No internal partitions will be load bearing, therefore can be removed and adapted as per the future needs without the need for major works. • All windows are designed for adaptability. • There is allowance within the concrete frame for the addition of a further floor. • The façade is not load bearing and offers the possibility of being dismantled. Therefore, it could be disassembled and replaced to re-purpose the Metsec frame.	Note

• Roof access will be possible in future to allow maintenance to take place on the façade through a façade access system. Though the façade has been designed with long lasting materials such as brick, which reduce the need for maintenance. • The services are easy to access within a dedicated room, where pipework is also simple and accessible.	
B2 Design out construction, demolition, excavation and municipal waste arising The local authority recycling rates will be checked to determine whether the 65% municipal waste reuse/recycling/recovery by 2030 GLA requirement is achievable. Bathrooms are standardised and fabricated offsite as pods, likely in Spain, Italy or Poland. The Façade will be manufactured offsite and delivered as panels, helping reduce waste. The separation of municipal waste will occur within dwellings, with larger separation waste bins provided in the basement.	GG Note
C1 Managing demolition waste GG points out the GLA requirement for 95% demolition waste to be diverted from landfill. These will be considered by the design moving forward. A pre-demolition has not currently been completed, though this probably will be conducted at a further stage to determine the material which will arise from demolition and whether any of this can be reused or recycled. GG notes there is a requirement within the statement to provide detail on existing materials (before demolition) on site and the end destination after demolition occurs. PB have estimated the area of demolition, which can be used here to help the figures, however GG highlight this must be complemented with the volume of material. CA will produce an estimate of this for the Circular Economy Report.	Note CA
C2 Managing excavation waste GG highlight GLA's requirement for 95% uncontaminated excavation waste to be diverted from landfill. A low level of contamination was found on site. Therefore, material will be sent to a nearby site for re-use. Remaining will remain for use of the proposed development. Estimated quantities will be provided by CA.	Note CA

C3 Managing construction waste GG points out the GLA requirement of 95% construction waste to be diverted from landfill, through reusing, recycling or backfilling. This target will be implemented into the contractor's package requirements.	Note

APPENDIX D OUTLINE SITE WASTE MANAGEMENT PLAN

NORTH LONDON BUSINESS PARK

OUTLINE SITE WASTE MANAGEMENT PLAN

PROJECT NO. 24/004 DOC NO. D013

DATE: JANUARY 2024

VERSION: 1.0

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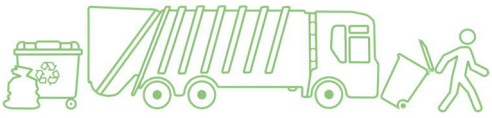
Velocity Transport Planning Ltd

www.velocity-tp.com



DOCUMENT CONTROL SHEET

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Notes

The document reference number, revision number and date are given on the footer of each page

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1 INTRODUCTION

1.1 PROJECT INTRODUCTION

1.1.1 Velocity Transport Planning has been commissioned by Comer Homes Group ("The Applicant") to prepare an Outline Site Waste Management Plan (SWMP) in support of a Hybrid Planning Application for the regeneration of the North London Business Park to provide a mixed-use development of up to 2,428 dwellings, 2,353sq.m of workspace, 3,835 sqm flexible non-residential floorspace, which could be used for community use, medical use, retail, offices, cafes etc. and a new 5FE school building with an anticipated 1,050-pupil capacity.

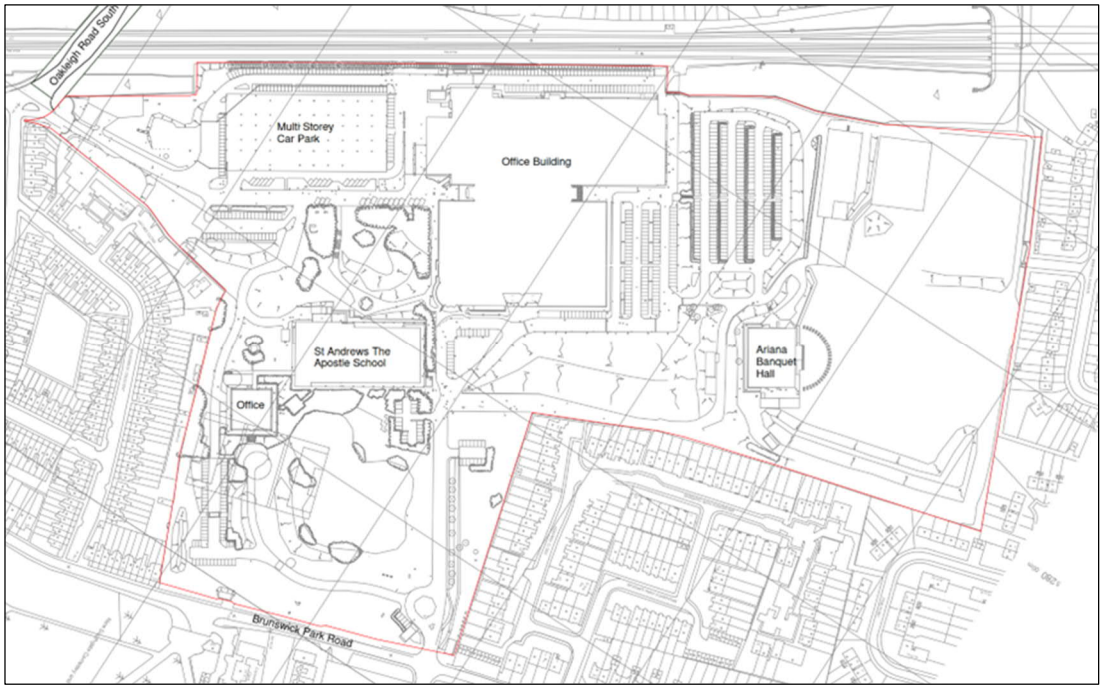
1.1.2 This Outline SWMP details how overarching waste management processes and practices will be undertaken during the demolition, site preparation, and construction phases of the Proposed Development. The principles of this report will require updating with further details by the relevant contractors once they are on site.

1.2 SITE LOCATION

1.2.1 The Proposed Development is located to the west of Southgate and to the south of East Barnet, within the administrative boundary of the London Borough of Barnet (LBB).

1.2.2 The site location and extent of the hybrid planning application are shown in Figure 1-1 below.

Figure 1-1 Site Location



1.3 EXISTING SITE

1.3.1 The site measures 16.37 hectares (ha), of which approximately 13ha comprises areas of disused open space and car parking. The site is bounded by the East Coast Mainline railway along the entire western boundary, with residential development and Brunswick Park Road adjacent to the eastern boundary.

1.3.2 Principal structures on site include c. 380,000 sqft of office buildings, an above-ground car-parking structure, and an office building currently in use as a secondary school, a Free School opened in the last number of years, Saint Andrew the Apostle Greek Orthodox School. Numerous other small structures occupy the site, including security huts, a banqueting hall and unoccupied office buildings.

1.3.3 The site has two principal entry and exit points, to the south onto Oakleigh Road South, and to the East onto Brunswick Park Road. A redundant and unused site entry and exit point is positioned on the northern boundary of the site, opening onto Ashbourne Avenue, and connecting to Russell Lane.

1.4 EXISTING STRUCTURES

1.4.1 The existing structures on site include:

- Building 5;
- Office Structures;
- Banqueting Hall and Nursery Structure; and
- Ancillary Structures.

1.4.2 Figure 1-2 below shows the extent of existing structures which fall within the masterplan. Building 6 (shown in red) has already been demolished.

Figure 1-2 Site Plan

1.5 BACKGROUND INFORMATION

1.5.1 The site benefits from planning permission for redevelopment. The original application was submitted in hybrid form and planning permission was granted at appeal in February 2020 (LBB ref. 15/07932/OUT and PINS ref. APP/N5090/W/17/3189843) for:

1.5.2 *"the phased comprehensive redevelopment of the North London Business Park to deliver a residential led mixed-use development. The detailed element comprises 360 residential units in five blocks reaching eight storeys, the provision of a 5 Form Entry Secondary School, a gymnasium, a multi-use sports pitch and associated changing facilities, and improvements to open space and transport infrastructure, including improvements to the access from Brunswick Park Road, and; the outline element comprises up to 990 additional residential units in buildings ranging from two to nine storeys, up to 5,177 sqm of non-residential floor space (Use Classes A1-A4, B1 and D1) and 2.54haof public open space. Associated site preparation/enabling works, transport infrastructure and junction works, landscaping and car parking."*

1.6 PROPOSED DEVELOPMENT

1.6.1 The Proposed Development is described as follows:

'Hybrid planning application for the phased comprehensive redevelopment of the North London Business Park to deliver a residential-led mixed use development. The detailed element comprises up to 452 residential units in five blocks reaching 9 storeys, the provision of a 5 form entry secondary school, a gymnasium, a multi-use sports pitch and associated changing facilities and improvements to open space and transport infrastructure, including improvements to the access from Brunswick Park Road and; the outline element comprises up to 1,967 additional residential units in buildings ranging from three to twelve storeys, up to 7,148 sqm of non-residential floor space (use Class E and F) and public open space. Associated site preparation/enabling work, transport infrastructure and junction work, landscaping and car parking:

1.6.2 The Proposed Development comprises six phases of development; Table 1-1 summarises these phases.

Table 1-1 Development Phases

Phase	Application	Building
0	Detailed	School
1		1B-1F
2	Outline	2A-2F
3		3A-3C
4		4A-4C
5		5A-5B

1.6.3 Figure 1-3 and below shows the configuration and phasing of the Proposed Development.

Figure 1-3 Proposed Development Configuration and Phasing

1.7 DOCUMENT STRUCTURE

1.7.1 This report is set out in the following sections:

- Section 2: Demolition and Excavation Waste;
- Section 3: Construction Waste; and
- Section 4: Summary and Conclusion.

2 DEMOLITION AND EXCAVATION WASTE

2.1 INTRODUCTION

2.1.1 This section outlines the estimated waste anticipated to be generated by the existing structures on the site of the Proposed Development during the demolition and excavation phases.

2.1.2 All estimates should be considered indicative and will require updating by the relevant contractors upon appointment on site.

2.2 ESTIMATION OF DEMOLITION AND EXCAVATION WASTE

DEMOLITION WASTE

2.2.1 The following section has been informed by the Pre-Demolition Audit completed in January 2024 by Velocity Transport Planning.

2.2.2 Table 2-1 below shows the estimated weight of materials generated by the demolition process.

Table 2-1 Summary of Demolition Waste Generated

Material	Best Practice Recycling Rate (%)	Tonnes	% By Weight	Recycled Material (Tonnes)	Material for Disposal (Tonnes)
Glass	100	193.54	0.55	193.54	-
Mixed Metals	100	927.41	2.63	927.41	-
Steel	100	1,430.41	4.05	1,430.41	-
Mixed Plastics	95	4.77	0.01	4.53	0.24
Tiles & Ceramics	100	391.95	1.11	391.95	-
Wood / Timber	95	101.30	0.29	96.24	5.07
Concrete / Binders	100	23,975.84	67.96	23,975.84	-
Bricks	100	682.52	1.93	682.52	-
Gypsum	95	355.93	1.01	338.14	17.80
Insulation	95	44.80	0.13	42.56	2.24
Carpets / Vinyl / Flooring	95	588.81	1.67	559.36	29.44
Electricals and Electronics	90	58.32	0.17	52.49	5.83
Asphalt	100	6,523.02	18.49	6,523.02	-
Total		35,278.62	100.00	35,218.01	60.61

2.2.3 Two Key Demolition Products (KDPs) were identified by the Pre-Demolition Audit, as follows:

- Inert Materials; and
- Metals.

2.2.4 The predominant KDP on site has been identified as inert materials, which are a group of materials that are handled and processed in the same manner during demolition and subsequent processing.

2.2.5 The inert materials generated by the demolition process are located within the following elements on site:

- Structural building frame;

- Internal walls;
- External walls; and
- Areas of hard landscaping.

2.2.6 Table 2-2 below summarises the details of the inert materials present on site, including tonnage and reclamation or recycling rate.

Table 2-2 Inert Demolition Waste

Material	EWC Code	Tonnage	Recommended Processing (%)	
			Reclamation	Recycling
Bricks	17 01 02	682.52	0	100
Tiles and Ceramics	17 01 03	391.95	0	100
Concrete / Hardcore	17 01 07	23,975.84	0	100
Asphalt	17 03 02	6,523.02	0	100
Total		31,573.33	0	100

2.2.7 The second KDP on site has been identified as metals, with use across all structures for a number of purposes.

2.2.8 The metal generated by the demolition process are located within the following elements on site:

- Aluminium façade panels;
- Structural building frame;
- Doors and windows;
- Walls;
- Stairs; and
- Ceiling.

2.2.9 Table 2-3 below summarises the details of the secondary KDP on site, including tonnage and reclamation or recycling rate.

Table 2-3 Metals Demolition Waste

Material	EWC Code	Tonnage	Recommended Processing (%)	
			Reclamation	Recycling
Mixed Metals	17 04 07	927.41	0	100
Steel	17 04 05	1,430.41	0	100
Total		2,357.82	0	100

EXCAVATION WASTE

2.2.10 Following demolition of the existing structures and the removal of the hard standing, excavation will be required to facilitate the structural requirements of the Proposed Development.

2.2.11 Excavation for the Proposed Development includes removal of the capping layer, as well as works associated with the basement, foundations, and pile arisings.

2.2.12 It should be noted that no information regarding existing site levels was included as part of these calculations and have been informed by the high-level structural requirements outlined by the structural consultant.

2.2.13 It is anticipated that these estimates will be superseded by a full cut and fill evaluation as part of a later design phase.

CAPPING LAYER AND MADE GROUND

2.2.14 It is assumed the capping layer and made ground will be removed during the demolition works.

PILE ARISINGS AND FOUNDATIONS

2.2.15 The proposed structural plans identify that the foundations comprise a ground floor suspended slab supported on pile caps for each block.

2.2.16 Table 2-4 below summarises the volume of concrete required for the structural proposals for each plot, including pile caps, ground beams, piles, and slabs and volume of material excavated per phase based on an industry standard bulking factor of 1.2.

Table 2-4 Structural Proposals

Phase	Volume of Concrete in Substructure (m^3)	Excavated Material (m^3)
0-1	14,676	17,611
2-5	34,799	41,759
Total	49,475	59,370

2.2.17 Assuming a conversion rate of 2 tonnes per $1m^3$ material, this equates to 35,222 and 83,518 tonnes of material in total for the detailed and outline proposals respectively.

2.2.18 It is anticipated that this volume of material will significantly decrease as the structural proposals are refined.

2.3 MANAGEMENT OF DEMOLITION AND EXCAVATION WASTE

2.3.1 Waste arising from site clearance, primary infrastructure and earthworks is expected to comprise rubble, concrete, road planings from existing hard-standings, gravel, and clay material.

2.3.2 It is proposed that the excavated concrete and tarmac from the capping layer is crushed on site for reuse as secondary aggregate. It should be noted that any potential re-use of materials should be undertaken under a Materials Management Plan in line with the CL:AIRE Code of Practice.

2.3.3 Any clean excavated material that cannot be reused on-site will be removed by licensed waste carriers and sent for reuse at another local development site, recycled into secondary aggregate or sent for disposal at appropriately licensed facilities (these are expected to be inert waste landfill sites).

2.3.4 For the purpose of this exercise, it is assumed that all made ground will be unsuitable for reuse on site and will be removed from site. This can be reviewed in more detail once sufficient on-site investigation and associated material testing has been conducted. All loads removed on site would be transferred to appropriately licenced facilities for reuse or recycling.

2.3.5 Any contaminated material found that requires removal from the site will be collected by suitable waste carriers and sent for disposal at appropriately licensed waste facilities.

2.3.6 Table 2-5 below details the estimated number of vehicles required to remove the material generated during the site clearance and excavation phases.

Table 2-5 Excavation Material Generation and Vehicle Movements

On-Site Activity	Reused On-Site	Material Removed from Site	Phase 0-1		Phase 2-5	
			Tonnage	Number of Vehicle Loads Required **	Tonnage	Number of Vehicle Loads Required **
Foundations Pile Cap / Pile Arisings	No *	Yes	35,222	1,762	83,518	4,176

** Until chemical and physical properties are established through appropriate testing methods, it is assumed all excavated material is unsuitable for reuse on site.*

*** Assumes 10m³ volume HGVs*

3 CONSTRUCTION WASTE

3.1 CONSIDERATE CONSTRUCTORS SCHEME

3.1.1 It is expected that the Principal Contractor(s), once appointed, will register their site with the 'Considerate Constructors Scheme'. This is a national initiative, set up by the construction industry. Sites that register with the Scheme sign up and are monitored against a Code of Considerate Practice, designed to encourage best practice beyond statutory requirements.

3.1.2 The Scheme is concerned about any area of construction activity that may have a direct or indirect impact on the image of the industry as a whole. The main areas of concern fall into three categories: the environment, the workforce, and the general public. Waste management is a key area of focus and on-site considerations may include:

- How waste is avoided, reduced, reused, and/or recycled;
- Whether there is a Waste Management Plan/Strategy and how this is monitored; and
- The type of feedback received (if any) as to how much waste on-site is diverted from landfill.

3.1.3 It is expected that registered construction sites work in an environmentally conscious, sustainable manner.

3.2 SITE WASTE MANAGEMENT PLAN

3.2.1 As part of a drive to cut red tape, the Government revoked the requirement for Site Waste Management Plans (SWMPs) for construction projects costing over £300,000 as of 1 December 2013 and they are no longer statutory.

3.2.2 However, SWMPs remain good practice during construction and allow waste credits to be achieved under certification schemes such as BREEAM; one will be prepared by the Principal Contractor(s) once appointed, post planning consent.

3.3 ESTIMATED CONSTRUCTION WASTE

3.3.1 During each stage of the construction process there is the potential to generate waste from a variety of means, including the over-ordering or on-site damage of raw materials and construction process waste, such as material off-cuts, packaging, and chemical residues.

3.3.2 Opportunities for minimising construction waste are discussed in this section, considering issues such as reducing waste through selection of more sustainable raw materials and the implementation of effective on-site waste management practices.

3.3.3 The BRE have produced benchmarks from which to base performance credit allocation for construction waste arisings. The Site Waste Reduction Performance metric measures tonnes of waste/100m^2 of floor area and has been applied to the commercial element of the Proposed Development.

3.3.4 For the residential element, an appropriate metric has been applied from the Home Quality Mark (HQM) Technical Manual SD239.

3.3.5 Table 3-1 shows the relevant metric for the Proposed Development, chosen as the median value for the range.

Table 3-1 Environmental Performance Indicators

Description	Project Type	Tonnes/100m² GIA	Source
Residential	Site Waste Produced from New Build Projects	4.9	HQM
Commercial		6.5	BREEAM

3.3.6 Table 3-2 shows the indicative GEA for the outline and detailed proposals.

Table 3-2 Area Schedule

Use	GEA (m²)	
	Phase 0-1	Phases 2-5
Residential	53,613	240,546
Commercial	10,194	7,148
Total	63,807	247,694

3.3.7 Applying the applicable environmental performance indicator in Table 3-1 to the indicative GEA in Table 3-2, Table 3-3 shows the estimated construction waste arisings for all elements of the Proposed Development.

Table 3-3 Estimated Construction Waste Arisings

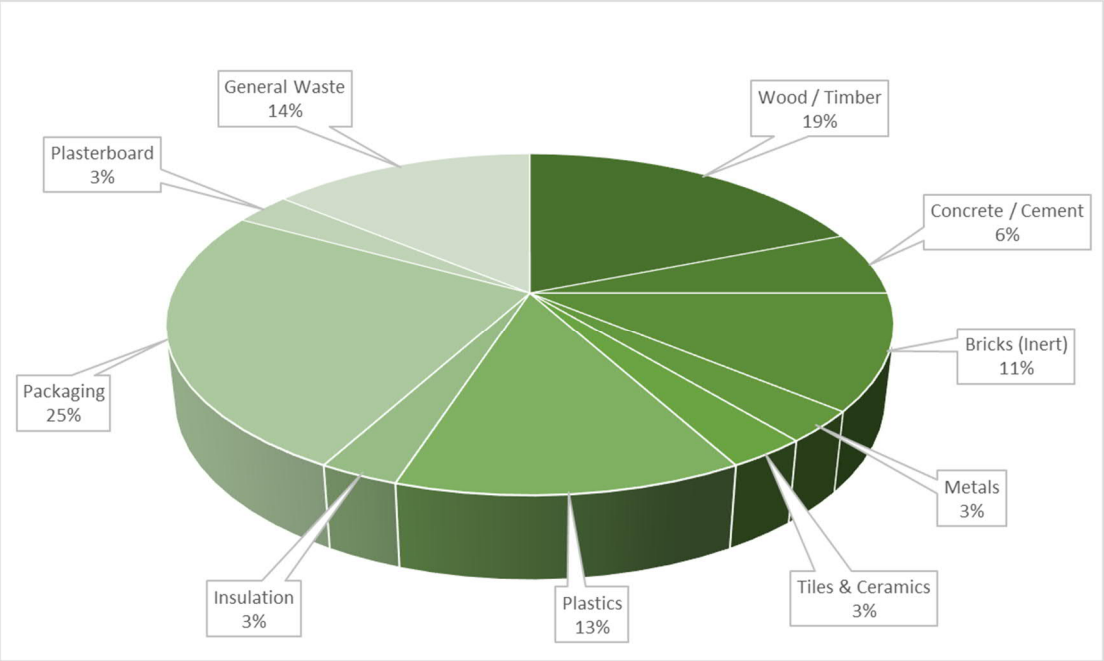
Use	Construction Waste Arisings (Tonnes per m²)	Construction Waste (Tonnes)	
		Phase 1	Phases 2-5
Residential	4.9	2,627	11,788
Commercial	6.5	663	466
Total		3,290	12,254

3.3.8 It is estimated that approximately 15,542 tonnes of waste may arise from the construction phase of the Proposed Development.

3.3.9 It should be noted that the estimated total figure also does not include waste from infrastructure development, such as utilities and pavements, which will add to the total construction waste volume. This is due to the fact that infrastructure development cannot be easily calculated using benchmarking data; and the BRE have no applicable information on this area of construction.

3.3.10 Figure 3-1 illustrates the estimated composition of construction waste arisings for the Proposed Development, based on data from UK construction projects of a similar nature.

Figure 3-1 Estimated Construction Waste Composition (Source: SmartWaste)



3.3.11 Table 3-4 shows the typical recovery rate of construction materials.

Table 3-4 Recovery Rate of Construction Materials

Material	Standard recovery * %	Good practice recovery * (quick win) %	Best practice recovery * %
Timber	57	90	95
Metals	95	100	100
Plasterboard	30	90	95
Packaging	60	85	95
Ceramics	75	85	100
Concrete	75	95	100
Inert	75	95	100
Plastics	60	80	95
Miscellaneous	12	50	95
Electrical equipment	Limited information	70 **	95
Furniture	0-15	25	50
Insulation	12	50	95
Cement	Limited information	75	95
Liquids and oils	100	100	100
Hazardous	50	Limited information ***	Limited information ***

** Proposed waste management actions 'reuse' and 'recycling' are forms of waste recovery.*

*** This is a required recovery target for the type of waste electrical and electronic equipment (WEEE) likely to be produced from construction sites, e.g. Lighting (the WEEE regulations).*

**** This cannot be 100% as most hazardous waste streams (e.g. Asbestos) must be landfilled.*

3.3.12 Table 3-5 and Table 3-6 show the type and volume of waste generated during construction based on the percentages provided in Figure 3-1.

3.3.13 The *Best Practice Recovery* values in Table 3-4 were used to determine the percentage recovered from the construction materials.

3.3.14 Table 3-5 and Table 3-6 below summarise the estimated construction waste per waste stream for the detailed and outline phases of redevelopment, respectively.

Table 3-5 Type and Volume of Waste to be Generated During Construction – Phase 0-1

Material	Estimated Quantity (Tonnes)		
	Total	Recovered	Disposal
Concrete / Cement	197	197	-
Bricks (Inert)	362	362	-
Metals	99	99	-
Tiles & Ceramics	99	99	-
Plastics	428	406	22
Insulation	99	94	5
Packaging	822	781	41
Plasterboard	99	94	5
Miscellaneous	460	437	23
Wood/Timber	625	594	31
Total	3,290	3,163	127

Table 3-6 Type and Volume of Waste to be Generated During Construction – Phases 2-5

Material	Estimated Quantity (Tonnes)		
	Total	Recovered	Disposal
Concrete / Cement	735	735	-
Bricks (Inert)	1,348	1,348	-
Metals	368	368	-
Tiles & Ceramics	368	368	-
Plastics	1,593	1,513	80
Insulation	368	350	18
Packaging	3,063	2,910	153
Plasterboard	368	350	18
Miscellaneous	1,715	1,629	86
Wood/Timber	2,328	2,212	116
Total	12,254	11,783	471

3.3.15 It is assumed that where it is not possible to reuse or recycle construction waste, contractors will use disposal routes that divert material from landfill, such as Energy from Waste (EfW), Refuse Derived Fuel (RDF) or Solid Recovered Fuel (SRF).

3.3.16 It should be noted that typical hazardous materials from construction sites that fall within the Hazardous Waste Regulations include:

- Treated wood, glass, plastic (alone or in mixture) containing dangerous substances;
- Bituminous mixture containing coal tar and other dangerous substances;
- Metals containing oil, coal tar and other dangerous substances;
- Cables containing oil, coal tar and other dangerous substance;
- Rubble or hardcore containing dangerous substances;

- Soil, stones and dredging spoil containing dangerous substances;
- Gypsum materials such as plasterboard containing hazardous materials;
- Unused or unset cement;
- Paints and varnishes containing organic solvents or other dangerous substances;
- Paint or varnish remover;
- Adhesives and sealants containing organic solvent or other dangerous substances; and
- Empty packaging contaminated with residues of dangerous substances e.g. paint cans.

3.3.17 Hazardous waste materials will be stored in secure bunded compounds in appropriate containers which are clearly labelled to identify their hazardous properties and are accompanied by the appropriate assessment sheets.

3.3.18 Any fuels, oils and chemicals that are used will be stored in appropriate containers within secure bunded compounds in accordance with good site practice and regulatory guidelines and located away from sensitive receptors.

SUSTAINABLE SELECTION OF CONSTRUCTION MATERIALS

3.3.19 A sustainable materials selection strategy will be prepared prior to the construction of the Proposed Development. Measures will be taken, such as face-to-face 'toolbox talks' and provision of clear operational instructions, to ensure that contractors are committed to the operation of good practice measures on-site with emphasis on continual improvement and identifying appropriate opportunities to reduce waste, promote recycling and use recyclable materials. The ordering of appropriate, minimum amounts of building materials will be part of the materials selection strategy. Prefabricated materials will also be used wherever possible, including CLT.

SETTING TARGETS FOR REDUCING CONSTRUCTION WASTE

3.3.20 Appropriate targets and objectives will be set in relation to the minimisation, reuse, and recycling of any waste materials during earth works and construction. This will ensure that a clear action plan is generated for the management of specified types and quantities of materials identified for each of the construction stages. These targets will be agreed at the inaugural meeting between the Principal Contractors, the contractors and LBB.

3.3.21 To ensure that the system of waste prevention, minimisation, reuse and recycling is effective, consideration will be given to the setting of on-site waste targets and a suitable programme of monitoring at regular intervals to focus upon:

- Quantifying raw material wastage;
- Quantifying the generation of each waste stream;
- Any improvements in current working practices;
- Methods by which the waste streams are being handled and stored; and
- The available waste disposal routes used, e.g. landfills, waste transfer stations.

3.3.22 The Principal Contractors will be responsible for the setting and review of waste targets from the outset of the development process to ensure that high standards are maintained with the emphasis being on continual improvement. Specific waste quantification and monitoring will assist in determining the success of waste management initiatives employed on each construction site and progress against these targets should be relayed back to the appropriate stakeholders.

ACHIEVING REDUCTIONS IN CONSTRUCTION WASTE - PROMOTION OF BEST PRACTICE

3.3.23 As part of the encouragement of on-site best practice, there will also be a need to ensure that suppliers of raw materials to the Proposed Development are committed to reducing any surplus packaging associated with the supply of any raw materials. This includes the reduction of plastics (i.e. shrink wrap and bubble wrap), cardboard and wooden pallets. This may involve improved procurement and consultation with selected suppliers regarding commitments to waste minimisation, recycling, and the emphasis on continual improvement in environmental performance.

3.3.24 Table 3-7 below summarises the most important mitigation measures to minimise the potential waste of on-site materials during construction. It is important to note, however, that not all construction materials will be provided by local suppliers.

Table 3-7 Measures to Reduce Waste of On-Site Construction Materials

Ordering	Delivery
Avoid: • Over-ordering (order 'just in time') • Ordering standard lengths rather than lengths required • Ordering for delivery at the wrong time (update programme regularly)	Avoid: • Damage during unloading • Delivery to inappropriate areas of the site • Accepting incorrect deliveries, specification or quantity
Storage	**Handling**
Avoid: • Damage to materials from incorrect storage • Loss, theft or vandalism through secure storage and on-site security	Avoid: • Damage or spillage through incorrect or repetitive handling

3.3.25 Where practicable, waste streams that have the potential to be reused on-site or transported off-site for recycling will need to be segregated. Although every effort will be made to retain all suitable materials on-site, it is possible that some of these materials cannot be reused or recycled during the construction process. In these situations, the Site Managers will work to identify a nearby Transfer Station or suitably licensed facility in order for material to be redistributed as fill on other suitable sites. This represents the most sustainable alternative to landfill disposal.

CONSTRUCTION MATERIALS AND WASTE STORAGE

3.3.26 Emphasis will be placed on the provision of appropriate storage conditions for raw materials and key waste streams relating to each development. This will include the segregation of material for reuse or recycling on-site. Where this is not practicable, materials will be segregated for off-site recycling.

3.3.27 The location of the waste storage areas will be clearly labelled, identifying the materials that can be received. Provisions that will be made include:

- Temporary offices and work compounds on-site will retain all details relating to the waste strategy for the site, health and safety and monitoring and reporting details;

- Storage areas for raw materials and assembly areas for construction components will be located away from sensitive receptors;
- Clearly identified containers for segregated waste streams for reuse and recycling; and
- Dedicated skips will be provided for any construction waste that requires off-site disposal.

3.3.28 In addition, the provision of effective and secure storage areas for construction materials is important to ensure that potential loss of material from damage, vandalism or theft is avoided. These measures will be supported by ensuring well-timed deliveries to the site, providing on-site security, and installing temporary site security fencing.

3.3.29 Implementation of good practice measures in terms of on-site storage and security practices will assist in reducing unnecessary wastage of material and ensure that high standards are maintained throughout the development process.

TAKE-BACK SCHEMES

3.3.30 Where re-use is not possible, contractors can identify opportunities and encourage on-site teams to use 'take-back' schemes. 'Take-back' schemes (also referred to as 'closed loop') return products and materials directly back to manufacturers for reuse or specialist recycling otherwise unavailable on site.

3.3.31 Returning excess materials to suppliers in this manner maintains materials further up the waste hierarchy.

3.3.32 Identifying opportunities to use a 'take back' scheme will require consideration for site specific constraints, including geographic location and overall footprint.

3.3.33 Packaging materials (particularly during the construction phase) can provide opportunities to use take-back schemes, including:

- Oversized packaging;
- Oversized void fillers; and
- Unnecessary transport protection and strapping.

3.3.34 A number of contractors are signed up to use The Pallet LOOP[1] which promotes the reuse of pallets from deliveries to construction sites.

[1] *The Pallet Loop* https://www.thepalletloop.com/

MANAGING TRANSPORT AND TRAFFIC IMPACTS FROM CONSTRUCTION

3.3.35 The logistics associated with construction waste are affected by a wide range of factors. The quantity and types of waste materials generated will fluctuate during the construction phases and the resulting number of waste collections will be dictated by a range of variables, including the amount of storage space for waste, the capacity of waste containers used, the materials segregated for recycling and whether any on-site processes are used for reducing the volume of waste (compactors / balers / shredders etc.).

3.3.36 The Principal Contractors will be expected to provide construction waste logistics forecasts, which will be discussed with waste contractors and LBB following appointment of relevant parties.

3.3.37 The impact of traffic associated with the movement of construction and waste materials on surrounding neighbourhoods and the local road network will be minimised by a combination of factors. These include reducing the need to import / export materials; and minimising off-site removal of waste to landfill. Dedicated haulage routes will be agreed with LBB to minimise disturbance to local communities.

4 SUMMARY & CONCLUSION

4.1 SUMMARY

SITE PREPARATION AND EARTHWORKS

4.1.1 Waste arising from site clearance, primary infrastructure and earthworks is expected to comprise topsoil, rubble, concrete, and road planings from existing hard-standings, gravel, and clay material.

4.1.2 Any clean excavated material that cannot be reused on-site will be removed by licensed waste carriers and sent for reuse at another local development site, recycled into secondary aggregate or sent for disposal at appropriately licensed facilities.

4.1.3 Any contaminated material found that requires removal from the site will be collected by suitable waste carriers and sent for disposal at appropriately licensed waste facilities.

CONSTRUCTION WASTE

4.1.4 During each stage of the construction process there is the potential to generate waste from a variety of means, including the over-ordering or on-site damage of raw materials and construction process waste, such as material off-cuts, packaging, and chemical residues.

4.1.5 Metrics from HQM and BREEAM has been used to estimate the tonnage of construction waste produced from the residential and commercial elements respectively. The site waste reduction performance target measures tonnes of waste/100m^2 of floor area.

4.1.6 Where it is not possible to reuse or recycle construction waste, contractors will be expected to seek disposal routes that divert material from landfill, such as Energy from Waste (EfW), as Refuse Derived Fuel (RDF) or Solid Recovered Fuel (SRF).

4.1.7 Hazardous waste materials will be stored in secure bunded compounds in appropriate containers which are clearly labelled to identify their hazardous properties and are accompanied by the appropriate assessment sheets.

4.1.8 Any fuels, oils and chemicals that are used will be stored in appropriate containers within secure bunded compounds in accordance with good site practice and regulatory guidelines and located away from sensitive receptors.

4.1.9 Appropriate targets and objectives will be set in relation to the minimisation, reuse, and recycling of any waste materials during earth works and construction. This will ensure that a clear action plan is generated for the management of specified types and quantities of materials identified for each of the construction stages. These targets will be agreed at the inaugural meeting between the Principal Contractors, the contractors and LBB.

4.1.10 The Principal Contractors will be responsible for the setting and review of waste targets from the outset of the development process to ensure that high standards are maintained with the emphasis being on continual improvement. Specific waste quantification and monitoring will assist in determining the success of waste management initiatives employed on each construction site and progress against these targets should be relayed back to the appropriate stakeholders.

4.1.11 Emphasis will be placed on the provision of appropriate storage conditions for raw materials and key waste streams relating to each development. This will include the segregation of material for reuse or recycling on-site. Where this is not practicable, materials will be segregated for off-site recycling.

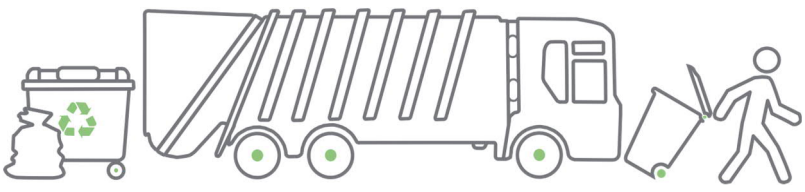
4.1.12 The Principal Contractors will be expected to provide construction waste logistics forecasts, which will be discussed with waste contractors and LBB following appointment of relevant parties.

4.1.13 The impact of traffic associated with the movement of construction and waste materials on surrounding neighbourhoods and the local road network will be minimised by a combination of factors. These include reducing the need to import / export materials; and minimising off-site removal of waste to landfill. Dedicated haulage routes will be agreed with LBB to minimise disturbance to local communities.

4.2 CONCLUSION

4.2.1 This Outline SWMP has considered the need to lessen the overall impact of waste generation through recycling of materials from the construction phase of the Proposed Development.

4.2.2 The proposals set out in this strategy meet the requirements of relevant waste policy and follow applicable guidance.



VELOCITY

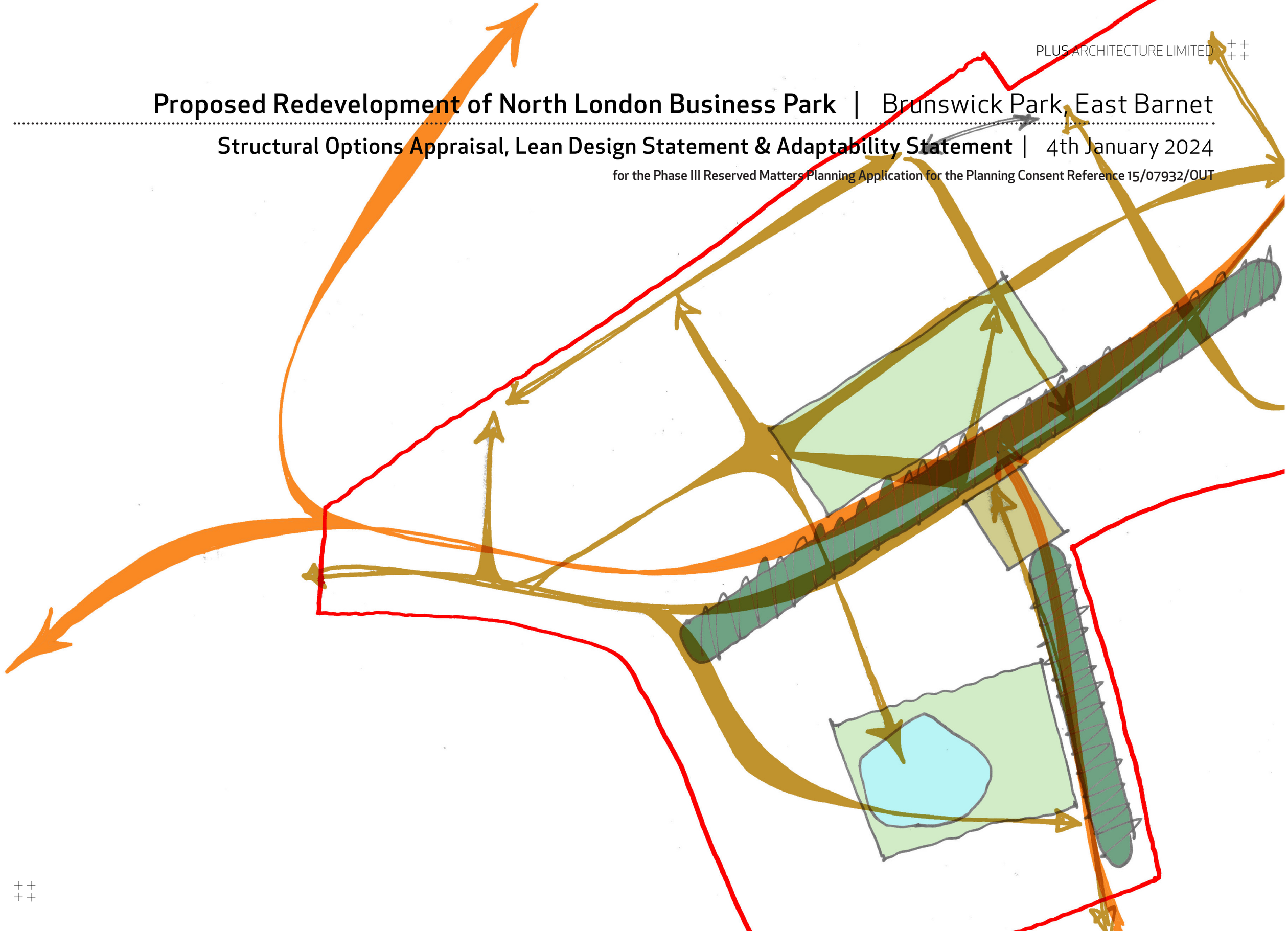
APPENDIX E STRUCTURAL OPTIONS, LEAN DESIGN AND ADAPTABILITY SCENARIOS

PLUS ARCHITECTURE LIMITED

Proposed Redevelopment of North London Business Park | Brunswick Park, East Barnet

Structural Options Appraisal, Lean Design Statement & Adaptability Statement | 4th January 2024

for the Phase III Reserved Matters Planning Application for the Planning Consent Reference 15/07932/OUT



Structural Option Appraisal

	Resistance to Fire	Accoustic Performace	Thermal Performace	Resistance to Water Damage	Resistance to Vermin/ Rot	Achieving Airtightness	Future adaptibility	
RC Concrete Frame/ Metsec Façade Walling	4	5	4	4	5	4	4	**30**
RC cross walls/ Precast Floor/ Outer concrete façade wall	5	5	3	4	5	5	2	**29**
RC Concrete Frame with Post Tension Slav/ Metsec facade Walling	4	5	4	4	5	4	3	**29**
Steel Structure/ Metsec outer Wall	3	3	4	3	5	3	5	**26**
Modular Units	3	4	4	3	5	4	1	**24**
Cross Laminated Timber (CLT) Walls & Floors	1	4	5	1	1	4	4	**20**

01 RC Concrete Frame/ Metsec Façade Walling

02 RC cross walls/ Precast Floor/ Outer concrete façade wall

03 RC Concrete Frame with Post Tension Slav/ Metsec facade Walling

04 Steel Structure/ Metsec outer Wall

05 Modular Units

06 Cross Laminated Timber (CLT) Walls & Floors

During the planning stage different structural framing option were considered. A matrix was undertaken to inform the optimum primary structural solution, based on the following primary structure options:

1. RC Concrete Frame/ Metsec Façade Walling
2. RC cross walls/ Precast Floor/ Outer concrete façade wall
3. RC Concrete Frame with Post Tension Slav/ Metsec facade Walling
4. Steel Structure/ Metsec outer Wall
5. Modular Units
6. Cross Laminated Timber (CLT) Walls & Floors

Option 1 emerged as the preferred and most efficient primary structural solution. Furthermore:

- Efficiency achieved in using column spacings efficiently- located at approximately 7.0m centres throughout the builings
- Relatively thin slabs and subsequently low concrete volumes
- Uniform section sizes to limit form work types

Material usage will also been minimised by:

- Avoiding transfer structures wherever possible, with transfers limited to location where the most efficient arrangement can be accommodated.
- Using light weight steel roof structures where possible
- Doing more of the detailed analysis upfront
- Using piled foundations rather than large concrete rafts

Building Form and Siting		**Orthogonal Building Shapes**		The building shapes in the RM3 detail area are orthogonal and squarely planned to ensure that space within the buildings can be easily and efficiently planned, with no awkward positions on the floor plate that would result in inefficiently planned apartments or wasted area
		Placement of Cores		Core have been positioned to have access to sufficient natural light and ventilation, but also to sit within the depth pf the plan, so as to not avail of excessive levels of natural light and ventilation, that would be better afforded to the apartment dwellings
		Plannign for Flexibility		Future interventions to change the primary building structure have been considered in the selection of primary structural solution, the RC frame and Metsec outer walling. This form of construction will allow for certain cutting of the floor slab to connect levels, insertion of future stairs and new service vertical shafts. The outer façade can be fully removed in future for change or upgrade and is structurally independent of the vertical primary structure and floor structure.
		Basment Structures		The RM3 detail application area is in the most challenging area of the site, as the topography rises steeply. The buildings are, by necessity, nestled into the topography, however unlike other phases in the masterplan, cut an fill earthworks are unavoidable. To mitigate this worst effects of this, basement structure are kept to a minimum.
Builing Layout & Adptability		**Design for Daylight**		Daylight is considered in the form of the buildings by planning, insofar as possible, wide frontage and shallow apartment units and units that benefit from corner dual aspect. The provision of well lit and easily ventilate apartments, relying on passive energy solutions is inherently more sustainable and creates living environments that are easily and comfortably inhabited
		Floor to Floor heights		Floor to Floor Heights are set at 3.15m floor to floor. This is a coordinating Brick dimension. With the anticipated structural frame solution (RC concrete frame) and anticipated ceiling service zone (combined at 600mm), a floor to ceiling clear dimension of 2.55m is anticipated. This is a dimension above the traditional 2.4m high residential floor height and allows for other future uses, such as residential, residential (institutional), hotel, student accommodation.
		Future changes to Structure		Future interventions to change the primary building structure have been considered in the selection of primary structural solution, the RC frame and Metsec outer walling. This form of construction will allow for certain cutting of the floor slab to connect levels, insertion of future stairs and new service vertical shafts. The outer façade can be fully removed in future for change or upgrade and is structurally independent of the vertical primary structure and floor structure.
		Strutural Efficiency		The buildings have been planned to have a hight level of structural efficiency, avoiding structural transfers, service transfer and thermal bridging risk that is associated with misalignment of structural and service elements
Building Vertical Circulation		**Core Positions**		Core have been positioned to have access to sufficient natural light and ventilation, but also to sit within the depth pf the plan, so as to not avail of excessive levels of natural light and ventilation, that would be better afforded to the apartment dwellings. Core numbers have been kept to a minimum, within correct fire safety requriements to maximise building internal efficiency.
		Services		Clear vertical service distribution routes have been identified and generously sized. A logical dispostion of service shafts will allow for retrofitting of future service needs and modification of service strategy in the future
Facades		**Materials**		Façade materials are planned in natural materials such as clay brick and mineral wool insulation. Windows are planned to be provided in aluminium, which has a higher embodied carbon content that the rest of the proposed façade materials, however is on a longer replacement cycle and can be easily recyclable if sourced from the correct supplier.
		Facae replacement		The relationship of the primary building structure and the façade is such that they are not acting in structural concert and can be separated. As such, should a full facade replacement be instigated in the future, this can happen. The bricks proposed can be salvaged for reuse and the glass and aluminium window elements are recyclable. It is not practical to reuse the mineral wool insulation, however this too can be recycled.

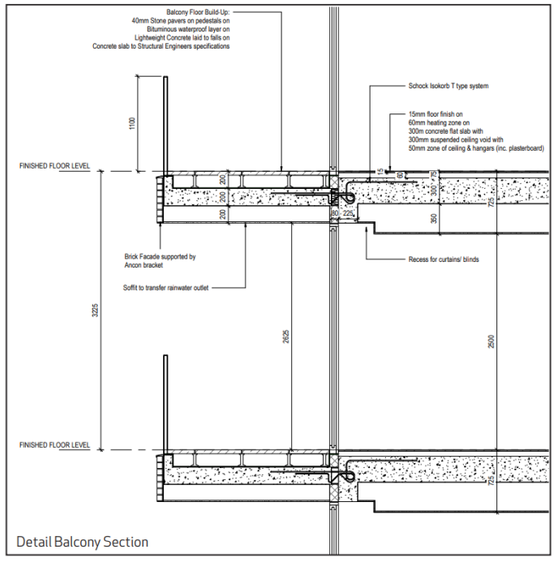
Lean Design Statement

To optimise the use of materials in building design, procurement, construction, maintenance and end of life, the design team throughout the early development of NLBP masterplan have implemented several strategies to optimise the design of the buildings. This process has been developed in consideration of material efficiency, with the intent to reduce the overall material volume of the proposal whilst seeking solutions to improve the lifecycle and lifespan of the buildings.

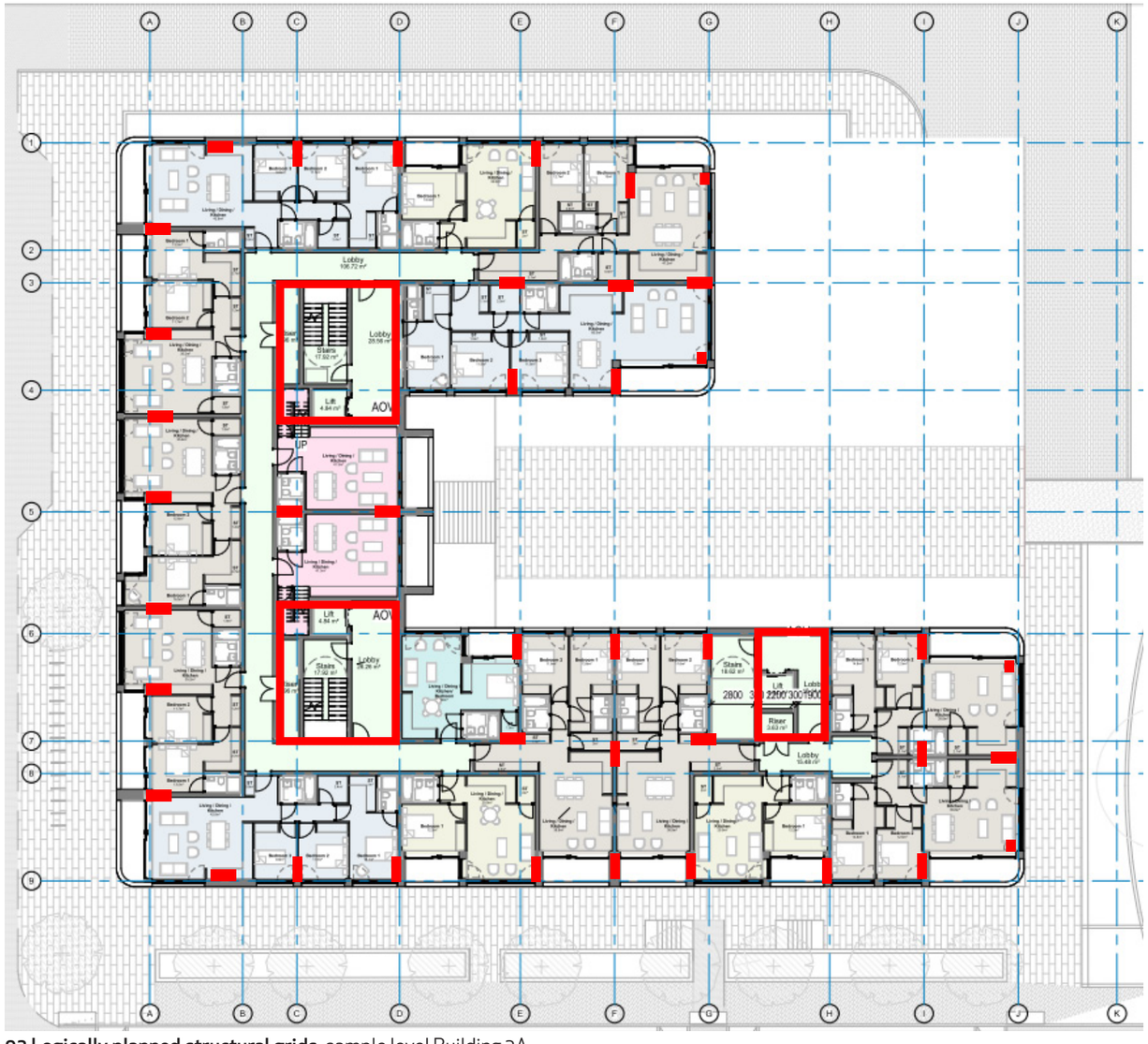
The are presented under the primary focus areas of Building Form and Siting, Building Layout & Adaptability, Building Vertical Circulation and Facades.

Adaptability Statement

01 Removeable Facades
RC Concrete Frame/ Metsec Façade Walling



03 Generous floor-to floor dimension



02 Logically planned structural grids, sample level Building 3A

The foregoing outline of the careful building design efficiency and material use has touched upon the issues of reuse and adaptability of the building structures.

The following principles to allow for future adaptive reuse have been applied:

1. Removeable façades (ie. A primary structural system that does not rely upon the retention of the façade)

2. Logically planned structural grids, to allow for removal of internal layout, with little inhibition for future replanning of internal layouts

3. Generous floor-to floor dimension, so not to preclude the future re-use on the basis of insufficient ceiling height (within reasonable use assumptions). Floor to Floor Heights are set at 3.15m floor to floor. This is a coordinating Brick dimension. With the anticipated structural frame solution (RC concrete frame) and anticipated ceiling service zone (combined at 600mm), a floor to ceiling clear dimension of 2.55m is anticipated. This is a dimension above the traditional 2.4m high residential floor height and allows for other future uses, such as residential, residential (institutional), hotel, student accommodation.

APPENDIX F CUT AND FILL CALCULATIONS

Rev	Description	Date	Drawn	Checked	Apvd.
A	Phase 3 basements omitted, Phase 4 and 5 basement lifted. Phase 1 c/d lifted	23.01.24	LGH	TJW	TJW

Project

ROYAL BRUNSWICK PARK - NEW SOUTHGATE

Drawing Description

INDICATIVE CUT AND FILL

Project Number	*Drawing Number*			
ST-3013	630-A			
Scale	*Date*	*Drawn*	*Checked*	*Approved*
1:1000@A1	22.12.2023	LGH	TJW	TJW

Client *Architect*

stomor
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Portmill Lane, Hitchin, Herts, SG5 1DJ
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Height Bands	Cut Volume	Fill Volume
Fill 5.8m - 6m	--	0.18m³
Fill 5.6m - 5.8m	--	3.25m³
Fill 5.4m - 5.6m	--	11.67m³
Fill 5.2m - 5.4m	--	26.87m³
Fill 5m - 5.2m	--	46.50m³
Fill 4.8m - 5m	--	66.24m³
Fill 4.6m - 4.8m	--	87.71m³
Fill 4.4m - 4.6m	--	111.07m³
Fill 4.2m - 4.4m	--	138.28m³
Fill 4m - 4.2m	--	172.50m³
Fill 3.8m - 4m	--	219.09m³
Fill 3.6m - 3.8m	--	278.06m³
Fill 3.4m - 3.6m	--	336.53m³
Fill 3.2m - 3.4m	--	398.63m³
Fill 3m - 3.2m	--	486.64m³
Fill 2.8m - 3m	--	642.18m³
Fill 2.6m - 2.8m	--	781.49m³
Fill 2.4m - 2.6m	--	929.89m³
Fill 2.2m - 2.4m	--	1113.81m³
Fill 2m - 2.2m	--	1286.36m³
Fill 1.8m - 2m	--	1444.83m³
Fill 1.6m - 1.8m	--	1581.95m³
Fill 1.4m - 1.6m	--	1748.92m³
Fill 1.2m - 1.4m	--	2020.70m³
Fill 1m - 1.2m	--	2693.31m³
Fill 0.8m - 1m	--	4248.89m³
Fill 0.6m - 0.8m	--	5729.93m³
Fill 0.4m - 0.6m	--	6968.64m³
Fill 0.2m - 0.4m	--	7829.79m³
Fill 0m - 0.2m	--	8540.68m³
Cut 0m - 0.2m	15306.17m³	--
Cut 0.2m - 0.4m	14127.76m³	--
Cut 0.4m - 0.6m	12564.76m³	--
Cut 0.6m - 0.8m	11095.28m³	--
Cut 0.8m - 1m	9903.33m³	--
Cut 1m - 1.2m	9041.67m³	--
Cut 1.2m - 1.4m	8305.63m³	--
Cut 1.4m - 1.6m	7600.74m³	--
Cut 1.6m - 1.8m	6797.84m³	--
Cut 1.8m - 2m	6097.56m³	--
Cut 2m - 2.2m	5476.15m³	--
Cut 2.2m - 2.4m	4958.64m³	--
Cut 2.4m - 2.6m	4508.78m³	--
Cut 2.6m - 2.8m	4149.78m³	--
Cut 2.8m - 3m	3858.35m³	--
Cut 3m - 3.2m	3582.52m³	--
Cut 3.2m - 3.4m	3283.40m³	--
Cut 3.4m - 3.6m	3026.77m³	--
Cut 3.6m - 3.8m	2741.41m³	--
Cut 3.8m - 4m	2467.04m³	--
Cut 4m - 4.2m	2226.09m³	--
Cut 4.2m - 4.4m	2016.03m³	--
Cut 4.4m - 4.6m	1849.75m³	--
Cut 4.6m - 4.8m	1710.43m³	--
Cut 4.8m - 5m	1596.01m³	--
Cut 5m - 5.2m	1482.65m³	--
Cut 5.2m - 5.4m	1352.86m³	--
Cut 5.4m - 5.6m	1223.09m³	--
Cut 5.6m - 5.8m	1107.76m³	--
Cut 5.8m - 6m	1021.93m³	--
Cut 6m - 6.2m	933.69m³	--
Cut 6.2m - 6.4m	866.51m³	--
Cut 6.4m - 6.6m	801.37m³	--
Cut 6.6m - 6.8m	604.12m³	--
Cut 6.8m - 7m	363.43m³	--
Cut 7m - 7.2m	276.86m³	--
Cut 7.2m - 7.4m	191.21m³	--
Cut 7.4m - 7.6m	123.86m³	--
Cut 7.6m - 7.8m	94.88m³	--
Cut 7.8m - 8m	77.38m³	--
Cut 8m - 8.2m	55.03m³	--
Cut 8.2m - 8.4m	38.73m³	--
Cut 8.4m - 8.6m	33.61m³	--
Cut 8.6m - 8.8m	29.39m³	--
Cut 8.8m - 9m	25.21m³	--
Cut 9m - 9.2m	21.53m³	--
Cut 9.2m - 9.4m	18.20m³	--
Cut 9.4m - 9.6m	15.31m³	--
Cut 9.6m - 9.8m	13.16m³	--
Cut 9.8m - 10m	11.11m³	--
Cut 10m - 10.2m	9.06m³	--
Cut 10.2m - 10.4m	7.01m³	--
Cut 10.4m - 10.6m	4.96m³	--
Cut 10.6m - 10.8m	2.90m³	--
Cut 10.8m - 11m	0.91m³	--
Cut 11m - 11.2m	0.02m³	--
Cut 11.2m - 11.4m	--	--
Cut 11.4m - 11.6m	--	--
Cut 11.6m - 11.8m	--	--
Cut 11.8m - 12m	--	--
Cut 12m - 12.2m	--	--
Cut 12.2m - 12.4m	--	--
Cut 12.4m - 12.6m	--	--

Total Cut: 159099.63m³
Total Fill: 49944.59m³

CUT AND FILL ANALYSIS

SUBSOIL

Total Cut: 159,099.63m³
Total Fill: 49,944.59m³
Net: 109,155.04m³ Surplus

Allowing for 30% bulking: 109,155.04 x 1.3 = 141,901.552m³ Cart Away

Assumptions made in above calculations:-

Carriageway Construction Depth = 560mm
Footway Construction Depth = 290mm
Traditional Housing Floor thickness (including void) = 675mm
Basement Floor Construction Depth = 300mm
Soft Landscaping in Gardens and POS = 300mm
Pedestrian Paved Areas = 300mm
Private Driveways = 300mm

SITE STRIP

Total Site Area : 124,492m² (Isopachyte Shaded Area)
Assumed Strip Depth: 300mm
Site Strip Volume: 124,492m² x 0.3m =37,348m³

Allowing for 30% bulking: 37,348 x 1.3 = 48,552.4m³ Cart Away

Notes:
- Cut and Fill Assessment is based on Levels Provided by Architect
- The Topographical survey was lowered by 300mm to simulate the assumed site strip.

SCALE BAR 1:1000

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