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Circular Economy Statement

For Pre-Application

45-54 Saffron Hill and 3 Saffron Street

For

Saffron Hill Investment Holdings

November 2023

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A	**15th January 2024**	Minor changes to incorporate design team comments
B	**15th February 2024**	Minor changes to incorporate design team comments
C	**19th March 2024**	Images updated to align with D&A

Please do not print unless necessary

Contents

Appended to this document are:

- **Pre Redevelopment Audit**
- **Pre Demolition Audit**

Executive Summary

Carbon Plan Engineering have been appointed by Saffron Hill Investment Holdings to carry out a Circular Economy Statement to demonstrate how the Saffron Hill development, in the London Borough of Camden, design aligns with the principles of circular economy (GLA 2021). The circular economy aspirations of the project, are to design out waste and pollution, keep products and materials in use, and regenerate natural systems.

This report is written with to reference Camden Energy Efficiency and Adaptation CPG (January 2021) and to the GLA's London Plan (2021) Policy 'SI 7 Reducing waste and supporting the circular economy' and the GLA Circular Economy Guidance (2022). However, this report also took London Plan policies D3 and SI 2 into consideration.

Carbon Plan Engineering has also been appointed to complete the following studies as well as the GLA Circular Economy Spreadsheet all of which should be referred to in support of this document.

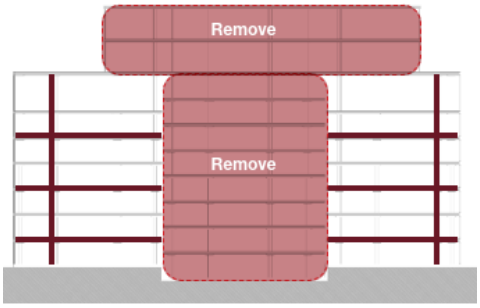
- **Whole Life Carbon Study**
- **Pre Redevelopment Audit**
- **Pre Demolition Audit**
- **Material Efficiency Study or BREEAM**
- **Durability and Adaptability studies for BREEAM**

Project Description

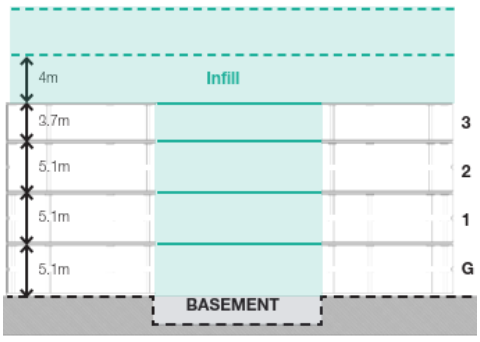
This Circular Economy Statement has been produced following ongoing design team involvement and specific workshops which have ensured that Circular Economy principles have underpinned design proposals from outset. This Circular Economy Statement purpose is to support the planning application of the Saffron Hill Office building which proposed a nine-storey office building consisting of affordable workplace, open plan office, cycle storage and café/restaurant with plant room basement and roof space.

The current Saffron Hill Car Park is comprised of a six-storey car park arranged across several split levels and an office extension located on the 7th and 8th floor. The car park levels are uninsulated and unheated. The facades are a mix of light-weight metal mesh and sheet materials with concrete lattice work at ground floor. Brickwork and textured concrete panels clad the cores.

The Pre Redevelopment Audit shows that reuse of the existing car park structure has been considered in detail however doing this would limit the usefulness and longevity of any other type of development on the site.



Remove upper floors & central structure



Excavate in central section to create basement for plant

Justification for full demolition and redevelopment has been presented and accepted by Camden Planning Officers at pre-application stage.

Circular Economy Targets and Commitment

The CE targets and commitments are set in the GLA CE spreadsheet which accompanies this report.

- Minimum of 95% of demolition waste (non-hazardous) to be diverted from landfill for reuse, recycling, or recovery.
- Minimum of 95% of excavation waste (non-hazardous) to be diverted from landfill for beneficial reuse.
- Minimum of 95% of construction waste (non-hazardous) diverted from landfill for reuse, recycling, or recovery.
- Minimum of a 65% recycling rate for municipal waste by 2030.
- Minimum of 20% of the building material elements to be comprised of recycled or reused content.

1. Introduction

1.1. Project Background

Carbon Plan Engineering have been appointed by Saffron Hill Investment Holdings to carry out a Circular Economy Statement to demonstrate how the Saffron Hill development, in the London Borough of Camden, design aligns with the principles of circular economy (GLA 2021). This development comprises of a nine-storey office building (GIA: 11,852m^2), consisting of affordable workspace, open plan office space, and café/restaurant with cycle storage on the lower ground floor.

This Circular Economy Statement have been carried out to demonstrate the project have incorporated the CE principles into the design.

1.2. Methodology

This Circular Economy Statement has been developed in line with the London Plan Policy SI 7, following the guidance outlined in 'Circular Economy Statement Guidance (March 2022)' document. This Circular Economy Statement has been developed in collaboration with the Design Team and following specific workshops to ensure that Circular Economy principles have underpinned design proposals from outset.

The aim of these workshops was to review the potential to retain the existing structure and to otherwise identify opportunities and measures that would minimize waste throughout the life cycle of the project, including construction waste, in-use waste, and end of life waste, in accordance with the GLA Circular Economy Core Principles and waste hierarchy. This circularity approach has informed all elements of the design.

2. Policy Context

This section summarises the London Plan and relevant policy for Circular Economy.

2.1. Circular Economy

"*A circular economy is one that is restorative and regenerative by design, and which aims to keep products, components and materials at their highest utility and value at all times, distinguishing between technical and biological cycles*" - Ellen MacArthur Foundation.

2.2. Adopted Camden Local Plan (2017)

Policy CC1 Climate change mitigation

Camden Local Plan mentioned that "***require all proposals that involve substantial demolition to demonstrate that it is not possible to retain and improve the existing building and expect all developments to optimise resource efficiency***" as one of the requirements for Policy CC1 - Climate change mitigation. All developments whether for refurbishment or redevelopment, are expected to optimise resource efficiency by:

- reducing waste;
- reducing energy and water use during construction;
- minimising materials required;
- using materials with low embodied carbon content; and
- enabling low energy and water demands once the building is in use.

The requirement is expanded further in the Energy Efficiency and Adaptation of Camden Planning Guidance (2021) which sets out requirements for a Circular Economy statement to be provided stating that:

- *We will expect creative and innovative solutions to repurposing existing buildings, and avoiding demolition where feasible;*
- *All development should seek to optimise resource efficiency and use circular economy principles.*

And

> *In assessing the opportunities for retention and refurbishment developers should assess the condition of the existing building and explore future potential of the site. The New London Plan highlights the importance of retaining the value of existing buildings with the least preferable development option of recycling through demolition*

Section 9.6 sets out a hierarchy options which should be investigated stating that … *All options should achieve maximum possible reductions for carbon dioxide emissions and include adaptation measures, in accordance with the Council's Development Plan and this CPG.*

- *Refit*
- *Refurbish*
- *Substantial refurbishment and extension*
- *Reclaim and recycle*

This is reinforced in Section 9.9 which states that … *Policy CC1 expects all development whether for refurbishment or redevelopment to optimise resource efficiency by:*

- *reducing waste;*
- *reducing energy and water use during construction;*
- *minimising materials required;*
- *using materials with low embodied carbon content; and*
- *enabling low energy and water demands once the building is in use.*

Section 9.12 continues with a description of how resource efficiencies can be made at each stage of the project development process.

All of these issues are addressed within the full suite of documents (listed below) which are provided to accompany this Circular Economy Statement and support the planning application.

- **Energy Strategy**
- **Sustainable Design and Construction Statement**
- **Pre-Redevelopment Audit**
- **Pre-Demolition Audit**
- **Whole Life Carbon Assessment**
- **TM52 Thermal Comfort Assessment**
- **TM54 Operational Energy Assessment**

2.3. The London Plan (March 2021)

The London Plan 2021 seeks to integrate economic, environmental, transport and social objectives and place them in a framework to progress London's development from 2021 onwards.

The London Plan 2021 is the Spatial Development Strategy for London and legislation requires that the Plan takes account of three cross cutting themes:

- economic development and wealth creation
- social development
- improvement of the environment

In all cases the London Plan policies supplement or augments the policies in all earlier versions of the Plan and the London Plan was adopted in March 2021.

The following outlines key policies which are relevant to the proposed development and this Statement.

Policy D3 Optimising site capacity through the design-led approach

This sets out the importance now placed upon undertaking *meaningful engagement and collaboration* to deliver appropriate and attractive developments that follow and address Sustainable Design principles including:

- design out exposure to poor air quality and noise
- **following the circular economy principles**
- maximising urban greening and creating green open spaces
- designing out crime
- creating inclusive places to meet the needs of all users
- provide permeability to support active travel
- provide easy accessibility for deliveries and waste storage
- sustainability in terms of servicing, maintenance and management
- protecting and enhancing historic and cultural sites
- improving social infrastructure
- creating economic opportunities for all

Policy SI 7 Reducing waste and supporting the circular economy

A circular economy is one where materials are retained in use at their highest value for as long as possible and are then re-used or recycled, leaving a minimum of residual waste. The successful implementation of circular economy principles will help to reduce the volume of waste that London produces and must manage.

Therefore, development proposals should show how waste will be managed and minimised, both during construction and operation, to help promote a more circular economy that improves resource efficiency and innovation to keep products and materials at their highest use for as long as possible.

This Policy also required the development to achieve:

- meet or exceed the municipal waste recycling target of 65% by 2030
- meet or exceed the targets for construction and demolition with 95% of the waste would be reused, recycled, or recovered.
- 95% of excavation waste should be reused where beneficial.

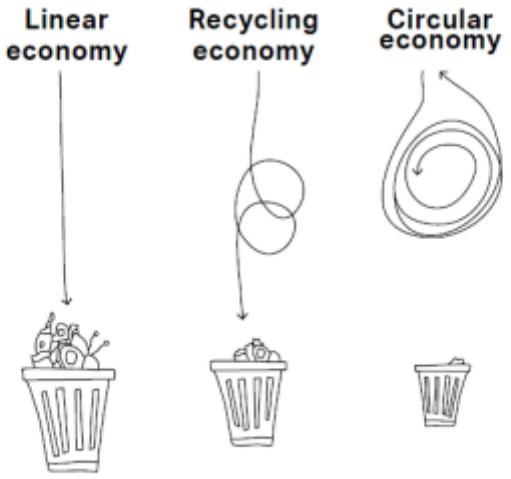
Policy SI 7(B) requirements point Local Authorities and Developers in the direction of the GLA published guidance on the development of Circular Economy Statements in 2022 where they set out the detailed requirements for inclusion in a Circular Economy Statement. The documents make it clear that Pre-Redevelopment and Pre-demolition audits are to be submitted along with Circular Economy Statement at Outline application and Full application stage.

Policy SI 2 Minimising greenhouse gas emissions

This policy aims to minimize greenhouse gas emissions in major developments. Moreover, Development proposals referable to the Mayor should calculate whole life-cycle carbon emissions through a nationally recognised Whole Life-Cycle Carbon Assessment and demonstrate actions taken to reduce life-cycle carbon emissions.

3. Circular Economy

London Plan Policy SI 7 defines a circular economy (CE) 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.' It is a move away from the current linear economic model, where materials are mined, manufactured, used and thrown away, as shown in Figure 1.



FROM TAKE • MAKE • USE • DISCARD TO RE-MAKE • USE-AGAIN

Diagram courtesy of Circular Flanders

This section set out what information should be submitted on each of the tables in the CE statement template spreadsheet.

3.1. Circular Economy Principles

The Circular Economy Guidance has set out the six principles as the fundamental part of the building design process, which would help the development to reduce the materials quantity, waste and increase the opportunity to recycle and reuse during the whole life cycle of the building (from materials, in use stage, and end of life)

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** - well-defined, long term needs while being durable and resilient or able to cope with change with little modification/no replacement of parts due to its 'loose fit', generous proportions and readiness for alternative technologies, different ways of living or working and a changing climate.

4. **Designing for adaptability or flexibility** - to meet the needs of the present, but with consideration of how those needs might change in the future and designed for change in the form of periodic remodelling including alterations or replacement of non-structural parts.
5. **Designing for disassembly –** Ensuring that all elements are easy removal and upgrade, and ideally to be reused, remanufactured, or recycled on a part-by-part basis.
6. **Using systems, elements or materials that can be reused and recycled –** All selected new materials should be low impact on the environment and human health throughout its lifecycle. Aim to use recycled contents/ secondary aggregates to reduce the use of virgin materials and optimising material efficiency, also with a high recycle or reclaimed rate at the end of life..

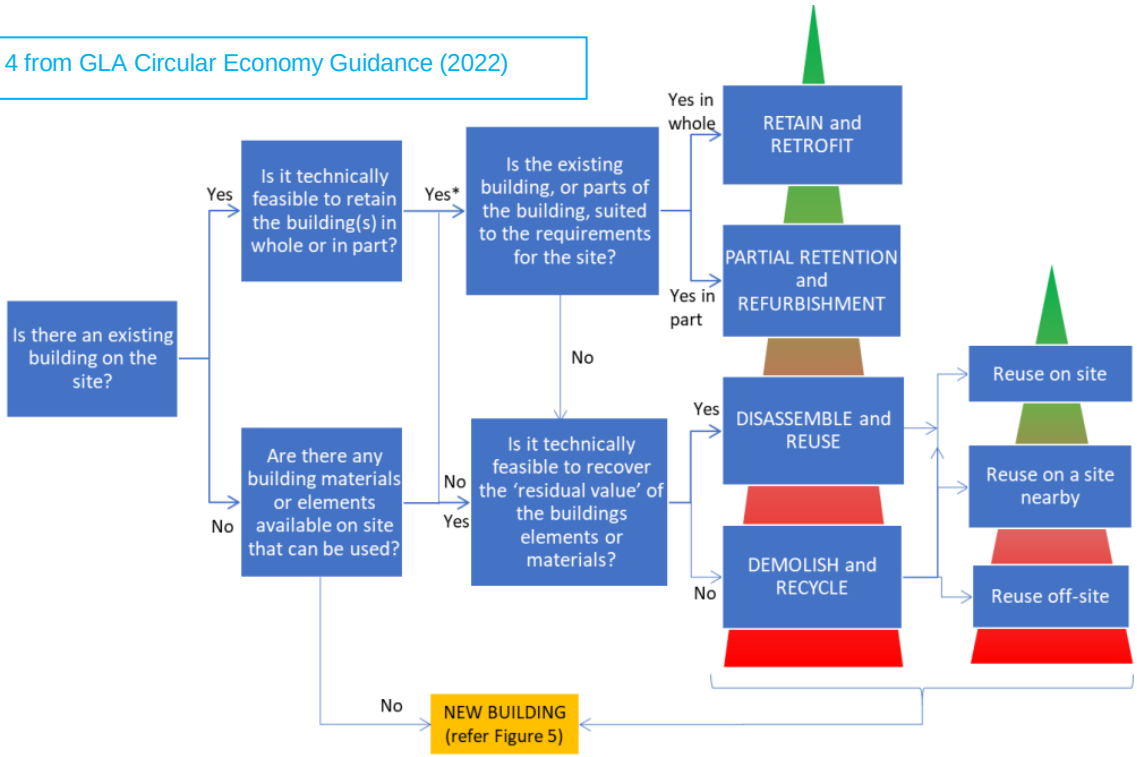
The following section shows the approaches support the implementation of the six circular economy principles. Multiple approaches are expected to be adopted for each project development aspect, layers or uses, particularly for larger developments.

3.2. Circular Economy design approaches for existing buildings

Sections 3.2 and 3.3 show the GLA Circular Economy Approaches Decision Tree for Existing building and New Development, respectively.

GLA Circular Economy Guidance stated in section 2.4.5 that "*When assessing whether existing buildings are suited to the requirements for the site, applicants should robustly explore the options for retaining existing buildings (either wholly or in part).*"

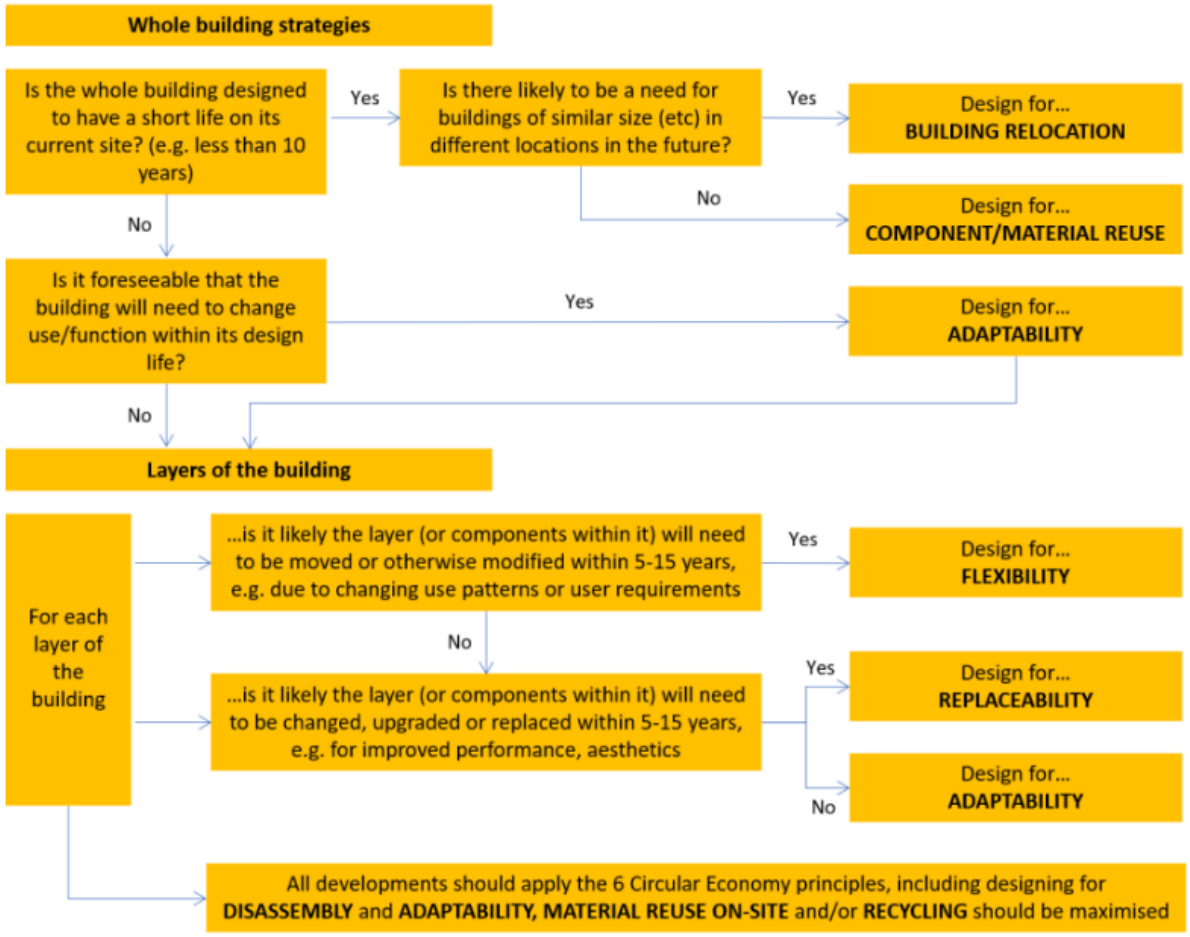
Figure 4 from GLA Circular Economy Guidance (2022)



3.3. Circular Economy design approaches for new developments

GLA Circular Economy Guidance stated in section 2.5.1 that *"All developments should be designed so that buildings can be adapted to extend their life. They should also be designed so they can be deconstructed and reconstructed to allow components and materials to be salvaged for reuse or recycling, whilst maintaining their economic and environmental value."*

Figure 5 from GLA Circular Economy Guidance (2022)



4. Circular Economy Target

This section shows the circular economy targets for existing and new development.

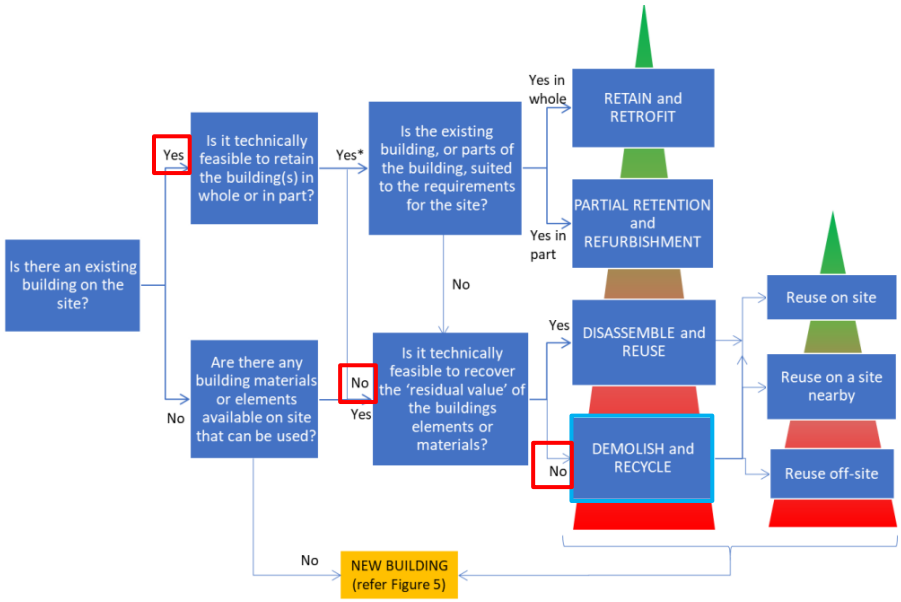
	Policy Requirement	Target Aiming For (%)	Policy Met?
Demolition waste materials (non-hazardous)	Minimum of 95% diverted from landfill for reuse, recycling or recovery.	95%	✓
Excavation waste materials	Minimum of 95% diverted from landfill for beneficial reuse.	95%	✓
Construction waste materials	Minimum of 95% diverted from landfill for reuse, recycling or recovery.	95%	✓
Municipal waste	Minimum 65% recycling rate by 2030.	65% TBC	✓
Recycled content	Minimum 20% of the building material elements to be comprised of recycled or reused content.	20%	✓

5. Project Specific CE Design Approach

5.1. Circular Economy design approaches for existing buildings

There is a building existing on the site, and it is not feasible to retain any of the building above ground Superstructure. This will result in the design approaches of **Demolish and Recycle**.

However please note that the existing foundation piles are being mostly retained along with parts of the below ground retaining structure.



1. **Is there an existing building on the site?**

   YES, currently there is a car park with ancillary offices located on the site.

2. **Is it technically feasible to retain the building(s) on whole or in part?**

   NO, **Architectural** perspective, the proposal is to change the current buildings use from car park with ancillary offices into offices. The floor to ceiling height provided by the existing car park structure is only 2.25m which is lower than the average office building in the UK and not suitable for an energy efficient retrofit from a services point of view.

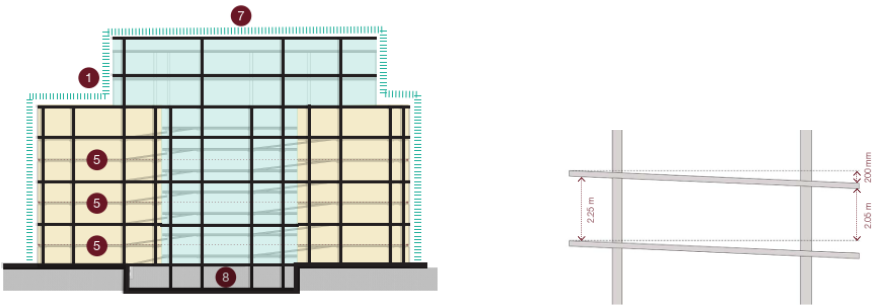
   While technically the existing car park structure **could** be adapted to an office use studies by AHMM (Architects) and HTS (Structural Engineers) have shown that this would require the removal of around 1/3 of the existing structure. This is because of the following two reasons which effectively splits the existing building frame into three section with the central section and upper floor offices being removed.

   - the car ramp, which is built through the central part of the building, would need to be removed to achieve a useable office space.
   - there is a half a floor height difference in the central part of the building to accommodate efficient car parking. This

   Please see the section drawing below.

The resulting space would not maximise the developments' potential density nor would it provide a high quality office space as a result of major retrofit.

However please refer to Section 6.4 of this document for a discussion on how existing foundations and substructure are being retained.



Sketch of Option for Partial retention and refurbishment showing incompatibility of floorplate

In addition the building fabric to the car park is non existent and the parts to the offices will not be compliant with the current Part L requirements and will not lend themselves to an energy efficient building.

Operational Energy wise, *in considering the Substantial Refurbishment option there are some issues around operational energy that should be considered. The removal of the intermediate floors leaves a floor to floor height of around 5m which would leave a floor to ceiling height of around 4m which will almost lead to thermal stratification within the spaces causing the heating and cooling systems to work harder to maintain a consistent internal temperature and leading to increased energy consumption. Further this additional 33% of volume will also require the supply of additional heating, cooling and fresh air on a per m2 basis when compared to the proposed floor to ceiling heights of 3m. Therefore the plant size and energy demands will be similar to that of the proposed building in total, but with a much reduced useable floor area and so the overall kWh/m2 will be significantly higher.*

3. Is it technically feasible to recover the residual value?

NO. As described in the Pre-Redevelopment Audit the existing structure is primarily cast in situ RC concrete columns supporting a British Lift Slab construction constructed from concrete with steel reinforcement. These slabs have poured concrete infills to then form the ramps.

The structure engineer has confirmed that the existing slabs are likely to not be suitable for the proposed development however investigations on the potential for this will be undertaken by the demolition contractor but it seems unlikely.

There are steel elements which are being considered for re-use on site in non critical elements such as plant room supports and screen supports.

As noted in the Pre-Demolition Audit the intention is for the majority of the steel framing members to be disassembled and sent for repurposing rather than reprocessing.
However as described in Section 6.4 the existing foundations are mostly retained along with parts of basement and substructure.
Therefore although many elements will be reclaimed there are few suitable elements which can be re-used within the proposed new building.

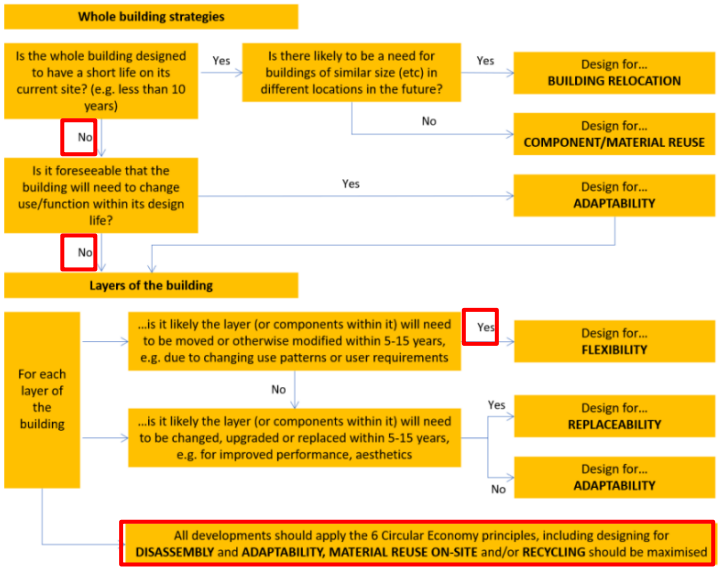
In following the above flowchart, we have ended up with a design approach of **Demolish and Recycle**.

Demolish and Recycle

Traditional demolition, with elements and materials processed into new elements, materials and objects for use on the site or on another site.

- **Structure(frame), superstructure:** The structural grid in the existing building is dense which would reduce the flexibility in arrangements for different layout to suite different requirements from different tenants. Therefore, the full extent of the above ground structure would all require to be demolished and recycled.
- **Skin /shell e.g. façade:** The quality of the existing façade is sub standard for an office building in terms of the poor u value and risk of overheating. Also, the car park has open sides and the external fabric for the office spaces would not comply with current Part L of the Building Regulations.
- **Space / plan / interior / interior space:** The existing storey height (2.25 m) is too low for office building, and the car ramp is not suitable for office purposes. Moreover, all the internal finishes would need to be demolished and recycled to suit the requirement of the office building.
  The existing plant is designed to serve the car park and the upper office spaces and is at the end of its useful life and not energy efficient meaning there would be a high rate of operational carbon emissions
- **Services (building):** Current plant provision results in an inefficient building in terms of energy use. This means a high rate of operational carbon per m^2 per year continues to be emitted.
- **Stuff / content:** The existing fitting and furnishings to the office spaces are all at the end of their life and are not suited to a new, high quality office space.
  There are elements of the car park fittings that could be re-used by NCP – the car park operator as noted in the pre-demolition audit.

5.2. Circular Economy design approaches for new developments



1. **Is the whole building designed to have a short life on its current site (less than 10 years)?**
   No, the new office building is planning to have around 60-year design life on site.
2. **Is it foreseeable that the building will need to change use/function within its design life?**
   No, currently there is no plan to change the building from office building to other functions building.
3. **Is it likely the layer will need to be moved or otherwise modified within 5-15 years?**
   Yes, some of the internal component will change as a result of changing tenant demands for individual office unit.

As the decision tree shown above, the project would assess by layer of building and primarily falling into the design for flexibility, design for replacement and design for adaptability.

6. Circular Economy Strategy – design principles

6.1. Building in layers

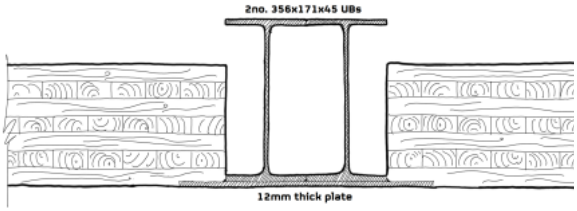
Ensuring that different parts of the building are accessible and can be maintained and replaced where necessary. RICS NRM forms the basis of the CE process which utilises the layers.

6.2. Designing out waste

6.2.1. Module A - Product Sourcing and Construction Stage

The purposed office building will utilise the existing substructure and basement. Centralized, efficient core and aim to install communal system rather than individual system. Open plan space for the office's future tenant. No fit-out will be completed until a tenant is on board. All materials are targeting to source with medium to high recycled content (especially for superstructure) and where possible ISO1401, BES6001 and CARES certified products in all layers. The Concrete is targeted to contain 30% GGBS as minimum while the steel frame should contain 56% of recycled content as minimum. Moreover, the steel frames are proposed to use the universal column and beam section which are standardised. Also, the structure will use slimmer beams whilst maintenance the robustness for the design loads. Please see below information provided by Structural Engineers Report from HTS.

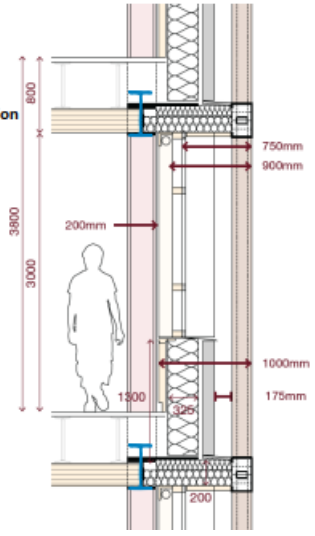
Typical Beam to 2no. UB



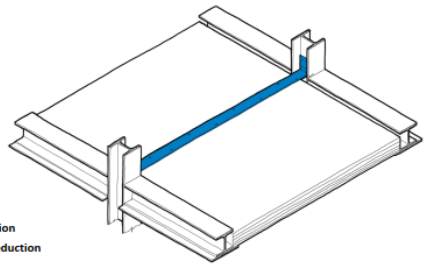
Proposed: 2no. 356 UB 171x45 + 12mm plate
Steel Tonnage: 140kg/m - **29% reduction**
Carbon per m: 287kgCO2e/m - **29% reduction**
Section Depth: 363.4mm - **43mm deeper**

Edge Beam to UB

Proposed: 457 UB 152x60
Steel Tonnage: 60kg/m - **38% reduction**
Carbon per m: 123kgCO2e/m - **38% reduction**
Section Depth: 454.6mm - **147mm deeper**



Tie Beams to Flat Bar



Proposed: 150x10mm plate
Steel Tonnage: 12kg/m - **48% reduction**
Carbon per m: 25kgCO2e/m - **48% reduction**
Section Depth: 10mm

6.2.2. Module B – In-Use stage

Using materials with longer life span and less maintenance requirements. The raised access floor is standardised/modular product and easy to repair and replace and window and cladding are both aluminium construction which would require a low level of maintenance with a long-life span. Also, the cladding is bolted on the LSF which is easy to replace/remove. Heating systems to be future proofed so if a district heating network is installed it can be replaced. All office units would not include any non-load bearing wall and furniture to allow for future layout reconfiguration.

6.2.3. Module C – End-of-Life Stage

Recycle, reclaim, and reuse most of the waste, and target minimum of 95% waste diverted from landfill for recycling, reuse, or recovery. The project contains a lot of metal element which can be fully recycled, and the raised access floor could be reuse if they are in a good condition.

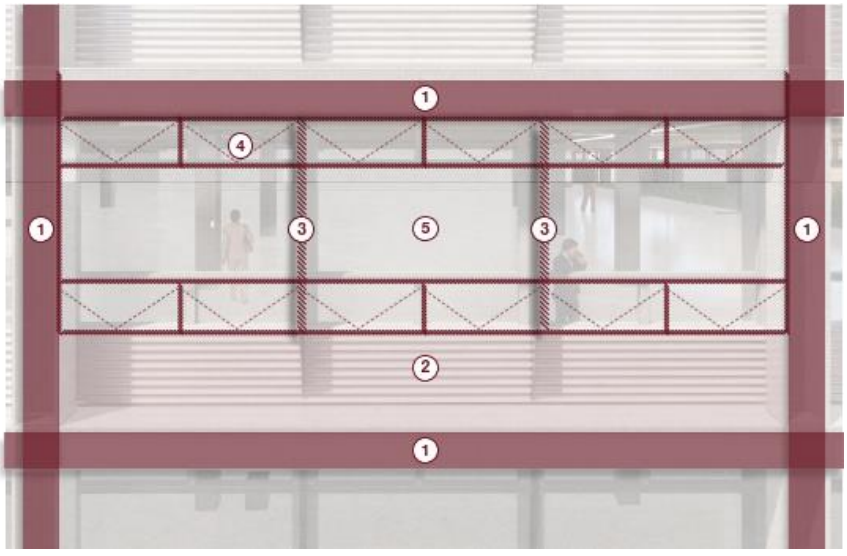
6.2.4. Benefits and Loads Beyond the System Boundary

The proposed steel frame and CLT slabs can be re-used in their existing form once the building has been deconstructed in the future. A full inventory of these elements should be included within the O&M.

6.3. Designing for longevity

Skin / shell - The proposal takes climate change into account and design the passive solar control to tackle overheating and glare with low g value and u value, deep reveal and Brise Soleil. Addressing high durability materials on lower floor (GF and below). Also, the aluminium cladding and window system both have a long-life span.

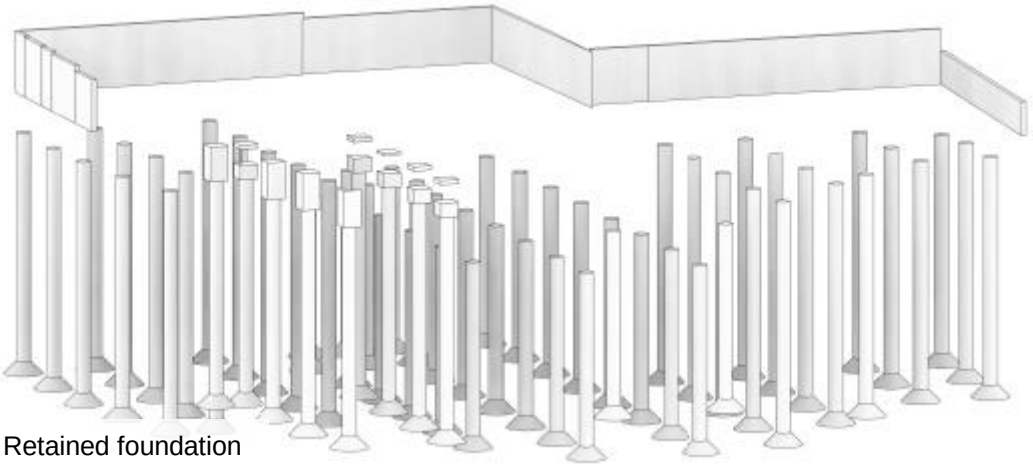
Structure / structural frame / superstructure – steel structure and foundations are designed with long life span, flexibility and durability in mind. The design is such that, if the building is ever deconstructed the foundations and retaining walls can be retained and re-used and a new steel frame erected for a new building on the same footprint. In the same way the steel frame could be adapted to accommodate flexible space, additional vertical space or deconstructed and re-used to create a new building.



Services – The use of a 4-pipe fan coil system means that only the heating and cooling source (ASHP) systems would need to be replaced at the end of the plant lifecycle and all other elements can be retained. Alternatively a future connection to a heat network can be used to provide heating and / or cooling. The Lighting systems are all LED and have long lifespans.

6.4. Designing for adaptability or flexibility

The foundation and steel frame have been designed with the allowance for potential future extension. The raised access floor can be easily replaced with new finishes or adjust height, as it is modular system. Streamlined, flexible services, with no fitted partition until tenant moved in.



Retained foundation

Retained foundation + proposed

6.5. Designing for disassembly

Existing Building

There are no real opportunities for disassembly of the main structure however the barriers, railings, mesh and solid metal sheets and other protective elements should be removed and re-used elsewhere is possible.

Proposed Building

The proposed building will have a flexible steel frame with modular infill floor panels (CLT and precast concrete slab). The façade is aluminium cladding with blockwork, the aluminium would be bolted on the LSF that support the aluminium cladding. This form of construction is not only inherently flexible it will also be easily disassembled. A full Disassembly workshop will be undertaken in RIBA Stage 2.

6.6. Using systems, elements or materials that can be reused and recycled.

All layer - Recycle, reclaim, and reuse most of the waste, and target minimum of 95 % waste diverted from landfill for recycling, reuse or recovery.

Materials have been carefully considered and will be selected to meet circular economy, embodied carbon, and regulatory building requirements. This project aims to meet the 20% recycled content of total building materials CE target (Section 4) also achieve the target of the GLA Whole Life Carbon aspirational Embodied Carbon thresholds (please see the Whole Life Carbon report submitted with this document).

CarbonPlan Engineering

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Pre-Redevelopment Audit

For Planning – RIBA Stage 2

Saffron Hill – Office development

For

Saffron Hill Investment Holdings

November 2023

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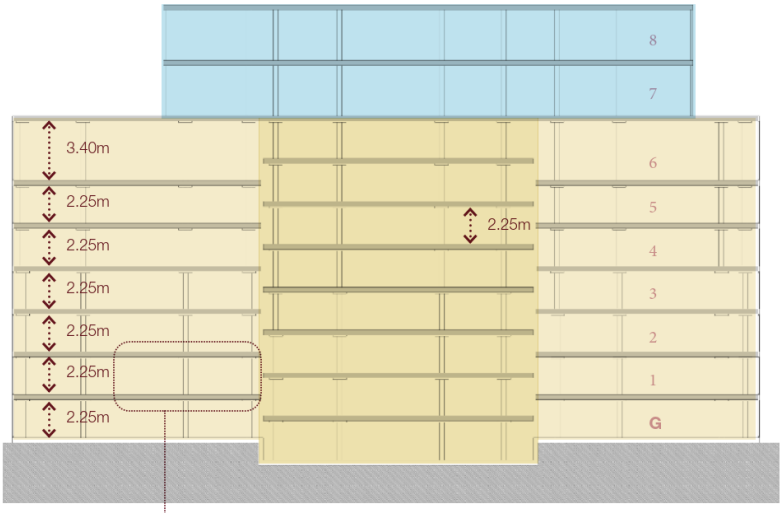
Revisions schedule		
Issue Date: **15th December 2023**		
Report prepared by: Han-Chieh Lee, Consultant, CarbonPlan Engineering		**Date:** **3rd November 2023**
Checked by: Alan Calcott, Director, CarbonPlan Engineering		**Date:** **28th November 2023**
Status	**Final for Planning**	
Revision	**Date**	**Changes**
A	**15th January 2024**	Minor changes to incorporate design team comments
B	**15th February 2024**	Updated for P02 and comments for planning
C	**19th March 2024**	Images updated

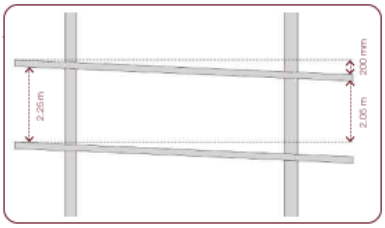
Please do not print unless necessary.

Contents

Executive Summary

This Pre-Redevelopment Audit has been conducted by Carbon Plan Engineering to demonstrate how the Saffron Hill office development has considered whether existing buildings, structures, and materials have the potential to be **retained**, **refurbished** and **incorporated into the new development, or demolished and recycled**. This audit forms part of the Circular Economy analysis and has been used to inform the design.





The Saffron Hill site currently is used as a 6-storey car park building including two level of extension offices on the 7th and 8th floor. The car park levels are uninsulated and unheated with generally low floor to ceiling height – the car ramps and split levels means that these height differ across each level of the car park. The majority of the existing Car Park will be difficult to adapt into an 8-storey office building, therefore the design proposed that only retain existing foundations. However, this report will explore all the possibility of retained, refurbished, or reused.

Retained and refurbished elements

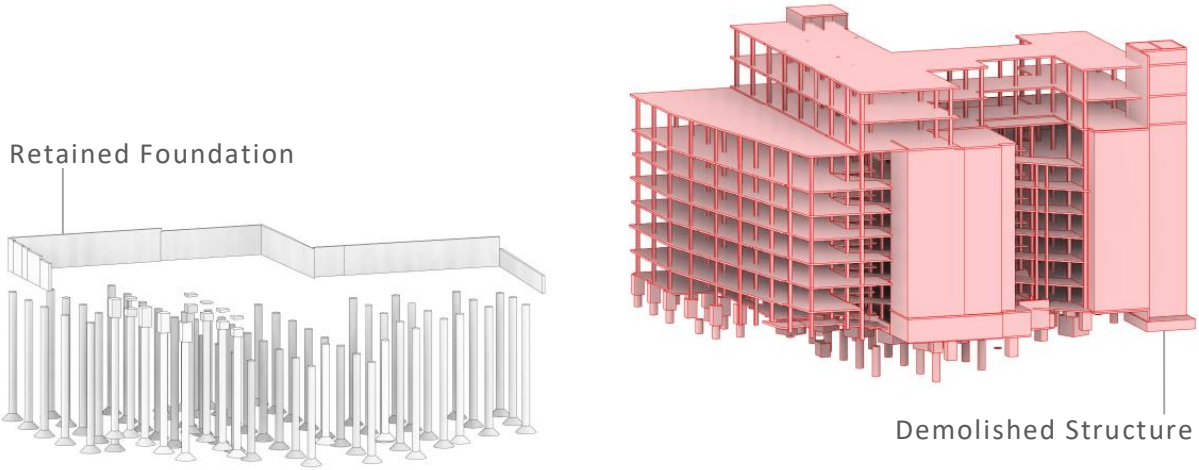
Great care has been taken by Heyne Tillett and Steel (HTS) the structural engineers and by the Architects (AHMM) to explore the possibility redeveloping the existing structure and maximising the extent of retained building. Extensive surveys have been conducted to validate the integrity of the existing structures and to make recommendations on repairs, improvements, or demolition to these elements.

The demolished elements required to enable the development proposals require the removal of 100% of the above ground structure but existing foundations and some sub-structure are being retained.

Building name	Existing Area m2	Floors
Car park	10,425	8
Office	1,310	1
Foundation & Substructure	N/A	1
	11,735	

Area Demolished	Percent Demolished
10,425	100%
1,310	100%
N/A	40%
11,735	**100%**

The following drawing indicates all of demolition and retain on Saffron Hill office.



Reusing existing elements

The foundation will be retained and partially strengthen with retaining wall, while the whole building will be demolished, and all the service(lighting/ fire equipment) and façade will be stripped out. As all this element is at the end of their lifespan, we aim to re divert 95% of waste from landfill.

Recycling

The intent is that over 95% of all demolished and stripped out non-hazardous materials are recycled. Details of how this will be handled are set out in the accompanying pre-demolition audit.

1. Introduction

Saffron Hill Investment Holdings have appointed Carbon Plan Engineering to carry out a Pre-Redevelopment Audit to demonstrate how the Saffron Hill Office development, in the London Borough of Camden, has considered the potential of existing buildings, structures and materials be **retained**, **refurbished**, or **incorporated into the new development**. The audit was carried out as part of the feedback for the submitted planning application and will be used to inform the design.

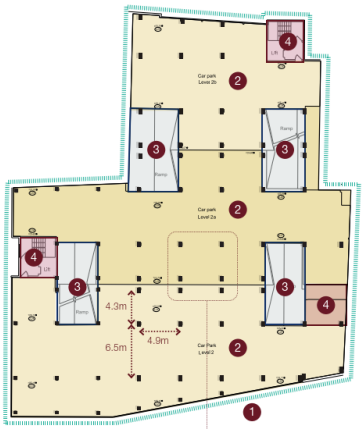
1.1. Site Description – What is there now?

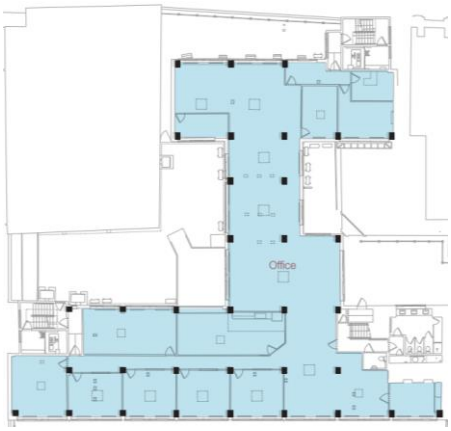
The Saffron Hill Car Park within the administrative area of the Borough of Camden at 45-54 Saffron Hill and 3 Saffron Street. The Site is situated within the Central Activities Zone location and proximity to Farringdon Station as identified in the Council's adopted Local Plan, with the existing car park is highlighted as a building that makes a negative contribution to the Hatton Gardens Conservation Area.

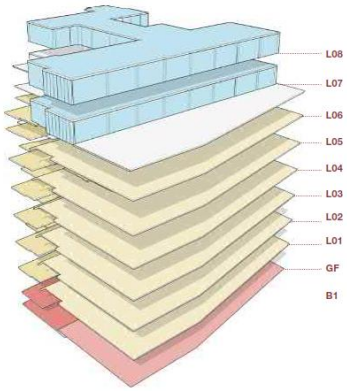
The site sits within Sub-Area 5, which includes a variety of architectural styles including Victorian brick warehouses and later C20 blocks.

The Saffron Hill Car Park comprises a 6-storey car park with a two-storey office space. The car park levels are uninsulated and unheated. The facades are a mix of light-weight metal mesh and sheet materials with concrete lattice work at ground floor. Brickwork and textured concrete panels clad the cores. The low floor to ceiling heights within the car park structure are typically 2.25m with half level height change in the central frame section.

As the existing drawing shown above, the car park has the small but high density column grid, with 4.3m x 4.9m and 6.5m x 4.9m







The GIFA of the existing building have been determined by reference drawings and site surveys measurements. This is presented in the table below:

Building name	Existing Area m2	Floors	Percent of Total
Car park	10,425	6	88.8%
Office	1,310	2	11.2%
	11,735		

1.2. Project Description – What will happen?

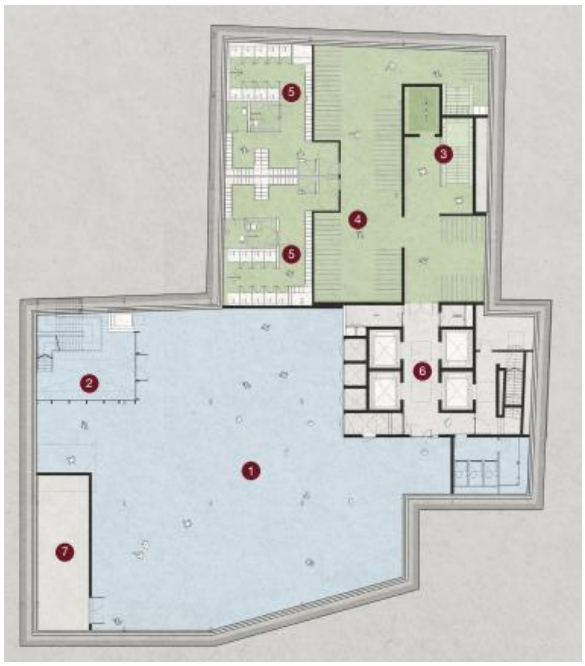
A full planning application for the redevelopment is being prepared with aim to submit in early January 2024 for the following works to the development area:

> *"Demolition of existing car park and ancillary offices, and redevelopment of the site to provide new Class E floorspace. In addition to delivering high quality Class E floorspace within a town centre location, the proposals will deliver a range of public benefits including new affordable workspace, public realm improvements, exemplary sustainability credentials and the activation of frontage around the building." [GLA presentation v3]*

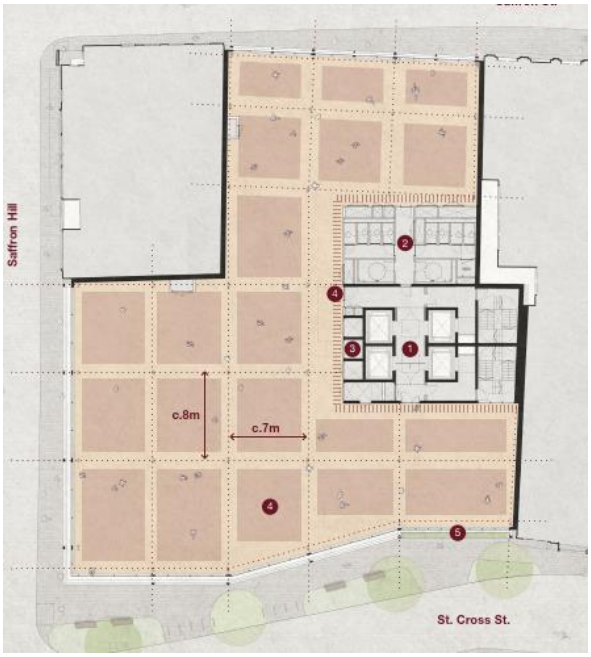
The plans below show the locations for the new elements of the proposed re-development.

Ground Floor/ Upper Ground Floor Plans

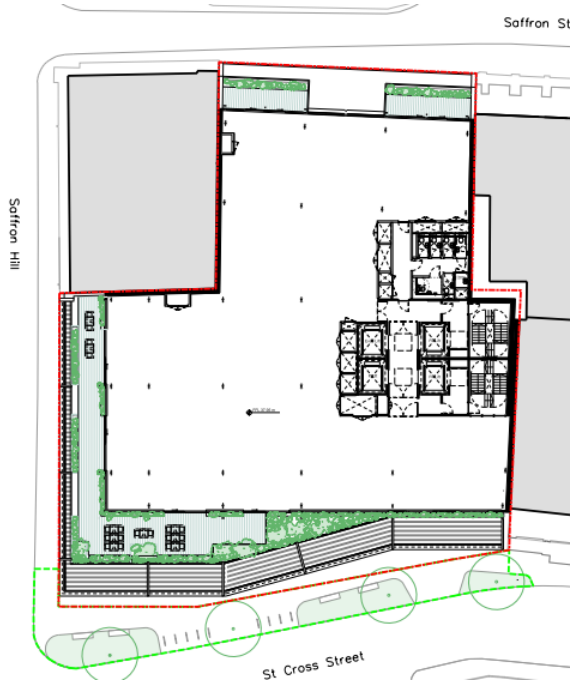
Lower Ground Plans



Typical Office Floor (1F-4F)



Sixth Floor Plans



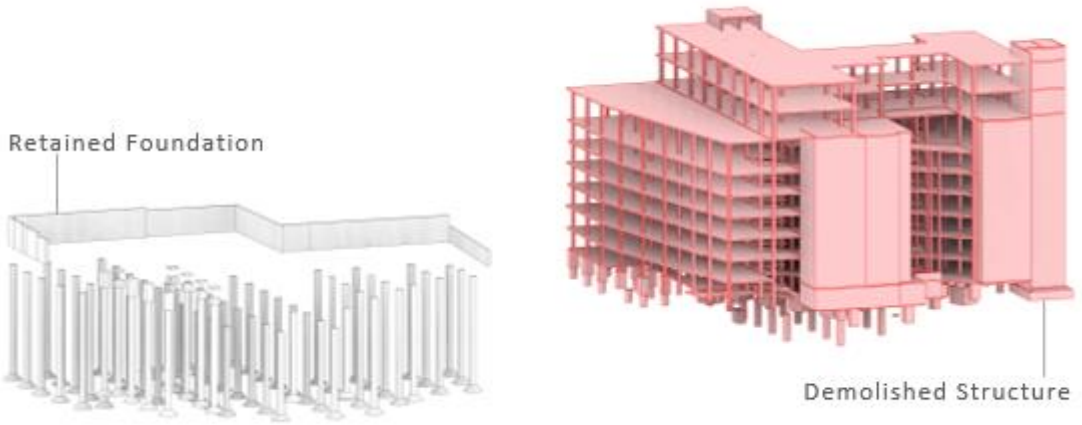
Roof Plans

1.2.1. Extent of Demolition

To enable the development proposals the demolition of the following elements is required:

- Removal of all facades, barriers and services from the existing building
- Demolition of the main car parking structure
- Removal of the basement Sub Structure, floor slabs, file caps and some below ground retaining walls

The following drawing indicates the area of this demolition which extends to majority of the existing structures and façade.



Our analysis shows that the demolished elements of the development proposals represent the removal of 100% of the total GIFA and around 92% of the total Mass.

Building name	Existing Area m2	Floors	Area Demolished	Percent Demolished
Saffron Hill Car Park	11,735	8	11,735	100%
Foundation	N/A	1	N/A	40%
	13,472.5		**11,735**	**92.3%**

1.3. Re-Redevelopment Audit requirements

The Camden Energy Efficiency and Adaptation CPG (January 2021) sets out requirements for a Circular Economy statement to be provided stating that:

- *We will expect creative and innovative solutions to repurposing existing buildings, and avoiding demolition where feasible;*
- *All development should seek to optimise resource efficiency and use circular economy principles.*

And

> *In assessing the opportunities for retention and refurbishment developers should assess the condition of the existing building and explore future potential of the site. The New London Plan highlights the importance of retaining the value of existing buildings with the least preferable development option of recycling through demolition*

Referring to the London Plan 2021, Policy SI 7(B) requirements point Local Authorities and Developers in the direction of the GLA published guidance on the development of Circular Economy Statements in 2022 where they set out the detailed requirements. The documents make it clear that Pre-Redevelopment and Pre-demolition audits are to be submitted along with Circular Economy Statement at Outline application and Full application stage.

The following summarises these requirements:

Applicants should complete and submit a pre-redevelopment audit as supporting evidence to their Circular Economy statement, where a robust in-depth assessment has not already been completed. The audit should include the following tasks:

- Should be conducted early on (at pre-application stage) and should inform the design.
- Include an analysis that fully explores options for retaining existing structures, materials and the fabric of existing buildings into the new development; and the potential to refurbish buildings before considering substantial demolition.
- Applicants should outline in the pre-redevelopment audit an explanation of the existing buildings on the site and brief description of state of their repair.

  Details should include:

  - the building's age.
  - key materials
  - photos of typical internal spaces and facades
  - site plans

- Provide an understanding of the materials arising during the refurbishment and demolition phases of a redevelopment in order to help with development of a resource management plan[1].
- Identify products that remain in their current form and / or materials to be recycled which could be incorporated into subsequent development.
- Provide evidence for any external assessments that have been used to inform the Pre-redevelopment Audit

In addition the Pre-redevelopment audit should provide signposts to the following specific to the site, its context and the design proposals.

- Ensure the management of material from the demolition or refurbishment process is in line with the waste hierarchy i.e. maximise reuse and closed loop recycling and minimise waste to landfill
- Show how the design team and future contractors can minimise waste generation during the redevelopment process
- Set out a route to compliance with waste legislation where waste is generated.

1.4. Interaction with Pre-Demolition Audit

The pre-demolition audit provides detailed quantities for **all** materials that are part of the existing buildings within the development boundary of the site.

These are summarised within this Pre-Redevelopment Audit

The demolition audit also identifies where buildings are to be demolished and whether any are to be stripped out, detailing the level of strip out for each. This is also summarised for within this Pre-Redevelopment Audit

Finally the demolition audit sets out potential routes for re-use and recycling of materials removed from site as appropriate.

[1] This is generally covered in the accompanying Pre-Demolition Audit.

1.5. Methodology

Key	Action	Details of process
A	**Collection and examination of available information**	Information about the structures, facades and all other materials that may be reused, refurbished and recycled should be gathered and analysed. The types and amount of information available will depend on the type and age of the building. Sources of information include **Site drawings/information models/ Site photographs/ Asbestos survey/ Structural engineers survey**
B	**Site visit to collect further information.**	A site visit have been carried out to gather further information about the types and amounts of materials present and the condition of these elements/components on **13th July 2023.** The site visit should take place as early as possible following the decision to redevelop the building but also it is preferable to visit the building post-occupation to ensure that all the necessary information can be gathered. Prior to the site visit a site specific risk assessment and method statement should be prepared, and a site induction should be provided to those carrying out the audit.
C	**Estimation of types and amounts of materials.**	The aim of steps 1 and 2 is to determine detailed quantities of the different elements present and record information on the condition of these elements. Information on the fixtures and fittings (including furniture and computer equipment) should also be recorded. See Appendix A. For audits prior to refurbishment, the existing site plans and the proposed floor plans can be used to determine which elements are to be removed as part of the refurbishment. For audits prior to demolition, measurements of all the elements present should be recorded.
D	**Assessment of suitability of material for reuse/recycling/other waste management method**	For each of the types of materials likely to arise from the redevelopment, an assessment of the best management option should be carried out following the waste hierarchy. **Reuse on site or off site:** Reuse of the component without further processing. (Where reuse seems appropriate onsite, i.e. in the subsequent development, this should be highlighted.) **Closed Loop Recycling:** Recycling/reprocessing into the same component e.g. ceiling and carpet tile or plasterboard take back schemes **Open Loop Recycling:** Recycling/reprocessing into a different component e.g. the shredding of a pallet to produce wood chips for particle boards **Recovery:** Typically used to describe generic separation and recycling of materials (usually at a waste transfer station), but there may be occasions where this could describe biological treatment such as composting. **Energy recovery:** Incineration of waste to provide energy. **Disposal:** Disposal of waste via landfill, incineration without energy recovery or other form of treatment/encapsulation (e.g. for hazardous/difficult waste).
E	**Recommendations for materials management and target setting**	Based on the information gathered about the types and amounts of materials and the potential for reuse and recycling, targets can be set for different waste management methods. A range of targets can be set for overall amount of materials reused on or off site in their original form, recycled on site, closed/open loop recycled off-site.

2. Existing Buildings Details

This section sets out the results of our desktop analysis and survey work providing for each building the following:

Description of the building in its current state including:

- Year constructed
- Building Use
- Total GIFA
- Whether the building is occupied
- Description of the servicing strategy
- Assumed constructions with references as appropriate
- Quantification of the elements that exist within the building

2.1. Saffron Hill Car Park

2.1.1. General Details

Saffron Hill Car Park, 14 St Cross Street

London, EC1M 3JY

Year of Construction:	1960's
Building Use:	Car Park with office
Storeys:	8
Occupied?	No
Gross Floor Area:	11,735 m^2

Notes:-

Key Building Components

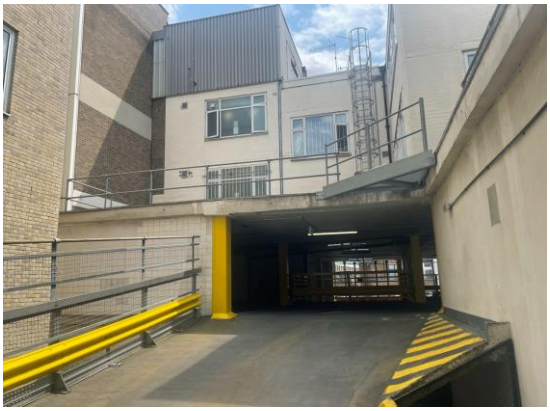
Description		Details	General Description
Construction	**Frame**	RC Concrete Frame	The building is constructed from reinforced concrete frame although there are some light steel frame elements on the façade to fix the metal mesh and sheet. The GF and upper floor construction has been determined from the exiting building and Topo and surveys drawings. The façade for the car park (1F-6F) consist of the brick, precast hollow concrete block, metal mesh sheet and solid metal sheet which is not sealed and not insulated. The facade of the office extension on level 7 and 8 is brickwork. The roof is of the same construction as intermediary floors and is covered by concrete. There is only minimum of services in the car park, such as lighting, fire equipment, and point of use water heater.
	GF	Ground Bearing slab	
	Upper Floors	British Lift Slab construction / in-situ concrete construction	
	Roof	in-situ concrete construction	
	Windows Facade	7F & 8F Aluminium single glazed windows Mesh and solid metal sheet In-situ Concrete for core with precast panels	
	Other	There are not many finishes present as the existing building is a car park	
	Other	Some metal cladding	
Services	**Heating**	There is no heating in the Car Park, while the office have heater instead of fixed service.	
	Cooling	No cooling system present	
	Ventilation	Extract fan in WCs	
	Lighting	Fluorescent / LED lighting throughout	
	DHW	Point of use electric water heater	
	Other	2 Lifts and common room	

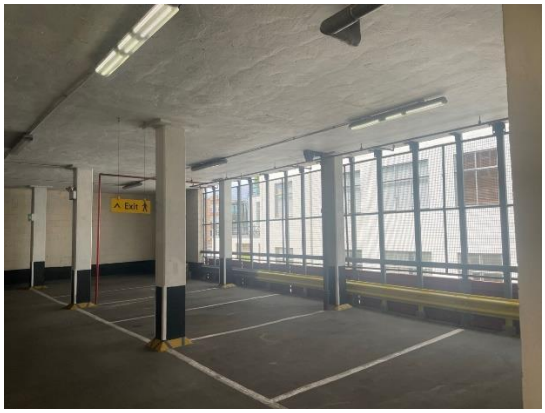
2.1.2. Pictures & Condition

Car Park Façade: The light-weight metal mesh, concrete facades and sheet materials have not been considered for retention because they have reached their lifespan and not suitable for office building. The existing window is single glazed and not in a good condition.

Office Façade: The office façade is in a poor condition and consists of a mixture of rendered blockwork, painted brickwork, pre-cast panels and uPVC Double glazing. There is no merit in retaining any of these elements either for re-use or for reclamation. All elements should be diverted from landfill via recycling.

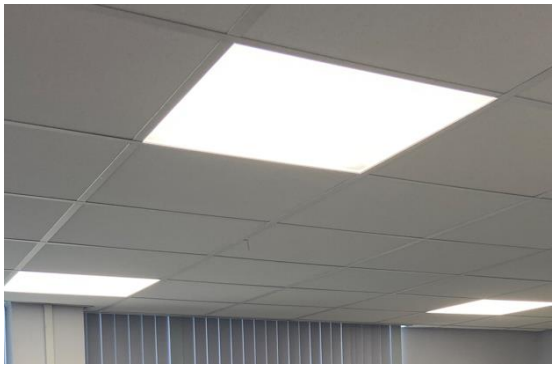
Frame & Floor structure: the RC concrete frame, existing concrete floors and roof structures are proposed to be demolish even they potentially have a long lifespan remaining. This is because the floor height is too low (2.25m without any ceiling floor finishes), and the ramp for the car park are not suitable for office use. Moreover, the car park floors are likely/potential petrol/diesel/oil contamination.



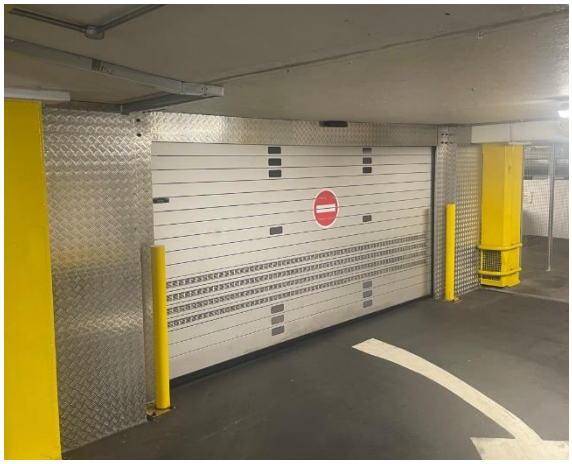


MEP Service – Car Park: All services will need to be stripped out of Saffron Hill which will be the special equipment or service for car park, such as gate, car park lighting, Car Park Payment Machines, point of use water heater and fire equipment. These are being removed because of the level changes and performance requirements, also because they are near the end of their life.

MEP Service – Offices: All services will need to be stripped out of offices which will include the Split AC units, lighting, power and pipework.

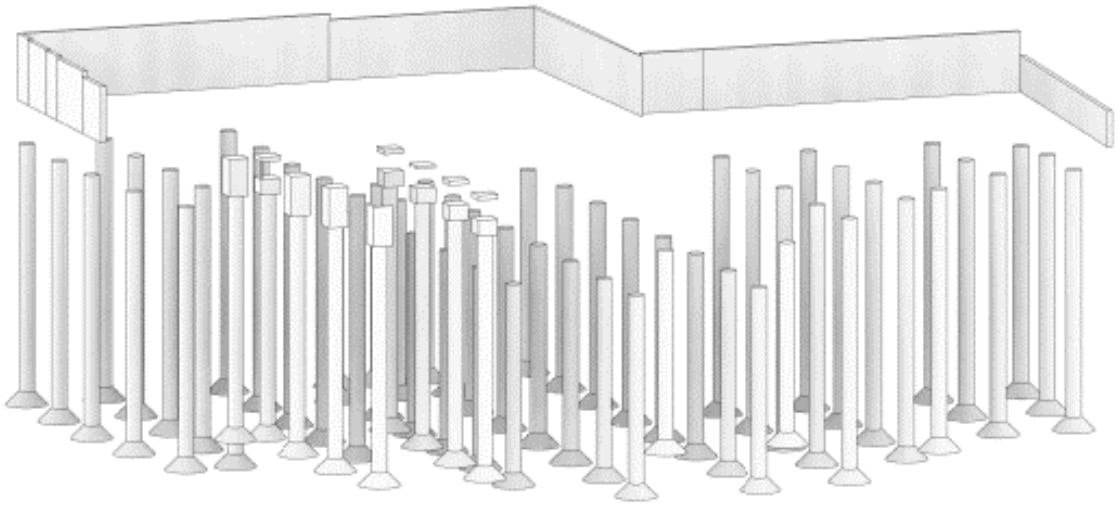


Internal elements – Car Park: There is only few items in the car park level, and some minimum amount of the furniture in the office and internal door. However, all the items are at the end of life or not suitable for office used.



Foundations

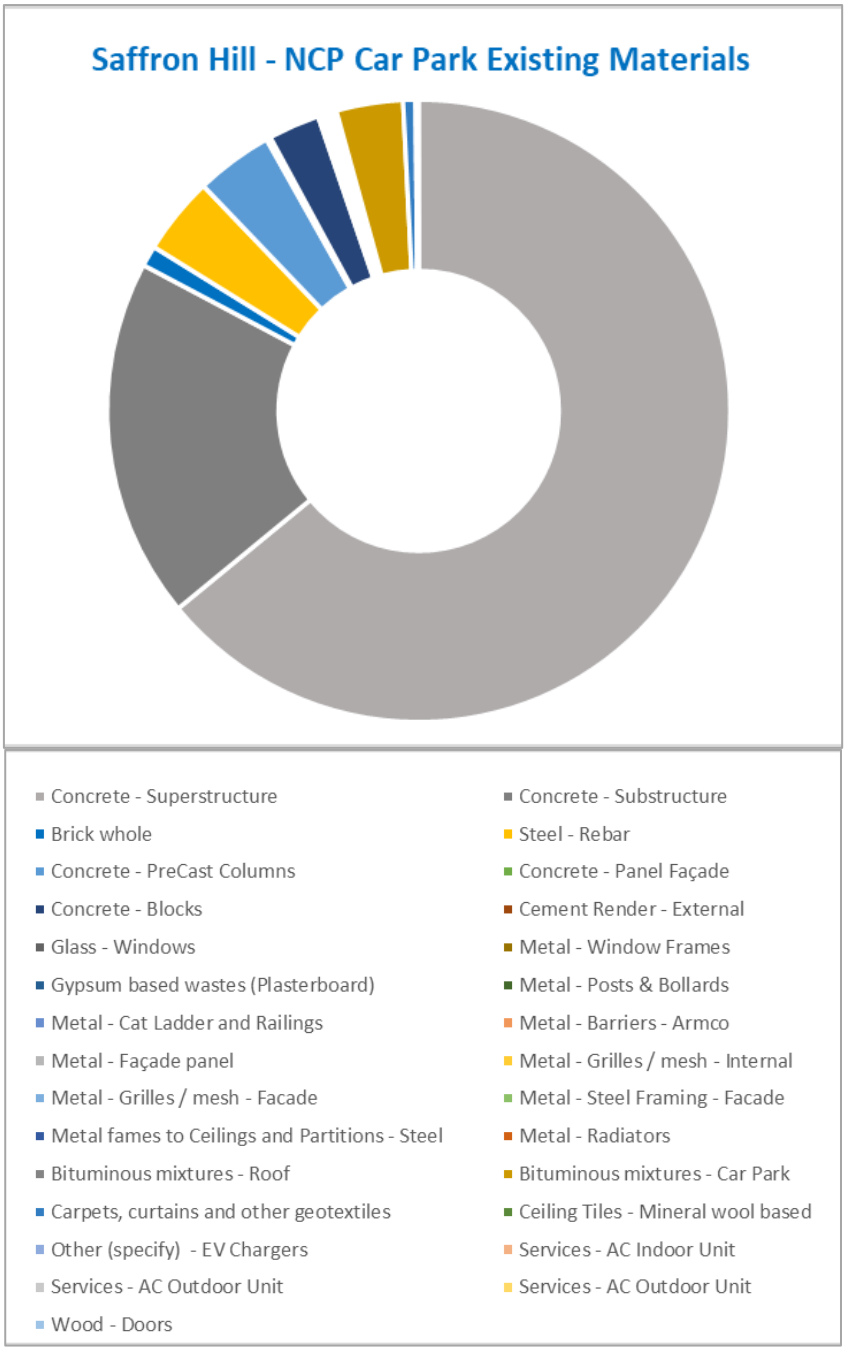
The foundations for existing foundation (pile) have been assessed by HTS and up to 60% of the foundation will be retained on site .



2.1.3. Summary of Quantities

The following table summarises, by weight and volume, the quantities of materials identified within the building. Please refer to the Demolition Audit for a detailed breakdown of these materials.

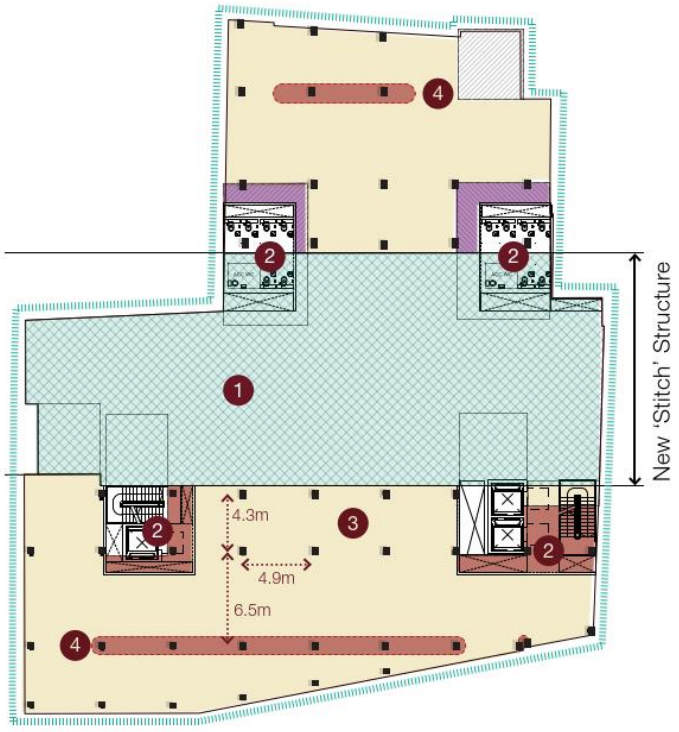
	m3	Tonnes	
	Existing Building		
Existing Materials	Volume	Weight	Percent by Weight
Concrete - Superstructure	2,574	6,435	64.05%
Concrete - Substructure	752	1,880	18.71%
Brick whole	57	108	1.08%
Steel - Rebar	52	405	4.03%
Concrete - PreCast Columns	168.1	403.5	4.02%
Concrete - Panel Façade	36	23.1	0.23%
Concrete - Blocks	140.4	266.7	2.65%
Cement Render - External	8	12	0.12%
Glass - Windows	2.0	4.9	0.05%
Metal - Window Frames	1	3	0.03%
Gypsum based wastes (Plasterboard)	15.2	12.2	0.12%
Metal - Posts & Bollards	1	7	0.07%
Metal - Cat Ladder and Railings	0	0.3	0.00%
Metal - Barriers - Armco	2	16.0	0.16%
Metal - Façade panel	0.5	1.4	0.01%
Metal - Grilles / mesh - Internal	1.8	1.4	0.01%
Metal - Grilles / mesh - Facade	6.3	5.0	0.05%
Metal - Steel Framing - Facade	2.6	20.4	0.20%
Metal fames to Ceilings and Partitions - Steel	0.6	4.4	0.04%
Metal - Radiators	0.2	1.7	0.02%
Bituminous mixtures - Roof	8.4	8.9	0.09%
Bituminous mixtures - Car Park	330.9	347.4	3.46%
Carpets, curtains and other geotextiles	70.0	64.4	0.64%
Ceiling Tiles - Mineral wool based	42.0	7.3	0.07%
Other (specify) - EV Chargers	-	0.2	0.00%
Services - AC Indoor Unit	-	0.7	0.01%
Services - AC Outdoor Unit	-	3.1	0.03%
Services - AC Outdoor Unit	-	0.4	0.00%
Wood - Doors	5.3	4.5	0.04%
	4,276	10,047	

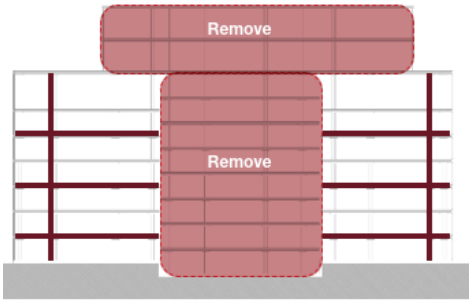

Saffron Hill - NCP Car Park Existing Materials
Concrete - Superstructure
Concrete - Substructure
Brick whole
Steel - Rebar
Concrete - PreCast Columns
Concrete - Panel Façade
Concrete - Blocks
Cement Render - External
Glass - Windows
Metal - Window Frames
Gypsum based wastes (Plasterboard)
Metal - Posts & Bollards
Metal - Cat Ladder and Railings
Metal - Barriers - Armco
Metal - Façade panel
Metal - Grilles / mesh - Internal
Metal - Grilles / mesh - Facade
Metal - Steel Framing - Facade
Metal fames to Ceilings and Partitions - Steel
Metal - Radiators
Bituminous mixtures - Roof
Bituminous mixtures - Car Park
Carpets, curtains and other geotextiles
Ceiling Tiles - Mineral wool based
Other (specify) - EV Chargers
Services - AC Indoor Unit
Services - AC Outdoor Unit
Services - AC Outdoor Unit
Wood - Doors

2.1.4. Further discussion of retaining, refurbishing

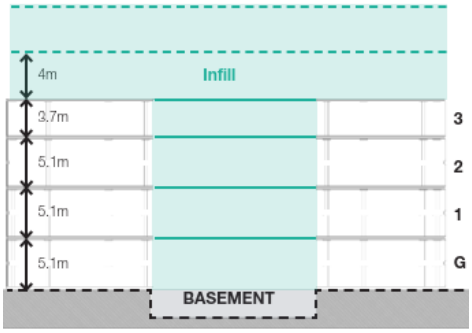
- **Reuse the existing car park slabs which could be cut out and repurposed** – **UNLIKELY**, the structural engineer has confirmed that the existing slabs are likely to not be suitable for the proposed development due to the car park being made using British Lift Slab construction system, prevalent in 1960s. Several car park and residential blocks using this construction system have been demolished due to safety concerns. Although it is unclear whether this car park suffers similar structural defects, this will be a high risk for structural safety.
  Investigations on the potential for this will be undertaken by the demolition contractor but it seems unlikely.

- **Potential for reuse and substantial refurbishment – NO**, the Design Team have considered the option of partial retain and refurbishment, however, the small column grid poses significant challenges for conversion into office space and with low flexibility on layout arrangement or space usage. The new infill floor plate would require extensive structural change with carbon intensive new steelwork. The current structure is not conducive to rooftop/basement expansion.





Remove upper floors & central structure



Excavate in central section to create basement for plant

2.2. Landscaping

Saffron Hill Car Park, 14 St Cross Street

London, EC1M 3JY

General Description

There only hard landscaping is the footpath surrounding the building with concrete pavers and tarmac and kerb.

Key Building Components

Description		Details	General Description
Unbound Surfaces	**Block Paving**	Small areas of block paving	
	Kerbs	Kerbs to full extent	
	Tarmac	Majority of pavements are tarmac	

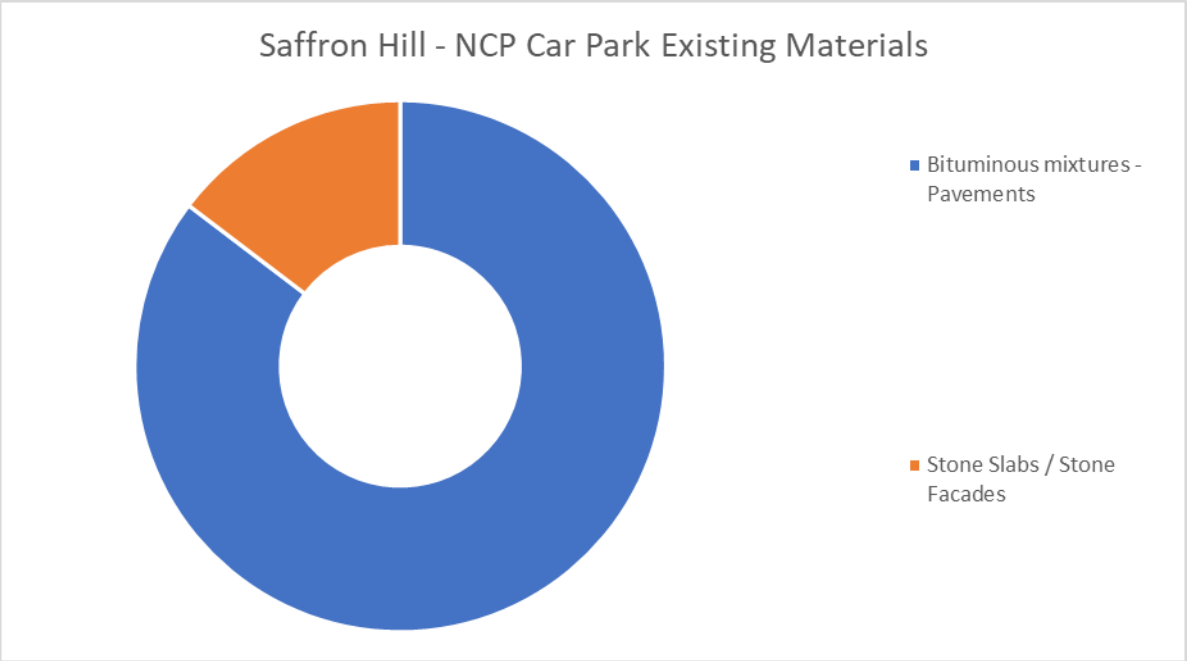
Hard landscaping – General: There is only hard landscaping - footpath with concrete paver and kerb.

Pavement widening adjacent to the St Cross Street frontage with motorcycle parking bay.

2.2.1. Summary of Quantities – Landscaping

The following table summarises by weight and volume the quantities of materials identified within the building. Please refer to the Demolition Audit for a detailed breakdown of these materials.

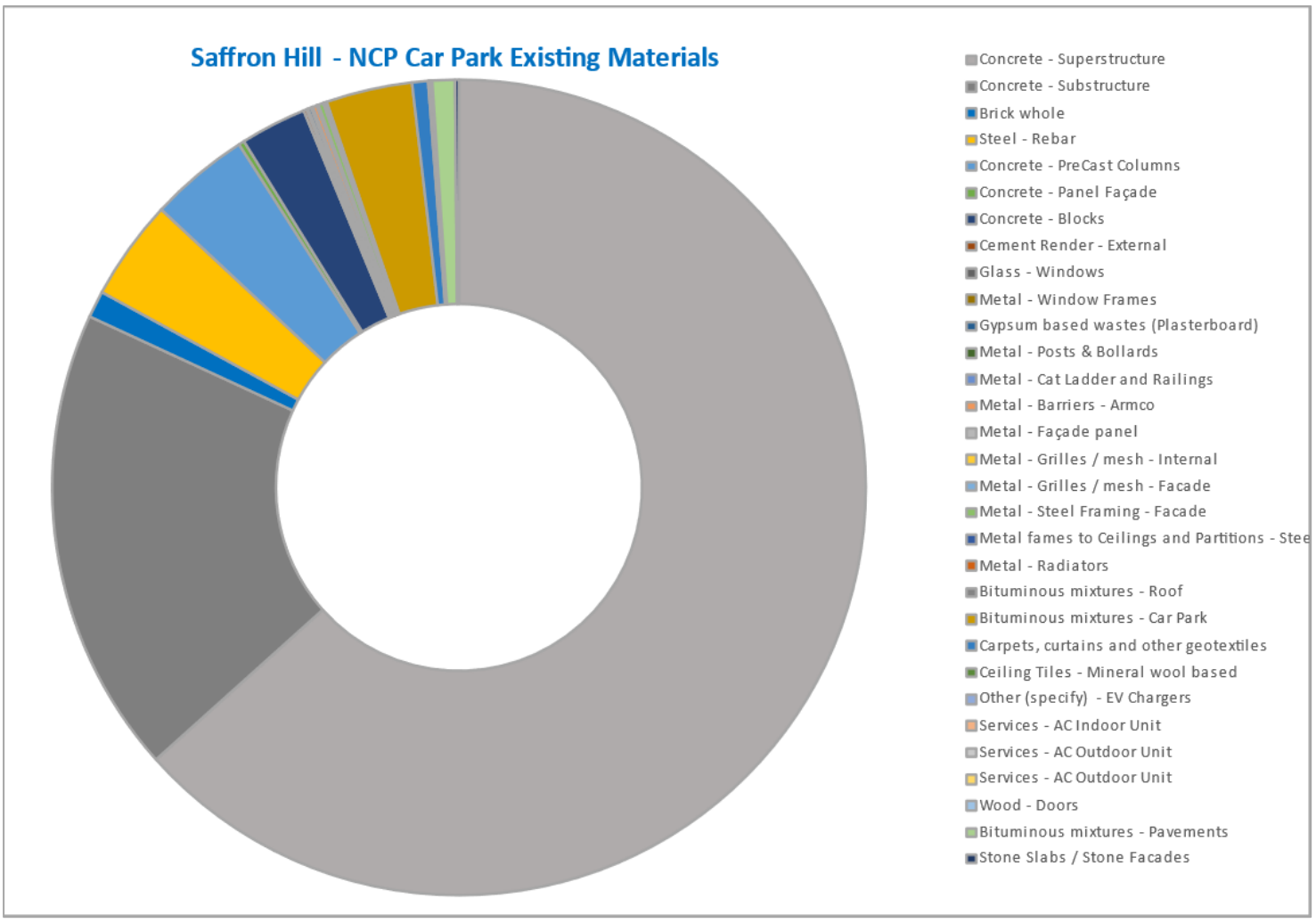
	m3	Tonnes	
	Existing Building		
Existing Materials	Volume	Weight	Percent by Weight
Bituminous mixtures - Pavements	49.2	91.0	85.34%
Stone Slabs / Stone Facades	6.8	15.6	14.66%
	56	107	



2.3. Total existing Area & Volumes

The following table summarises by weight and volume the total quantities of materials identified within all the buildings. Please refer to the Pre-Demolition Audit for a detailed breakdown of these materials.

	m3	Tonnes	
	Existing Building		
Existing Materials	Volume	Weight	Percent by Weight
Concrete - Superstructure	2,574	6,435	63.37%
Concrete - Substructure	752	1,880	18.51%
Brick whole	57	108	1.06%
Steel - Rebar	52	405	3.99%
Concrete - PreCast Columns	168.1	403.5	3.97%
Concrete - Panel Façade	36	23.1	0.23%
Concrete - Blocks	140.4	266.7	2.63%
Cement Render - External	8	12	0.12%
Glass - Windows	2.0	4.9	0.05%
Metal - Window Frames	1	3	0.02%
Gypsum based wastes (Plasterboard)	15.2	12.2	0.12%
Metal - Posts & Bollards	1	7	0.07%
Metal - Cat Ladder and Railings	0	0.3	0.00%
Metal - Barriers - Armco	2	16.0	0.16%
Metal - Façade panel	0.5	1.4	0.01%
Metal - Grilles / mesh - Internal	1.8	1.4	0.01%
Metal - Grilles / mesh - Facade	6.3	5.0	0.05%
Metal - Steel Framing - Facade	2.6	20.4	0.20%
Metal fames to Ceilings and Partitions - Steel	0.6	4.4	0.04%
Metal - Radiators	0.2	1.7	0.02%
Bituminous mixtures - Roof	8.4	8.9	0.09%
Bituminous mixtures - Car Park	330.9	347.4	3.42%
Carpets, curtains and other geotextiles	70.0	64.4	0.63%
Ceiling Tiles - Mineral wool based	42.0	7.3	0.07%
Other (specify) - EV Chargers	-	0.2	0.00%
Services - AC Indoor Unit	-	0.7	0.01%
Services - AC Outdoor Unit	-	3.1	0.03%
Services - AC Outdoor Unit	-	0.4	0.00%
Wood - Doors	5.3	4.5	0.04%
Bituminous mixtures - Pavements	49.2	91.0	0.90%
Stone Slabs / Stone Facades	6.8	15.6	0.15%
	4,332	10,154	


Saffron Hill - NCP Car Park Existing Materials
Concrete - Superstructure
Concrete - Substructure
Brick whole
Steel - Rebar
Concrete - PreCast Columns
Concrete - Panel Façade
Concrete - Blocks
Cement Render - External
Glass - Windows
Metal - Window Frames
Gypsum based wastes (Plasterboard)
Metal - Posts & Bollards
Metal - Cat Ladder and Railings
Metal - Barriers - Armco
Metal - Façade panel
Metal - Grilles / mesh - Internal
Metal - Grilles / mesh - Facade
Metal - Steel Framing - Facade
Metal fames to Ceilings and Partitions - Stee
Metal - Radiators
Bituminous mixtures - Roof
Bituminous mixtures - Car Park
Carpets, curtains and other geotextiles
Ceiling Tiles - Mineral wool based
Other (specify) - EV Chargers
Services - AC Indoor Unit
Services - AC Outdoor Unit
Services - AC Outdoor Unit
Wood - Doors
Bituminous mixtures - Pavements
Stone Slabs / Stone Facades

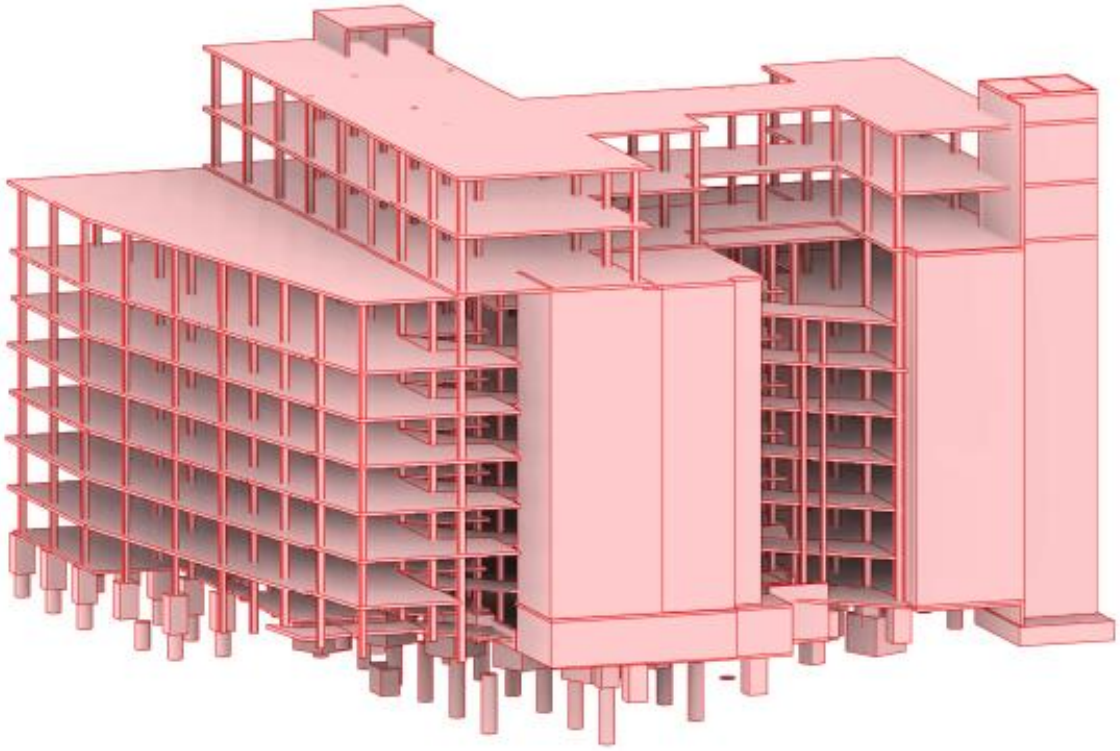
3. Demolished Elements

The following sections describe the parts of the site that are to be demolished or stripped out. Justifying the purpose and quantities of the elements, which are being removed.

3.1. Saffron Hill Car Park

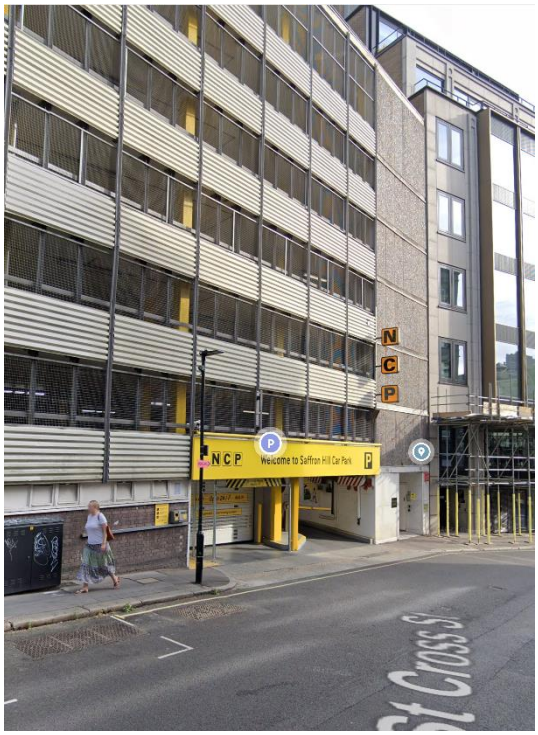
The majority of the Saffron Hill Car Park is being demolished except for foundation.

The existing roof, all existing walls, structural elements, and 'floating' canopy will be removed and replaced in steel frame, robust cladding, and high insulated window to suite the new building use type – Office.



- **Frame:** All of the existing frames will be demolished, which included concrete column, concrete beam, floor slab, core wall
- **Facade:** All of the façade elements will be demolished, which included mesh and solid metal sheet, LSF frame, concrete block, window, and brick wall.
- **Service:** All of the services to be removed and recycled.

Note: Please see the detail information for demolition and recycled measures in demolition audit.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Welcome to Saffron Hill Car Park

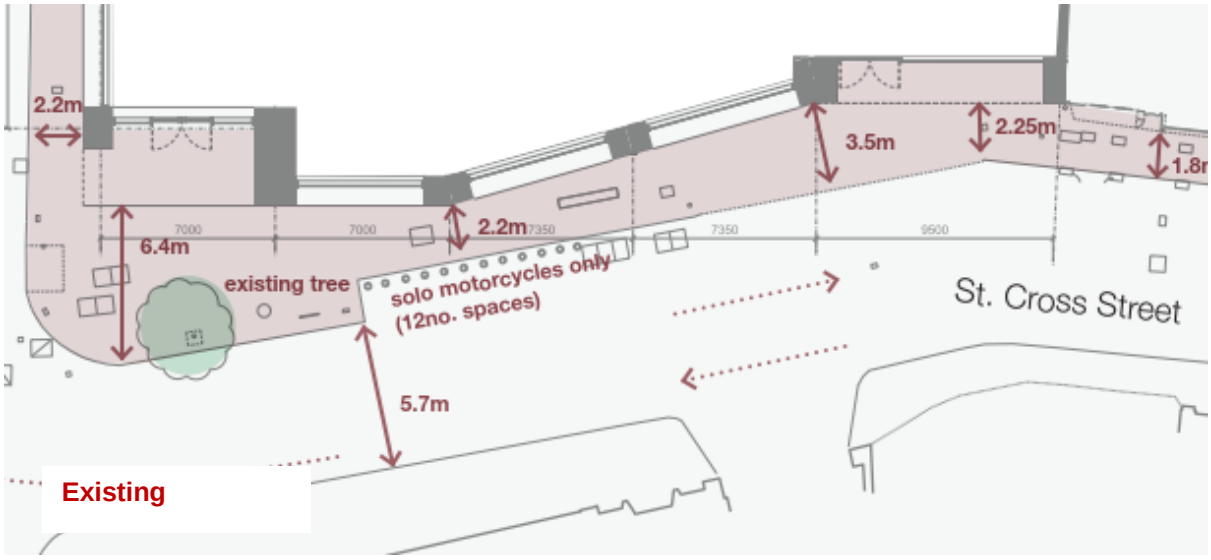
3.1.1. Summary of Removed Quantities – Buildings

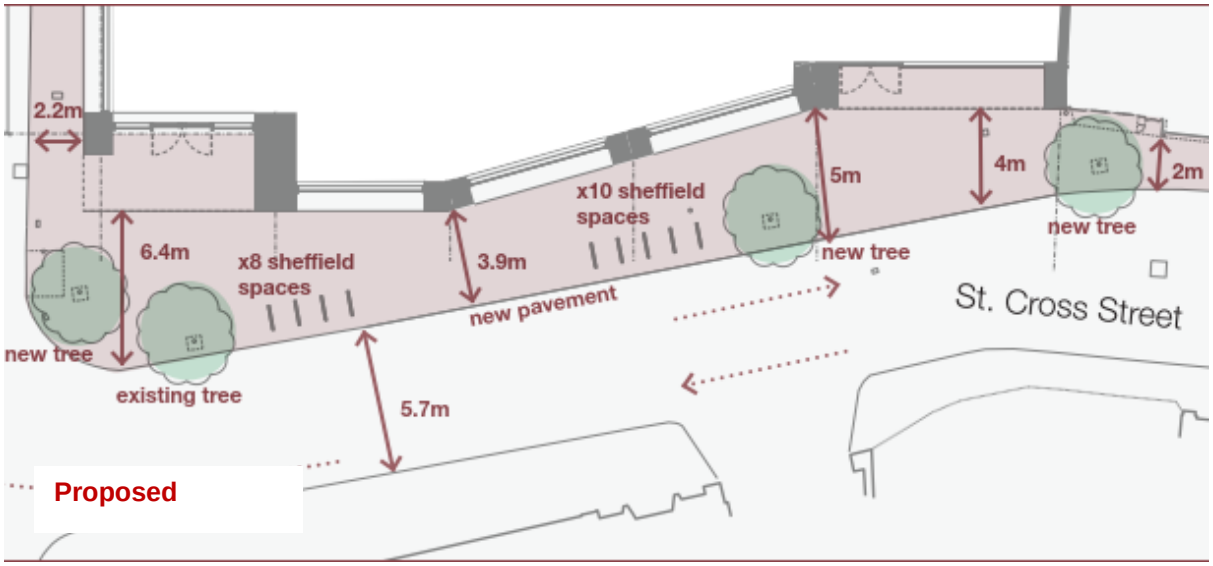
Overall, **12.74% of the total volume** of materials within the existing **building** are being retained.

	m3 Tonnes			m3 Tonnes			
	Existing Building			Demolished / Removed			
Existing Materials	Volume	Weight	Percent by Weight	Volume	Weight	Percent by Weight	Percent Retained
Concrete - Superstructure	2,574	6,435	64.05%	2,512	6,281	62.52%	2.39%
Concrete - Substructure	752	1,880	18.71%	327.2	818.0	8.14%	56.49%
Brick whole	57	108	1.08%	56.9	108.0	1.08%	0.00%
Steel - Rebar	52	405	4.03%	43.3	339.8	3.38%	16.02%
Concrete - PreCast Columns	168.1	403.5	4.02%	168.1	403.5	4.02%	0.00%
Concrete - Panel Façade	36	23.1	0.23%	36	23.1	0.23%	0.00%
Concrete - Blocks	140.4	266.7	2.65%	140.4	266.7	2.65%	0.00%
Cement Render - External	8	12	0.12%	8.4	12.1	0.12%	0.00%
Glass - Windows	2.0	4.9	0.05%	2.0	4.9	0.05%	0.00%
Metal - Window Frames	1	3	0.03%	0.9	2.5	0.03%	0.00%
Gypsum based wastes (Plasterboard)	15.2	12.2	0.12%	15.2	12.2	0.12%	0.00%
Metal - Posts & Bollards	1	7	0.07%	1	7	0.07%	0.00%
Metal - Cat Ladder and Railings	0	0.3	0.00%	0.0	0.3	0.00%	0.00%
Metal - Barriers - Armco	2	16.0	0.16%	2.0	16.0	0.16%	0.00%
Metal - Façade panel	0.5	1.4	0.01%	0.5	1.4	0.01%	0.00%
Metal - Grilles / mesh - Internal	1.8	1.4	0.01%	1.8	1.4	0.01%	0.00%
Metal - Grilles / mesh - Facade	6.3	5.0	0.05%	6.3	5.0	0.05%	0.00%
Metal - Steel Framing - Facade	2.6	20.4	0.20%	2.6	20.4	0.20%	0.00%
Metal fames to Ceilings and Partitions - Steel	0.6	4.4	0.04%	0.6	4.4	0.04%	0.00%
Metal - Radiators	0.2	1.7	0.02%	0.2	1.7	0.02%	0.00%
Bituminous mixtures - Roof	8.4	8.9	0.09%	8.4	8.9	0.09%	0.00%
Bituminous mixtures - Car Park	330.9	347.4	3.46%	330.9	347.4	3.46%	0.00%
Carpets, curtains and other geotextiles	70.0	64.4	0.64%	70.0	64.4	0.64%	0.00%
Ceiling Tiles - Mineral wool based	42.0	7.3	0.07%	42.0	7.3	0.07%	0.00%
Other (specify) - EV Chargers	-	0.2	0.00%	-	0.2	0.00%	0.00%
Services - AC Indoor Unit	-	0.7	0.01%	-	0.7	0.01%	0.00%
Services - AC Outdoor Unit	-	3.1	0.03%	-	3.1	0.03%	0.00%
Services - AC Outdoor Unit	-	0.4	0.00%	-	0.4	0.00%	0.00%
Wood - Doors	5.3	4.5	0.04%	5.3	4.5	0.04%	0.00%
	4,276	**10,047**		**3,782**	**8,767**		**12.74%**

3.2. Hard Landscaping

All hard landscaping is in a tired state of repair and the new scheme seeks to update all of these hard surfaces and increase areas of softer landscaping - tree to create a much more welcoming space. There are no single elements of Hard Landscaping that merit further investigation to be retained.





3.2.2. Summary of Removed Quantities – Hard Landscaping

The entirety of the hard landscaping is being removed however we have assumed that some of the concrete areas will be retained – even if only to be used as a substrate for the new Hard Landscaping.

	m3 Tonnes			m3 Tonnes			
	Existing Building			Demolished / Removed			
Existing Materials	Volume	Weight	Percent by Weight	Volume	Weight	Percent by Weight	Percent Retained
Bituminous mixtures - Pavements	49.2	91.0	85.34%	49.2	91.0	85.34%	0.00%
Stone Slabs / Stone Facades	6.8	15.6	14.66%	6.8	15.6	14.66%	0.00%
	56	**107**		**56**	**107**		**0.00%**

3.3. Total Area & Volumes demolished – Whole Building

The following schedule sets out all the data calculated into a single schedule which represents all of the materials that currently existing on the site.

	m3	Tonnes		m3	Tonnes		
	Existing Building			Demolished / Removed			
Existing Materials	Volume	Weight	Percent by Weight	Volume	Weight	Percent by Weight	Percent Retained
Concrete - Superstructure	2,574	6,435	63.37%	2,512	6,281	61.86%	2.39%
Concrete - Substructure	752	1,880	18.51%	327.2	818.0	8.06%	56.49%
Brick whole	57	108	1.06%	56.9	108.0	1.06%	0.00%
Steel - Rebar	52	405	3.99%	43.3	339.8	3.35%	16.02%
Concrete - PreCast Columns	168.1	403.5	3.97%	168.1	403.5	3.97%	0.00%
Concrete - Panel Façade	36	23.1	0.23%	36	23.1	0.23%	0.00%
Concrete - Blocks	140.4	266.7	2.63%	140.4	266.7	2.63%	0.00%
Cement Render - External	8	12	0.12%	8.4	12.1	0.12%	0.00%
Glass - Windows	2.0	4.9	0.05%	2.0	4.9	0.05%	0.00%
Metal - Window Frames	1	3	0.02%	0.9	2.5	0.02%	0.00%
Gypsum based wastes (Plasterboard)	15.2	12.2	0.12%	15.2	12.2	0.12%	0.00%
Metal - Posts & Bollards	1	7	0.07%	1	7	0.07%	0.00%
Metal - Cat Ladder and Railings	0	0.3	0.00%	0.0	0.3	0.00%	0.00%
Metal - Barriers - Armco	2	16.0	0.16%	2.0	16.0	0.16%	0.00%
Metal - Façade panel	0.5	1.4	0.01%	0.5	1.4	0.01%	0.00%
Metal - Grilles / mesh - Internal	1.8	1.4	0.01%	1.8	1.4	0.01%	0.00%
Metal - Grilles / mesh - Facade	6.3	5.0	0.05%	6.3	5.0	0.05%	0.00%
Metal - Steel Framing - Facade	2.6	20.4	0.20%	2.6	20.4	0.20%	0.00%
Metal fames to Ceilings and Partitions - Steel	0.6	4.4	0.04%	0.6	4.4	0.04%	0.00%
Metal - Radiators	0.2	1.7	0.02%	0.2	1.7	0.02%	0.00%
Bituminous mixtures - Roof	8.4	8.9	0.09%	8.4	8.9	0.09%	0.00%
Bituminous mixtures - Car Park	330.9	347.4	3.42%	330.9	347.4	3.42%	0.00%
Carpets, curtains and other geotextiles	70.0	64.4	0.63%	70.0	64.4	0.63%	0.00%
Ceiling Tiles - Mineral wool based	42.0	7.3	0.07%	42.0	7.3	0.07%	0.00%
Other (specify) - EV Chargers	-	0.2	0.00%	-	0.2	0.00%	0.00%
Services - AC Indoor Unit	-	0.7	0.01%	-	0.7	0.01%	0.00%
Services - AC Outdoor Unit	-	3.1	0.03%	-	3.1	0.03%	0.00%
Services - AC Outdoor Unit	-	0.4	0.00%	-	0.4	0.00%	0.00%
Wood - Doors	5.3	4.5	0.04%	5.3	4.5	0.04%	0.00%
Bituminous mixtures - Pavements	49.2	91.0	0.90%	49.2	91.0	0.90%	0.00%
Stone Slabs / Stone Facades	6.8	15.6	0.15%	6.8	15.6	0.15%	0.00%
	4,332	**10,154**		**3,838**	**8,874**		**12.61%**

As can be seen **approximately 12.61% of the volume of materials** is being retained including most of the foundation elements.

4. Conclusions

Following the hierarchy within the GLA Circular Economy we have determined that the design approach of **Demolish and Recycle** should be followed.

Demolish and Recycle

Traditional demolition, with elements and materials processed into new elements, materials and objects for use on the site or on another site.

- **Structure(frame), superstructure:** The structural grid in the existing building is dense which would reduce the flexibility in arrangements for different layout to suite different requirements from different tenants. Therefore, the full extent of the above ground structure would all require to be demolished and recycled.
- **Skin /shell e.g. façade:** The quality of the existing façade is sub standard for an office building in terms of the poor u value and risk of overheating. Also, the car park has open sides and the external fabric for the office spaces would not comply with current Part L of the Building Regulations.
- **Space / plan / interior / interior space:** The existing storey height (2.25 m) is too low for office building, and the car ramp is not suitable for office purposes. Moreover, all the internal finishes would need to be demolished and recycled to suit the requirement of the office building.

  The existing plant is designed to serve the car park and the upper office spaces and is at the end of its useful life and not energy efficient meaning there would be a high rate of operational carbon emissions
- **Services (building):** Current plant provision results in an inefficient building in terms of energy use. This means a high rate of operational carbon per m^2 per year continues to be emitted.
- **Stuff / content:** The existing fitting and furnishings to the office spaces are all at the end of their life and are not suited to a new, high quality office space.

  There are elements of the car park fittings that could be re-used by NCP – the car park operator as noted.

Appendix A – Demolition Audit Quantities

The following sheets are extracts from the calculations which are included within the accompanying Demolition Audit.

Saffron Hill - NCP Car Park		✓			✓		✓		✓		22ndNov 2023	Rev	-	
List of waste identified on site and estimated to be generated during the project														
Waste Type	EWC Code	Produced	Re-use on site?	Re-use %	Reclaim for re-use	Reclaim for re-use %	Recycle / reprocess	Recycle %	Safe Disposal	Landfill	Landfill %	Estimate Quantity	Units	Comments / Describe how reduced, reused, recycled
Aluminium	17.04.02													
Asbestos (bonded)	17.06.05*													
Asbestos (fibrous/insulation)	17.06.01*													
Bituminous mixtures – Roof	17.03.02	✓					✓	100%			0.00%	1,405.7	m2	Upper Floor Areas
Bituminous mixtures – Car Park	17.03.02	✓					✓	100%			0.00%	330.9	m3	Surfacing to car park - Assumes 35mm thickness
Bituminous mixtures – Pavements	17.03.02	✓					✓	100%			0.00%	49.2	m3	Various tarmac on pavements
Brick whole	17.01.02	✓					✓	100%			0.00%	56.9	m3	Bricks are mostly painted to upper floors Bricks to lower floors are not of good quality and so not reclaimable
Cable	17.04.11	✓					✓	100%			0.00%	unknown		TBC by Demo Contractor
Carpets, curtains and other geotextiles	20.01.11	✓					✓	100%			0.00%	1,166.3	m2	Carpets to Upper Offices
Ceiling Tiles – Mineral wool based	17.06.04						✓	100%			0.00%	1,166.3	m2	Ceilings to Upper Offices
Concrete – Blocks	17.01.01	✓					✓	100%			0.00%	140.4	m3	Blockwork will be recycled
Concrete – Panel Façade	17.01.01	✓					✓	100%			0.00%	35.6	m3	Façade Panels will be recycled
Concrete – Superstructure	17.01.01	✓	✓	2.5%			✓	98%			0.00%	2,573.8	m3	Some below walls to be retained in situ
Concrete – PreCast Columns	17.01.01	✓					✓	100%			0.00%	168.1	m3	
Concrete – Substructure	17.01.01	✓	✓	56%			✓	44%			0.00%	751.9	m3	Pile Foundations to be retained in situ
Concrete – External Areas	17.01.01	✓					✓	100%			0.00%		m3	
Cement Render – External	17.01.01	✓					✓	100%			0.00%	8.4	m3	Rendered facades on blockwork
Copper	17.04.01	✓					✓	100%			0.00%	unknown		Various water and refrigerant pipes TBC by Demo Contractor
Demolition wastes containing dangerous substances	17.09.03*													
Discarded electrical equipment (no dangerous substances)	16.02.14						✓	100%				unknown		Various - See Demo Audit
Excavated soil (contaminated)	17.05.03*													
Excavated soil (non-contaminated)	17.05.04	✓					✓	100%			0.00%	unknown		TBC by Groundworks Contractor
Fluorescent tubes	20.01.21*													
Glass – Windows	17.02.03	✓					✓	100%			0.00%	4.89	Tonnes	Double Glazed Units
Glass – Internal Partitions	17.02.02													
Gypsum based wastes (Plasterboard)	17.08.02	✓					✓	100%			0.00%	609.4	m2	Plasterboard Partitions to offices
Insulation (Mineral wool)	17.06.04													
Insulation (Other)	17.06.04	✓					✓	100%			0.00%	unknown		TBC by Demo Contractor
LED Lighting – containing POPs and hazardous substances	16-02-13*	✓							✓	100%	0.00%	unknown		TBC by Demo Contractor
LED Lighting – containing NO hazardous substances	16-02-14	✓					✓	100%			0.00%	unknown		TBC by Demo Contractor
Mattresses, furniture and other bulky household items	20.03.07													
Metal – Posts & Bollards	17.04.07	✓			✓	95%	✓	5%			0.00%	7.39	Tonnes	Assumed that posts can be sold / re-used - Liaise with NCP
Metal – Cat Ladder and Railings	17.04.07	✓	✓	0%	✓	0%	✓	100%			0.00%	0.32	Tonnes	Assumed that barrier can be sold / re-used - Liaise with NCP
Metal – Barriers – Armco	17.04.07	✓			✓	95%	✓	5%			0.00%	15.95	Tonnes	Assumed that these be sold / re-used - Liaise with NCP
Metal – Façade panel	17.04.07	✓					✓	100%			0.00%	1.37	Tonnes	Assumed that the façade panel to be recycled - Liaise with NCP

Saffron Hill - NCP Car Park		✓			✓		✓		✓		22ndNov 2023	Rev	-	
List of waste identified on site and estimated to be generated during the project														
Waste Type	EWC Code	Produced	Re-use on site?	Re-use %	Reclaim for re-use	Reclaim for re-use %	Recycle / reprocess	Recycle %	Safe Disposal	Landfill	Landfill %	Estimate Quantity	Units	Comments / Describe how reduced, reused, recycled
Metal - Grilles / mesh - Internal	17.04.07	✓					✓	100%			0.00%	1.45	Tonnes	Assumed all mesh for recycling
Metal - Rebar	17.04.07	✓					✓	100%			0.00%	404.64	Tonnes	Assumed all rebar for recycling
Metal - Steel Framing - Facade	17.04.07	✓			✓	95%	✓	5%			0.00%	20.36	Tonnes	Around 1,700 lm of C channels which can and should be reclaimed -
Metal - Grilles / mesh - Facade	17.04.07	✓			✓	95%	✓	5%			0.00%	5.02	Tonnes	Assumed that mesh can be sold / re-used - Liaise with NCP
Metal - Window Frames	17.04.07	✓					✓	100%			0.00%	2.53	Tonnes	Aluminium frames to Double Glazed Units
Metal fames to Ceilings and Partitions - Steel	17.04.07	✓					✓	100%			0.00%	4.40	Tonnes	Assumed all steel
Metal - Radiators	17.04.07	✓					✓	100%			0.00%	1.68	Tonnes	Assumed all steel
Mixed demolition and construction wastes	17.09.04	✓					✓	100%			0.00%	unknown		TBC by Demo Contractor at completion
Mixtures of concrete, bricks, tiles and ceramics	17.01.07	✓					✓	100%			0.00%	unknown		TBC by Demo Contractor at completion
Other (specify) - Payment Machines & Gates	WEEE - POP?*	✓			✓	100%					0.00%	N/A		Assumed that payment points and entrance barrier can be sold / re-used - Liaise with NCP
Other (specify) - EV Chargers	WEEE - POP?*	✓			✓	100%					0.00%	10.0	No	Assumed that car chargers can be sold / re-used - Liaise with NCP
Other (Specify)														
Paper	20.01.01													
Plastic	17.02.03	✓					✓	100%			0.00%	unknown		TBC by Demo Contractor at completion
Refrigerators and air/con equipment	16.02.11*	✓					✓	100%			0.00%	unknown		Various - See Demo Audit
Stone Slabs / Stone Facades	17.05.04	✓					✓	100%			0.00%	6.8	m3	115.9 linear meters stone kerb
Services - AC Indoor Unit	20.01.23*	✓					✓	75%	✓	25%	0.00%	28.0	No	Internal VRF units - Assumed mostly recycled
Services - AC Outdoor Unit	20.01.23*	✓					✓	75%	✓	25%	0.00%	11.0	No	Outdoor VRF / Split condensor units - Assumed mostly recycled
Services - AC Outdoor Unit	20.01.23*	✓					✓	75%	✓	25%	0.00%	2.0	No	Large outdoor ASHP type units - Assumed mostly recycled
Tiles and ceramics	17.01.03	✓					✓	100%			0.00%	unknown		Various - See Demo Audit
Tiles, ceramics, etc. containing dangerous substances	17.01.06													
Wood - External Decking, Benches, etc	17.02.01	✓					✓	100%			0.00%	unknown		Various - See Demo Audit
Wood - Doors	17.02.01	✓					✓	100%			0.00%	113.0	No	Wooden Doors - Unreclaimable
Wood - Flooring	17.02.01													
Wood - General	17.02.01	✓					✓	100%			0.00%	unknown		TBC by Demo Contractor at completion

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LONDON I LEEDS I PLYMOUTH

BREEAM Pre-Demolition Audit

For Planning – RIBA Stage 2

Saffron Hill – NCP Car Park

Redevelopment for Office Building

For

Saffron Hill Investment Holdings

November 2023

www.carbonplanengineering.co.uk I engineering@carbonplan.co.uk I 0113 8155 558 I 12 St Georges Square, Huddersfield, West Yorkshire, HD1 1JF

Revisions schedule		
Issue Date: 15th December 2023		
Report prepared by: Han-Chieh Lee, Consultant, CarbonPlan Engineering		**Date:** 3rd November 2023
Checked by: Alan Calcott, Director, CarbonPlan Engineering		**Date:** 28th November 2023
Status	Final for Planning	
Revision	**Date**	**Changes**
A	15th January 2024	Minor changes to incorporate design team comments

This pre-demolition audit was undertaken at concept design stage by Alan Calcott with the site survey having been undertaken by Alan Calcott of Carbon Plan Engineering. Carbon Plan Engineering have been appointed to independently complete the pre-demolition audit and Alan Calcott meets the definition of a competent persons (as defined under BREEAM New Construction 2018, Wst 01), i.e., an individual who has appropriate knowledge of buildings, waste and options for reuse and recycling of different waste streams.

Signed : *Alan Calcott*

Title: Director – Carbon Plan Engineering

3. Contents

4. Executive Summary

This pre-demolition audit has been undertaken to assess the potential of refurbishment or reuse of materials in the existing NCP Car Park on the corner of Saffron Hill and St Cross Street (The Site) to set out a route to maximise the recovery of material for high grade or value applications.

Carbon Plan Engineering has been engaged to undertake a Pre-demolition audit based on a survey of the existing building to identify opportunities for reclamation, reuse and recycling from a demolition process. The recommendations made in this report are based on the findings of the Pre-Demolition Survey carried out by **Alan Calcott** on **13th July 2023**.

The report includes the results of the audit and a reclamation valuation survey. Together these identify the key demolition products and their potential for being recycled or reused.

The information in the report can be used to:

- Reduce the cost of disposal of the building
- Inform the project's Resource Management Plan
- This document sets out the process and results of the Pre-Demolition Audit and Demolition process taking account of any likely remediation works and stating the volumes of material recovered for recycling such as concrete, bricks, metals, wood/timber, etc.

NOTE: **Generally moveable and temporary items are excluded**

Key Conclusions

The Saffron Hill Car Park was completed in the mid 1960s and comprises a 6-storey car park and a two-storey office space. The car park levels are uninsulated and unheated.

The vertical structure which is primarily cast in situ RC concrete columns supporting a British Lift Slab construction constructed from concrete with steel reinforcement. These slabs have poured concrete infills to then form the ramps.

The foundations are deep concrete piles with Pile caps and a ground bearing slab.

The facades are a mix of light-weight metal mesh and sheet materials with concrete lattice work at ground floor. Brickwork and textured concrete panels clad the cores. The low floor to ceiling heights within the car park structure are typically 2.25m with half level height change in the central frame section.

Within the car park are water, drainage, lighting and fire safety services.

There are a significant number of metal grilles, barriers, bollards and other items.

Key targets for diversion from landfill have been proposed based upon experience of similar projects and the requirements of the new London Plan as set out below.

Achieving these waste diversion benchmarks also delivers the BREEAM 2018 Wst01.3 target:

Table Ex.1: BREEAM Target Waste Diverted and Landfill

Types of Waste	Tonnage
Non-Demolition	**95%**
Demolition	**95%**
Excavation	**95%**

- A strategic approach should be taken prioritising re-use before considering recycling or recovery.
- For Excavation waste the 95% diversion target should prioritise beneficial re-use of inert materials in its existing form

Table Ex.2: BREEAM Resource Efficiency Targets

No of BREEAM Credits	Waste Generated per 100m^2 (GIA)	
	m^3	tonnes
1	≤13.3	≤11.1
2	**≤7.5**	**≤6.5**
3	≤3.4	≤3.2
Exemplary Level	**≤1.6**	**≤1.9**

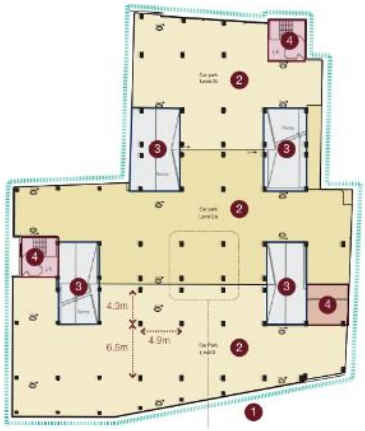
3. Project Information

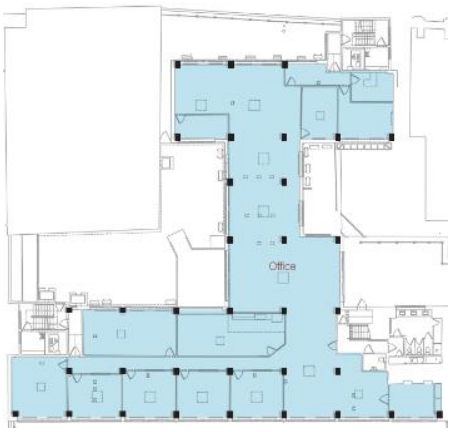
This report has been compiled to assess and confirm the BREEAM performance as related to the site. The report sets out the outcomes of the audit providing details of the site and general volumes of waste. It also makes recommendations on specific elements within the building that are key components for re-purposing.

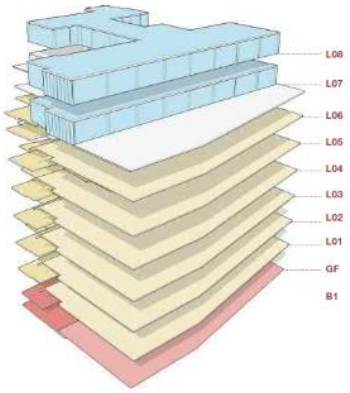
3.1. Site Context

The Saffron Hill Car Park sits within the administrative area of the Borough of Camden. The Site is situated within the Central Activities Zone location and proximity to Farringdon Station as identified in the Council's adopted Local Plan, with the existing car park is highlighted as a building that makes a negative contribution to the Hatton Gardens Conservation Area.

The Saffron Hill Car Park comprises a 6-storey car park and a two-storey office space. The car park levels are uninsulated and unheated. The facades are a mix of light-weight metal mesh and sheet materials with concrete lattice work at ground floor. Brickwork and textured concrete panels clad the cores. The low floor to ceiling heights within the car park structure are typically 2.25m with half level height change in the central frame section.







As the existing drawing shown above, the car park has the small but high density column grid, with 4.3m x 4.9m and 6.5m x 4.9m.

3.2. Site Description

The pre-demolition audit includes the proposed development area as noted in 4.1 the red block within the red circle boundary.

The site bounded to the NE and SW by other buildings and the existing building line finished at the public pavements to Saffron Street, Saffron Hill and St Cross Street.

A description of each area and building within the audit area is provided below:

Generally – the building is of concrete construction with the majority of the building being car parking. The office areas to the upper floors are in a poor state of repair.

The NW and S elevations of the site are bounded by other buildings which are being retained.

Hardstanding – The site is bounded by pavements on the public realm which are generally tarmac with some areas of block paving / concrete slabs

4. Purpose of the Pre-Demolition Audit

The purpose of this PDA is to describe the procedure by which waste should be managed by the contractor during the lifetime of this project.

This document will also act as a guide to contractor personnel on how to manage the types of waste, in accordance with statutory and best practice requirements.

- PDA benefit for the client and associated contractors include:
- Providing a structured and forward-thinking approach to waste management & sustainability on site;
- Assisting with compliance of internal environmental management systems, objectives and targets, and associated key performance indicators;
- Greater control of regulatory risks relating to waste storage, handling and disposal at a site level;
- Greater transparency with interested parties including BREEAM, Local Authority and the Environment Agency (EA);
- Identifying savings through improved resource efficiency, ordering, materials storage & handling to eliminate waste at source; and
- Enhance waste storage and segregation practices to facilitate higher recycling and recovery potential on site.

Waste Category	Type Of Material	Actual Volume (M3)	% Target & Method of Treatment / Disposal
PHASE 1 – Strip-out / Screen Removal / Enabling Works			
INERT	E.g. Uncontaminated demolition material, concrete, brick, glass	**Refer to Appendix B1**	**> 95% re-use off-site**
NON-HAZARDOUS	E.g. Plasterboard, general waste, timber, metals, carpets, vegetation, wiring / plumbing, plastics etc.	**Refer to Appendix B1**	**> 95% recycled off-site**
HAZARDOUS	E.g. Asbestos, asbestos containing materials, contaminated ground (oil / solvents), oils / fuel, tanks, refrigerants (old AC units etc), Oil filled transformers (inc PCBs), contaminated demolition material, contaminated fume cupboards.	**Unknown / by others**	**100% landfilled at a hazardous waste or for asbestos in a stable non-reactive hazardous waste cell)**

The assessment includes site-generated wastes (e.g. arisings and demolition specific waste such as concrete break out / re-bar) and imported waste materials (e.g. imported secondary aggregates / third party construction / demolition sites)

The project team has ensured the principles of the waste hierarchy (eliminate, reduce, reuse, recycle, disposal) have been applied to this PDA to enable best practice on site and to improve the overall sustainability of the project.

5. BREEAM requirement

This report has been produced in line with the requirements from the BREEAM New Construction 2018 assessment standard section on waste, in particular, **WST 01 – Project Waste Management**, which requires a pre-demolition audit of any existing buildings, structures or hard surfaces being considered for demolition be completed. This must be used to determine whether refurbishment or reuse is feasible and, in the case of demolition, to maximise the recovery of material for subsequent high grade or value applications.

5.1. Waste 01: Construction Waste Management

As per the BREEAM 2018 New construction guidance, the Contractor will be required to provide evidence in support of the proposed development achieving a minimum of **4 credits** against the Wst 01 credit criteria as detailed below.

5.1.1. Credit 1: Pre-demolition audit – 1 Credit

Requirement 1. A pre-demolition audit of any existing buildings, structures or hard surfaces being considered for demolition. This must be used to determine whether refurbishment or reuse is feasible and, in the case of demolition, to maximise the recovery of material for subsequent high grade or value applications. The audit must cover the following as a minimum:

- Identify and quantify the key materials where present and code them into appropriate construction waste groups
- Identify potential applications and any related issues for the reuse and recycling of the key materials in accordance with the waste hierarchy
- Identify opportunities for reuse and recycling within the same development – *None available as full demolition is required and site constraints preclude on site crushing of aggregate*
- Identify local re-processors or recyclers for recycling of materials
- Quantify overall recycling targets where as appropriate
- Quantify overall reuse targets as appropriate
- Quantify overall landfill diversion rate for all key materials

Additionally the demolition audit must:

a) Be carried out at Concept Design stage by a competent person prior to strip-out or demolition works – *This demolition audit has been carried out by Alan Calcott who is a BREEAM AP and has worked in the construction industry for over 20 years*.

b) Guide the design, consider materials for reuse and set targets for waste management – *This document achieves this in Sections 8*.

c) Engage all contractors in the process of maximising high grade reuse and recycling opportunities – *The client will need to engage with demolition and construction contractors with regards to the outcomes of this document and any subsequent work*.

Requirement 2. Make reference to the audit in the Resource Management Plan (RMP) or Site Waste Management Plan (SWMP) – *The main contractor to reference this document and the final demolition outcomes in their SWMP / RMP*

Requirement 3. Compare actual waste arisings and waste management routes used with those forecast and investigate significant deviations from planned targets. – *The main contractor to reference this document and the final demolition outcomes in their SWMP / RMP*

5.1.2. Credit 2: Construction resource efficiency – Up to 3 Credits

Requirement 4. Prepare a compliant Resource Management Plan (RMP) covering:

a) Non-hazardous waste materials (from on-site construction and dedicated off-site manufacture or fabrication, including demolition and excavation waste)

b) Accurate data records on waste arisings and waste management routes.

Requirement 5. Meet or improve upon the benchmark in Table 2.1 below for non-hazardous construction waste, excluding demolition and excavation waste - highlighted in Green:

Table 2.1: Resource Efficiency Targets

No of Credits	Waste Generated per 100m^2 (GIA)	
	m^3	tonnes
1	≤13.3	≤11.1
2	**≤7.5**	**≤6.5**
3	**≤3.4**	**≤3.2**
Exemplary Level	**≤1.6**	**≤1.9**

The targets are indicative and it will be the responsibility of the main contractor and their appointed demolition contractor to meet these targets.

5.1.3. Credit 3: Diversion of Resources from Landfill – 1 Credit

Requirement 6. Meet, where applicable, the diversion from landfill benchmarks in Table 2.2 for non-hazardous construction waste and demolition and excavation waste generated.

Requirement 7. Sort waste materials into separate key waste groups as per Table 5.1 (Section 5), either on-site or through a licensed contractor for recovery.

- ❑ Diversion from landfill includes:

- Reusing the material on site (in-situ or for new applications)
- Reusing the material on other sites
- Salvaging or reclaiming the material for reuse
- Returning material to the supplier via a 'take-back' scheme
- Recovery of the material from the site by an approved waste management Contractor and recycled or sent for energy recovery.

Table 2.2: Target Waste Diverted and Landfill

No. of Credits	Types of Waste	Volume	Tonnage
1	Non-Demolition	70%	80%
	Demolition	80%	90%
Innovation Credit 2	Non-Demolition	85%	90%
	Demolition	85%	95%
	Excavation	95%	95%

The achievement of Requirement 6 – 7 relating to the diversion of Resources from Landfill is the responsibility of the appointed Main Contractor and its appointed demolition subcontractors, however based upon the pre-demolition audit, Carbon Plan Engineering survey we see no reason that a minimum of 90% of the demolition waste can be diverted from landfill. In reality 95% could be achieved with some care.

6. Competent person

The pre-demolition audit was carried out by Alan Calcott, an environmental professional with more than 20 years' experience in a broad range of environmental disciplines, in construction and infrastructure projects both in the UK and internationally.

The report was also reviewed and finalised by Alan Calcott who has been working in the construction industry for over 20 years and has acquired appropriate knowledge of buildings, waste and options for reuse and recycling of different waste streams during this time. Alan Calcott has been a practicing BREEAM Assessor since 2008 and has undertaken multiple Demolition and Refurbishment surveys and his experience is in line with BREEAM New Construction 2018 Wst 01 definition of a competent person.

Refer to Appendix A1 for complete CVs.

To show compliance with the BREEAM Man 03 – Responsible Construction Management credit, any main contractor or separate demolition contractor must have in place a relevant Environmental Management System equivalent to ISO 14001.

7. Pre-Demolition Audit

Pre-Demolition audits identify opportunities for reclamation, reuse and recycling from a demolition process.

Pre-Demolition audits are recommended by The Institute of Civil Engineers and can be requested for planning requirements. They are designed to highlight the potential for maximum material recovery through demolition and provide an estimate of types, volumes and tonnages that will arise.

The aim of a Pre-Demolition Audit, Sequential Demolition is to facilitate and maximize resource recovery of demolition materials for beneficial reuse/recycling, without compromising all safety measures and practices outlined in the standard **BS 6187 Code of Practice for Demolition**.

7.1. Recycling & reuse initiatives

As part of the development of this PDA, the following initiatives have been reviewed and agreed upon, aiming to reduce the amount of waste produced during demolition and construction, and assisting in the recycling and reuse of waste as an alternative to offsite disposal.

Recycling Off Site:

- Plastic packaging
- Paper and cardboard
- Plasterboard via British Gypsum / Knauf
- Concrete and demolition wastes processed to engineered spec / WRAP
- Re-use of wood waste (e.g. shoring and shuttering)

7.2. Scope of works

Carbon Plan Engineering were engaged to undertake a complete Pre-Demolition Audit prior to demolition works commencing to enable materials capable of being recovered for recycling to be identified (such as concrete, bricks, metals, wood/timber, etc). The benefit of this includes identifying potential resources available and the level of material segregation required to achieve this potential which normally depends on the type of buildings to be demolished.

The audit set out in this document covers:

- Types of waste generated on-site
- Quantity of waste
- Recovery/Recycling Target

The audit was based on non-intrusive site surveys and desktop reviews of plans and other surveys provided.

The audit report does not offer technical advice on the demolition process but focuses on the environmentally preferable options for the reuse and recycling of parts of the structure and internal fixtures and fittings as appropriate.

Within the audit we include many items that may be stripped out by the tenants of various parts of the building, however wherever possible they should provide records of how they have managed these works and of what waste was produced and what was diverted from landfill.

For many of these items it is not possible to accurately quantify the amount (volume / weight) that will be produced however these are noted in the accompanying spreadsheet – refer to Appendix B1.

No Loose items of furniture or equipment are included.

7.3. Review of Reclaimable and Recyclable Materials

The Site has been assessed with a review of all the materials within the building, separating the materials into one of the three categories and this is reflecting in the Appendix B1 spreadsheet:

- Reclaimable – where materials can be re-used in their current form
- Recyclable – where materials can be processed by a recycling facility into a secondary product / use
- Landfilled – Where materials can't be reclaimed or recycled.

The followings sections provide a dialogue and description of the key materials while categorising them into one of the above .

7.3.1. Timber products

Garden furniture

The external area to the upper floor offices has some timber furniture and decking. All to be recycled as at end of life.

Timber Doors, Architraves, skirtings, etc

There are a significant number of internal and external doors spread over all floors. In our opinion none of these are in a good enough state of repair to be retained for re-use and it is assumed that 100% of these will be sent for recycling / energy from waste.

The Strip-out contractor should consider whether any of these doors could be reclaimed for re-use rather than simply being reprocessed.





7.3.2. Glass products

Windows

The majority of the windows are installed in the upper two floors in the office façade. These are all uPVC double glazed replacement windows and are assumed to be at the end of life. There are some internal windows and glazed doors.

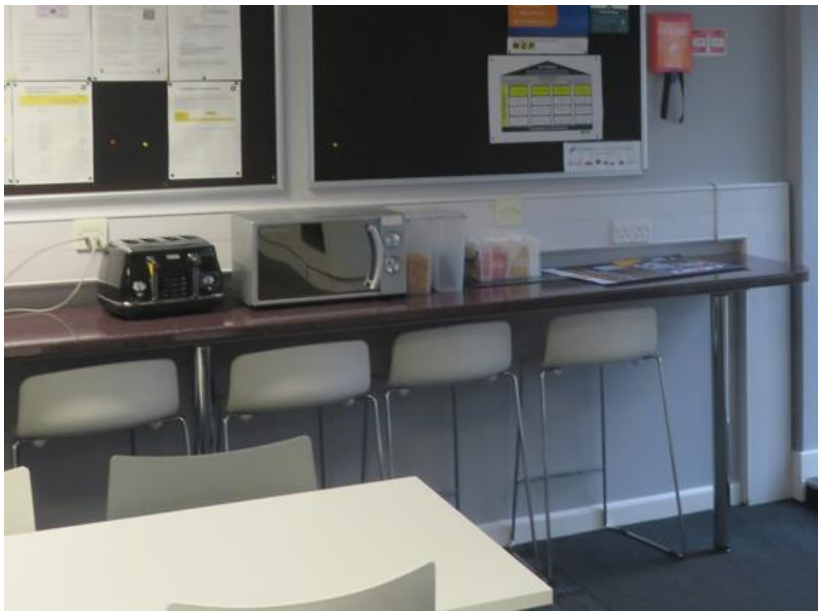
Glass is to be removed carefully and kept separate from all other materials to enable it to be recycled into clear glass in the future.

Frames are to be sent for reprocessing to reuse or recycled off site.

7.3.3. Fixed furniture, storage kitchens and kitchenettes

Kitchen

There is a fitted kitchen in the office area along with a breakfast bar. These are not reclaimable and are to be reprocessed.



WC Fitted Cubicles / Worktops

There are a number of timber finished cubicles which are at end of life and not suitable for reclamation. The worktops are also of timer.

All to be reprocessed.

7.3.4. Ceilings

Suspended tile ceiling

The office ceilings are predominantly a lay in grid ceiling.

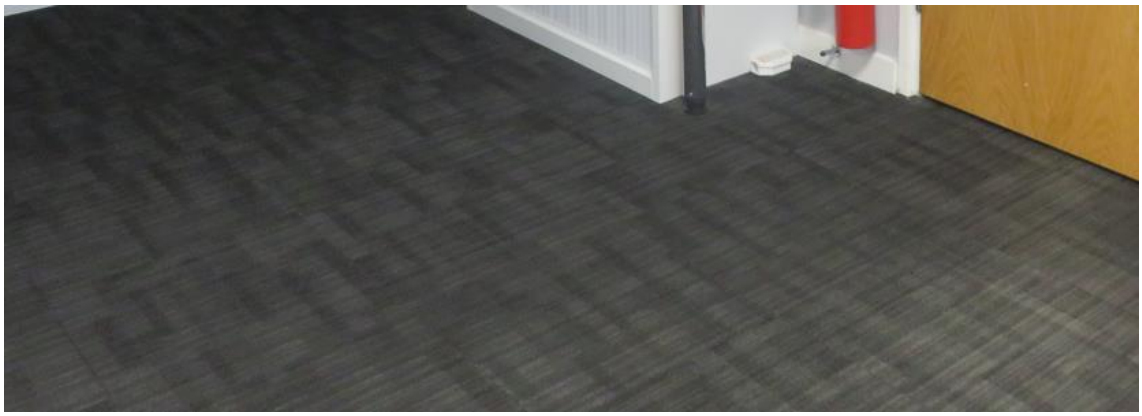
These are showing their age and are the end of life.

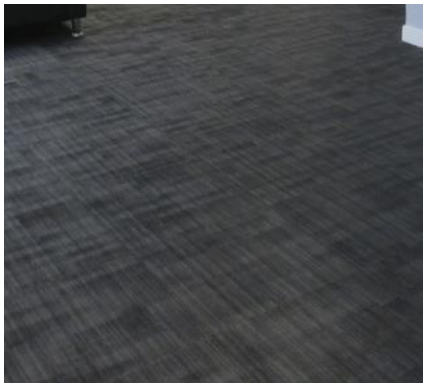
All are to be recycled / reprocessed.

7.3.5. Internal Finishes and fittings to Offices

Floor Coverings

The majority of the floor coverings are carpet in a generally worn condition





There are some areas with other floor finishes including vinyl and timber (assumed Laminate) and again these are in a worn condition.

WC areas all have vinyl finishes.

All floor finishes to be sent for recycling and reprocessing.

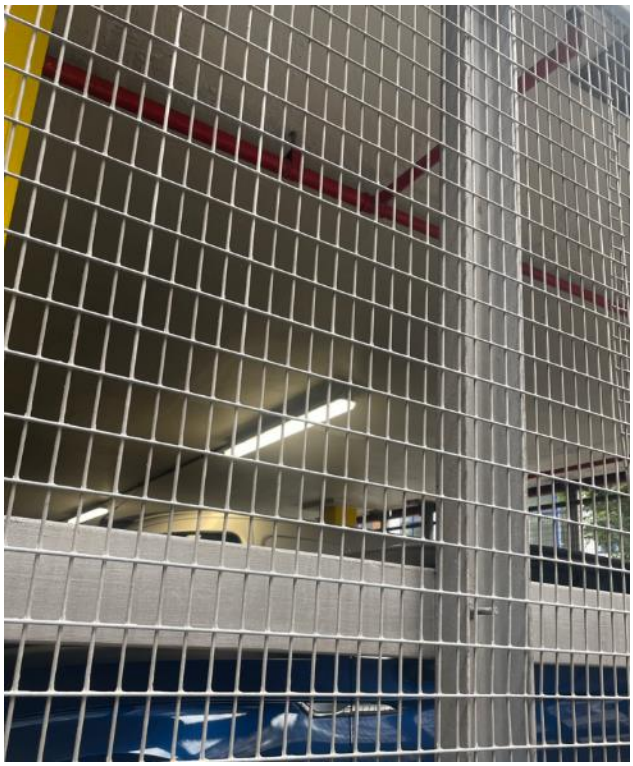
Sanitaryware

There are various items of Sanitaryware which are in a reasonable condition and some effort should be made to try and find routes for re-use wherever possible.

7.3.6. Steel Products

Facade

The façade has significant areas of steel as noted – not of this is deemed to be reclaimable but the demolition contractor should aim to reclaim mesh if a possible use can be found. The metal cladding is to be reprocessed.



There may be some opportunities to reuse the steel members from this façade for plant enclosures and other external metalwork.

Otherwise all steel members to be sent for Reclamation wherever possible.

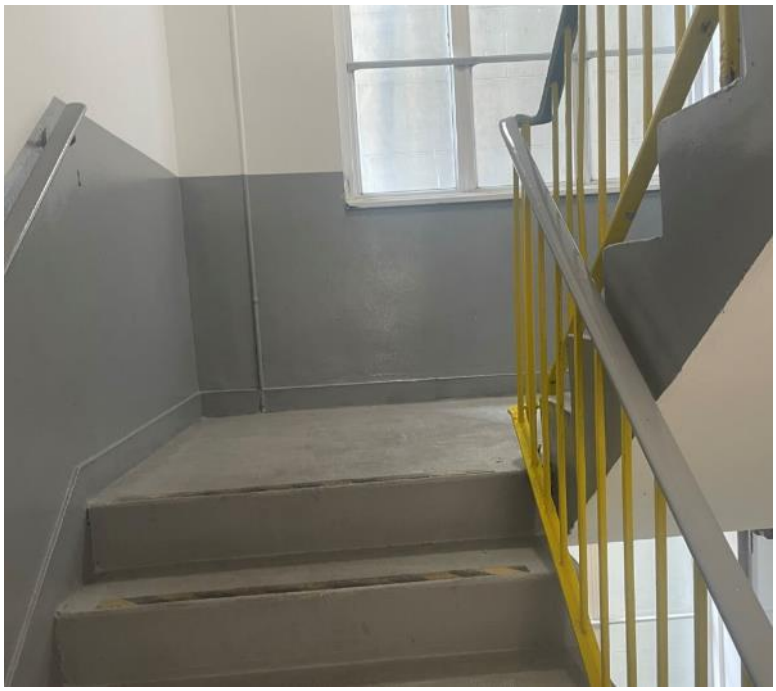
Steel Barriers

Throughout the car park are steel ‘Armco’ barriers of two different types. Prior to demolition the operator – NCP – are to be contacted to ascertain if they have a use for these barriers elsewhere.

Where these cannot be reclaimed they are to be sent for Reprocessing / Recycling.

Internal and External Handrails

The existing handrails are likely not able to be reused on any stairs as they are generally made to fit a specific stair. All are to be sent for Reprocessing / Recycling.



Entrance Shutter

The existing entrance shutter appears to be in good condition but is unlikely to be able to be re-used as these tend to be bespoke items.

There are various other elements of metal railings, meshes, posts, etc – including the rebar in the main structure – which can be reclaimed and recycled.

7.3.7. Brick, Clay and Concrete products

Brick

The brick lower walls may be of a quality to be reclaimed if it is removed carefully, but is more likely to be sent for reprocessing and potentially used as aggregate on or off site.

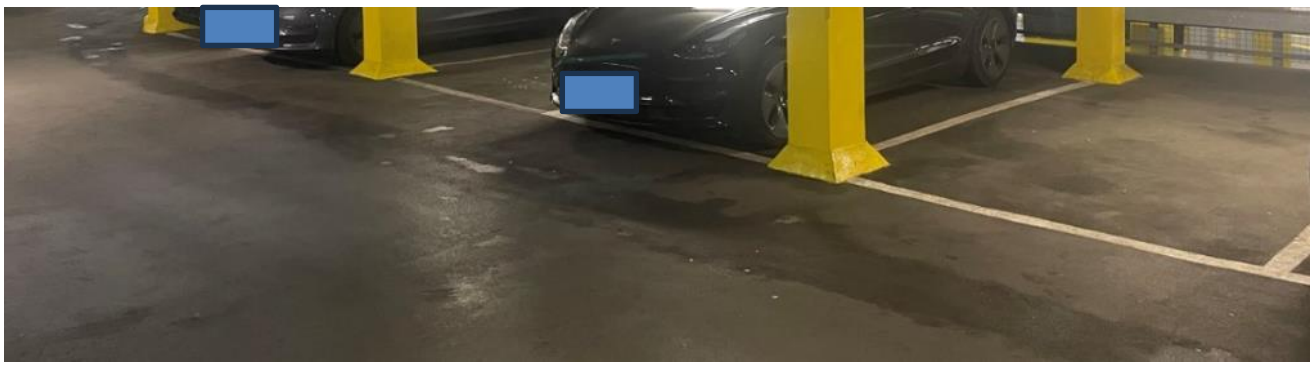
The brick walls to the upper sections are all painted and are not fit for reclamation and so should be sent for reprocessing and potentially used as aggregate on or off site.

Concrete panels

The concrete and rendered facades should be sent for recycling along with all other concrete from the main structures.

Tarmac Areas

The entire surface of the existing car park is tarmac as well as the majority of the pavement areas. All to be sent for recycling.



7.3.8. Other Products

Car Parking Equipment

There are a number of specialist items such as Pay Stations, Barriers, etc which could be of use to NCP on other projects. The team is to engage with NCP to confirm whether they wish to re-use these items on other sites.

7.4. Potential Reuse/Recycle/Disposal Options including Local re-processors or recyclers

Generally the most useful resources for re-use and reclamation in London are set out below:

https://relondon.gov.uk/

ReLondon is a partnership of the Mayor of London and the London boroughs to improve waste and resource management and transform the city into a leading low carbon circular economy.

https://londonrecycles.co.uk/

London Recycles is supported by the Mayor of London, collaborates with London's councils and waste authorities, and is managed by ReLondon.

https://reuse-network.org.uk/

The Re-Use Network supports a network of charitable reuse organisations, we are helping our members connect with the most isolated and vulnerable members of their communities.

7.5. Furnishings & Finishes

If furnishings are in good condition, these could be reused, if not onsite then by another company or enterprise.

For items that cannot be reused on site the following recommendations are proposed for reuse or recycling by other parties and to ultimately reduce the amount of waste being sent to landfill (complete table as required).

Item Group	Proposed reuse or recycling	Organisation contact information
Ceramic toilets, urinals, sinks	Various Sinks, WCs and showers in a reasonable repair could be reclaimed.	**National** http://www.globechain.com **Local** http://www.dulwichreclamation.co.uk/ 130-132 Kirkdale, London SE26 4BB 07833 432 372 Distance to site - ~ 45 miles
Catering kitchen (metal sinks, ovens, storage units, countertops, fridges)	There are several schemes available including the reuse/recycling firm envirowaste, Kitchen Clearance UK (a commercial kitchen specialist who refurbish and supply catering equipment from professional kitchens), and Globechain.	**National** https://envirowastemanagement.com www.kitchenclearanceuk.co.uk http://www.globechain.com **Local**

Item Group	Proposed reuse or recycling	Organisation contact information
		https://www.preownedkitchens.co.uk/ Pre Owned Kitchens Kemp House 152-160 City Road London EC1 2NX 0208 166 9990 Distance to site - ~ 2 miles
Carpet tiles	Commercial carpet tiles are often replaced or removed long before the end of life due to soiling or stains which could be cleaned. After recovery and grading, carpet tiles are then supplied to charities, schools, businesses, contractors and for public reuse.	**National** No local organisations recorded. **Local** https://www.londonreclamation.net/ 181 Kirkwood Road, SE15 2BG 0207 6398 909 Distance to site - ~ 5.4 miles
Vinyl Floor Coverings	Vinyl Floor Coverings are often replaced or removed long before the end of life due to soiling or stains which could be cleaned. These are unlikely to be re-used but should be sent for reprocessing.	**National** No local organisations recorded. **Local** https://www.londonreclamation.net/ 181 Kirkwood Road, SE15 2BG 0207 6398 909 Distance to site - ~ 5.4 miles

7.6. Building & Hard Landscaping Elements

To maximise materials reuse and recycling, segregation during the strip out should be implemented on site wherever possible.

The following options will allow the percentage savings illustrated previously to be made.

Material	Recommendation	Link
Plasterboard	British Gypsum offer plasterboard recycling and have a dedicated Plasterboard Recycling Service Team. Their service is based on the principles or simplicity and reliability and are the only plasterboard manufacturer in the UK with dedicated plasterboard recycling facilities at their manufacturing sites.	**National** https://british-gypsum.com/about-us/csr/environmental-challenges/plasterboard-recycling **Local** N/A – National schemes only
Timber	The social enterprise Community Wood Recycling provide a commercial waste wood collection service. 100% of the waste wood collected is re-used or recycled (nothing goes to landfill). They collect virtually all waste timber, wood composites, furniture and wooden items regardless of type or condition.	**National** https://communitywoodrecycling.org.uk https://solowoodrecycling.co.uk **Local** https://www.londonreclamation.net https://www.londonreclamation.net/ 181 Kirkwood Road, SE15 2BG 0207 6398 909 Distance to site - ~ 5.4 miles
Metals	Most waste disposal companies achieve a 100% metal recycling rate as standard.	**National** N/A – Many local options **Local** http://artametalscrap.co.uk Arta Scrap Ltd, Unit 6, 6 Coombe Rd, Neasden, London, NW10 0EJ **Tel:** 02036431762 Distance to site - ~11.3 miles
Glass	Can be recycled by crushing and for use an aggregate either directly or via construction disposal route.	**National** https://www.upvc-recycling.co.uk/ **Local** https://mayglassrecycling.co.uk/contact May Glass Recycling Ltd, Unit 5 Salamons Way, Rainham, RM13 9UL Telephone: 020 8524 5500 Distance to site - ~15.9 miles

7.7. Mechanical and Electrical Elements

To maximise materials reuse and recycling, segregation during the strip out should be implemented on site wherever possible

Equipment	Scheme	Link
Fluorescent lamps / tubes / LED	Companies such as Ecolamp Recycling Solutions ensure all waste lamps and tubes are recycled.	**National** https://ecolamp.co.uk/lamps **Local** https://www.pureplanetrecycling.co.uk/weee-recycling-london/ 90 Paul St, London EC2A 4NE Tel : 01234 315496 Distance to site - ~1.4 miles
Cables and switchgear	Cables contain many valuable metals which can be reprocessed relatively easily.	**National** https://www.cablewirerecycling.co.uk/ **Local** https://surplex.co.uk Surplex UK Limited, Unit 3A, 34-35 Hatton Garden, London EC1N 8DX 0207 139 5175 Distance to site - ~1 miles
General Plant	Companies such as Industrial Disposal undertake to purchase redundant plant for Third World Use. They buy and recycle used industrial plant from around the UK including London. Plant types they but include industrial boilers, generators, transformers, switchgear, chillers and air-conditioning and refrigeration plant.	**National** https://wwww.industrialdisposal.net/services/plant-purchasing **Local** https://www.pureplanetrecycling.co.uk/weee-recycling-london/ 90 Paul St, London EC2A 4NE Tel : 01234 315496 Distance to site - ~1.4 miles

8. Demolition

9.1. Demolition Process

The demolition process is separated into phases in which one type of material is carefully dismantled at a time and salvaged for reuse and recycling. The wastes generated in each dismantling stage are of similar types and nature such that contamination of nonrecyclable items can be significantly reduced.

The principal phases of Demolition involved the following:

- Stripping of deleterious materials (such as asbestos, lead etc) which may contaminate the clean concrete debris of building bearing structure.
- Stripping out of lose and fixed furnishings and finishes such as kitchenettes, flooring, ceilings, etc.
- Stripping out of all services – after safe disconnections have been made – ensuring that any refrigerants, gases, etc are drained from the systems present.
- Demolition of part of the building structures with higher concrete content (such as concrete parapet walls, etc).
- Step-by-step demolition of the bearing and main structure by dismantling part of the structures that are of similar materials to avoid contamination of clean concrete debris and allow separation of concrete debris with other demolition arising.

All demolition materials arising from or in connection with the demolition work must be separated into different groups, such as concrete, bricks, metals, wood/timber, etc. To facilitate sorting, allocation of on-site temporary storage points for various materials generated from the demolition process were provided before sending them off-site. These sorted materials were then delivered to an approved disposal facility or accredited recycling facilities for further processing into recycled products and aggregates for beneficial reuse/recycling.

9.2. Description of Demolition works

As part of the demolition works the following general steps should be undertaken before demolition and strip-out works start to build upon the contents of this report:

- The types of material used in the construction of the building through desk study of the building plans and site visits should be confirmed by intrusive surveys.
- The construction method, structural framing system, and critical building elements that need special treatment during demolition are assessed.
- A set of the phased building plans of the structures to be demolished should be produced as part of a demolition management plan / method statement. The key aim of this from an environmental perspective is to establish the most effective demolition sequence to reclaim and recycle the key material components identified in the audit. It should state clearly the sequence of strip-out and demolition of

structural elements on each floor, i.e. finishes, furnishings, services, parapets, brick wall, slabs, beams, columns, walls, etc.

9.3. The Demolition Management Plan / Method Statement is to be developed including as a minimum:

- Identifying existing fixtures and fittings that may affect the demolition progress and need to be removed prior to commencement of demolition works (such as false ceiling, air conditioning units, doors, wooden floors, partitions, ceilings, windows, and other mechanical services).
- Identifying part of the building structures with higher concrete content (such as concrete parapet walls, slabs, columns, etc).
- Identifying potential removal of materials which may contaminate the clean concrete debris (such as bricks, tiles, etc) and the level of material segregation/sorting required.

9.4. Demolition Phases

The following sets out at a high level the phases that the contractor should undertake in the demolition process.

Phase 1 – Strip out

- Removal of existing fixtures, fittings & services (such as false ceiling, air conditioning units, ductwork doors, wooden floors, partitions, ceilings, windows, and other mechanical services).
- Stripping of deleterious materials which may contaminate the clean concrete debris of building bearing structure (such as asbestos, lead etc).

Phase 2 – Demolition

- Demolition of the bearing and main structure to be progressed in conformance with the method statement.
- Demolition of part of the building structures with higher concrete content (such as concrete parapet walls, etc).
- Step-by-step demolition of the bearing and main structure by dismantling part of the structures that are of similar materials to avoid contamination of clean concrete debris and allow separation of concrete debris with other demolition arising.

Phase 3 – Segregation and separation

- Separation of demolition debris into different groups (such as concrete, bricks, metals, wood/timber, plastic, etc).
- Proper labelling and storage of sorted waste generated in the demolition process.

9.5. Waste Storage and Disposal Options

It is the responsibility of the Main Contractor and its appointed demolition subcontractor to ensure that suitable waste storage facilities / arrangements must be made are available on site to ensure effective segregation of wastes on site.

Waste disposal, where possible, shall consider the implications of long-distance travel in terms of health and safety risk, commercial terms and increased emissions from vehicles.

Details of all waste carriers, including waste carriers number should be captured by the Main Contractor and its appointed Demolition subcontractor and held within its relevant documentation including Construction Site Waste Management Plan.

9.6. Project waste policy

All materials on site are to be handled efficiently. The site manager shall:

- Ensure all waste collections are coordinated
- Ensure dedicated storage yard / area provided and that materials susceptible to water damage (e.g. cement bags / plasterboard) are stored within a weather-proof area;
- Ensure materials are stored in a manner that will not result in fire or damage.
- Ensure stores are locked when not in use to prevent misuse or vandalism.

Provision of suitable containers for the collection and storage of identified waste streams to be provided across the site;

Dedicated waste storage area with suitable hard standing for containers to be established (e.g. open builders skip / Rear End Loaders REL), in a secure location, preferably set back from public access (to prevent fly tipping), ensuring skips (wherever possible) are at least 8m away from any building. Area to be suitably signed, clearly identifying permitted wastes (aiding segregation) and marked on both the site plan and the traffic management plan;

Hazardous waste:

- Used aerosols – throughout the lifetime of the project; store in segregated and labelled container e.g. empty 205L drum / wheelie bin;
- Contaminated arisings encountered during remediation of contaminated land for brownfield developments or hot spot removal exercises;

All waste transfers from site MUST be dealt with in strict accordance with the Environmental Protection (Duty of Care) Regulations 1991 (as per section 34 of the Environmental Protection Act 1990). This will be enforced on site ensuring the commitment made by the project officer.

10. Conclusion

This pre-demolition audit has highlighted where there are opportunities for resource efficiency, reuse and recycling options ensuring diversion from landfill.

As shown in Appendix B1 almost all items quantified can be diverted from landfill and so the overall diversion from Landfill target will be >95% and with good practice on site will be close to 100%.

This pre-demolition audit report should be made available to all the project team and relevant contractors to enable this information to guide the design, giving consideration of the materials and equipment that can be reused and ensure contractors are engaged in the process of maximising high-grade reuse and recycling opportunities.

The report shall form the basis for a review at the end of the project to determine actual waste arising and waste management routes used will be compared with those forecasts from the audit and enable the barriers to achieving targets to be investigated.

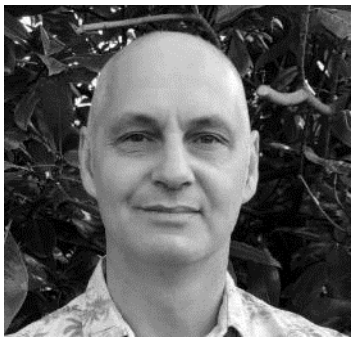
The audit shall be referenced in the resource management plan and cover:

- Identification and quantification of the key materials where present on the project
- Potential applications and any related issues for the reuse and recycling of the key materials in accordance with the waste hierarchy.
- Identification of local re-processors or recyclers for recycling of materials
- Identification of overall recycling rate for all key materials
- Identification of reuse targets where appropriate.
- Identification of overall landfill diversion rate for all key materials.

Appendix A1: CVs

Alan Calcott

Alan Calcott has undertaken over 20 demolition audits, worked in the construction industry for 25 year and been a BREEAM Assessor since 2009.



Alan Calcott

Title: Director

Location: London, UK

Role: Alan is a Director of Carbon Plan Engineering and oversees the growth of the business as well as primarily delivering planning stage Energy Strategies, BREEAM Certification and Renewable Energy Feasibility.

Using the knowledge gained through education and experience from within the housebuilding and construction industry Alan manages the delivery of consultancy service across a diverse workload within the sustainability spectrum.

Responsibilities:

Alan will be responsible for quality assurance and compliance with all relevant technical guidance as well as having overall responsibility for Planning stage reports and sustainability generally.

Projects Experience:

Eightlands District heating, Kirklees Council

Acute Mental Health Inpatient Facility, Planning, BREEAM and sustainability

Kensington Palace Orangery, BREEAM and sustainability

ESFA Framework, BREEAM on over 20 schools including Harris Invictus

Penwortham Extension, BREEAM and Sustainability

National Autism Unit, Lifecycle Carbon Assessment

Core Competencies:

- ❑ BREEAM Assessor
- ❑ Lifecycle Carbon Assessments
- ❑ Investment Grade Energy Audits
- ❑ TM52 Thermal Comfort analysis
- ❑ TM54 Operational Energy analysis
- ❑ EPC / DECs
- ❑ LZC Renewable Feasibility
- ❑ Part L compliance

Education:

Architecture: Advanced Environmental and Energy Studies to MSc – 2005

Low Carbon Consultant

Non-Domestic Energy Assessor

BREEAM Assessor, all schemes

BREEAM AP

Appendix A2: Carbon Plan Environmental Policy

The following is a summary of our environmental policy.

Overview

Carbon Plan Engineering Limited is a small and medium-sized enterprise not bound by the legal requirements to provide a formal ISO 14001 or Environmental policy and we feel our impacts are minimal, however we all must work to create a better environment and minimise the impacts of the business.

Commitments

Carbon Plan Engineering is committed to managing its activities within the principles of this guidance and, wherever practical, and as part of our company culture will minimise any harmful impact on the environment from its activities.

Carbon Plan Engineering recognises and support the need to conserve vital resources, and are committed to seeking the best and most efficient use of energy consistent with related costs and environmental implications.

Our Environmental objectives are supported through:

- The design of energy efficient, Low Carbon buildings
- Continuously seeking further cost effective measures to improve the overall thermal performance of buildings and reduce the reliance on Fossil Fuels and Grid supplied electricity
- Continuing the appraisal of purchasing arrangements for fuels and energy, and by the monitoring of associated tariff arrangements
- The specification of components free of CFC and Green House Gases (GHG), and by the use of alternatives free of other hazardous materials where possible
- Recognition of the impact of Carbon Dioxide (CO_2) and other harmful emissions resulting from energy production when choices are available
- The specification, wherever possible, of timber from temperate or sustainable tropical sources only
- The specification of materials with regards to their impact on the environment, with preference being given to those from recycled and/or sustainable sources where practical (Green Guide Rating of A+ or A)
- The reduction, where practical, in the amounts of materials used
- The phasing out of materials with a harmful effect on the environment and their replacement by environmentally friendly materials where reasonably practical
- The understanding of, and compliance with, all Environmental Legislation and the application of BS 7750 for Environmental Management

The full policy can be requested by emailing enquiries@carbonplan.co.uk

Appendix B1: Pre-Demolition Audit Data Sheet

The following is the inserted outputs from the accompanying Waste Data Reporting spreadsheet.

Saffron Hill - NCP Car Park		✓			✓		✓		✓		22ndNov 2023	Rev	-	
List of waste identified on site and estimated to be generated during the project														
Waste Type	EWC Code	Produced	Re-use on site?	Re-use %	Reclaim for re-use	Reclaim for re-use %	Recycle / reprocess	Recycle %	Safe Disposal	Landfill	Landfill %	Estimate Quantity	Units	Comments / Describe how reduced, reused, recycled
Aluminium	17.04.02													
Asbestos (bonded)	17.06.05*													
Asbestos (fibrous/insulation)	17.06.01*													
Bituminous mixtures - Roof	17.03.02	✓					✓	100%			0.00%	1,405.7	m2	Upper Floor Areas
Bituminous mixtures - Car Park	17.03.02	✓					✓	100%			0.00%	330.9	m3	Surfacing to car park - Assumes 35mm thickness
Bituminous mixtures - Pavements	17.03.02	✓					✓	100%			0.00%	43.2	m3	Various tarmac on pavements
Brick whole	17.01.02	✓					✓	100%			0.00%	56.9	m3	Bricks are mostly painted to upper floors Bricks to lower floors are not of good quality and so not reclaimable
Cable	17.04.11	✓					✓	100%			0.00%	unknown		TBC by Demo Contractor
Carpets, curtains and other geotextiles	20.01.11	✓					✓	100%			0.00%	1,166.3	m2	Carpets to Upper Offices
Ceiling Tiles - Mineral wool based	17.06.04						✓	100%			0.00%	1,166.3	m2	Ceilings to Upper Offices
Concrete - Blocks	17.01.01	✓					✓	100%			0.00%	140.4	m3	Blockwork will be recycled
Concrete - Panel Façade	17.01.01	✓					✓	100%			0.00%	35.6	m3	Façade Panels will be recycled
Concrete - Superstructure	17.01.01	✓	✓	2.5%			✓	98%			0.00%	2,573.8	m3	Some below walls to be retained in situ
Concrete - PreCast Columns	17.01.01	✓					✓	100%			0.00%	168.1	m3	
Concrete - Substructure	17.01.01	✓	✓	56%			✓	44%			0.00%	751.9	m3	Pile Foundations to be retained in situ
Concrete - External Areas	17.01.01	✓					✓	100%			0.00%		m3	
Cement Render - External	17.01.01	✓					✓	100%			0.00%	8.4	m3	Rendered facades on blockwork
Copper	17.04.01	✓					✓	100%			0.00%	unknown		Various water and refrigerant pipes TBC by Demo Contractor
Demolition wastes containing dangerous substances	17.09.03*													
Discarded electrical equipment (no dangerous substances)	16.02.14						✓	100%				unknown		Various - See Demo Audit
Excavated soil (contaminated)	17.05.03*													
Excavated soil (non-contaminated)	17.05.04	✓					✓	100%			0.00%	unknown		TBC by Groundworks Contractor
Fluorescent tubes	20.01.21*													
Glass - Windows	17.02.03	✓					✓	100%			0.00%	4.89	Tonnes	Double Glazed Units
Glass - Internal Partitions	17.02.02													
Gypsum based wastes (Plasterboard)	17.08.02	✓					✓	100%			0.00%	609.4	m2	Plasterboard Partitions to offices
Insulation (Mineral wool)	17.06.04													
Insulation (Other)	17.06.04	✓					✓	100%			0.00%	unknown		TBC by Demo Contractor
LED Lighting - containing POPs and hazardous substances	16-02-13*	✓							✓	100%	0.00%	unknown		TBC by Demo Contractor
LED Lighting - containing NO hazardous substances	16-02-14	✓					✓	100%			0.00%	unknown		TBC by Demo Contractor
Mattresses, furniture and other bulky household items	20.03.07													
Metal - Posts & Bollards	17.04.07	✓			✓	95%	✓	5%			0.00%	7.39	Tonnes	Assumed that posts can be sold / re-used - Liaise with NCP
Metal - Cat Ladder and Railings	17.04.07	✓	✓	0%	✓	0%	✓	100%			0.00%	0.32	Tonnes	Assumed that barrier can be sold / re-used - Liaise with NCP
Metal - Barriers - Armco	17.04.07	✓			✓	95%	✓	5%			0.00%	15.95	Tonnes	Assumed that these be sold / re-used - Liaise with NCP
Metal - Façade panel	17.04.07	✓					✓	100%			0.00%	1.37	Tonnes	Assumed that the façade panel to be recycled - Liaise with NCP

Saffron Hill - NCP Car Park		✓			✓		✓		✓		22ndNov 2023	Rev	-	
List of waste identified on site and estimated to be generated during the project														
Waste Type	EWC Code	Produced	Re-use on site?	Re-use %	Reclaim for re-use	Reclaim for re-use %	Recycle / reprocess	Recycle %	Safe Disposal	Landfill	Landfill %	Estimate Quantity	Units	Comments / Describe how reduced, reused, recycled
Metal - Grilles / mesh - Internal	17.04.07	✓					✓	100%			0.00%	1.45	Tonnes	Assumed all mesh for recycling
Metal - Rebar	17.04.07	✓					✓	100%			0.00%	404.64	Tonnes	Assumed all rebar for recycling
Metal - Steel Framing - Facade	17.04.07	✓			✓	95%	✓	5%			0.00%	20.36	Tonnes	Around 1,700 lm of C channels which can and should be reclaimed -
Metal - Grilles / mesh - Facade	17.04.07	✓			✓	95%	✓	5%			0.00%	5.02	Tonnes	Assumed that mesh can be sold / re-used - Liaise with NCP
Metal - Window Frames	17.04.07	✓					✓	100%			0.00%	2.53	Tonnes	Aluminium frames to Double Glazed Units
Metal fames to Ceilings and Partitions - Steel	17.04.07	✓					✓	100%			0.00%	4.40	Tonnes	Assumed all steel
Metal - Radiators	17.04.07	✓					✓	100%			0.00%	1.68	Tonnes	Assumed all steel
Mixed demolition and construction wastes	17.09.04	✓					✓	100%			0.00%	unknown		TBC by Demo Contractor at completion
Mixtures of concrete, bricks, tiles and ceramics	17.01.07	✓					✓	100%			0.00%	unknown		TBC by Demo Contractor at completion
Other (specify) - Payment Machines & Gates	WEEE - POP?*	✓			✓	100%					0.00%	N/A		Assumed that payment points and entrance barrier can be sold / re-used - Liaise with NCP
Other (specify) - EV Chargers	WEEE - POP?*	✓			✓	100%					0.00%	10.0	No	Assumed that car chargers can be sold / re-used - Liaise with NCP
Other (Specify)														
Paper	20.01.01													
Plastic	17.02.03	✓					✓	100%			0.00%	unknown		TBC by Demo Contractor at completion
Refrigerators and air/con equipment	16.02.11*	✓					✓	100%			0.00%	unknown		Various - See Demo Audit
Stone Slabs / Stone Facades	17.05.04	✓					✓	100%			0.00%	6.8	m3	115.9 linear meters stone kerb
Services - AC Indoor Unit	20.01.23*	✓					✓	75%	✓	25%	0.00%	28.0	No	Internal VRF units - Assumed mostly recycled
Services - AC Outdoor Unit	20.01.23*	✓					✓	75%	✓	25%	0.00%	11.0	No	Outdoor VRF / Split condensor units - Assumed mostly recycled
Services - AC Outdoor Unit	20.01.23*	✓					✓	75%	✓	25%	0.00%	2.0	No	Large outdoor ASHP type units - Assumed mostly recycled
Tiles and ceramics	17.01.03	✓					✓	100%			0.00%	unknown		Various - See Demo Audit
Tiles, ceramics, etc. containing dangerous substances	17.01.06													
Wood - External Decking, Benches, etc	17.02.01	✓					✓	100%			0.00%	unknown		Various - See Demo Audit
Wood - Doors	17.02.01	✓					✓	100%			0.00%	113.0	No	Wooden Doors - Unreclaimable
Wood - Flooring	17.02.01													
Wood - General	17.02.01	✓					✓	100%			0.00%	unknown		TBC by Demo Contractor at completion

Appendix B2: Pre-Demolition Audit Checklist

To be completed by Contractor

Project Stages		Questions to consider	Tick if 'Yes'	Comment: If 'yes', what action have you taken/do you propose to take? If 'no', why not?
Policy	1	Has your organisation adopted a waste management policy?		
	2	Has the client signed the Site Waste Management Plan?		
	3	Have relevant sub-contractors producing significant wastes steams been identified?		
	4	Have the identified sub-contractors signed the Site Waste Management Plan?		
Procurement	5	Has a careful evaluation of materials been made so that over- ordering and site wastage is reduced?		

Project Stages		Questions to consider	Tick if 'Yes'	Comment: If 'yes', what action have you taken/do you propose to take? If 'no', why not?
	6	Has full consideration been given to the use of secondary and recycled materials?		
	7	Is unwanted packaging to be returned to the supplier for recycling or re-use?		
	8	Can unused materials be returned to purchaser		
Project planning	9	Has responsibility for waste management planning and compliance with environmental legislation been assigned to a named individual at both main contractor and identified sub- contractors?		
	10	Has a project programme been developed to include likely waste arisings (how much, when, and what types)?		

Project Stages		Questions to consider	Tick if 'Yes'	Comment: If 'yes', what action have you taken/do you propose to take? If 'no', why not?
	11	Has an area of the site been designated for waste management, including segregation of waste?		
	12	Have targets been set for the different types of waste likely to arise from the project?		
	13	Have measures been put in place to deal with expected (and unexpected) hazardous waste?		
	14	Has disposal of liquid wastes such as wash-down water and lubricants been considered?		
	15	Where relevant, has discharge consent been obtained from the Agency?		
	16	Has agreement been sought from the sewerage company for trade effluent discharge?		

Project Stages		Questions to consider	Tick if 'Yes'	Comment: If 'yes', what action have you taken/do you propose to take? If 'no', why not?
	17	Have opportunities been considered for re-use of materials on site?		
	18	Have opportunities been considered for re-use of materials off site?		
	19	Have opportunities been considered for on-site processing and re-use of materials?		
	20	Have opportunities been considered for reprocessing materials off-site?		
	21	Have you considered the most appropriate sites for disposal of residual waste from the project?		
	22.	Are there opportunities for reducing disposal costs from waste materials which may have a commercial value?		

Project Stages		Questions to consider	Tick if 'Yes'	Comment: If 'yes', what action have you taken/do you propose to take? If 'no', why not?
Site operations	24	Has responsibility for waste management on site and compliance with environmental legislation been assigned to a named individual?		
	25	Have toolbox talks been planned for all site personnel about waste management on site?		
	26	Are selected waste materials segregated to allow best value to be obtained from good waste management practices?		
	27	Are containers/skips clearly labelled to avoid confusion?		
	28	Is Duty of Care procedures complied with, including provision of transfer notes and checking authorisation of registered carriers, registered exempt sites and		

Project Stages		Questions to consider	Tick if 'Yes'	Comment: If 'yes', what action have you taken/do you propose to take? If 'no', why not?
		licensed waste management facilities?		
	29	Are any checks made that excavation waste is received at the intended site?		
	30	Is implementation of agreed waste management procedures monitored?		
	31	Are reports regularly produced regarding waste quantities and treatment/disposal routes, and on costs incurred?		
	32	During site operations, are barriers to good waste management practice considered and noted for incorporation into the post-completion review?		
Post Completion	33	Has a final report of use of recycled and		

Project Stages		Questions to consider	Tick if 'Yes'	Comment: If 'yes', what action have you taken/do you propose to take? If 'no', why not?
		secondary materials, waste reduction, segregation, recovery and disposal, been completed?		
	34	Has the final report been signed by the relevant contractors and the client?		
	35	Have key waste management issues been considered for action at future projects?		

Signed: …….

Position

Name