7 REDINGTON GARDENS

Pre-Demolition Audit

23rd January 2024

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Document Information

Project Name	7 Redington Gardens
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Issue	Date	Details
0.0	9th January 2024	First draft – for consultant comment
0.1	17th January 2024	Second draft – for final review
1.0	18th January 2024	Final
1.1	23rd January 2024	Final, including comments

Contents

1.0 Executive Summary

Green Build Consult has been appointed by Carnell Warren to prepare a Pre-Demolition Audit to support the submission of a full planning application for the construction of a 5-bedroom dwelling. The dwelling is designed to have a floor area of 492m^2, and is located in Hampstead, within the London Borough of Camden.

1.1 Summary of Aims and Approach

The built environment is the largest user of materials and generator of waste; therefore, it is fundamental that measures are taken to reduce waste and move towards a circular economy. To maximise the economic and environmental value of materials, this project seeks to uphold circular economy principles at every stage of the project.

A pre-demolition audit is typically the first step in assessing the value of materials and identifying opportunities for employing circular economy principles; at the earliest point in the project life cycle.

1.11 Aims

The aims of a pre-redevelopment audit include:

- 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.
- Identify products and/or materials that could be incorporated into subsequent development.
- Ensure the management of material from the demolition/refurbishment process is in line with the waste hierarchy, i.e. maximise reuse and closed loop recycling and minimise waste to landfill.
- Minimise waste generation during redevelopment projects.
- Provide evidence for any external assessment.
- Comply with waste legislation where waste is generated.

1.12 Approach

The following points provide a summary of all aspects that have been considered as part of this Pre-Demolition Audit.

- An inventory of materials that will need to be managed upon demolition.

- The key components and materials, an estimate of their quantities and their suitability for reclamation.
- Opportunities for reuse and recycling of the demolition material are presented with estimates of the total demolition waste. Possible ways to recycle and reuse materials on-site and off-site have been specified.
- Recommendations for materials management and target setting.
- Existing buildings and the demolition site are presented with photos and plans.

2.0 Introduction

2.1 Existing Site

The existing site is located in Hampstead, London which falls within the Borough of Camden. It is also situated within the Redington Frognal Conservation Area, within a residential area. The site consists of an existing dwelling built circa 1960s and a large garden. The property has not been extended or comprehensively internally upgraded.

The building is of basic traditional construction with limited insulation, shallow mass concrete strip foundations, and defective unreinforced ground bearing concrete slab without insulation. External walls are brick cavity without insulation and windows are single glazed. There are low ceiling heights, and the roof is a shallow double pitched timber construction with copper panelled coverings without insulation.

Figure 1: Existing site - 3D model (Source: Wolff Architects)

2.2 Proposed Development

The proposed scheme consists of a single three-storey 5-bedroom dwelling, with a floor area of approximately 492m^2.

The project involves a comprehensive approach to building design and materials, focusing on energy efficiency and sustainability. The existing structure will be deconstructed, using selective techniques to maximize material reuse and minimise waste. New materials brought to the site will be considered for future recycling.

To surpass minimum U Value requirements, the project incorporates super-insulated construction throughout. This includes a new insulated suspended slab with deeper foundations to reduce thermal bridging and enhance airtightness. Structural elements like steel framing and concrete construction, as well as external cavity wall construction with full-fill insulation, further contribute to improved thermal performance.

The roofing system will also feature super-insulated construction, addressing linear thermal bridging and enhancing overall airtightness. Internal elements, such as walls and floors, will be crafted from materials meeting both noise transmission and thermal standards. The internal layout of rooms and facilities is designed to meet modern family living standards.

Notably, the project diverges from constructing a basement, a decision influenced by the aim to reduce the carbon footprint compared to neighbouring properties with basements. This deliberate choice aligns with the broader environmentally conscious approach in the entire construction process.

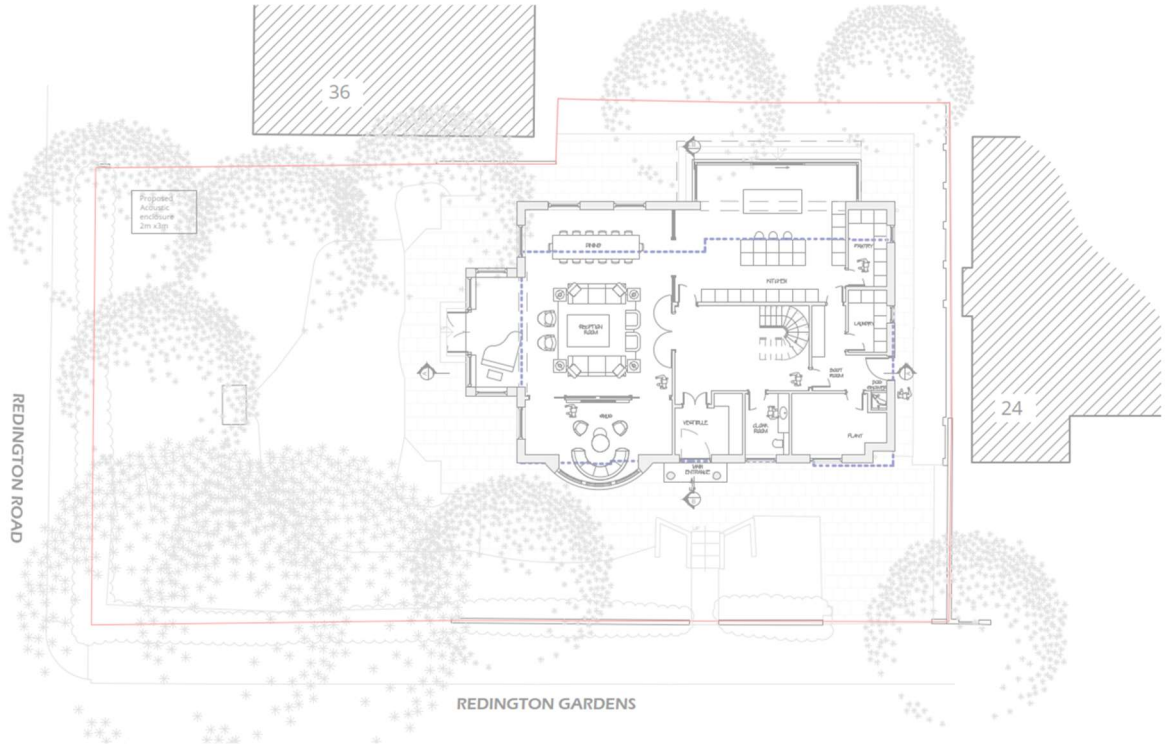


Figure 2: Proposed site plan (Source: Wolff Architects)

Figure 3: Proposed front elevation (Source: Wolff Architects)

3.0 Policy and Guidance

3.1 National Policy

3.11 National Planning Policy Framework (NPPF) (July 2021)

The National Planning Policy Framework states that 'achieving sustainable development means that the planning system has three overarching objectives, which are interdependent and need to be pursued in mutually supportive ways so that opportunities can be taken to secure net gains across each of the different objectives:

a. An economic objective - to help build a strong, responsive and competitive economy, by ensuring that sufficient land of the right types is available in the right places and at the right time to support growth, innovation and improved productivity; and by identifying and coordinating the provision of infrastructure.
b. A social objective - to support strong, vibrant and healthy communities, by ensuring that a sufficient number and range of homes can be provided to meet the needs of present and future generations; and by fostering a well-designed and safe built environment, with accessible services and open spaces that reflect current and future needs and support communities' health, social and cultural well-being; and
c. An environmental objective - to protect and enhance our natural, built and historic environment, including making effective use of land, improving biodiversity, using natural resources prudently, minimising waste and pollution, and mitigating and adapting to climate change, including moving to a low carbon economy.

The NPPF goes on to state that 'Plans and decisions should apply a presumption in favour of sustainable development', which guides that applications that accord with the development plan are to be approved without delay.

3.2 Regional Policy

3.21 London Plan (March 2021)

Policy SI 7 Reducing waste and supporting the circular economy

Resource conservation, waste reduction, increases in material reuse and recycling, and reductions in waste going for disposal will be achieved by the mayor, waste planning authorities and industry working in collaboration to:

1. 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.

2. Encourage waste minimisation and waste prevention through the reuse of materials and using fewer resources in the production and distribution of products.
3. Ensure that there is zero biodegradable or recyclable waste to landfill by 2026.
4. Meet or exceed the municipal waste recycling target of 65 per cent by 2030.
5. Meet or exceed the targets for each of the following waste and material streams:
6. Construction and demolition – 95 per cent reuse/ recycling/recovery
7. Excavation – 95 per cent beneficial use
8. Design developments with adequate, flexible, and easily accessible storage space and collection systems that support, as a minimum, the separate collection of dry recyclables (at least card, paper, mixed plastics, metals, glass) and food.

Referable applications should promote circular economy outcomes and aim to be net zero-waste. A Circular Economy Statement should be submitted, to demonstrate:

1. How all materials arising from demolition and remediation works will be re-used and/or recycled
2. How the proposal's design and construction will reduce material demands and enable building materials, components, and products to be disassembled and re-used at the end of their useful life
3. Opportunities for managing as much waste as possible on site.
4. Adequate and easily accessible storage space and collection systems to support recycling and re-use.
5. How much waste the proposal is expected to generate, and how and where the waste will be managed in accordance with the waste hierarchy.
6. How performance will be monitored and reported.
7. Development Plans that apply circular economy principles and set local lower thresholds for the application of Circular Economy Statements for development proposals are supported.

3.22 Circular Economy Statement Guidance (2022)

This guidance document explains how to prepare a Circular Economy Statement to accompany strategic planning applications referred to the Mayor as set out in draft London Plan Policy SI7, or where boroughs have specified a lower threshold. It is for anyone involved in, or with an interest in developing Circular Economy Statements, including developers, designers, consultants and local government officials. Circular Economy Statements are intended to demonstrate how a development, including any public realm and supporting infrastructure, will incorporate circular economy measures into all aspects of the design, construction and operation process.

3.3 Local Policy and Guidance

3.31 Redington Frognal Neighbourhood Development Plan 2019-2044

Redington Frognal Association, the umbrella group for street representatives and tenants' associations, in the Redington Frognal Conservation Area, began to consider developing a neighbourhood plan in 2014. The boundaries and constitution of the Redington Frognal Neighbourhood Forum were formally adopted by Camden on 5 September 2014 under the 2011 Localism Act.

The Forum recognizes that the area is likely to evolve over time due to changes in the climate, existing buildings, the occasional introduction of new buildings, and careful, positive changes to the streetscape and public realm. However, certain aspects of the area are sensitive, and successive individual changes may cumulatively erode its character.

The Neighbourhood Plan aims to provide a clear framework for future development through a robust set of policies. While complying with the Local Plan, the policies are distinct to the Plan Area, offering a vision of sustainable development that is appropriate, strikes a reasonable balance between private interests and social amenity, and is supported by Forum residents.

Our six objectives are:

1. Preserve and enhance RedFrog characteristics as a picturesque Edwardian suburb with a diverse population.
2. Protect and improve green space and biodiversity.
3. Enhance the environment of Finchley Road.
4. Identify areas for the growth of new homes, with community facilities to support home working.
5. Maintain and promote the area as a center for tertiary education, the arts, and culture.
6. Basement Excavation – ensure that basement development does not impact local hydrology or cause damage to neighboring properties.

3.4 Other Industry Guidance

3.41 Code of Practice, Pre-redevelopment audits, July 2017

This Code of Practice has been developed by BRE to provide guidance on carrying out pre-redevelopment audits in order to improve the quality and impact of these audits. It sets out the requirements for preparing an audit and how to use the results of an audit. The Code of Practice can be used by professionals who are carrying out audits and by clients, principal contractors, designers and demolition contractors who can use the results of the audits to minimise waste and improve waste management.

4.0 Pre-Demolition Audit

4.1 Method

This section outlines the key details, documentation and other activities carried in order to complete the Pre-Demolition Audit.

4.11 Project Details

Project Reference	7715
Project Location	Redington Gardens, Camden, London
Project Type (Demolition/Refurbishment)	Demolition
Structure Type	House
Approximate Age of Structure	1960s
Client Details (Company Requesting the Audit)	Carnell Warren
Floor Area of Demolition	281m^2 over two storeys
Cost of Demolition	£43,000
Scope of Demolition/Refurbishment	Existing dwelling and ground slab.

Table 1: Project details

4.12 Information Available

Information	Available?	Details
Scaled drawings: floorplans	Yes	2536.01-7RedingtonGardens-FirstFloor 2536.01-7RedingtonGardens-GroundFloor 2536.01-7RedingtonGardens-RoofPlan 2536.01-7RedingtonGardens-SiteSurvey
Scaled drawings: elevations	Yes	2536.01-7RedingtonGardens-SurroundingElevations 2536.01-7RedingtonGardens-Elevations
Scaled drawings: sections	Yes	2536.01-7RedingtonGardens-Sections
Photographs	Yes	From site inspections on: • December 2022, by Michael Alexander Consulting Engineers • January 2023, by Nigel Pavey Surveys (see 4.22 Audit Photographs)
Asbestos survey	Yes	Asbestos Survey Report, by Supernova, January 2024

Information	Available?	Details
Structural engineers survey	Yes	Structural Report, by Michael Alexander Consulting Engineers, December 2022
Other (provide details)	Yes	2252-PL-Development Options 2252-PL-Schedule of Areas_13.06.2023

Table 2: Information available

4.13 Site Visit Summary

Site visit undertaken?	Yes
Date of site visits, and undertaken by	December 2022, by Michael Alexander Consulting Engineers January 2023, by Nigel Pavey Surveys
Limitations	It was not possible to inspect the ground floor slab, since it is covered by parquet flooring.

Table 3: Site visit

4.2 Results

This section outlines the summary of findings of the audit, including the details and quantities of materials on the existing site.

The types and amounts of materials likely to arise during the strip out, demolition and clearance across the site have been estimated based on information gathered during the site visit, measured survey drawings, design drawings, photographs, and knowledge of common component sizes.

Materials that present potential for reuse and recycling have been identified. An estimate of the overall volume and tonnage of all materials likely to arise from the strip out / demolition are shown in Table 4. Figure 4 presents a chart with tonnages and percentages for all materials.

4.21 Audit Findings Summary

Table 4 summarises the quantities of materials observed during the site visit and subsequently measured on existing building drawings.

Material	Volume (m^3)	Weight (Tonnes)	Percentage by Weight
Brick	52.95	90.01	47.83%
Concrete	32.57	74.92	39.81%
Timber	16.15	6.46	3.43%
Carpet	1.25	4.89	2.60%
Plaster	6.84	4.79	2.54%

Material	Volume (m^3)	Weight (Tonnes)	Percentage by Weight
Glass	1.71	4.28	2.28%
Copper	0.14	1.29	0.68%
Tiles	0.31	0.68	0.36%
Mineral Wool	4.29	0.43	0.23%
Sanitaryware		0.26	0.14%
Asphalt	0.08	0.17	0.09%
Steel	0.0048	0.03	0.02%
WEEE	Quantity not defined		
Grand Total	**116.3**	**188.20**	**100%**

Table 4: Audit findings summary

The pie chart in Figure 4 represents the same data as Table 4, highlighting the materials with the largest percentage by weight; showing volume, material and percentage by weight.

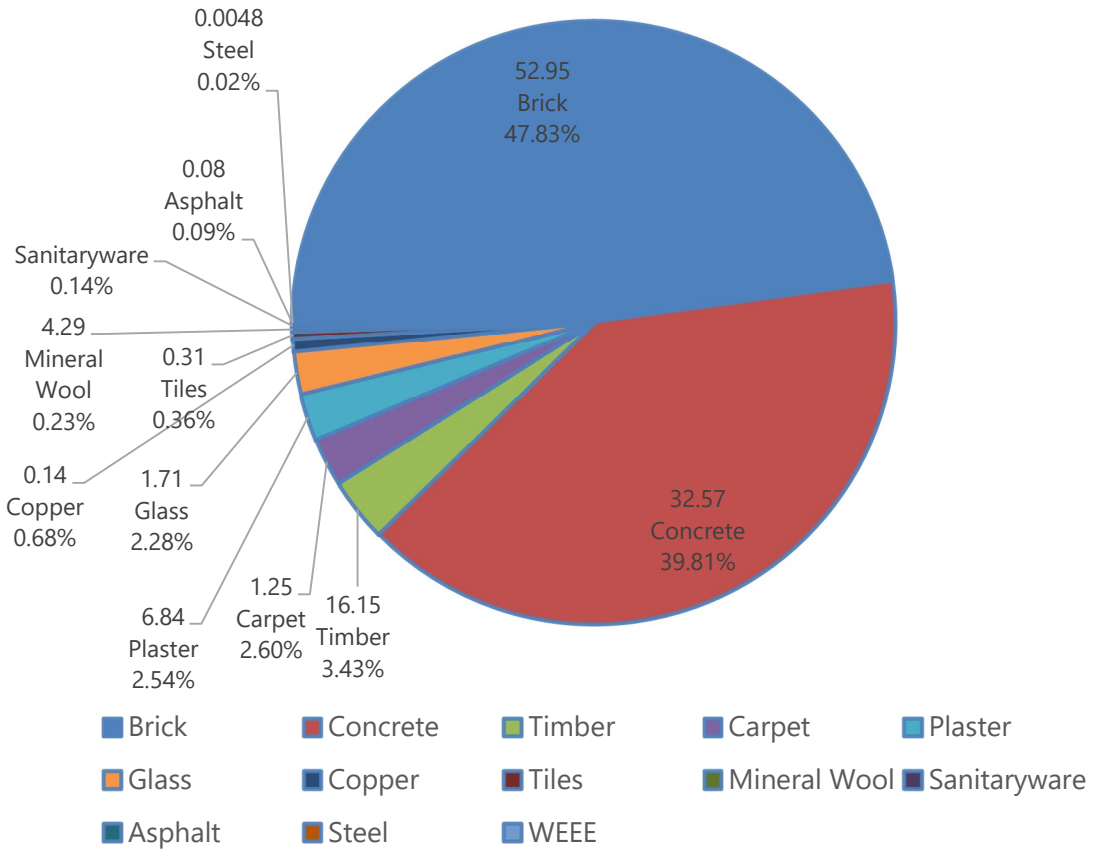
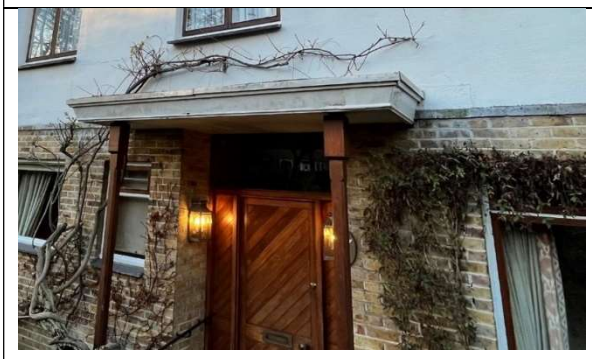
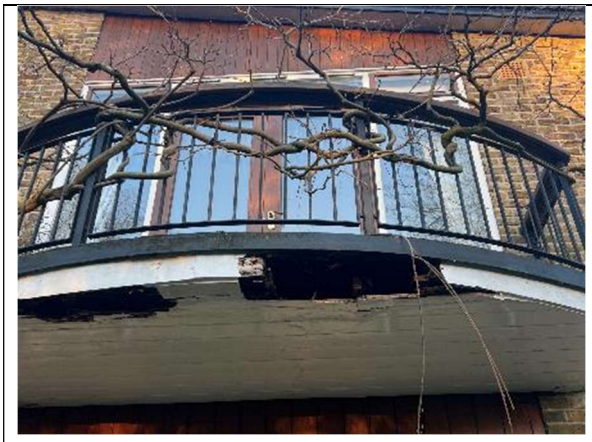


Figure 4: Forecasted demolition materials

4.22 Audit Photographs

This section provides photographs of the existing house, both externally and internally, and assisted in completion of the pre-demolition audit.

	Location: roof aerial view Materials: copper, timber, concrete Reference: Ext-roof-01
	Location: garage roof Materials: concrete, asphalt Reference: Ext-roof-02
	Location: external wall, SE elevation Materials: concrete, timber, brick, render Reference: Ext-wall-01
	Location: external wall, SW elevation Materials: brick, glass, timber, steel Reference: Ext-wall-02

	Location: balcony, SW elevation Materials: timber, steel Reference: Ext-wall-03
	Location: external wall, NE elevation Materials: brick Reference: Ext-wall-04
	Location: external wall, NW elevation Materials: brick, render Reference: Ext-wall-05
	Location: entrance Materials: timber Reference: Int-floor-01

	Location: reception Materials: timber floor, blockwork partitions Reference: Int-floor-02
	Location: kitchen Materials: tile floor and wall, timber fixtures, appliances Reference: Int-floor-03
	Location: bedroom Materials: plaster walls and ceiling Reference: Int-wall-01
	Location: landing Materials: timber staircase, banisters, balustrade Reference: Int-wall-02

	Location: bedroom Materials: timber joinery Reference: Int-wall-03
	Location: ceiling corner Materials: concrete wall Reference: Int-wall-04
	Location: bathroom Materials: sanitaryware, carpet, bathroom fixtures Reference: Int-bath-01
	Location: internal Materials: electric circuit board Reference: Int-WEEE-01

4.3 Approach and Management

4.31 Approach Hierarchy

In order to determine the best outcome in terms of circular economy principles for the project, a decision tree has been used (found in 'GLA Circular Economy Statement Guidance'). The decision tree (Figure 5) has been followed to inform the approach for demolition and waste management.

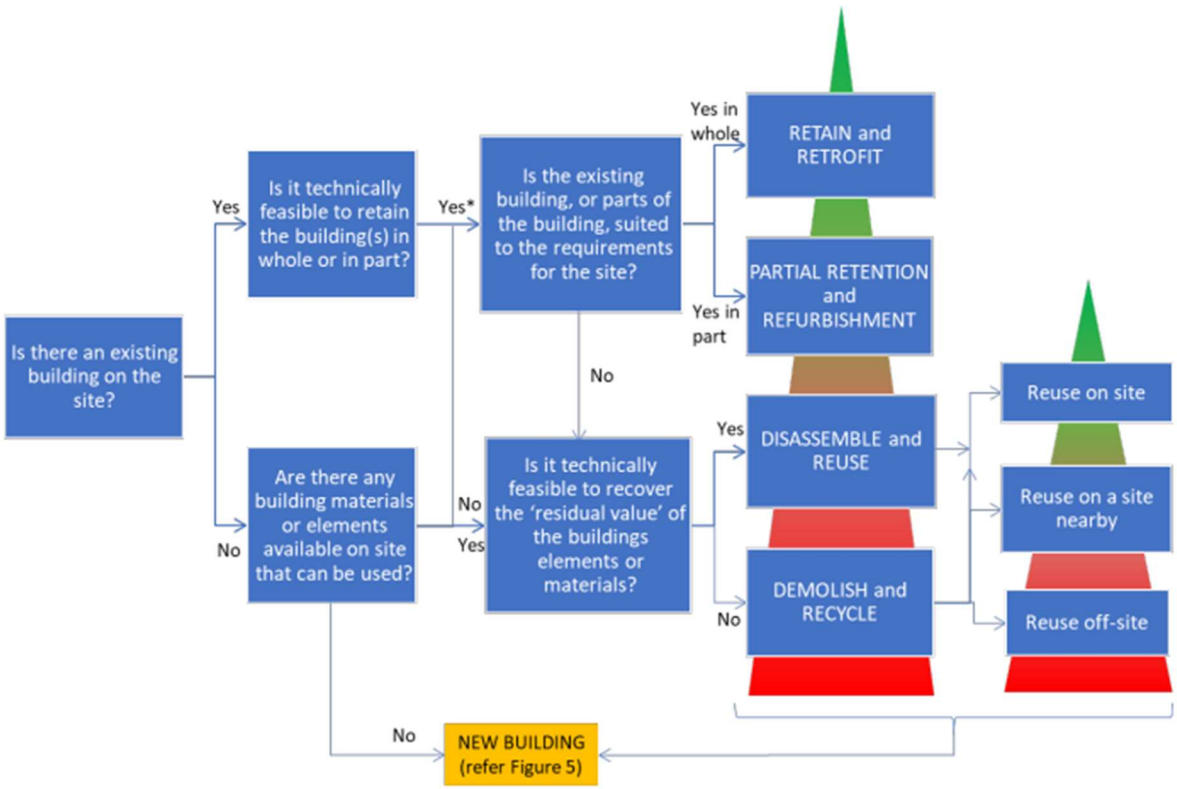


Figure 5: Decision tree for design approaches for existing structures/buildings (Source: GLA Circular Economy Guidance)

For this project, the following approaches can be adopted.

Retain and Retrofit

Definition: The vast majority of the building's fabric is retained, with the building refurbished for the same or new uses through restoring, refinishing, and future-proofing. This also encompasses retrofitting, where new technology or features are added to existing buildings to make them more efficient and to reduce their environmental impacts.

Approach: The existing building is of basic traditional construction with limited insulation, shallow mass concrete strip foundations, and defective unreinforced ground bearing concrete slab without insulation. External walls are brick cavity without insulation and windows are single glazed. There are low ceiling heights, and the roof is a shallow double

pitched timber construction with copper panelled coverings without insulation. This combination of poorly performing elements makes a strong case for at a minimum significant demolition to rebuild with a better performing building to ensure both energy efficiency and internal comfort, providing a more sustainable life over the future life of the building.

Partial Retention and Refurbishment

Definition: Significant quantities of carbon-heavy aspects of the building are retained in place, such as the floors and substructure, with replacement of some elements of the building, such as walls or roofing. More significant refurbishment can involve adding floors or extensions.

Approach: A "Refurbishment & Extension" option has been explored in detail, which would have involved retention of external walls to two elevations of the main house; highlighted in blue on the 3D model (Figure 6) and key plan (Figure 7). Due to the poor performance of existing elements, retention has been removed as an option; however, the general location and dimensions of the building has been maintained in the final designs, expanding up and out to maximise use of the available space without imposing on the surrounding area.

Figure 6: 3D model of proposed Refurbishment & Extension option

Figure 7: Key plan, proposed Refurbishment & Extension option

Disassemble and Reuse

Definition: Disassemble sections of a building and enable their direct reuse ideally on the site or, where this is not possible, off-site (with nearby sites preferred). This approach also includes careful selective deconstruction of the building and material types, i.e., taking apart each layer and material type as much as possible, minimizing damage to parts and maintaining their value, and then reusing those elements and materials. If reuse is not possible, materials may be carefully and selectively separated for processing and recycling into new elements, materials, and objects.

Approach: The following existing materials and structures have been identified as having potential to be retained as sections/components that that could be reused on/off site:

- Timber components
  - Balustrades
  - Cupboards (built-in)
  - Handrail
  - Railings
  - Staircase
- Sanitaryware
  - Basins
  - Baths
  - Shower
  - Toilets
- Household items
  - Furniture

- IT equipment
- Light fittings
- Radiators

Other materials that have potential to be reclaimed or reused for use on/off-site include the following:

- Bricks
- Concrete in building
- Worktops
- External paving
- Pipework

Demolish and Recycle

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

Approach: During the demolition process, it is crucial to segregate waste on-site into distinct waste categories and dispatch them to the appropriate recycling facilities. Potential waste processors have been identified; identified in Table 5: Recyclers and Reprocessors. In line with industry best practice and London Plan targets, a minimum target for all waste of 95% diversion from landfill has been established for the project.

Recycling is considered the last resort for materials on the existing site, only being employed when all previous approaches have been fully explored. Reclamation of intact components should be prioritised, followed by reuse of materials, with the aspiration of retaining materials onsite over reuse offsite.

4.32 Materials Management

Currently the industry generally diverts waste from landfill, sending the materials for recycling or energy recovery (predominantly via incineration) to a Materials Recycling Facility (MRF). MRFs are specialised facilities designed to sort, process, and recover recyclable materials from mixed waste streams. The primary goal of a MRF is to divert waste from traditional disposal methods such as landfilling. MRFs play a crucial role in the recycling industry by facilitating the efficient and effective recovery of valuable resources; however, often the material is of low-grade recycling due to contamination in the MRF, therefore diverting waste to end destination allows for optimum recycling.

The summaries below outline the suggested methods of management for each of the key waste groups (including European Waste Catalogue numbers).

Brick (17 01 02)

Location: Traditional construction with external brick cavity walls.

Management: Brickwork materials suitable for direct reuse can undergo on-site cleaning and be loaded onto pallets, appropriately wrapped for transportation to a used building material depot. At such depots, these materials may be further distributed for application in upcoming construction or conservation projects, particularly those requiring compatibility with existing structures or a more traditional aesthetic.

Considering the potential for reclaiming and reusing bricks, it is recommended to contact a suitable brick reclamation yard to assess the viability of this option. However, it's crucial to acknowledge that there is generally an oversupply of reclaimed bricks, and the feasibility may be limited, especially given the prevailing damage to many of the bricks. Consequently, a conservative estimate of 10% has been allocated for the potential reuse of bricks extracted from the existing building.

Concrete (17 01 01)

Location: The garage roof is concrete, with precast concrete copings on the perimeter parapet. Concrete is also used for the ground slab and within some walls.

Management: Concrete and hardcore materials can be crushed on site for use in the redevelopment works. Where possible, this will be done on-site to form backfill for excavated areas or aggregate for foundations and hard landscaping. Additionally, they will be used on-site in the form of work platforms where possible. As such, a provisional re-use estimate of 10% has been placed on concrete; the remaining concrete will be crushed for use off-site. Potential barriers for concrete recycling may include unclean concrete reducing the potential for recycling.

Timber (17 02 01)

Location: The house roof is a shallow double pitched timber construction. Timber structure of the first-floor balcony is rotten so not reclaimable. The guarding of which has a timber handrail. Windows and doors are timber framed. Ground floor has parquet wood flooring. The first floor is timber joisted construction, covered with floorboards. There is also timber in the staircase, joinery in bedrooms and in kitchen units.

Management: Timber products and components of good quality can be retained in the existing house, reclaimed for sale, or reused for other purposes. Any timber of a lower quality can be chipped and used in chipboard manufacture, mostly overseas, or in biomass energy generation. All co-mingled timber must be diverted from landfill. Timber needs to be of a high enough grade to achieve maximum recycling potential which could be a potential barrier for the material.

Gypsum (17 08 02)

Location: Internal walls and plaster ceilings. White painted rendered panels on the front (south) and rear (north) elevations.

Management: Used plasterboard should be kept in situ, if possible, if not a direct recycler should be considered. The correct disposal route is to use a specific carrier for plaster. 100% of plasterboard can be recycled in a number of downstream industries. Material would be processed by being fed into separators; shredders and granulators followed by a trammel screen to produce clean gypsum and sent to local manufacturers nearby. The residual paper product can also be reused by the paper pulping industry.

Insulation (17 06 04)

Location: Walls.

Management: Salvage insulation materials, such as fibreglass or foam boards, from the demolished structure for potential reuse in other projects. Assess and identify well-preserved insulation materials during the demolition process, allowing for the selective removal and reuse of high-quality components. Establish partnerships with recycling facilities to ensure proper handling and processing of insulation materials, enhancing the feasibility of recycling initiatives.

Glass (17 02 02)

Location: Windows and doors.

Management: Glass should be reused on site or segregated if this is not possible. Low volumes pose a potential barrier for glass as collection/delivery can increase carbon emissions. Take back schemes are also an option. In addition, another barrier would be identifying the specification of the glass being removed and whether it can be reprocessed.

Carpets (20 01 11), **Tiles** (17 01 03)

Location: Carpets at ground and first floors. Ground floor tiling. Kitchen floor and wall tiling.

Management: Where carpet and hard flooring can be re-used on site they should. Most reputable carpet manufacturers such as Interface, Desso, Forbo, etc. have take-back schemes for their own materials on the basis that new carpet is ordered from them. Every project should be evaluated as to the quality, volume, location and cost of diverting these in some way that is then recorded. Suppliers who specialise in the carpet tile recycle/re-use all have their own take-back criteria including cost and will work with the nominated strip-out company to ensure the most suitable disposal route is chosen.

Metals (17 04 01, 17 04 05)

Location: House roof is copper panelled. Garage door and window lintels are steel.

Management: Recovered metal products should be segregated at source, graded ferrous and non-ferrous. Ferrous metals can be 100% recycled and shipped to a number of destinations for reconstitution into metal-based products. Batteries and non-ferrous metals, including copper, lead and aluminium, can be collected from site using a variety of methods (roll on roll off skips, small lorries and flatbed trucks) the selected method depends on the quantity and weight of metals. Potential barriers to metal recycling may include low volume and quality preventing full recycling and/or re-use.

Asphalt (17 03)

Location: Garage roof.

Management: Whenever possible, consider reusing existing asphalt materials. Reclaimed asphalt pavement (RAP) can be recycled and incorporated into new asphalt mixes, reducing the need for virgin materials.

Fixtures and Fittings

Location: Sanitaryware in bathrooms and kitchen.

Management: Where possible any items of quality should be retained, or alternatively reclaimed through salvage companies. An inventory of any fixtures and fittings should be documented. There are reputable businesses that will collect and re-use where possible. Barriers include efficiency of arranging such deployment of items.

Mechanical, Electrical and Plumbing (16 02)

Location: Pipework throughout, electrical wiring, light fittings; fixed or plug-in.

Management: Light fittings and other electrical items should be retained by the owner where still desirable. Other items are difficult to quantify in tonnage terms and should therefore be measured on removal using weighbridge tickets for equipment. There are a large number of specialist recycling companies for unwanted Waste Electronic and Electrical Equipment (WEEE). These companies take in/collect unwanted electrical appliances (anything with a plug, or charger) and repair, demolish and sell equipment, or harvest it for spare parts to repair other products. The contractor should acquire record the make and manufacturer of existing installed equipment to ensure correct disposal.

Fluorescent tubes should be removed in dedicated light tube containers/coffins by specialist waste contractors who will then crush off site. Glass aggregates to be used in glass polymers,

building industry and fluorescent tube manufacture. Aluminium components to metal recyclers and mercury distilled and re-used in fluorescent tube manufacture.

Architectural Features

Location: Throughout the house there may be features of value.

Management: Features such as fireplaces, chimneys, radiators, and other metal- or wood-work may be removed by specialist operatives or taken to architectural salvage yards from where they may be used to enhance the appearance or character of other buildings both new and old.

4.33 Recyclers and Reprocessors

Research has been undertaken into local companies that may be able to provide waste reuse or recycling services for the materials identified in this audit. The research involved web-based research, along with the use of the London Waste Map and the Salvo website.

Some waste management companies have been identified, located in or around the London area, so close to the project location (Table 5).

Material	Recycler / Reprocessor
Timber	Powerday, 02089 604 646, Cantillon, 01923 255 256/ 01923 254 986, Wayst, 02030 513 314
Gypsum	Powerday, 02089 604 646 HIPPO Bag, 0333 999 0 999 Wayst, 02030 513 314
Metal	North West Recycling, 01228 672999 Any London Waste, 0800 599 99 96
Bricks	Junkwize, 020 3797 4568 London Reclaimed Brick Merchants, 07958 193 566 North London Waste Authority, 07557 205 292
Concrete	Powerday Brixton, 07860 357 262, The Concrete Network, 020 4525 8881
Tiles	Powerday Brixton, 02089 604 646 Bywaters, 020 7001 6000 Waste London Ltd, 0207 593 8393
Carpet	Envirocycle London Ltd, 07549 448123 Carpet Recycling UK, 0161 440 8325
WEEE	Powerday Brixton, 07860 357262

Material	Recycler / Reprocessor
Glass	First Mile, 0333 272 9906 Bywaters, 020 7001 6000
Furniture, fixtures and fittings	Hornsey Street Re-use & Recycling Centre, 020 7464 2225

Table 5: Recyclers and Reprocessors

4.34 Recommendations for Targets

Table 6 outlines typical expectations around provision of targets for demolition and waste management.

	Overall target for diversion from landfill	Targets for diversion from landfill by material type	Targets for reuse and recycling
Standard practice	**Yes**	-	-
Good practice	**Yes**	**Yes**	-
Best practice	**Yes**	**Yes**	**Yes**

Table 6: Recommendations for targets

In line with industry best practice and London Plan targets, a minimum target for all waste of 95% diversion from landfill has been established for the project. In further detail, target recycling rates have been provided for key waste groups to achieve or go beyond industry standards (Table 7).

Material	Recycling rate (%)
Concrete	95
Metals	95
Bricks	100
Timber	100
Glass	100
Tiles and ceramics	100
Plastics	70
Gypsum	100
Carpet	100

Table 7: Recycling rates

In addition to recycling rates, provisional targets for reuse are provided in Table 8.

Material	Reuse target (%)
Bricks	20
Timber	15
Glass	20
Tiles and ceramics	25
Plastics	20

Table 8: Reuse targets

5.0 Conclusion

The results of the audit show that potential material arising from the demolition phase of the project is estimated to be approximately 188 tonnes. The main materials are brick and concrete with smaller amounts of other materials including timber, gypsum-based materials, carpet, and glass.

There are also a large number of products and components that the owner may wish to retain, including furniture, sanitaryware and electrical items. There should be a discussion with the owner about retention of the existing items of value in the house and retained or reclaimed for use elsewhere if not wanted.

Recycling and reuse of materials should be maximised within the constraints of the site and waste management companies contacted early to ensure the value of materials is maintained as much as possible, and as a last resort, all non-hazardous waste should be sent to the necessary sites for reprocessing.

To maximise the recycling potential of the materials it is recommended that all the materials identified in this report are separated on site.

The finding and recommendations of this pre-demolition audit can aid the project in acknowledging:

- Prominent environmental achievements
- Cost savings in disposal and transportation
- Financial gains and reduced landfill expenses through reuse and recycling
- Diminished environmental disturbances
- Implementation of optimal practices in materials waste management

The London Plan requires a target of 95% of waste to be diverted from landfill on larger projects, so this is suggested as a project goal for this project. Through the recommendations made in this report, the approaches for retention, re-use, reclamation, and recycling will assist in the accomplishment of this target.

During the strip-out and demolition, details of the actual materials arisings, and the waste management methods used should be recorded to allow a comparison between actual with forecasts.

This document is not intended as a set of requirements for the project going forward, but rather as a selection of recommendations to be implemented wherever deemed appropriate and of greatest value for the project.

Appendix A: Summary of Element Quantities

Element	Approach	Material	Number	Volume (m^3)	Location	Notes
Architrave	n/a					negligible
Balustrades	Count based on photos	timber	28	0.04	Other	
Basins	Count based on photos	sanitaryware	4		Other	
Bath	Count based on photos	sanitaryware	2		Other	
Ceiling	Measure from plans	plaster		3.74	Plans	
Ceiling tiles	n/a					none
Chimney breast	Measure from plans					Calculated in external walls
Cladding	*Measure from elevations*	*plaster*		*0.62*	*Elevations*	*(render)*
Conservatory	n/a					none
Cupboards (built-in)	Estimate based on photos	timber		1.296	Other	to do
Excavation work	n/a					Not calculated
External door	*Measure from elevations*	*timber*		*0.12*	*Elevations*	
External door	*Measure from elevations*	*steel*		*0.0048*	*Elevations*	
External wall	*Measure from elevations*	*brick*		*52.95*	*Elevations*	
Fascias	n/a					
Floor	Measure from plans	concrete		3.15	Plans	
Floor covering	Measure from plans	timber		3.33	Plans	
Floor covering	Measure from plans	tiles		0.31	Plans	
Floor covering	Measure from plans	carpet		1.2532	Plans	
Floor joists	Estimate based on drawings	timber		4.96	Plans	
Foundations	Estimate based on drawings	concrete		23.55	Plans	
Furniture	Estimate based on photos					Quantity not recorded
Handrail	Estimate based on photos	timber		0.024	Other	
Insulation	Estimate based on drawings	mineral wool		4.29	Plans	
Internal door	Measure from plans	timber	27	1.10	Plans	
Internal wall	Measure from plans	plaster		2.47	Plans	
IT Equipment	Estimate based on photos	WEEE				Quantity not recorded
Light fittings	Estimate based on photos	WEEE				Quantity not recorded
Partition	n/a					

Element	Approach	Material	Number	Volume (m^3)	Location	Notes
Paving	Measure from plans	concrete		5.87	Plans	
Pipework						
Plant	Estimate based on report					Quantity not recorded
Radiators	Estimate based on report					Quantity not recorded
Railings	n/a					
Reinforcing						
House roof	Measure from plans	copper		0.14	Plans	
Garage roof	Measure from plans	asphalt		0.08	Plans	
Roof purlins	Estimate based on drawings					Calculated in roof trusses
Roof trusses	Estimate based on drawings	timber		4.9	Plans	
Shower	Count based on drawings/photos	sanitaryware	1		Other	
Shutters	n/a					
Skirting boards	Estimate based on drawings					Negligible
Staircase	Estimate based on drawings/photos	timber		0.21	Other	
Structural beams	Estimate based on drawings					Calculated in roof trusses
Structural column	n/a					
Toilets	Count based on drawings/photos	sanitaryware	4			
Windows	Measure from elevations	glass	24	0.08		
Windows	Measure from elevations	glass	24	1.63		
Wiring/cabling	Estimate					Quantity not recorded
Worktop	Estimate based on drawings/photos	timber		0.1696	Other	

Appendix B: Conversion factors for common materials arising from demolition

Material	Tonnes/m^3
Aggregates	1.8
Aluminium	2.7
Asphalt	2.1
Bitumen	1
Blocks	2
Bricks	1.7
Cables (not hazardous)	2.3
Carpets	3.9
Cement	1.5
Chipboard	0.7
Clay roof tiles	1.9
Copper	8.9
Expanded Polystyrene insulation	0
Glass	2.5
Glass fibre insulation	0.1
Glass Reinforced Plastic	2
Hardboard	1
Hardwood	0.8
Internal building tiles	2.2
Iron	7.6
Lead	7.4
Low density fibre board	0.6
Medium Density Fibreboard	0.7
Mild steel	7

Material	Tonnes/m^3
Mineral wool insulation	0.1
Mortar	1.7
Oriented Strand Board	0.6
Paving	2.3
Polyethylene	0.1
Plaster	0.7
Plasterboard	0.7
Plywood	0.8
Polypropylene	0.9
Polyurethane insulation	0
Poly Vinyl Chloride	1.4
Render	2.3
Ready Mix Concrete	2.3
Roof tiles	2.5
Slate	2.9
Softwood	0.4
Stainless steel	7.8
Stone	2.5
Structural Concrete	2.3
Tin	7.3
Vinyl flooring	1.4
Waste paper insulation	0
Wool fleece	0
Zinc	4

Appendix C: Tables and Figures

Report Tables

Report Figures