

Pre-Demolition Audit – 14 Blackburn Road, West Hampstead

Version 1.1

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1 Introduction

1.1 Objectives

This pre-demolition audit establishes which materials are currently present in the building and identifies opportunities for re-use and recycling of these materials. The results should be used to guide the design, consideration of materials that can be re-used, and to set targets for waste management and ensure all contractors are engaged in the process of maximising high-grade re-use and recycling opportunities.

This audit covers:

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

1.2 Project overview

This is a pre-demolition audit for the redevelopment of 14 Blackburn Road, London, NW6 1RZ, West Hampstead, London Borough of Camden. The site is currently occupied by a Builder Depot site, comprised of a series of showrooms and sheds. The components and materials in the existing buildings are in relatively poor condition, and therefore, there is limited potential for their direct reuse. The potential for reclaiming the existing bricks on site will be explored at later stages, however, the existing bricks do not meet the design criteria of the proposal, and therefore, direct reuse is not possible. There is also limited capability for the extension or incorporation of the existing structures into any future development.

The proposal is for the demolition and redevelopment of the Site for a mixed-use development comprising purpose-built student accommodation (Sui Generis), affordable housing (Use Class C3), lower ground and ground floor flexible commercial/business space comprising of showrooms, retail and ancillary offices (Use Class E/Sui Generis) and a café/PBSA amenity space (Use Class E/Sui Generis) and associated works including service yard, cycle parking, hard and soft landscaping, amenity spaces and plant. The primary materials identified within this pre-demolition audit are:

- | | |
|------------------------------------|-----------------------------------|
| • Ready mix concrete | • Gypsum plasterboard |
| • Reinforcement rebar | • Steel framing profiles |
| • Corrugated steel sheets (façade) | • Corrugated steel roof |
| • Red brick | • Corrugated GRP rooflight sheets |
| • Concrete masonry block | • MDF ceiling board |
| • Steel column | • Timber truss |
| • Steel beams | • Steel truss |
| • Timber beams | |



Figure 1 – 14 Blackburn Road site boundary

2 Waste Hierarchy

This audit aims to reduce impacts upon the environment by limiting waste sent to landfill. Diversion from landfill should be achieved by following the methods outlined in the Waste Hierarchy in order of importance, as shown in Figure 2-1.

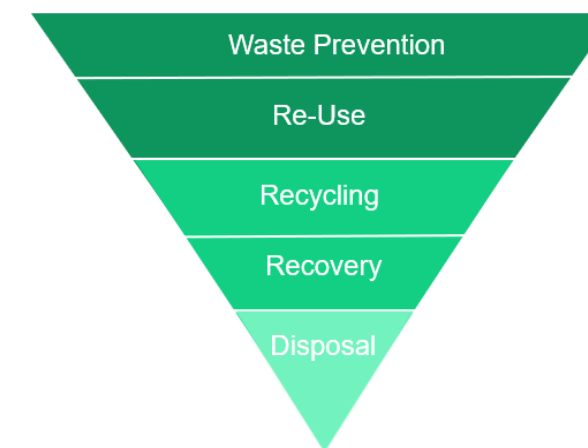


Figure 2-1 The Waste Hierarchy

2.1 Waste Prevention

The development comprises of the demolition of multiple existing buildings. Initial surveys of the building suggest that the existing warehouses and other structures on the site are nearly 150 years old and in very poor condition. Therefore, the direct reuse of any existing structures or materials on site is extremely limited. As such the best course of action is the recycling of said materials. As a result, any waste prevention is likely to be achieved through off-site re-use as outlined below.

2.2 Re-Use

Direct re-use occurs when an item is re-used on site or at another site without being sent to a re-processor or recycler or is not removed from the site at all.

2.2.1 Bricks

There may be scope for the bricks of the newer building on site to be reclaimed and reused, a suitable brick reclamation yard should be contacted to investigate the feasibility of this. There is typically excess supply of reclaimed bricks currently, so it may not be possible, particularly given the damage sustained by many of the bricks. However, as interest in utilising reclaimed brick grows due to the inherent embodied carbon savings derived from the practice, this option warrants further investigation. As such a reserved estimate of 5% reuse has been applied to bricks present within the existing building. This figure may be revised at later design stages dependant on the viability of brick reclamation closer to demolition.

2.3 Recycling

During demolition, the waste should be sorted on site into separate key waste groups and sent to the relevant recyclers. Once selected, the details of the responsible waste carrier(s) for structural demolition will also be listed in the table below. A provisional avoidance from landfill rate of 95% has been agreed and stipulated as a tender requirement for the selection of the waste handler(s).

Once appointed, the details of the responsible waste carrier(s) will be detailed below.

Company	
Address	
Website	

Material	Re-use (%)	Recycle (%)	Recovery (%)	Landfill diversion (%)
Binders	0	90	5	95
Bricks	5	85	0	95
Concrete	0	95	0	95
Electrical	0	40	55	95
Glass	0	95	0	95
Gypsum	0	95	0	95
Metals	0	95	0	95
Plastics	10	85	0	95
Timber	0	95	0	95

Table 2-1 – Assumed waste end use rates

2.3.1 Concrete

There is a significant quantity of concrete on site, comprising the site’s indoor flooring, courtyard, blockwork walls and first floor slabs. Due to the site’s drastic development transformation, the entirety of the slab and substructure will need to be removed prior to excavation for the new, increased substructure and basement. It is advisable to utilise the existing substructure as an ‘aggregate quarry’ to utilise on site for concrete pouring and piling mats.

2.3.2 Metals

Metals, such as rebar, columns, truss and beams can be easily recycled with no loss of quality. Metals within the existing building are largely limited to reinforcements within concrete, beams, roof trusses, columns and framing for internal partitions. The corroded nature of these steels may preclude their use in structural applications within the proposed building.



2.3.3 Electrical

Electrical items often contain high value materials and as such their recycling is a priority. However, these elements are often encased by or combined with other materials. It is therefore a relatively difficult to reach high recycling rates for electrical waste. However, a 95% electrical waste avoidance from landfill rate has been set for the project.

2.3.4 Gypsum

Several interior walls, partitions and ceilings have a layer of gypsum plasterboards, such as in the first floor showroom. Gypsum is 100% recyclable without any loss in quality and thus the entire quantity of waste gypsum can be easily and efficiently recycled.

2.4 Recovery

The majority of waste will have been prevented, re-used or recycled. Where materials cannot be recycled, they can be used for energy recovery in waste to power plants.

2.4.1 Timber

The site contains significant amount of timber from the timber framing systems, plywood wall boards, internal and external doors and staircase railings. It is not possible to reuse the timber present in the existing structure and it will be used for energy recovery.



2.5 Disposal

Hazardous materials will be safely disposed of in line with the Hazardous Waste Regulations 2005 (amended 2016) and have been excluded from the quantification in this report. Non-hazardous waste produced on site will always be assessed for handling following the waste hierarchy.

3 Quantification

The items and materials present in the building have been estimated by volume and categorised by European Waste Catalogue (EWC) category in order to calculate tonnage of each material, with results shown in Figure 3.2. The remaining waste has been assigned re-use, recycling, recovery and landfill diversion rates. The full calculation table can be seen in Appendix Table 4.1.

Quantification is based on estimates and has been used to guide decision for key material groups. Final material quantities are likely to vary significantly from estimates outlined below. Sand and soil has been excluded from the quantification, as amount of excavation & levelling work was not known at the time.

A summary of results and re-use, recycling, recovery, and total landfill diversion targets are shown in Table 3-1 and Figure 3-1. They show that this project is targeting a landfill diversion rate of 95% in the majority of waste groups. Upon the appointment of a waste contractor, the targeted rate will be expected to be met or bettered.

EWC Group	Weight (tonnes)	Re-used Target (tonnes)	Recycled Target (tonnes)	Recovered Target (tonnes)	Landfill Diversion Target (tonnes)	Re-used Target (%)	Recycle d Target (%)	Recovered Target (%)	Landfill Diversion Target (%)
Metals	4,258.39	425.84	3,619.63	0.00	4,045.47	5	90	0	95
Gypsum	32.20	0.00	30.59	0.00	30.59	0	95	0	95
Timber	34.95	0.00	0.00	33.20	33.20	0	0	95	95
Concrete	5,017.00	0.00	4,766.15	0.00	4,766.15	0	95	0	95
Tiles and ceramics	0.24	0.00	0.23	0.00	0.23	0	95	0	95
Binders	0.06	0.00	0.05	0.00	0.06	0	90	5	95
Electrical	4.36	0.00	1.75	2.40	4.15	0	40	55	95
EPS Insulation	1.44	0.00	1.37	0.00	1.37	0	95	0	95
Glass	0.30	0.00	0.29	0.00	0.29	0	95	0	95
Bricks	150.00	7.50	135.00	0.00	142.50	5	90	0	95

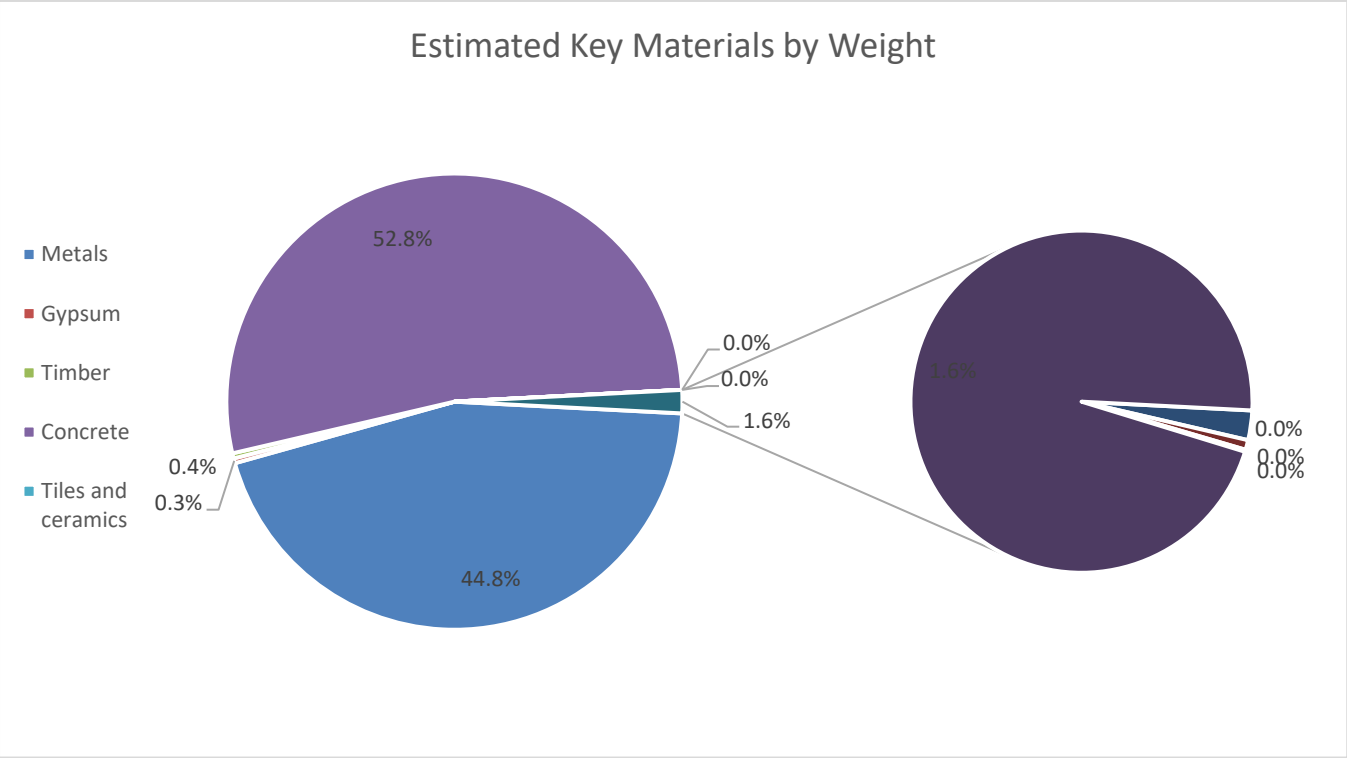


Figure 3-1 – Estimated materials by weight

Appendix 1 – Full Material Calculations

Item	European Waste Catalogue	Total Weight (tonnes)	Direct Re-Use (%)	Direct Re-use (tonnes)	Remaining Waste (tonnes)	Recycler	Re-used (tonnes)	Recycled (tonnes)	Recovered (tonnes)	Landfill Diversion (tonnes)
Ready mix concrete	Concrete	4897.00	0.00	0.00	4897.00	0.00	0.00	4652.15	0.00	4652.15
Red brick	Bricks	150.00	0.00	0.00	150.00	5.00	7.50	135.00	0.00	142.50
Mortar	Binders	0.06	0.00	0.00	0.06	0.00	0.00	0.05	0.00	0.06
Concrete masonry block	Concrete	120.00	0.00	0.00	120.00	0.00	0.00	114.00	0.00	114.00
Structural steel	Metals	3983.20	0.00	0.00	3983.20	10.00	398.32	3385.72	0.00	3784.04
Galvanised steel sheet	Metals	11.10	0.00	0.00	11.10	10.00	1.11	9.44	0.00	10.55
Reinforcement rebar	Metals	263.80	0.00	0.00	263.80	10.00	26.38	224.23	0.00	250.61
Timber	Timber	27.60	0.00	0.00	27.60	0.00	0.00	0.00	26.22	26.22
Plywood	Timber	6.88	0.00	0.00	6.88	0.00	0.00	0.00	6.54	6.54
Gypsum plasterboard	Gypsum	2.20	0.00	0.00	2.20	0.00	0.00	2.09	0.00	2.09
GRP rooflight	Plastics	0.53	0.00	0.00	0.53	0.00	0.00	0.50	0.00	0.50
Screed	Sand and Soils	25.00	0.00	0.00	25.00	95.00	23.75	0.00	0.00	23.75
EPS insulation	Insulating Materials	1.44	0.00	0.00	1.44	0.00	0.00	1.37	0.00	1.37
Gypsum plaster	Gypsum	30.00	0.00	0.00	30.00	0.00	0.00	28.50	0.00	28.50
Vapour control membrane	Plastics	0.04	0.00	0.00	0.04	0.00	0.00	0.03	0.00	0.03
Timber stairs	Timber	0.20	0.00	0.00	0.20	0.00	0.00	0.00	0.19	0.19
metals steps	Metals	0.29	0.00	0.00	0.29	10.00	0.03	0.25	0.00	0.28
PVC frame window	Glass	0.13	0.00	0.00	0.13	0.00	0.00	0.12	0.00	0.12
Doors	Timber	0.27	0.00	0.00	0.27	0.00	0.00	0.00	0.26	0.26
Aluminium frame window	Glass	0.17	0.00	0.00	0.17	0.00	0.00	0.16	0.00	0.16
Laminate Flooring	Plastics	0.25	0.00	0.00	0.25	0.00	0.00	0.24	0.00	0.24
Sanitary ware	Tiles and ceramics	0.24	0.00	0.00	0.24	0.00	0.00	0.23	0.00	0.23
Electrical systems	Electrical	4.36	0.00	0.00	4.36	0.00	0.00	1.75	2.40	4.15

Table 4-1 – Full results table

Appendix 2 – Site pictures

