REPORT

Holborn - 1 Fisher Street & 8-10 Southampton Row

Waste Assessment Report

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Enhancing Society Together

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Executive Summary

The Waste Assessment Report concerns proposals at 1 Fisher Street and 8–10 Southampton Row, London, WC1B 4AE (the '**Site**') for the redevelopment of an existing building and construction of an extension to the rear, for the creation of a 120 bedroom hotel with an ancillary restaurant and bar at first floor (the '**Proposed Development**').

This report provides an assessment of the wastes generated during the construction and operational phases of the Proposed Development. The predicted waste during construction and operation were assessed by taking into account the potential options for recycling, recovery or disposal of waste; then assessing the capability of the existing local or regional waste management infrastructure to be able to manage such wastes.

For inert wastes, the measures would reduce the amount of material requiring off-site management to a minimum; and there are sufficient facilities within the region to recycle this material. Options for on-site reuse or recovery of excavated material would be prioritised. Surplus excavated material being sent off-site would be prioritised for recovery in accordance with the waste hierarchy (for example a soil conditioning facility, or use in restoration of a local or regional landfill). There are sufficient facilities within the region to recycle or treat these wastes.

The London region has limited hazardous waste landfill facilities, therefore any hazardous waste produced as a consequence of the Proposed Development that requires landfill disposal may have to be exported out of the region. However, the indicative quantity of hazardous wastes that are predicted to be produced is low, so this is not anticipated to be an issue.

A Site Waste Management Plan has been produced to provide further details on the waste produced during construction. It should be read in conjunction with this report. See *'PB6071 - Holborn - 1 Fisher Street & 8-10 Southampton Row - SWMP.xls"*.

Any wastes produced during operation would be managed in accordance with the general principles of the waste duty of care and producer responsibility to ensure effective waste management.

Effective waste management in the proposed hotel and restaurant facilities would be achieved where the design incorporates the allocation of appropriate space to store dry-recyclable and non-recyclable waste bins; and management of food waste. The indicative design identifies a proposed refuse storage area at street level, with direct street access.

Separate receptacles should be provided for dry recyclables (particularly glass and metal cans) and food; to minimise residual waste. Collection frequencies should be designed as appropriate to minimise storage time. This would facilitate the most appropriate reuse, recycling or recovery option in accordance with the waste hierarchy.

Access requirements for waste collection are provided in the Transport Statement.

1 Introduction

The Waste Assessment Report concerns proposals at 1 Fisher Street and 8–10 Southampton Row, London, WC1B 4AE (the '**Site**') for the redevelopment of an existing building and construction of an extension to the rear, for the creation of a 120 bedroom hotel with an ancillary restaurant and bar at first floor (the '**Proposed Development**').

The development proposals seek to covert the 8-10 Southampton Row building from Crossrail site offices to a 120 bedroom hotel and include the construction of a new building to rear of 8-10 Southampton Row, over the Crossrail shaft. The current building on the Site (8-10 Southampton) has a gross internal area of 1,617m^2, which will increase to 5,102m^2 with the development of a new purpose-built hotel element to the rear.

The Proposed Development comprises:

- Conversion and restoration of 8-10 Southampton Row (back) to a 120 bedroom hotel, including restaurant/ bar at first floor;
- An 8-storey extension to 8-10 Southampton Row to the rear taking in 1 Fisher Street;
- An entrance from Southampton Row (northwest corner) serving the hotel and a secondary access located at the building's southwest corner, linking to the restaurant at first floor;
- Back of house areas at ground floor in the link between the retained and new build elements;
- A second back of house area is to be provided at the rear (east) of the new build element;
- A service entrance from Catton Street;
- A service bay on Catton Street; and
- Cycle parking to meet policy standards.

This Waste Assessment Report has been prepared by Royal HaskoningDHV.

This report assesses the impacts of the Proposed Development in terms of waste generation during the construction and occupation phases, taking into account the proposed options for recycling, recovery or disposal of waste, and the capability of the existing local or regional waste management facilities to manage the waste. Service access requirements are provided in the Transport Statement.

This report is structured as follows:

- Section 2 Waste Planning Policy Context.
- Section 3 Methodology Criteria.
- Section 4 Description of Baseline Conditions.
- Section 5 Waste Composition and Quantities.
- Section 6 Operational Waste Arisings.
- Section 7 Conclusion.

A Site Waste Management Plan has been produced to accompany this report. See '*'PB6071 - Holborn - 1 Fisher Street & 8-10 Southampton Row - SWMP.xls"*.

2 Waste Planning Policy Context

2.1 National Planning and Policy

2.1.1 National Planning Policy Framework

The National Planning Policy Framework[1] (NPPF), which was published on 27 March 2012, does not contain specific waste policies. Paragraph 5 indicates that waste policy will be set out in the National Waste Management Plan for England (2013). In terms of achieving sustainable development, the NPPF identifies that minimising waste and pollution is a fundamental part of the environmental role of the planning system.

The NPPF encourages Planning Authorities to prepare Local Plans that, so far as practicable, take account of the contribution that substitute or secondary and recycled materials and minerals waste would make to the supply of materials, before considering extraction of primary materials, whilst aiming to source minerals supplies indigenously. The proposed development should therefore have regard to the requirements of the relevant Local Plan in terms of waste management. This is discussed further below (see section 2.2).

2.1.2 National Planning Policy for Waste 2014

The Government has published the National Waste Planning Policy[2] for England as a replacement of Planning Policy Statement 10 (Planning for Sustainable Waste Management – 2011)[3]: The updated policy maintains the core principles of the 'plan led' approach, with a continued focus of moving waste up the waste hierarchy.

It requires local planning authorities to have regard to its policies when discharging their responsibilities to the extent that they are appropriate to waste management. Increasingly local authorities are working together in partnerships to deliver full and efficient waste services; a requirement of the duty to cooperate in section 110 of the Localism Act 2011. The document sets out detailed waste planning policies to facilitate a more sustainable and efficient approach to resource use and management, for example by ensuring the design and layout of new infrastructure complements sustainable waste management.

When determining planning applications for non-waste development, the Policy requires that local planning authorities should, to the extent appropriate to their responsibilities, ensure that:

- The likely impact of proposed, non-waste related development on existing waste management facilities, and on sites and areas allocated for waste management, is acceptable and does not prejudice the implementation of the waste hierarchy and/or the efficient operation of such facilities;
- New, non-waste development makes sufficient provision for waste management and promotes good design to secure the integration of waste management facilities with the rest of the development; and
- The handling of waste arising from the construction and operation of development maximises reuse/recovery opportunities and minimises off-site disposal.

[1] *Department for Communities and Local Government (2012) National Planning Policy Framework, DCLG, London*
[2] *DCLG, 2014, National Planning Policy for Waste, The National Archives, London*
[3] *DCLG, 2011, Planning Policy Statement 10: Planning for Sustainable Waste Management, London: TSO*

2.1.3 Government Review of Waste Policy in England 2011

Defra conducted a review of the existing national waste policy in 2011 to set a direction towards a 'Zero Waste Economy'[4].

The principle commitments from the policy review that are relevant to this development include:

- Continued assessment of progress against a number of EU targets; focussing action in specific areas, including recovering at least 70% of construction and demolition waste by 2020;
- A greater focus on waste reduction at the earlier, design stages of construction projects as this is where the largest environmental and financial savings can be made. This would be part of a wider, ongoing programme of work with the industry including support for the Sustainable Construction Task Group Action Plan; and
- A review of the SWMP Regulations 2008, examining how effective the regulations have been in reducing costs for businesses, embedding resource efficiency and reducing the fly tipping of construction waste.

Note: The SWMP Regulations 2008 were revoked by the UK Government in December 2013 as part of an initiative to reduce red tape, meaning that SWMPs are no longer a legal requirement in England for all construction projects. However, despite this change SWMPs are considered the standard practice on construction and demolition sites as they facilitate compliance with the Waste Hierarchy.

2.1.4 National Waste Management Plan for England 2013

Defra published a National Waste Management Plan[5] England in July 2013. The key aim of the Waste Management Plan for England was to set a direction towards a zero waste economy as part of the transition to a sustainable economy. In particular, this meant using the "waste hierarchy" (waste prevention, re-use, recycling, recovery and finally disposal as a last option) as a guide to sustainable waste management.

The Waste Management Plan for England was a high level document which is non–site specific. It evaluated how it would support implementation of the objectives and provisions of the revised Waste Framework Directive[6] (rWFD).

The rWFD established the principle of 'proximity'. This is within the context of the requirement on Member States to establish an integrated and adequate network of waste disposal facilities for recovery of mixed municipal waste collected from private households. The requirement included where such collection also covers waste from other producers.

The plan identified the measures to be taken to ensure that by 2020 at least 70% by weight of construction and demolition waste is subjected to material recovery.

Note: The construction, demolition and excavation sector is the largest contributing sector to the total waste generation. The UK generated 200.0 million tonnes of total waste in 2012. Half of this (50 per cent) was generated by Construction. The Government keeps progress towards the 2020 targets under review by monitoring actual recycling rates and by modelling future recycling. There is an EU target for the UK to recover at least 70 per cent of non-hazardous construction and demolition waste by 2020. The recovery

[4] Government Review of Waste Policy in England 2011, available at URL: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/69401/pb13540-waste-policy-review110614.pdf
[5] *Defra, 2013, 'National Waste Management Plan for England 2013', Defra: London*
[6] *Waste Framework Directive (2008/98/EC)*

rate from non-hazardous construction and demolition waste in the UK in 2014 was 89.9[7] per cent. This already exceeds the 2020 EU target of recovering at least 70% by weight of this type of waste.

2.1.5 Waste Prevention Programme for England 2013

The Government developed Waste Prevention Programme[8] for England in 2013 to set out the key roles and actions which should be taken to move towards a more resource efficient economy. As well as describing the actions the government is taking to support this move, it also highlights actions businesses, the wider public sector, the civil society and consumers can take to benefit from preventing waste. Using resources more efficiently, designing and manufacturing products for optimum life and repairing and reusing more items could save money and provide opportunities for economic growth at the same time as improving the environment.

The waste prevention programme is a requirement of the rWFD.

The Waste Prevention Programme sets out detailed actions to:

- Encourage businesses to contribute to a more sustainable economy by building waste reduction into design, offering alternative business models and delivering new and improved products and services;
- Encourage a culture of valuing resources by making it easier for people and businesses to find out how to reduce their waste, to use products for longer, repair broken items, and enable reuse of items by others;
- Help businesses recognise and act upon potential savings through better resource efficiency and preventing waste, to realise opportunities for growth; and
- Support action by central and local government, businesses and civil society to capitalise on these opportunities.

In order to measure progress against the aim of the programme, the government measures changes in overall waste arising, assesses the environmental impacts of this waste and considers how these factors relate to changes in the resource efficiency of the economy.

2.1.6 BS 5906:2005 - The British Standard on Waste Management in Buildings

BS 5906[9] is a code of practice for methods of storage, collection, segregation for recycling and recovery, and on-site treatment of waste from residential and non-residential buildings. BS 5906 applies to new buildings, refurbishments and conversions of residential and non-residential buildings, including, but not limited to, retail and offices.

2.2 Local and Regional Planning Policy

2.2.1 Camden Borough Council - Core Strategy Adopted Version (November 2010)

The Council is committed to reducing the amount of waste produced in the borough, encouraging recycling and managing collected waste in a sustainable way. It fully supports the objectives of sustainable waste management to move the management of waste up the 'waste hierarchy' of reduction,

[7] *'UK Statistics on Waste', Defra/Government Statistical Service, December 2016*
[8] *Defra, December 2013 'Prevention is better than cure - The role of waste prevention in moving to a more resource efficient economy', HM Government, London (https://www.gov.uk/government/publications/waste-prevention-programme-for-england)*
[9] *British Standards Institution, 2005, BS 5906:2005 Waste management in buildings. Code of practice, BSi, London*

reuse, recycling and composting, to use waste as a source of energy where possible, and to only dispose of it as a last resort.

The Core Strategy (Adoption version 2010)[10] introduces a Strategic Objective to reduce, and better plan for and manage, Camden's waste, including by working with partner boroughs in the North London Waste Authority area. This is delivered by Core Strategy Policy CS18. Through CS18, the Council aims to:

- reduce the amount of waste produced in the borough and increase recycling and the re-use of materials to meet our targets of 40% of household waste recycled by 2010, 45% by 2015 and 50% by 2020;
- make sure that developments include facilities for the storage and collection of waste and recycling;
- deal with North London's waste by working with our partner boroughs in the North London Waste Authority to produce a North London Waste Plan, which will ensure that facilities are provided to meet the amount of waste allocated to the area in the London Plan; and
- safeguard Camden's existing waste site at Regis Road.

The Core Strategy outlines that the Council will also seek to secure the re-use of construction waste on development sites to reduce resource use and the need to transport materials. To ensure an integrated approach to waste management and the highest possible re-use and recycling rates, the Council may require, through a planning condition, or as part of a Construction Management Plan, the submission of a site waste management plan prior to construction.

2.2.2 Camden Borough Council – Draft Local Plan

Camden Borough Council is developing their Local Plan[11]. On 24 June 2016 the Council submitted the Camden Local Plan Submission Draft, supporting documents and representations received during consultation (held between February and April 2016) to the Secretary of State for Communities and Local Government for independent examination.

The Local Plan proposes a Strategic Objective: "*To reduce, plan for and manage Camden's waste, including by working with our partner boroughs in the North London Waste Authority area to work towards self- sufficiency within London as a whole*". This is proposed to be delivered by Local Plan Policy CC5, which builds upon the aims of CS18 in the Core Strategy. Through Policy CC5 'Waste' The Council will:

- aim to reduce the amount of waste produced in the borough and increase recycling and the re-use of materials to meet the London Plan targets of 50% of household waste recycled/composted by 2020 and aspiring to achieve 60% by 2031;
- deal with North London's waste by working with our partner boroughs in North London to produce a Waste Plan, which will ensure that sufficient land is allocated to manage the amount of waste apportioned to the area in the London Plan;
- safeguard Camden's existing waste site at Regis Road unless a suitable compensatory waste site is provided that replaces the maximum throughput achievable at the existing site; and
- make sure that developments include facilities for the storage and collection of waste and recycling.

The proposed Local Plan identifies specific requirements for construction and demolition. Where the demolition of a building cannot be avoided, the Council will expect developments to divert 85% of waste from landfill and comply with the Institute for Civil Engineer's Demolition Protocol[12] (2008) and either re-use materials on-site or salvage appropriate materials to enable their re-use off-site. The Council will

[10] *https://www.camden.gov.uk/ccm/cms-service/download/asset?asset_id=2409621*
[11] *http://camden.gov.uk/ccm/navigation/environment/planning-and-built-environment/planning-policy/local-development-framework/;jsessionid=F54BF19F1B806288E224BF8BAE30BE5E*
[12] *file:///C:/Users/303852/Downloads/136%20NP%2036%20Th__ion%20Protocol.PDF*

expect all developments, whether for refurbishment or redevelopment, to optimise resource efficiency through (amongst other things) reducing waste.

The Council will seek to secure the re-use of construction waste on development sites to reduce resource use and the need to transport materials. Camden Planning Guidance 1: Design (See **Section 2.2.3**) and Camden Planning Guidance 3: Sustainability (See **Section 2.2.4**) and both contain further information on the Council's expectations for on-site facilities for waste and recycling and on construction waste.

2.2.3 Camden Planning Guidance 1: Design

Camden Planning Guidance 1: Design (CPG1) identifies that good design should: incorporate external facilities such as … waste storage facilities … into the design of the development. The key message is to ensure that in planning for waste recycling and storage developments should accommodate:

- adequate space (designed) for the storage of waste and recyclables and waste;
- containers should have designated storage areas that are in a safe location, which is accessible for all users and collectors and minimise nuisance to occupiers and neighbours (and their amenity space) e.g. noise, obstruction, odours, pests, etc;.
- recycling and refuse collection for any waste contractor (and allow for reasonable changes to collection services in the future); and
- sensitively designed/located, especially in conservation areas/or listed buildings.

Special consideration must be given to the location and nature of external storage areas for restaurants and food waste. The waste generally high has a high biodegradable content, therefore can potentially cause nuisance from odour, visual blight, and through attraction of vermin and scavengers.

Applicants must provide details of storage for waste and recyclables in a proposed development as part of their application. These should be shown on the plans or in the application documents, where possible, and will form part of the approval.

2.2.4 Camden Planning Guidance 3: Sustainability

Camden Planning Guidance 3: Sustainability (CPG3) identifies the key messages that where the retention of a building or part of a building is not possible, the quantity of waste produced - from the demolition phase through to the construction phase – should be addressed through the use of the waste hierarchy. This will prioritise the reduction, re-use and recycling of materials. This relates to Development Policy DP22 - Promoting sustainable design and construction, which encourages developments to conserve energy and resources through the use of recycled and renewable buildings materials.

CPG3 identifies that The Council will expect developments to aim for at least 10% of the total value of materials used to be derived from recycled and reused sources.

In line with the waste hierarchy, during the construction phase, The Council's preferred approach is:

- the use of reclaimed materials;
- the use of materials with higher levels of recycled content; and
- the use of new materials.

2.2.5 Camden Planning Guidance 7: Transport

General guidance on requirements for Service vehicles and waste collection is given in Development Policy DP20 - Movement of goods and materials. The Transport Assessments represent the best tool to consider how a development can most appropriately be serviced.

Information on the amount of space needed for sorting and storage of waste on-site prior to collection is given in the Waste recycling and storage section of CPG1 Design. The Council does not generally allow waste to be left on the highway for collection on a specified day except in the case of residential development of six dwellings or less.

2.2.6 North London Joint Waste Strategy 2004 – 2020 (2009);

The North London Joint Waste Strategy[13] aims to promote and implement sustainable municipal wastes management policies in North London using means that minimise the overall environmental impacts of wastes management.

The Strategy outlines aim to engage residents, community groups, local business and any other interested parties in the development and implementation of the Strategy by providing customer-focused and best value services. The Strategy has the following objectives:

- To minimise the amount of municipal wastes;
- To maximise recycling and composting rates;
- To reduce greenhouse gases by disposing of less organic waste in landfill sites;
- To co-ordinate and continuously improve municipal wastes minimisation and management policies in North London;
- To manage municipal wastes in the most environmentally benign and economically efficient ways possible through the provision and co-ordination of appropriate wastes management facilities and services;
- To ensure that services and information are fully accessible to all members of the community - To maximise all opportunities for local regeneration; and
- To ensure an equitable distribution of costs, so that those who produce or manage the waste pay for it

2.2.7 North London Waste Authority - North London Waste Plan

The North London Waste Plan[14] will set out the planning framework for waste management in the North London Boroughs for the next 15 years. It is being be prepared jointly by Camden and the six other boroughs in the North London Waste Authority area. It will identify a range of suitable sites for the management of all North London's waste up to 2031 and include policies and guidelines for determining planning applications for waste developments.

The draft North London Waste Plan (NLWP) was consulted on between July and September 2015. Since then the Boroughs have been working on the proposed submission version of the plan. The programme for the Boroughs to publish the NLWP for further consultation has been delayed. This is to enable the Boroughs to consider the proposed Crossrail 2 scheme whose route down the Lee Valley has potential implications for existing and proposed waste sites. There is currently no firm date for when the proposed submission plan will go to each of the Boroughs for formal decision. -

[13] *http://www.nlwa.gov.uk/docs/nlwa-general-documents-and-plans/north-london-joint-waste-strategy.pdf*
[14] *http://www.nlwp.net/*

2.3 Waste Legislation

2.3.1 Waste Framework Directive

The key European legislation is the revised Waste Framework Directive (2008/98/EC) ('rWFD'), which consolidates a number of separate waste Directives and amendments. It establishes the basis for the management of wastes across the European Union (EU). It defines certain terms, such as "waste", "recovery" and "disposal", to ensure that a uniform approach is taken across the EU.

2.3.2 Duty of Care

The waste duty of care is a legal requirement, originally implemented by Section 34 of the Environmental Protection Act 1990, to ensure that producers and holders handle their waste safely and in compliance with the appropriate regulations. One of the fundamental aspects of duty of care requires the holder of waste to make sure that anyone else dealing with their waste has the necessary authorisation to do so. If the holder does not do this and their waste is subsequently found to have been illegally disposed, the holder could be held responsible and may face prosecution.

The duty of care provisions are contained in the Waste (England & Wales) Regulations 2011 SI 2011 (No. 988).

2.3.3 The Waste Hierarchy

The waste hierarchy is set out at Article 4 of the rWFD and has been implemented by The Waste (England and Wales) Regulations 2011.

The waste hierarchy is set out at Article 4 of the rWFD. The waste hierarchy requires the producer/holder of a waste to demonstrate that the priorities identified in **Table 1** have been considered in order to determine the most suitable waste management option for all wastes prior to removal from site.

Table 1: The Waste Hierarchy

Waste Hierarchy	Relevant activity
Prevention	Using less material in design and manufacture, keeping products for longer, re-use, using less hazardous materials.
Preparing for re-use	Checking, cleaning, repairing, refurbishing, whole items or spare parts.
Recycling	Turning waste into a new substance or product, includes composting if it meets quality protocols.
Other recovery	Includes anaerobic digestion, incineration with energy recovery, gasification and pyrolysis which produce energy (fuels, heat and power) and materials from waste, some backfilling.
Disposal	Landfill and incineration without energy recovery.

Table reproduced from Defra website: https://www.gov.uk/waste-legislation-and-regulations

It is a legal requirement for waste producers/holders to follow the waste hierarchy when making decisions about waste management options. Waste holders have to demonstrate the highest possible hierarchical option for their wastes. Lower hierarchical options cannot be justified by cost alone. They require environmental justification over available higher options, for example the location of a site may justify

sending waste to a lower hierarchical option (e.g. local landfill), rather than sending it hundreds of miles to the nearest facility that could provide a higher option.

2.3.4 Hazardous Waste

The Hazardous Waste Regulations (HWR) provide the rules for assessing if a waste is hazardous or not. As part of the assessment of waste, the HWR refer to the List of Wastes (which is often referred to as the European Waste Catalogue (EWC)) for the relevant thresholds for some of the hazardous properties; and to assign the formal description and code for the waste. The regulatory framework to do this is contained in:

- Hazardous Waste (England and Wales) Regulations 2005 SI 894.
- Hazardous Waste (England and Wales) (Amendment) Regulations 2009 SI 507.
- List of Wastes (England) Regulations 2005 SI 895.
- List of Wastes (England) (Amendment) Regulations 2005 SI 1673.
- The Hazardous Waste (Miscellaneous Amendments) Regulations 2015 SI 1360

Detailed technical guidance on the hazardous waste assessment process is provided by 'Waste Classification and Assessment (Technical Guidance WM3)[15]' issued in July 2015 as a consequence of changes to the way in which wastes are assessed and classified in accordance with the 2015 amendment.

This document is jointly approved by all of the UK environmental regulators. It provides thresholds and criteria for assessing each of the 15 hazardous properties and Persistent Organic Pollutants (POPs).

2.3.5 Separate Collection of Waste

The rWFD (Article 10) requires that "*Member States shall take the necessary measures to ensure that waste undergoes recovery in accordance with Articles 4 and 13 [paragraph 1*]…" and "*Where necessary to comply with paragraph 1 and to facilitate or improve recovery, waste shall be collected separately if technically, environmentally and economically practicable and shall not be mixed with other waste or other material with different properties*".

This has given rise to the term 'TEEP' 'Technically, Environmentally and Economically Practicable' with reference to the separate collection of wastes destined for recovery operations. TEEP applies to all commercial (business) and municipal (household) waste. However, only paper, metal, plastic and glass have been explicitly named in the rWFD as specific waste streams that are required to be collected as separate fractions – and only if this is necessary to improve recycling quality and quantity. This requirement applies from January 2015 and was implemented by the Waste (England and Wales) (Amendment) Regulations 2012.

Municipal solid wastes are collected for recovery, either as source segregated waste streams; or as co-mingled wastes. Waste Collection Authorities have a duty to separately collect the four types of recyclable material, and must apply the "TEEP" tests to determine if this is needed in their circumstances. The requirements of 'TEEP' do not make it mandatory that separate collection has to be introduced; and co-mingled collection is acceptable if the aim of high quality recycling can be achieved just as well with a form of co-mingled collection . Decisions about whether co-mingled collections are justifiable need to be taken locally, based on the particular circumstances in each area. Advice in this regard has been provided by WRAP in the Waste Regulations Route Map[16].

[15] *https://www.gov.uk/government/publications/waste-classification-technical-guidance*
[16] *http://www.wrap.org.uk/content/requirements-waste-regulations*

2.3.6 Household Waste, Industrial Waste or Commercial Waste

The Controlled Waste Regulations 2012 describes wastes that are to be treated as household waste, industrial waste or commercial waste because of the place where it is produced; or because of its nature or the activity which produces it (notwithstanding the place where it is produced).

2.3.7 Animal By-Products Regulations 2005

If food waste or former foodstuffs are of animal origin or contain products of animal origin, you must dispose of them in a way that doesn't pose a risk to human or animal health. Where foods of animal origin are no longer intended or are not fit for human consumption, the foodstuff becomes an animal by-product (ABP).

Any waste food (including used cooking oil) that comes from restaurants, catering sites, commercial or household kitchens is defined as catering waste. Catering waste is a category 3 ABP.

The Regulations stipulate how catering waste and former foodstuffs can be disposed; and how catering waste must be kept separate from medium or high risk former foodstuffs (for example, raw meat and fish).

3 Report Methodology

3.1 Approach

The report considers the likely quantity and composition of waste materials predicted to be generated during the construction phase and during operation. On-site re-use and recovery of the waste in the development are explored, along with the capability for existing local and regional waste management infrastructure to manage the arisings according to the principles of the waste hierarchy.

The assessment tools and criteria were derived for this report based on professional judgement and guidelines derived from national and local planning policy relating to waste management and the waste hierarchy.

3.2 Assumptions and Limitations

The Site footprint measures approximately 750m^2. The current building on the Site (8-10 Southampton) has a gross internal area of 1,617m^2, which will increase to 5,102m^2 with the proposed development plans.

At this stage in the application process for the Proposed Development, it is estimated that the construction phase would be between 20 and 24 months.

According to Phase 1 Land Contamination Assessment (WSP Parsons Brinkerhoff, February 2017) the majority of the eastern half of the Site has been excavated for construction of the Crossrail Fisher Street shaft. Therefore, it is considered that any Made Ground (and associated contamination) has been removed. In addition, the entire Site will be occupied by the footprint of the building and hardstand cover, limiting exposure of site users to potentially contaminated soils.

No buildings will be demolished.

4 Description of Baseline Conditions

4.1 Existing Conditions at the Site

4.1.1 The Application Site

The Site has a site footprint of approximately 750m^2 and is located within the London Borough of Camden (LBC). The site includes one grade II listed building (Carlisle House, 8-10 Southampton Row) and is partly within the Kingsway Conservation Area. 8-10 Southampton Row has architectural and historical interest as an early example of steel framed architecture designed by a named architectural firm with other listed buildings to their name. Carlisle House, 8-10 Southampton Row was originally built in 1905/6 for the Royal London Friendly Society's Offices and the Tollard Royal Hotel.

The Site is located on the east side of Southampton Row, south of Fisher Street and north of Catton Street. The Site is currently in use by Crossrail Limited. The listed building is in use as a site office for the construction of the Fisher Street Shaft, a large shaft required for the development of the Cross Rail network. Crossrail Limited are due to complete the shaft and vacate the application site by December 2017 and as such the applicant proposes a scheme developing the entire site (including the listed building) with a new hotel, incorporating the listed building and a new building to the rear, outside the conservation area.

Planning permission was granted in 2013 for oversite development to the rear of the listed building, over the Fisher Street Shaft (2013/1477/P). The permitted building was designed to be specifically set back from the rear of the listed building to accord with rights of light into the residential units on the upper floors of the listed building (converted in 1996 and now not in existence). At basement, ground and first floor the over site development scheme abutted the listed building, providing bike stores. The opportunity now exists to link the sites and create a more efficient use of the land while maintaining the importance of the listed building as the frontage building and enabling the listed building to be restored to its original hotel use.

4.1.2 The Proposed Development

The Waste Assessment Report concerns proposals at 1 Fisher Street and 8–10 Southampton Row, London, WC1B 4AE (the '**Site**') for the redevelopment of an existing building and construction of an extension to the rear, for the creation of a 120 bedroom hotel with an ancillary restaurant and bar at first floor (the '**Proposed Development**').

The development proposals seek to covert the 8-10 Southampton Row building from Crossrail site offices to a 120 bedroom hotel and include the construction of a new building to rear of 8-10 Southampton Row, over the Crossrail shaft. The current building on the Site (8-10 Southampton) has a gross internal area of 1,617m^2, which will increase to 5,102m^2 with the development of a new purpose-built hotel element to the rear.

The Proposed Development comprises:

- Conversion and restoration of 8-10 Southampton Row (back) to a 120 bedroom hotel, including restaurant/ bar at first floor;

- An 8-storey extension to 8-10 Southampton Row to the rear taking in 1 Fisher Street;
- An entrance from Southampton Row (northwest corner) serving the hotel and a secondary access located at the building's southwest corner, linking to the restaurant at first floor;
- Back of house areas at ground floor in the link between the retained and new build elements;
- A second back of house area is to be provided at the rear (east) of the new build element;
- A service entrance from Catton Street;
- A service bay on Catton Street; and
- Cycle parking to meet policy standards.

4.2 Waste Management Facilities in the Local Area

Local waste management facilities were identified from the Environment Agency Public Register[17]. The search area was based upon a site postcode of WC1B 4AE.

More than 3,000 facilities are registered within 10km of the site. It is noted that the this list includes carriers and brokers, water discharge permit holders, radioactive substances permit holders; as well as installations and waste facilities that are permitted or exempt.

Of these, 125 facilities are listed as holding an environmental permit for a waste management operation; and
872 facilities are listed as holding a waste-related exemption. One exemption is registered at the site of the proposed development for the Crossrail development:

Holder	Registration number	Exemptions registered	Address
COSTAIN GROUP PLC	EPR/EF0706NB/A001	S1, S2, U1	ACT JV Systemwide Crossrail Contract C610, 8-10 Southampton Row, Holborn, WC1B 4AE

There are more than 2,000 registered waste carriers, brokers and dealers within the search radius.

4.3 Regional Waste Management Facilities

The potential regional waste management capacity was assessed. The Environment Agency provides waste capacity data on its website[18]. This data set was assessed to identify the remaining regional capacity according to waste management options in London. This provides an indication of whether the predicted waste types from the Proposed Development can be managed within the Region in accordance with the proximity principle (i.e. managing wastes as close to the source of production as possible).

The rWFD (Article 16) establishes the principle of proximity for managing waste as close to the source of production. The Proximity Principle recognises that transporting waste has environmental, social and economic costs so, as a general rule, waste should be dealt with as near to the place of production as possible.

[17] *Environment Agency Public Register, accessed on 26/04/2017, available at URL: https://environment.data.gov.uk/public-register/view/index*
[18] *Environment Agency Waste Management Data Tables 2015, accessed 26/04/2017 https://www.gov.uk/government/statistics/waste-management-for-england-2015*

The data in **Tables 2** to **7** inclusive provides an indication of the widespread availability of a range of types of waste management facilities within London.

Table 2: Number of Waste Management Facilities in London (2015)

England: Permitted waste facilities in 2015

Site type		Former Planning Region									ENGLAND
		North East	North West	Yorkshire & the Humber	East Midlands	West Midlands	East of England	London	South East	South West	
Landfill	Number of sites with an environmental permit at end 2015	25	49	70	61	51	84	8	85	60	**493**
	Number of sites that accepted waste in 2015	21	40	56	45	35	46	5	55	40	**343**
Land Disposal	Number of sites with an environmental permit at end 2015	8	34	36	26	22	54	10	63	64	**317**
	Number of sites that accepted waste in 2015	3	22	21	9	9	32	9	36	50	**191**
Incineration	Number of sites with an environmental permit at end 2015	10	15	16	15	19	14	10	24	18	**141**
	Number of sites that accepted waste in 2015	3	8	11	6	13	6	7	16	8	**78**
Transfer	Number of sites with an environmental permit at end 2015	182	437	404	295	397	368	217	408	355	**3,063**
	Number of sites that accepted waste in 2015	139	336	307	221	266	301	167	326	301	**2,364**
Treatment	Number of sites with an environmental permit at end 2015	143	412	350	290	311	319	141	379	343	**2,688**
	Number of sites that accepted waste in 2015	102	284	273	228	217	255	103	314	276	**2,052**
Metal Recovery	Number of sites with an environmental permit at end 2015	154	394	412	242	389	292	104	209	278	**2,474**
	Number of sites that accepted waste in 2015	71	169	207	126	188	166	61	129	160	**1,277**
Use of Waste	Number of sites with an environmental permit at end 2015	8	32	24	22	22	19	3	32	64	**226**
	Number of sites that accepted waste in 2015	4	25	14	11	10	7	1	11	39	**122**
Total	Number of sites with an environmental permit at end 2015	530	1,373	1,312	951	1,211	1,150	493	1,200	1,182	9,402
	Number of sites that accepted waste in 2015	343	884	889	646	738	813	353	887	874	6,427

Table 3: Remaining Landfill Capacity in London (2015)

London: Landfill capacity 2015

All figures are provided in 000s cubic metres

Landfill Type	Sub-Region							LONDON
	Central London	East London Waste Authority	North London Waste Authority	South East London	South London	West London Waste Authority	Western Riverside Waste Authority	
Hazardous Merchant	-	-	-	219	-	-	-	**219**
Hazardous Restricted	-	-	-	-	-	-	-	-
Non Hazardous with SNRHW cell*	-	-	-	-	-	-	-	-
Non Hazardous	-	3,127	-	-	499	-	-	**3,626**
Non Hazardous Restricted	-	-	-	-	-	-	-	-
Inert	-	365	-	-	37	465	-	**867**
Total	-	3,491	-	219	536	465	-	4,711

*Some non-hazardous sites can accept some Stable Non Reactive Hazardous Wastes (SNRHW) into a dedicated cell, but this is usually a small part of the overall capacity of the site.

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Table 4: Transfer, Treatment and Metal Recycling Volumes in London (2015)

London: Transfer, treatment and metal recycling site inputs 2015

All figures are provided in 000s tonnes

Site Type	Sub-Region							LONDON
	Central London	East London Waste Authority	North London Waste Authority	South East London	South London	West London Waste Authority	Western Riverside Waste Authority	
Hazardous waste	0	248	-	0	9	292	222	**771**
HIC	169	1,057	1,308	404	693	1,598	364	**5,594**
Clinical	-	0	1	2	-	5	1	**9**
Civic amenity site	3	87	123	60	136	93	2	**504**
Non Biodegradable	37	321	-	23	25	561	0	**967**
Transfer Total	**209**	**1,713**	**1,432**	**490**	**863**	**2,548**	**590**	**7,845**
Material recovery	-	194	122	636	29	360	472	**1,812**
Physical	4	869	473	967	398	473	36	**3,221**
Physico-chemical	-	146	1	10	-	-	-	**157**
Chemical	-	-	-	-	-	-	-	-
Composting	3	-	32	0	43	64	-	**143**
Biological	-	450	-	-	7	44	-	**501**
Treatment Total	**7**	**1,659**	**628**	**1,613**	**478**	**941**	**508**	**5,834**
Vehicle depollution	-	44	97	28	15	40	0	**225**
Metal recycling site	-	300	267	126	26	127	207	**1,054**
Metal Recycling Sector Total	**-**	**344**	**365**	**154**	**41**	**167**	**208**	**1,279**

Table 5: Incineration Capacity in London (2015)

London: Incineration capacity 2015

All figures provided in 000s tonnes

Incineration Type	Sub-Region							LONDON
	Central London	East London Waste Authority	North London Waste Authority	South East London	South London	West London Waste Authority	Western Riverside Waste Authority	
Animal By-Product	-	-	-	-	-	-	-	-
Animal Carcasses	-	-	-	-	-	-	-	-
Clinical	-	-	75	-	-	8	-	**83**
Co-Incineration of Hazardous Waste	-	-	-	-	-	-	-	-
Co-Incineration of Non Hazardous Waste	-	-	-	-	-	-	-	-
Hazardous	-	-	-	-	-	-	-	-
Municipal and/or Industrial & Commercial	-	-	675	1,188	-	-	-	**1,863**
Sewage Sludge	-	91	-	54	-	-	-	**144**
Total	**-**	**91**	**750**	**1,242**	**-**	**8**	**-**	**2,090**

Note: This data table is for operational incineration facilities that accepted waste from off-site sources. It does not include facilities that burned waste from their own in-house processes or were non/pre-operational.

Table 6: London - Deposit on land for recovery inputs (2015)

London: Deposit in landfill for recovery inputs 2015

All figures are provided in 000s tonnes

Site Type	Sub-Region							LONDON
	Central London	East London Waste Authority	North London Waste Authority	South East London	South London	West London Waste Authority	Western Riverside Waste Authority	
Deposit in landfill for recovery	-	826	-	-	56	395	-	**1,276**
Total	**-**	**826**	**-**	**-**	**56**	**395**	**-**	**1,276**

Note: This activity is the deposit of waste in land for benefit and recovery purposes. Landfilling is the deposit in land for the purposes of final disposal.

Note: This data table is for the deposit of waste in land for benefit and recovery purposes.

Table 7: London - Use of Waste (2015)
London: Use of waste inputs 2015
All figures provided in 000s tonnes

Site Type	Sub Region							LONDON
	Central London	East London Waste Authority	North London Waste Authority	South East London	South London	West London Waste Authority	Western Riverside Waste Authority	
Use of waste in construction	-	-	-	-	-	-	-	-
Use of waste in reclamation	-	1	-	-	-	-	-	1
Use of waste for timber manufacturing	-	-	-	-	-	-	-	-
Total	-	1	-	-	-	-	-	1

Note: These activities are for use of waste permitted under Standard Rules Permits for waste operations.

4.4 Availability and Capacity of Regional Facilities

The specific waste streams that are predicted to be generated as a result of the Proposed Development are identified in **Sections 5** and **Section 6** below. These sections provide a discussion on the types of waste that are predicted to be generated and whether those wastes would be recovered on site; or would be recovered or disposed off-site. Off site management would involve the use of local and regional facilities identified above.

The information shows that there are numerous waste management facilities providing a wide variety of waste management options within the local area (**Section 4.2**) and region (**Tables 2 to 7** inclusive).

The overall capacity data means that these facilities are likely to be capable of managing the majority of the wastes requiring off-site management that are predicted to be generated by the Proposed Development during construction. However, if there are any hazardous wastes produced that require landfill disposal, there is only limited capacity available in South-East London, so these may have to be exported out of the region.

5 Waste Composition and Quantities

5.1 Construction Waste Arisings

Waste material will be generated at all stages of the construction process. The type of development, ground conditions and on-site waste management practices will influence the composition of the waste.

The assessment below considers the total amount of each type of waste produced over the whole construction period inclusive of the estimated earthworks quantities that are reported in the assumptions in **Section 3.2**.

The BRE (Building Research Establishment) SMART Waste data report (2013)[19] was used to estimate volumes of waste arisings from the construction phase of the proposed development. BRE produced the SMART Waste data report by assessing actual data from approximately 10,000 completed new build, refurbishment and civil engineering projects.

The indicative waste types and volumes are derived from BRE's SMART Waste Data Report according to the total Site Area. The site footprint is approximately 750m^2. This was identified as the most relevant data set to derive the predicted arisings for the Proposed Development. A detailed breakdown of the predicted composition of construction waste for the entire Proposed Development is set out in **Table 8** below. This represents waste inclusive of any potential excavated material.

WRAP has produced an online guide[20] on the volume to mass conversion factors for a wide range of construction wastes and the appropriate conversion factor from volume to mass for each waste type is provided in **Table 8** below.

The anticipated construction programme, based on estimates at this stage of the application process, is likely to be over the approximately 20 to 24 months. For the purposes of assessment the construction period is assumed to be 22 months; and average monthly quantities were calculated to provide a general assumption about the potential maximum amount of any particular type of waste likely to be present on site at one particular time. These are presented in **Table 8** below.

The data has been colour coded to identify the generic waste type: green = inert waste; orange = non-hazardous waste; and red = hazardous waste.

[19] *Building Research Establishment (2013) SMART Waste Data Report 2013.*
[20] *http://www.wrap.org.uk/content/waste-conversion-factors-wrap-construction-tools*

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Table 8: - Estimated Quantity of Construction Waste

Waste Product	BRE Average $m^3/100 m^2$	% of total	Volume of total waste (m^3)*	WRAP conversion factor	Mass in Tonnes*	Annual*	Month *
Asphalt, bitumen and tarmac	0.6	0.79%	5	0.82	5	3	1
Concrete binders	0.1	0.13%	1	1.27	2	2	1
Bricks	1.3	1.71%	10	1.2	12	7	1
Canteen/office/ad-hoc waste	0.7	0.92%	5	0.21	2	2	1
Concrete	2.1	2.76%	15	1.27	20	11	1
Floor coverings - soft	0.1	0.13%	1	0.27	1	1	1
Gypsum	1	1.32%	8	0.33	3	2	1
Hazardous miscellaneous excavation and construction waste	0.4	0.53%	3	0.87	3	2	1
Inert mix of concrete, tiles, bricks and ceramics	6.8	8.95%	49	1.24	61	34	3
Insulation	0.6	0.79%	5	0.25	2	2	1
Aqueous Liquids, including chemical toilet waste	0.1	0.13%	1	0.9	1	1	1
Metals	0.6	0.79%	5	0.42	3	2	1
Mixed waste not otherwise specified	5.8	7.63%	42	0.87	37	21	2
Mixed Packaging & empty drums	1.7	2.24%	13	0.21	3	2	1
Segregated Plastics	0.6	0.79%	5	0.23	2	2	1
Excavated material / Soils (excavated soil and topsoil, including material to be reinstated)	50.7	66.71%	361	1.25	452	247	21
Tiles and Ceramics	0.1	0.13%	1	0.59	1	1	1
Timber	2.7	3.55%	20	0.34	7	4	1
Total					**617**	**346**	**41**

* *The individual volume and mass values in the table have been rounded up to the nearest whole number.*

The estimated quantity according to the generic category of waste is summarised in **Table 9**.

Table 9: - Summary of the Estimated Total Quantity by Waste Category (tonnes)

Cumulative arisings by category	Predicted arisings (tonnes)	Averaged annual arisings	Averaged monthly arisings
Inert	96	55	7
Non-hazardous	518	289	33
Hazardous	3	2	1

5.2 Construction Waste Management Measures

5.2.1 Construction phase

This section describes the measures that can be implemented in order to eliminate or reduce the anticipated quantity of waste sent to landfill by implementing the waste hierarchy, which would be in line with The Council's policy requirements. These measures would increase reuse; recycling or recovery opportunities, thereby reducing the effect of significant environmental impacts of waste. The waste management measures for the construction phase are split in the section below, into those that can generally be applied to one or more waste type; and those that are applied to specific waste streams.

5.2.2 General Waste Management Measures

There are certain principles of waste management that can be applied to the majority of wastes that would be created during the construction phase. These are:

- Adhere to waste legislation for storage and handling on-site; and also ensure that the relevant regulatory controls have been applied to the reuse, recycling or recovery of waste on-site.
- No waste from the Proposed Development shall be deposited outside the boundary of the Site, unless it is at a facility that holds a valid environmental permit or suitable authorised exemption. Off-site waste management facilities are legally obliged to operate under an environmental permit (or an authorised exemption), which is in place to ensure that the site is operated in a manner to prevent emissions causing harm to human health or the environment.
- Ensure that those who remove waste from site have the appropriate authorisation (i.e. are registered waste carriers); and those facilities that receive waste from the site hold a valid environmental permit or authorised exemption.
- Allocate space on site for the storage of waste materials and ensure that storage areas and containers are clearly labelled so site workers know which wastes should be put there.
- Hazardous waste must be stored separately from non-hazardous wastes to avoid contamination. The Hazardous Waste Regulations make it illegal to mix hazardous waste with non-hazardous waste.
- Provide separate containers for dry recyclables, such as paper & cardboard, plastic, glass, wood and metal. This would encourage recycling and increase the potential value of the recyclable items by avoiding contamination.
- Monitor the actual quantities of wastes produced during construction, and update the Site Waste Management Plan to allow comparison with waste arisings estimated prior to construction. Record the proposed waste management option (e.g. reuse on site, recycle off-site, or dispose off-site) for each waste produced.
- All wastes that are removed off site would be described on a waste transfer note or hazardous waste consignment note (as appropriate) that tracks the movement of the waste to the specified disposal or recycling facility.
- The appointed contractors should identify appropriate staff that are responsible for waste management; and ensure that all contractor staff are aware of the appropriate reuse, recycling or disposal routes for each waste.
- Order construction materials at the right time for delivery; and the right amount that is needed at the time. Avoid ordering in bulk. This will minimise the amount of space required for storing building materials and minimise the amount of wastage from excess or spoiled materials.
- Re-using materials (either onsite/off-site) is a means of putting materials to an alternative use so that they are not wasted. This can be done during the construction phases of a development by identifying and segregating materials already on site for re-use in the new development, such as: − bricks, concrete − internal features – historic fireplaces, timber floorboards, doors − metal frames, plastics, granite − sub-soil, top soil.

- Making materials not reused on site available for reuse elsewhere. This can be achieved using the exchange/sale/donation of construction site materials to waste recovery businesses, such as: BRE Materials Information Exchange (www.bre.co.uk); Waste Alert North London's Waste Exchange service (www.wastewatch.org.uk , etc). These specialists can sort the waste materials into various types and then find businesses that can reuse/recycle them.
- Implementing take-back' schemes with suppliers for materials and packaging. This where suppliers take back any materials not used as well as any packaging the materials are delivered in

These measures would promote sustainable waste management practices by maximising waste prevention, re-use and recycling for material destined for offsite waste management. This would actively discourage sending waste to landfill and would promote the waste hierarchy, which is a legal requirement and in line with the Councils policy requirements. It is recommended that these measures are incorporated into a Construction Environmental Management Plan (CEMP) for the proposed development.

5.2.3 Waste-Specific Management Measures

Inert Waste:

Waste inert materials (for example concrete, bricks, rubble) could be crushed and processed in accordance with the Waste & Resources Action Programme (WRAP) Aggregates Quality Protocol[21]. This would allow for on-site reuse, where required, as engineering fill material complying with an appropriate engineering standard for fill (for example the Manual of Contract Documents for Highway Works Volume 1 - Specification for Highway Works[22]).

Aggregate will normally be regarded as having ceased to be waste, and therefore no longer subject to waste management controls, provided:

- it conforms to the requirements of the European standard appropriate to the use it is destined for;
- the aggregate is produced under Factory Production Control;
- inputs are limited and controlled within Factory Production Control;
- it requires no further processing, including size reduction, for the use it is destined for;
- it is destined for a use within designated market sectors; and
- it conforms with CE conformity marking requirements contained in the Construction Products Regulations, which applies to all aggregates placed on the market to harmonised European Aggregates Standards from July 2013.

Control procedures must be in place to ensure that only the appropriate types of inert materials are received (these are listed in Appendix C of the Quality Protocol), therefore, waste acceptance criteria and procedures are required.

The acceptance criteria must include:

- a list of the types of waste that are accepted (including waste codes);
- source/place of origin of the waste;

21 https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/296499/LIT_8709_c60600.pdf

22 Department for Transport (DfT), 2009, 'Manual Of Contract Documents For Highway Works Volume 1 Specification For Highway Works, DfT: London http://www.dft.gov.uk/ha/standards/mchw/vol1/pdfs/series_0600.pdf

- supplier and transporting agent; and
- method of acceptance.

Every load must be inspected visually, both on initial receipt and after tipping, to ensure compliance with the acceptance criteria. A procedure for dealing with non-conforming incoming waste must be set up, for example, rejection of loads, quarantine or disposal. Records must be kept of how the procedure has been implemented.

The facility that receives the inert waste for processing into the aggregate must have an environmental permit, which can include a mobile plant where appropriate site-specific information has been provided to the Environment Agency and agreed. The processing of the inert waste must be carried out in accordance with the environmental permit and under Factory Control Procedures.

A rigorous sampling and testing regime is required to ensure that the processed material meets the required market specification according to the type of product produced.

To be able to demonstrate compliance with the Quality Protocol, producers must maintain delivery documentation for every load of recycled aggregate despatched.

Delivery documentation must include:

- date of supply;
- customer's name and contact details;
- product description to aggregates standard and customer specification;
- the name and contact details of the producer, including the address of the site of production;
- quantity supplied by weight/volume; and
- a statement that the product was produced in compliance with the Quality Protocol.

Where requested by the purchaser further documentation should also include:

- test results and procedures in accordance with the relevant aggregate industry standard or specification and for any further tests required to assess suitability for a particular end use;
- outline details of the Factory Production Control manual; and
- information on good practice relating to the storage, transportation and handling of aggregate.

For the purposes of the Quality Protocol the producer must keep and retain specified records for a minimum of two years; and make them available for inspection by the regulator (if requested).

It is important to note that even if the Quality Protocol is complied with, the material will become waste again and subject to waste management controls at any stage if it is discarded or there is an intention or requirement to discard. For example if it is:

- disposed; or
- stored indefinitely with little prospect of being used.

These measures would reduce the amount of waste sent off-site; and promote on-site recycling into engineering-standard product, therefore, reducing the amount of material classed as waste on-site. The remaining surplus inert material would be sent off-site to a local recycling facility for processing into aggregate. This is a waste recycling measure in accordance with the waste hierarchy.

Non-Hazardous Wastes

Excavated Material – non-hazardous

According to Phase 1 Land Contamination Assessment (WSP Parsons Brinkerhoff, February 2017) the majority of the eastern half of the Site has been excavated for construction of the Crossrail Fisher Street shaft. Therefore, it is considered that any Made Ground (and associated contamination) has been removed from this part of the site, so as reflected in **section 5.1**, the quantity of excavated material is likely to be low. In addition, the entire Site will be occupied by the footprint of the building and hardstand cover, limiting exposure of site users to potentially contaminated soils. The report recommends that a full ground investigation and generic quantitative risk assessment for the Site is not considered necessary.

Excavated material would comprise concrete and bricks, made ground and subsoil according to the specific parts of the Site. The concrete and bricks would be dealt with as inert waste (see above).

It is anticipated that some of the excavated material could be retained on site for reuse as general fill where required. Any excavated material that is surplus to requirements could be sent to a soil treatment facility or local landfill for beneficial use as restoration material or daily cover.

Effective stockpile management would be essential given the constraints in size associated with the development; and location in central London. It would maximise the amount of material that can be beneficially reused on site.

Where excavated material is proposed to be used on-site, the appropriate regulatory mechanism must be followed prior to use to demonstrate that it will not cause unacceptable harm to the environment when used. The Contaminated Land: Applications In Real Environments (CL:AIRE) Definition of Waste: Development Industry Code of Practice[23] (the CoP) is anticipated to provide the framework for the reuse of the excavated material and provides principles that allows the excavated to cease to be waste when used. This would also apply to contaminated material (including excavated material classified as hazardous waste – see below), where the risk assessment demonstrated that there was no unacceptable level of risk to human health or the environment.

The CoP is supported by the Environment Agency and is subject to self-regulation, via the use of an independent assessment by a Qualified Person, who is a person that fulfils the required experience, qualifications and professional membership criteria set by CL:AIRE. The CoP sets out the principles for achieving a non-waste status by setting a risk-based approach when excavated material is used within a development. The principles are:

The proposed use of the material must not cause any harm to human health or the environment.

A risk assessment for the specific end use would be required following the principles defined in Environment Agency Contaminated Land Report 11[24], ('CLR11'). This would find out whether any contaminants from anthropogenic and/or natural sources present an unacceptable level of risk to human health, controlled waters, ecosystems and/or the built environment, based on the available pathways and receptors. If the level of risk is unacceptable after treatment, the CoP cannot apply to the material, therefore, it would be a waste and an environmental permit would be required to allow the reuse of the material.

[23] *Contaminated Land: Applications In Real Environments (CL:AIRE), 2011, 'The Definition of Waste: Development Industry Code of Practice' (Version 2), CL:AIRE: London*

[24] *Environment Agency, 2004 'Model Procedures for the Management of Land Contamination - Contaminated land report 11', Environment Agency, Bristol.*

The excavated material is suitable for its proposed use.

This would take into account the chemical and geotechnical requirements of the material in relation to a specification defined for their end use.

The excavated material must not require further treatment prior to use.

The material must be suitable for use in all respects without treatment. If it requires treatment, it is waste.

The use of the excavated material is certain.

The holder must be able to demonstrate that all of the material would be used and that use is a certainty, not a probability. The use of the excavated material must form part of the final design, so it can be clearly identified where in the scheme the material would be used; and how much would be used. This requires a Materials Management Plan to be prepared to show how and where all materials on the ground are to be dealt with; and a tracking system to monitor any waste/material movements; and also contingency measures must be defined, i.e. who takes responsibility and what happens in the event that the material is not suitable for use.

Only a sufficient quantity of material would be used.

The material must be destined for a defined purpose, which is defined in the scheme design. The quantity of material required for that purpose must be known prior to construction. If excess material is deposited to undertake that purpose this is an indication that it is being discarded and it would be considered to be waste.

The benefit of the CoP is that an environmental permit is not required where the principles can be met; and therefore, this promotes waste reduction, because the material ceases to be waste when it is used.

These measures would promote on-site recovery and reduce the amount of waste on-site.

Dry Recyclables from Site Workers

Site workers will create waste produced by themselves, by taking refreshment and from site office activities.

The most effective waste management solution for waste generated by site workers taking refreshment on site is to introduce a policy to require them to take their own waste home. This is likely to reduce the amount of waste produced.

In terms of the waste that would be produced on site, this is similar in composition to mixed municipal waste and is therefore, considered to be non-hazardous. Space should be made available to provide receptacles to collect different waste streams and allow the separate collection of dry recyclables from residual waste. Segregation of the different streams of plastic waste (e.g. Polyethylene terephthalate (PET), High-density polyethylene (HDPE) and mixed plastics) would maximise opportunities for recycling. Some source segregated plastics, particularly PET and HDPE, can generate income. Card and paper should be separately collected as should aluminium and steel cans. Glass should be separated into different receptacles where possible. These measures would ensure that the maximum amount of waste is diverted for reuse, recycling and recovery. All receptacles for contractor waste should be clearly labelled and have lids to prevent wind-blown litter.

Frequent collections of waste should be arranged to ensure that quantities on site are within the capacity of one skip and waste is not retained on site for long periods to reduce scavengers and vermin.

The remaining residual waste should be sent to an off-site materials recycling facility.

Excess Construction Materials

Timely procurement and buying the required amount of material should ensure that the right amount of material is delivered at the time when it is needed. This would prevent waste from unused items as a consequence of bulk purchasing.

Ensure that perishable materials are stored so that they are protected from the local climate.

All damaged or off-specification material should be returned back to the supplier where possible, which would reduce the amount of wastage.

These measures are anticipated to reduce the amount of this type of waste on site at any one time.

Imported Materials

Local and sustainable products would be imported in order to minimise the effects on the environment by reducing carbon emissions from transport, promoting local businesses and saving natural resources.

Packaging

To minimise the effects of packaging, suppliers should be required to take back any packaging associated with their products. This would assist the suppliers in fulfilling their own producer responsibility obligations under Packaging Waste Regulations 2007[25].

Packaging materials that cannot be returned should be kept for on-site use (e.g. use of pallets for storage).

Any residual packing that cannot be used on site should be segregated into distinct dry recyclable waste streams and sent for recycling off-site. No waste packaging would be landfilled.

Wood

The condition of any timber waste would determine whether they can be retained for reuse or reclaimed; or recycled at a wood processing facility; or whether they would have to be chipped or treated and prepared for recovery at a biological treatment facility, such as composting; or prepared for use as a fuel in an energy from waste facility.

Hazardous Wastes

Empty fuel or oil drums should be retained for reuse on site for storing waste oil where possible. Those that cannot be retained should be sent to a drum reconditioning facility to enable the container to be prepared for re-use. Damaged drums should be sent for recycling.

These measures are anticipated to maximise waste managed at the highest waste hierarchical option and reduce the amount of waste sent off site.

[25] *HMSO, SI 2007 No. 871, The Producer Responsibility Obligations (Packaging Waste) Regulations 2007 (as amended), HMSO, London*

The use of an active maintenance regime on plant and equipment should reduce the potential for machinery to cause leaks. Valves, stopcocks and pipes should be regularly checked for leakages. Fuelling activities should be carried out in bunded areas, or off-site.

The storage of fuels and liquids should be in accordance with the Oil Storage Regulations 2001[26] and the appropriate pollution prevention control guidelines to protect the environment from both storage and spillages of hazardous substances, which can be obtained from the government archive website[27]:

- PPG 2 - Choosing and using oil storage tanks;
- PPG 7 – Operating Refuelling facilities;
- PPG 8 - Safe storage and disposal of used oils;
- PPG 22 - Dealing with spills; and
- PPG 26 – Storage and handling drums and intermediate bulk containers.

Using these guidelines as good waste management practice against leaks would reduce the potential for leakages, therefore reducing the volume of absorbent required to clean up spillages.

Hazardous materials should be stored securely, away from non-hazardous or incompatible materials. Small items of hazardous waste should be prevented from being disposed of in general waste skips to avoid contamination. Hazardous material should be collected frequently to minimise the total volume on site at any one time.

Contaminated excavated material

The Phase 1 Land Contamination Assessment (WSP Parsons Brinkerhoff, February 2017) identifies that the majority of the eastern half of the Site was excavated for construction of the Crossrail Fisher Street shaft. Therefore, it is considered that any Made Ground (and associated contamination) has been removed from this part of the site.

A watching brief would be maintained during construction, and any excavated material that is suspected of contamination (e.g. because of staining or odour) would be stockpiled separately and samples taken for analysis.

Any excavated material that is found to be contaminated (including material classified as hazardous) would be assessed against the principles of the CL:AIRE CoP and reused where there is a need for the material; and it is demonstrated to be suitable for use. This would reduce the amount of material on site that is waste.

Any material found to be hazardous and unsuitable for reuse on site would be sent off-site for treatment and/or disposal as appropriate, to a facility holding a valid environmental permit that authorises treatment or disposal of such waste. Surplus hazardous material should be sent to a treatment facility, where it can be treated to remove or reduce the levels of contamination to a level acceptable for recovery of the material. This would reduce the amount of hazardous waste from the facility going to landfill (which could have to be exported out of the region), and promotes the waste hierarchy and proximity principle.

[26] *HMSO, SI 2001 No. 2954, Control of Pollution (Oil Storage) (England) Regulations 2001, HMSO, London*
[27] *http://webarchive.nationalarchives.gov.uk/20140328084622/http://www.environment-agency.gov.uk/business/topics/pollution/39083.aspx*

If any excavated material is classified as hazardous and is required to be landfilled because it cannot be treated at a soil recycling facility, further testing would be carried out to ensure that it meets the Hazardous Waste Acceptance Criteria (WAC)[28] prior to landfill disposal.

[28] *Council Decision (2003/33/EC of 19 December 2002 'establishing criteria and procedures for the acceptance of waste at landfills pursuant to Article 16 of and Annex II to Directive 1999/31/EC', European Council: Official Journal of the European Communities*

6 Operational Waste Arisings

The proposed works are for the redevelopment of an existing building and construction of an extension to the rear, for the creation of a 120 bedroom hotel with an ancillary restaurant and bar.

The wastes generated will predominantly comprise Municipal Solid Wastes (MSW) from occupation of the rooms; food waste from the restaurant; and waste bottles from the bar, all of which are non-hazardous wastes. A small quantity of separately-collected hazardous wastes will also be produced, mainly in the form of redundant waste electrical and electronic equipment (WEEE), fridges, fluorescent tubes, flat-screen televisions; and hazardous chemicals (e.g. used oils and waste cleaning chemicals).

The most significant wastes streams from the hotel, would be waste from guest rooms and food waste from the restaurant (assuming that one is provided). Information[29] suggests that a hotel guest generates approximately 1kg MSW waste per night.

In addition, the hotel will generate food waste from the kitchen and customer plate waste. A case study[30] for 10 London restaurants surveyed in 2010 identified an average wastage of 0.48kg per diner, comprising:

- 65% of food waste comes from preparation – peelings, off cuts and anything ruined while cooking;
- 30% of food waste comes back from customers' plates; and
- 5% of food waste is classified as 'spoilage' – out-of-date or unusable items.

The assessment identifies that there are many facilities in the London region that are capable of dealing with wastes. This includes three facilities that can take food waste to generate energy using a process called anaerobic digestion[31].

Spent cooking oil can be collected and refined for use in the production of biofuels.

There are numerous recycling companies that offer a glass waste collection service.

General municipal wastes from back-room office environments are likely to comprise mixed dry recyclables, IT equipment and miscellaneous electronics and packaging. Some items can be reused, for example cardboard boxes and rigid plastic packaging; or returned to the manufacturer to help them achieve their packaging obligations.

Separate containers should be provided on site to enable the segregation of dry waste recyclable material, particularly glass and metal cans. Ensure that these containers are clearly labelled so workers know what must go in the containers. Send the segregated recyclables to authorised recycling facilities. There will also be small quantities of non-hazardous healthcare wastes; feminine hygiene wastes and clinical wastes produced from on-site first aid. These should be managed by a specialist contractor.

[29] *http://www.greenhotelier.org/our-themes/waste-management/*
[30] *http://www.thesra.org/wp-content/uploads/2012/01/SRA002-SRA-Food-Waste-Survey-Full-Report.pdf*
[31] *http://www.biogas-info.co.uk/resources/biogas-map/*

6.1 General waste management measures

6.1.1 Duty of Care

The commercial occupiers of the proposed development would be under a legal obligation to comply with the waste duty of care to ensure that they handle waste safely and in compliance with the appropriate regulations.

The duty of care involves making sure that the waste has been described properly and that all of the properties associated with the waste are known; and to ensure that persons involved in the transfer of waste hold the necessary authorisation to do so.

The basic responsibilities that the commercial occupiers would be expected to follow are:

- Know whether waste is hazardous or non-hazardous
- Store waste in suitable containers at a secure location, in a manner that prevents releases of the waste.
- Label the waste containers so that it is clear what is in them.
- Check that the waste is subsequently handled by those who hold an appropriate environmental authorisation. This means checking that the waste carrier is registered (or is exempt from having to be a registered waste carrier). It is also good practice to check that the facility that will receive the waste holds a suitable environmental permit that allows the waste to be handled on their site.
- Provide documentation with any waste transfer that accurately describes the waste and contains the relevant code for the waste.
- Keep records of all waste transfers in a register.

6.1.2 Hazardous waste

It is a fundamental requirement of the Waste Duty of Care to know the difference between hazardous waste and non-hazardous waste (see **Section 2.3.4)**. The controls that are applied to hazardous waste are stricter. All hazardous waste must be segregated from non-hazardous wastes or other non-waste materials. All hazardous wastes must be accompanied by a hazardous waste consignment note when shipped form site.

6.1.3 Producer Responsibility

Producer responsibility requires businesses to:

- minimise waste arising and promote their re-use
- ensure the waste products are treated and meet recovery and recycling targets for the waste materials
- design products by reducing material use and enhancing reusability and recyclability.

The key requirements for commercial occupiers of the proposed development in terms of producer responsibility would be to ensure Waste Electrical and Electronic Equipment (WEEE), batteries and packaging are managed appropriately.

6.1.4 WEEE and Batteries

WEEE and waste batteries must be collected separately from other wastes and sent to the appropriate recycling facilities. If a business does have WEEE or batteries to recycle, it has a Duty of Care to act responsibly and ensure that the contractor it appoints to collect it is legitimate and has the appropriate licences and permits.

A business should ensure that the waste is taken to a suitable facility to be treated and recycled. The site must have a permit or licence that allows them to accept trade waste. For WEEE waste, it must obtain and keep proof that WEEE was given or sold to a waste management (or asset management) business, and was treated and recycled in an environmentally sound way.

All WEEE from a business should go through an AATF or ATF AATF (Approved/Authorised Treatment Facilities) for treatment and recycling. The waste batteries must go to an Approved Battery Treatment Operator (ABTO) or an Approved Battery Exporter (ABE) for treatment and recycling.

6.1.5 Packaging

The Packaging Waste Regulations require businesses or organisations to:

- reduce packaging;
- reduce how much waste packaging goes to landfill; and
- increase the amount of packaging waste that is recycled and recovered.

Compliance is facilitated by the segregation of packaging from other waste; and the segregation of different types of packaging from each other (e.g. separating plastic packaging from paper and cardboard packaging; and segregation of glass).

The amount of packaging waste held by a business or organisation can be reduced by returning as much packaging back to the supplier as possible. This in turn will help suppliers achieve their obligations under the Packaging Waste regulations.

6.1.6 Landfill disposal

Before any waste can be sent to landfill, the waste producer/holder must ensure that the option for landfill has been justified in accordance with the waste hierarchy.

It is a legal requirement that all wastes going for landfill must be pre-treated, unless treatment is not technically possible (note, this applies to inert wastes only); or if treatment would not reduce the quantity or the hazards that it poses to human health or the environment. The proposed pre-treatment option must comply with the definition of ‘treatment’. This involves a ‘three-point test’:

- It must be a physical, thermal, chemical or biological process including sorting.
- It must change the characteristics of the waste. and
- It must do so in order to:
  - reduce its volume; or
  - reduce its hazardous nature; or
  - facilitate its handling; or
  - enhance its recovery.

6.2 Storage

Occupiers of commercial premises are legally obliged to make an arrangement with either the Council or a licensed waste carrier for the collection of the waste produced from the premises.

Provision for ground floor storage is identified in drawing 'Ground Floor Plan' ref: A-100-002. The design of waste storage areas would be confirmed at detailed design stage.

Consideration would be given to vehicle access and egress to ensure the facilities can be easily serviced by waste collection vehicles. Service access arrangements are identified in the Transport Assessment.

A dedicated layout reporting the location of all waste storage areas should be prepared and made available to all concerned personnel. The layout shall be reviewed on an annual basis and immediately after any significant changes.

Special consideration must be given to the location and nature of external storage areas for food waste. This waste has a high biodegradable content, therefore can potentially cause nuisance from odour, visual blight, and through attraction of vermin and scavengers. Storage of such waste should be in solid receptacles which prevent negative environmental impacts

Developments that generate food waste have to comply with the requirements of the Animal By-Products Regulations 2005. The Regulations place controls on the collection, handling, transport, storage and disposal of animal by-products, which includes catering waste. This may have implications for the design of the building and the waste containers required.

Any waste food (including used cooking oil) that comes from restaurants, catering sites, commercial or household kitchens is defined as catering waste. Catering waste is a category 3 ABP.

The Regulations stipulate how catering waste and former foodstuffs can be disposed; and how catering waste must be kept separate from medium or high risk former foodstuffs (for example, raw meat and fish). This waste cannot be sent for use in animal feed.

CPG1

The Council's specific requirements for the storage of waste, design of waste storage facilities; and the location of such facilities, is provided in CPG1.

The volume of waste generated and thus the number and type of containers that a commercial development requires is ultimately dependent on the use of the building. As a general guide, approximately one cubic metre storage space is required for every 300-500m^2 of commercial space (includes both recyclable and non-recyclable waste).

Storage space must be designed to accommodate the minimum amount of containers or bins to hold the amount of waste, which is appropriately separated or segregated in accordance with the legal requirements and the requirements of the waste collection contract. Even if a recyclables collection program is not proposed, space must be allocated to locate bins for storage of likely recyclable waste.

CPG1 makes specific requirements for commercial establishments with regards to waste storage:

- Should not be located near ground storey windows. They should be located within 10 metres of an external access.

- External storage areas and collection points must be as close as possible to, and preferably within 10 metres of, a place suitable for a collection vehicle to stop.
- Storage facilities must be at or near street level, and should be accessible via appropriately sized and graded ramps to allow bins to be wheeled to and from the collection point easily.
- Must be safe for users by being well lit and visible from public vantage points and nearby dwellings / tenancies.
- Should be unroofed, unless they are fully enclosed and secured (ideally inaccessible to animals).
- Should be accessible for collection purposes and not impede pedestrian or vehicular access on public thoroughfares or to and from buildings.
- Should be in an enclosed chamber that can be accessed from outside the building.

External storage space for large waste containers is generally sought for most non-residential development. The external storage space should be at or near street level, and within 10 metres of a place suitable for a collection vehicle to stop. If appropriate external storage space for waste cannot be provided within 10 metres of the public highway, it will generally be necessary for the collection vehicle to access the development site. In this case, circulation spaces will need to be considered in the same way as those for service vehicles. Service Access requirements are provided in the Transport Assessment

7 Conclusion

7.1 Construction Phase

The total additional waste arisings from the construction phase of the Proposed Development were predicted to be:

Cumulative arisings by category	Predicted arisings (tonnes)	Averaged annual arisings	Averaged monthly arisings
Inert	96	55	7
Non-hazardous	518	289	33
Hazardous	3	2	1

Inert Wastes

The waste management measures identified would promote reduction of inert wastes by ensuring that the maximum amount of this material is re-processed to enable it to be recycled into an engineering standard product in accordance with the Aggregates Quality Protocol. Where this cannot be achieved, other on-site uses such as recovery in the construction for backfill would be prioritised over any off-site options. For inert material that is surplus to on-site requirements, this would be sent to an aggregate recycling facility. There are numerous such facilities in London capable of recycling this material.

Non-Hazardous Wastes

The waste management measures proposed for excavated material would promote the reuse of this material in accordance with the CL:AIRE Code of Practice, where possible. The proposed use on site would be considered a justifiable option under the waste hierarchy, because the retention of the material on site would prevent emissions as a consequence of removal from the Site. Furthermore, the proposal to use the material on-site achieves the status of non- waste, where the CoP is followed; and has the further benefit of embracing the proximity principle by being used at the site where it came from. Therefore, the use of the CoP would reduce the quantity waste being managed, because if the principles of the CoP are followed, the excavated material ceases to be waste when used.

Any excavated material that is not suitable for use on site or is surplus to requirements for use for construction purposes would be sent off-site in accordance with the waste hierarchy. Options for reuse or recovery, for example to a soil conditioning facility; or beneficial use as restoration material at a local landfill, would be prioritised to ensure that the amount of waste excavated material being disposed to landfill is reduced to an absolute minimum.

The return of packaging and excess / out-of-specification material to suppliers; and the reuse of such wastes would also reduce the amount of waste. Any residual packaging would be sent to an off-site recycling facility and there are sufficient facilities within the region to recycle this material.

Hazardous Wastes

The waste management measures proposed would effectively reduce the amount of hazardous excavation waste on site as a consequence of the material ceasing to be waste when reused under the CL:AIRE CoP; and also reduce the amount that requires off-site disposal.

Off-site options for surplus material or material that was not suitable for use would be prioritised towards soil treatment to reduce or remove contaminants to a level that would facilitate the reuse or recovery of the treated material; thereby promoting the waste hierarchy. There is only limited hazardous waste landfill capacity in South-East London, therefore, any hazardous waste excavated material requiring disposal could have to be exported out of the region. The use of local or regional treatment facilities to treat the soil as an alternative to landfill would promote the proximity principle by avoiding the need to export the material out of the region.

There are sufficient facilities within the region to recycle or treat ad hoc hazardous wastes (such as waste oils etc.).

7.2 Completed Development

Any wastes produced during operation would be managed in accordance with the general principles of the waste duty of care and producer responsibility to ensure effective waste management should they arise.

Separate receptacles should be provided for dry recyclables, such as paper & cardboard, plastic, glass, wood and metal. This would facilitate the most appropriate reuse, recycling or recovery option in accordance with the waste hierarchy.

The required storage provision for the Proposed Development would ensure that:

- The space would be adequate to store the predicted accumulation of waste between waste collections;
- The storage would be accessible to occupants and collectors; and
- The storage would be adequate to accommodate all of the different types of storage containers to meet current and proposed residual waste and waste recycling regimes by waste management companies collecting the waste.

Special consideration must be given to the location and nature of external storage areas for food waste. This waste has a high biodegradable content, therefore can potentially cause nuisance from odour, visual blight, and through attraction of vermin and scavengers. Such waste can be sent for recovery (for example at anaerobic digestion plants) to generate energy. Catering waste must be kept separate from medium or high risk former foodstuffs (for example, raw meat and fish).

There is a wide range of facilities in the local area that has the capacity to deal with all of the wastes that are likely to be produced during operation.