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Stadium Capital Holdings

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OUTLINE SITE WASTE MANAGEMENT PLAN

MIDLAND CRESENT

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Revision History

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OUTLINE SITE WASTE MANAGEMENT PLAN
MIDLAND CRESENT

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1. INTRODUCTION

1.1. Brief

Ramboll was commissioned by Stadium Capital Holdings to prepare an Outline Site Waste Management Strategy for the proposed development at Finchley Road NW3.

1.2. Proposed Development

The site is located in Hampstead, northern London. The site is approximately 0.16Ha of unused land located between rail lines adjacent to Finchley Rd, NW3 6LT. A site location plan and approximate site boundary plan are provided in Figure 1 and Figure 2 of Appendix A.

The development proposes a six to seven story building (two basement levels) comprising approximately 140 student accommodation units and lettable studio space.

1.3. Objectives

The objective of this report is to provide an outline strategy in order to demonstrate at the planning stage that the necessary requirements of the *Site Waste Management Plan Regulations (2008)*, which came into force in England in April 2008, will be addressed during development.

It is anticipated that Stadium Capital Holdings will make preparation of the detailed Site Waste Management Plan (SWMP) the responsibility of the Principal Contractor for the construction of the proposed development through an appropriate procurement process. A Principal Contractor has not been appointed at this stage. Note that in accordance with the *Site Waste Management Plan Regulations (2008)*, the Principal Contractor will also be responsible for maintaining the SWMP on an on-going basis during and post construction.

Therefore, this Ramboll report provides high level guidance on the approach to waste management for the proposed development and regulatory requirements.

1.4. Site Waste Management Plans

Further to the requirements of the *Site Waste Management Plan Regulations (2008)*, guidance is provided in a voluntary code of practice – *Site Waste Management Plans: Guidance for Construction Contractors and Clients (2004)* by the former Department of Trade and Industry (now Department for Business Enterprise and Regulatory Reform).

Based on this guidance, the developer should be aware that the key objectives of a SWMP are to:

- Meet regulatory requirements;
- Improve environmental performance and make cost savings through better management of material supply, storage, and handling, and better management of waste for recovery or disposal.
- Better control the risks related to materials and waste on site;
- Demonstrate to the developer how wastes are being managed by the Principal Contractor and how costs/risks to the developer are being minimised;
- Fulfil the requirements of internal quality and environmental management systems; and

- Help respond to any queries regarding waste arising at the site (e.g. from environmental regulator).

1.5. Constraints and Limitations

This report has been prepared for the exclusive use of Stadium Capital Holdings for the purpose of assisting them (through their Principal Contractor) in preparing a detailed Site Waste Management Plan for the proposed development. This report should not be used in whole or in part by any third parties without the express permission of Ramboll in writing.

Ramoll has endeavoured to assess all information provided to them during this report. The report summarises information from a number of external sources and cannot offer any guarantees or warranties for the completeness or accuracy of information relied upon. The recommendations summarised in this report relate to details of the proposed development at the time of writing the report. Any substantial changes to the proposed design may require a reassessment of the strategy identified.

2. SITE SETTING

2.1. Site Location

The site is located in northern London. The site is approximately 0.16Ha, located adjacent to Finchley Rd, NW3 6LT (approximate National Grid Reference is 526130, 184880). A site location plan (Figure x) and approximate site boundary plan (Figure y) are provided in Appendix A.

2.2. Site Boundary and Surroundings

The site is located in a mixed-use area of Hampstead.

- To the east of the site is Finchley Road, which is fronted predominantly by commercial spaces (mainly shops) at ground level and residential apartments above. There is also a hotel.
- The northern, southern and western boundaries are immediately adjacent to National Rail lines.
- Further to the north is Rosemont Road, which is predominantly residential with a small number of commercial spaces.
- Further to the south is Blackburn Road, the O2 shopping centre and associated outdoor car park. Within the centre is a cinema, gym, restaurants and shops including a supermarket.

2.3. Site Description

Site walkovers were undertaken by Ramboll in March-May 2012.

The site is a largely vacant wedge of land located between National Rail lines, overgrown with shrub-like vegetation and grasses. The site slopes by approximately 7m from the elevated street level at Finchley Road at the eastern boundary down to the western end of the site where it is approximately level with the National Rail lines.

There are brick retaining walls along areas of the northern and southern boundaries. Another brick wall with a metal fence runs north/south across the width of the site approximately 10m westward of the eastern boundary at Finchley Road, and a Network Rail cable duct runs along this wall. A ~5m length of fencing is located approximately 15m westward of Finchley Road. The Finchley Road eastern boundary is fenced with wooden hoardings, and there is an advertising billboard in this area.

There are several sets of steps on the site, some providing access down to the rail tracks.

There are two small National Rail huts on the site. Approximately 5m westward from Finchley Rd is a brick hut, and approximately 10m westward from the road is a metal communications hut surrounded by a metal fence.

There was some demolition/brick rubble observed on the site.

3. SITE WASTE MANAGEMENT

3.1. The Purpose of a SWMP and Early Considerations

The use of a SWMP throughout this project could help minimise the amount of waste the demolition and construction process produces while at the same time providing cost saving benefits to the developer. The approach to waste management is based on the following hierarchy:

- Reduce through optimised design;
- Reuse;
- Recycle;
- Recover; and
- Disposal only as last resort.

Even before the SWMP is written it is essential for the developer and designers to address materials resource efficiency and waste minimisation early in the design process if savings are to be maximised and construction to be made more sustainable.

By improving materials resource efficiency at an early stage, the developer can go a long way to achieving the waste minimisation aims of a SWMP. By promoting the economic use of construction materials and methods, waste can be minimised from the outset of the project. It also makes it more likely that any waste produced is reused, recycled or recovered in other ways before disposal is even considered as an option. It is for this reason that materials resource efficiency is a fundamental part of the preparation, well before the SWMP is drafted.

When the SWMP is produced it will also restrict the possibility of waste being disposed of illegally by ensuring compliance with existing legal controls and providing a full audit trail of any waste removed from the construction site.

3.2. Responsibilities

The legal responsibilities of the developer and the Principal Contractor are detailed in the *Site Waste Management Plan Regulations (2008).* This section provides a brief summary of key points.

Competent people must be responsible for producing the SWMP, and meeting the requirements of the SWMP.

The SWMP must contain a declaration that the developer and Principal Contractor will take all reasonable steps to ensure that:

- All waste from the site is dealt with in accordance with the waste duty of care in section 34 of the *Environmental Protection Act (1990)* and the *Environmental Protection (Duty of Care) Regulations (1991)*; and
- Materials will be handled efficiently and waste managed appropriately.

It is the responsibility of the developer to ensure that the SWMP is prepared prior to commencement of construction work, and a Principal Contractor cannot commence construction until one is prepared. It is anticipated that Stadium Capital Holdings will require the Principal Contractor to prepare (author) the detailed SWMP.

The responsibilities of the Principal Contractor include to:

- Regularly maintain the SWMP during construction, undertake a final update within three months of the completion of construction and retain the plan for two years after completion of the project.
- Ensure the SWMP is kept at the site office or on site, and that contractors know where the SWMP is kept. It must be made accessible to those who are carrying out work within the plan.
- Ensure effective cooperation of workers with respect to waste management, that every worker carrying out construction is provided with a suitable induction to the site and informed/trained regarding work within the terms of the SWMP as appropriate.

It is advisable that responsibilities with regard to site waste are written into the terms of contract for all contractors working on the site. This will ensure understanding and accountability at all levels from the outset. When using sub-contractors, for example, it makes good business sense to make payments for waste disposal only when evidence of delivery to an authorised site has been provided Periodical checks or audits will also help to minimise the risk of fly-tipping.

3.3. Outline of Strategy

As the SWMP is drafted, it will be necessary for the designer to forecast how much of each type of waste will be produced on site and how it will be managed. Waste minimisation should already have begun by this stage thanks to decisions that have been made on the development design, construction methods and materials selection. Only when such issues have been considered should the unavoidable waste be addressed and planned for. The following information is required in a SWMP according to the *Site Waste Management Plan Regulations (2008)*:

- Identify the developer/client, Principal Contractor and the person who drafted it;
- Describe the construction work proposed, including the location of the site and estimated cost of the project;
- Record any decision/s taken before the SWMP has drafted on the nature of the project, its design, construction method or materials employed in order to minimise the quantity of waste produced on site.
- Waste estimates:
    - A description of each waste type expected to be produced in the course of the project;
    - An estimate of the quantity of each different waste type expected to be produced; and
    - Identification of the waste management action proposed for each different waste type, including reusing, recycling, recovery and disposal.
- Declaration by developer and Principal Contractor as noted in Section 3.2.

The European Waste Catalogue (EWC) system should be used to keep an accurate record of waste types on site, as well as making it easier to determine the appropriate waste management route. A table produced by the Environment Agency of the most common waste types produced on construction sites and the EWC codes can be found in Appendix B. The quantity of waste should be recorded in m^3 or tonnes.

Appropriate management of the waste produced will include ensuring all legislative requirements are complied with. A SWMP is a good place to document the fact that waste

destined for landfill has undergone basic characterisation tests and that the obligation for pre-treatment has been complied with. Information regarding the handling and storage of waste on site should also be included in the plan. A simple system of colour-coded waste skips, each signifying a particular waste stream, would help to promote good waste segregation at the source.

A generic review of typical types of waste which could be generated by the development and a number of viable waste management activities that may be appropriate to manage each type of waste is provided in Appendix C.

3.4. Plan Development

Once the project begins, the SWMP should be updated as often as is necessary to show how work is progressing in comparison with the estimates in the plan. The SWMP should record the types and quantities of waste produced and their fate as:

- Reused (and whether this was on site or off site);
- Recycled (and whether this was on site or off site);
- Sent for another form of recovery (and whether this was on site or off site) such as:
    - Physical sorting, where this results in recovery of one or more components of the sorted waste;
    - Chemical composting or biological treatment;
    - Composting;
    - Incineration with energy recovery;
    - Remedial treatment of soil.
- Sent to landfill; or
- Otherwise disposed.

When any waste is removed from site (i.e. not reused or recycled on site), the identity of the person removing the waste, waste carrier registration and waste transfer or consignment note details should be recorded. The site the waste is being taken to and whether it is appropriately permitted (or exempt) should also be recorded.

Any waste that does not fall into the categories of reuse, recycled, recovery or sent to landfill, such as that burned without recovery or where it is not possible to record the quantities of mixed waste, should be recorded as *otherwise disposed of.*

3.5. Project Completion

Once the project is completed, the SWMP records of all waste management actions need to be reconciled against the estimates made before work began.

Within three months of the work being completed, the following should be added to the SWMP:

- Confirmation that the SWMP has been monitored on a regular basis to ensure that work has progressed according to the plan and that the plan was updated appropriately; and
- An explanation of any difference between the first draft of the SWMP and actual performance;
- An estimate of the cost savings that have been achieved by completing an implementing a SWMP.

4. MATERIALS RESOURCE EFFICIENCY OPPORTUNITIES

Looking at the construction cycle from a site clearance to completion of the development, there are a number of opportunities for improving materials resource efficiency that may be appropriate.

4.1. Early Design Process

There are both business and environmental benefits to be had by specifying materials to achieve greater materials resource efficiency. By specifying, for example, recycled content in materials, costs can be cut and Corporate Social Responsibility (CSR) demonstrated.

4.2. Ground Investigation

A key tool which will assess the potential waste minimisation options is through characterising the physical and chemical properties of the existing ground conditions, in order to refine substructure designs and the potential for reuse of excavated material.

To date, desktop studies of site conditions have been undertaken. A site-specific and development-specific joint geotechnical, geo-environmental and civil ground investigation will be designed and undertaken in order to provide data that will enable quantitative assessment and provide recommendations to maximise the efficiency of foundation design and material management.

Any arisings generated by the ground investigation will be managed as appropriate to the chemical/physical properties observed during the site works. Once works are complete, appropriate reinstatement will be undertaken and the site will be left in accordance with best practice health and safety guidance.

4.3. Site Clearance and Demolition

As the site is largely vacant, the proposed development will only include the demolition of a few small structures on the site. These may include brick walls, metal fences and the power and communication sheds.

The site is currently sloped and overgrown with shrub-like vegetation and grass. This vegetation will be removed, along with earthworks to reach foundation levels particularly at the elevated eastern end at the site.

The Principal Contractor will undertake a site condition survey to provide detailed clearance and demolition waste estimates. Once data has been obtained and assessed from the ground investigation, an appropriate reuse (material management) strategy will be identified. Subject to suitable chemical and physical properties, and if the scheme allows, the cut material may be able to be used below structures or in external landscaping in order to minimise off-site transfer volumes as far as feasible. Preliminary advice from Capita Symonds (2007, 2008) suggests that made ground currently on the surface of the site may not be suitable from a geotechnical and possibly contamination perspective, but this may be suitable for the underlying London Clay material. Further investigation could also be undertaken as to whether materials can be transferred and used as fill on other sites, subject to appropriate permits and approvals for the Environment Agency and local authority.

The Principal Contractor will detail waste volumes and management options in the SWMP at the appropriate stage.

Note: Currently, no Japanese knotweed has been identified on site, but it is present on neighbouring properties. Disposal requirements for Japanese knotweed can generate a large amount of waste soil, and the absence (or presence) of this weed should be confirmed prior to site clearance and addressed in the SWMP if required.

4.4. Design and Specification

A range of approaches adopted during the design phase can reduce wastage and make a building more cost effective both during construction and occupation. For example, applying lean and modular designs, selecting standard component sizes and designing for deconstruction are all options which will result in cost and waste savings and merit consideration.

4.5. Tender Specification

The quantity of waste produced on the construction site can be reduced by including in the tender specifications a requirement for material suppliers to take back any packaging and unused materials. Some early research into materials that use excessive packaging and finding alternatives would be a solid demonstration of a commitment to waste minimisation.

4.6. On the Construction Site

The size and accessibility of the site provides a constraint that will require well planned material storage and this will minimise the level of wastage through reduced damage, allowing the recovery of unused materials. Waste storage, where feasible, should also allow sufficient space for effective separation and segregation to maximise the opportunities for potential reuse and recycling.

4.7. Key Waste Materials

At any point during the project, the reduction in material wastage or increase in reuse, recycling or other types of recovery should result in cost savings. Particular thought should be given to the possibilities of recovered materials, which could be used as a substitute for primary materials.

Certain key materials have a serious impact on the environment due to the large volumes that are land-filled each year or the nature of the material. Some examples of such materials are:

- Wood: is a resource with easy options for positive waste management, but is often disposed of in large quantities. Any unused wood on site should be segregated from other wastes and then reused, recycled or recovered by other means such as energy recovery. Landfill should only be considered as a last resort, although this is very unlikely due to the large number of practical management options available; and
- Plasterboard: tends to be an expensive waste to landfill, so any measures to reduce such waste has clear cost and environmental benefits. In pre-planning, effort should be made to seek out suppliers who offer take-back schemes and designs should specify standard board sizes to help reduce waste generated. Any plaster board waste that is generated should be segregated as it can be used as a gypsum feedstock by the recycling industry.

Any hazardous wastes such as chemicals, oils or contaminated soils will need to be managed appropriately and may have extra legal responsibilities.

It should also be considered how materials are delivered to, and stored on, the construction site. The amount of material lost to damage can be lowered through appropriate protective storage of materials, and ordering deliveries of materials that are 'just in time' to reduce the amount time spent on site susceptible to potential damage.

4.8. BREEAM Credits for Waste Management (Metropolis Green, 2012)

In line with the Building Research Establishment's Environmental Assessment Method (BREEAM) New Construction assessment scheme issue Wst 01, targets will be set to reduce the amount of non-hazardous construction waste generated by the building's design and construction (≤ 7.5 m3/100m2 and ≤ 6.5 tonnes per 100m2) and two credits are currently allocated, thus meeting best practice levels. Additionally, targets to divert a significant amount of non-hazardous construction waste generated by the project from landfill will be set and there is potential to achieve an additional Wst 01 credit.

A credit under BREEAM issue Wst 02 has currently been allocated for specifying at least 25% of aggregates as recycled.

5. SUMMARY

This report provides high level guidance on the approach to waste management for the proposed development and key regulatory requirements. This will inform the development of a formal SWMP prior to the commencement of construction, in line with the requirements of the *Site Waste Management Plan Regulations (2008).*

The following steps of the SWMP development process will be followed in order to achieve the objectives set out in this report:

- Optimise materials resource efficiency/waste management during the project design process.
- Competent people will be responsible for producing the SWMP, and meeting the requirements of the SWMP;
- Identification of the types and quantities of waste to be generated during the demolition/site clearance and construction process;
- Identification of options for managing the wastes generated, using the waste hierarchy (reuse, recycle, recover, disposal);
- Identification of appropriate waste management facilities, taking the proximity principle and carbon footprint of the development into consideration;
- Measurement and recording of data on the types and amount of wastes produced during demolition and construction, and their fates.
- Good general management and handling of on-site materials and waste (e.g. avoiding over-ordering of materials, minimising packaging, appropriate protective storage to avoid damage);
- Communication and training of the SWMP to site staff and contractors to ensure that they are aware of their responsibilities for good waste management practices on site, and ensure they work cooperatively;
- Monitor the success of the SWMP, review and update the SWMP as required.
- Estimate cost savings achieved through implementation of the SWMP and collate lessons learnt from this project to inform future developments.

REFERENCES

Capita Symonds (2008) Phase I Geoenvironmental Report Midland Crescent – Network Rail Land, London, Version 1.0, November 2008.

Capita Symonds (2007) Phase I Geoenvironmental Report Midland Crescent, London, Version 1.0, November 2007.

Metropolis Green (2012) Sustainable Design and Construction Statement 5171/SDCS-1112TP.00, November 2012

APPENDIX A

FIGURES

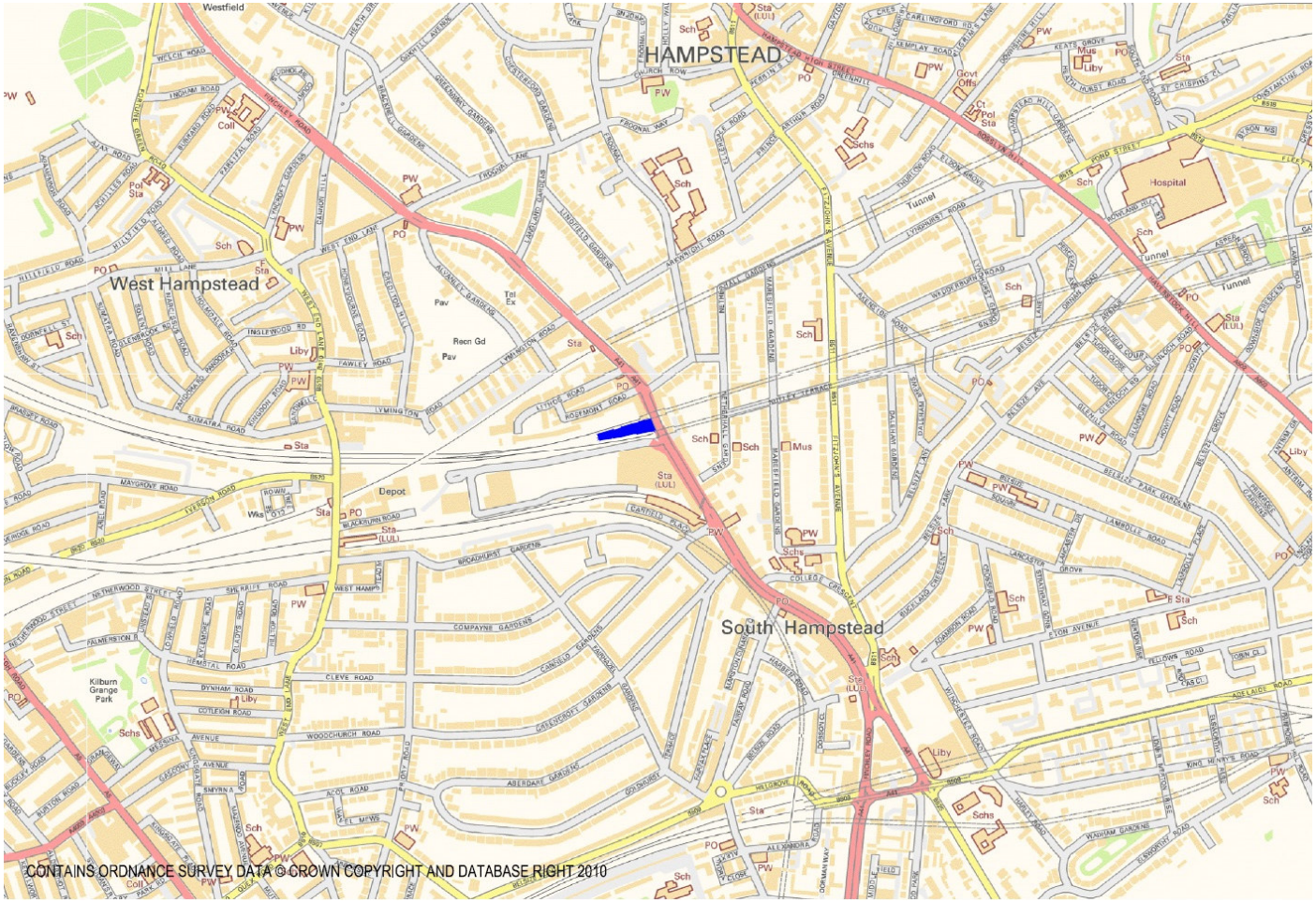

Figure 1 - Site location

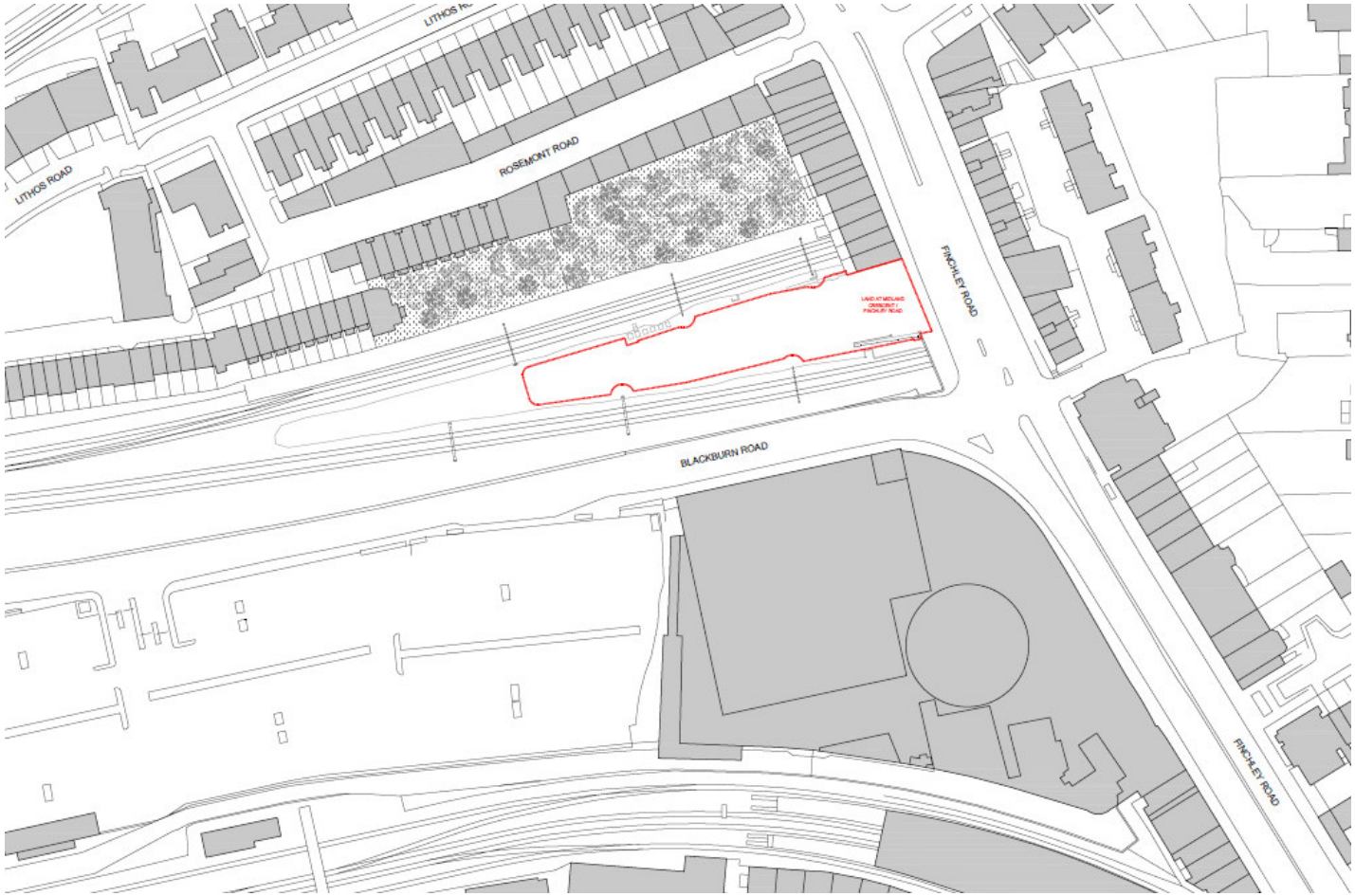

Figure 2 – Site plan, taken from CZWG "1666-00- DR0101 Site Plan Red Line.pdf" provided 24/10/12

APPENDIX B

TYPICAL WASTE GENERATED FOR CONSTRUCTION SITES

EWC Code		Waste Description *** Denotes mirror entry where threshold of hazardous substance determines whether hazardous or non-hazardous waste entry is applicable** **** Denotes absolute hazardous wastes**
150101		Cardboard or paper packaging
160708	*	Oily waste from transport and storage tanks
161001	*	Aqueous liquid wastes containing dangerous substances
161002		Aqueous liquid wastes other than those mentioned in 161001
170101		Concrete
170102		Bricks
170103		Tiles and ceramics
170106	*	Concrete, bricks, tiles and ceramics containing dangerous substances
170107		Non-hazardous mixtures of concrete, bricks, tiles and ceramics (e.g. mixed rubble)
170201		Wood from C&D (e.g. timber trusses, supports, frames, doors)
170202		Glass from C&D (e.g. window panes)
170203		Plastic from C&D (e.g. UPBC plastic off-cuts)
170302		Bituminous mixtures that do not contain coal tar (e.g. road planings, tarmac)
170405		Iron and steel from C&D (e.g. steel scaffolding poles, iron grating)
170407		Mixed metals from C&D
170411		Cables that do not contain dangerous substances
170503	*	Soil and stones containing dangerous substances (e.g. contaminated soil)
170504		Soil and stones that do not contain dangerous substances
170601	*	Insulation materials containing asbestos
170604		Insulation waste that does not contain asbestos
170605	*	Construction materials containing asbestos (e.g. bonded asbestos)
170802		Gypsum based construction materials that do not contain dangerous substances (e.g. plasterboard)
170903	*	Other C&D wastes containing dangerous substances (e.g. mix of oil/solvents/C&D waste)
170904		Other mixed C&D waste that is not hazardous
200121	**	Fluorescent tubes and other mercury-containing waste
200301		Mixed waste similar to that from households (e.g. mixed office, kitchen and general waste)
130110	**	Used mineral hydraulic oil (non-chlorinated)
130204	**	Waste engine, gear or lube oil (chlorinated)
130205	**	Waste engine, gear or lube oil (non-chlorinated)
130208	**	Other waste engine, gear or lube oil
130899	**	Other waste oils (e.g. oily gully/drain sludge)
140601	**	Chlorofluorocarbons (e.g. refrigerant coolant)
150102		Plastic packaging (e.g. toner and ink cartridges, polythene sheeting)

EWC Code		Waste Description *** Denotes mirror entry where threshold of hazardous substance determines whether hazardous or non-hazardous waste entry is applicable** **** Denotes absolute hazardous wastes**
150104		Metallic packaging (e.g. drink cans, paint tins)
150110	*	Packaging containing dangerous substances (e.g. old paint and chemical tins)
150111	*	Metallic packaging containing a dangerous solid porous matrix (e.g. asbestos)
150202	*	Absorbents, filter materials, wiping cloths, clothing contaminated by dangerous substances.
160103		Tyres
160107	**	Oil filters
160115		Antifreeze fluids that do not contain dangerous substances (e.g. coolants)
160117		Ferrous metal from vehicles (e.g. car parts)
160213	*	Hazardous waste electrical (e.g. TVs, white goods, printed circuit boards)
160214		Non-hazardous waste electrical (e.g. washing machines, power tools)
160505		Gases in pressure containers (e.g. gas cylinders)
160601	**	Lead batteries
170204	*	Hazardous glass, plastic and wood (e.g. telegraph poles)
170401		Copper, bronze, brass from C&D (e.g. used copper piping)
170402		Aluminium from C&D (e.g. off-cuts, aluminium guttering)
170403		Lead from C&D (e.g. lead flashing)
180104		Waste from medical establishments that does not require special management (e.g. sanitary waste)
191301	*	Solid wastes from soil remediation containing dangerous substances
200101		Paper and card similar to that from households (e.g. office paper, junk mail)
200113	**	Solvents similar to that from households (e.g. parts cleaner)
200119	**	Pesticides similar to that from households
200123	*	Discarded equipment containing CFCs (e.g. waste fridges and freezers)
200126	**	Oil and fat that are not edible (e.g. refrigeration oil)
200127	*	Paint, inks, adhesives and resins containing dangerous substances (E.g. waste polyethane paint)
200130		Non-hazardous detergent (e.g. flushing agent/universal cleaner)
200133	**	Hazardous batteries and accumulators that are collected separately
200139		Separately collected plastics (E.g. plastic containers, bottles)
200140		Separately collected metals (e.g. gates, bedsprings)
200201		Garden or park waste that is biodegradable (e.g. green waste, wood and shrubs)
200303		Street cleaning residues (e.g. gully waste)
200304		Septic tank sludge
200306		Waste from sewage cleaning
200307		Bulky waste (e.g. old office furniture, desks)