


Design Note

Project Thameside West
Subject Circular Economy Statement
Project no 0035668
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01	Final	JW / JA	03/07/2020	

Introduction

The following design note has been produced to address the Circular Economy planning policy contained in the 'Intend to Publish' London Plan (hereafter referred to as the Plan). Policy S17 of the Plan, entitled 'Reducing Waste and Supporting the Circular Economy' presents six key points, and a response to each of these is provided, for the Thameside West development, in the sections that follow. These responses are based on work carried out by the design team to date and is drawn in the most part from the following documents, which should be read in conjunction with this document:

Thameside West ES Addendum Vol. III Appendix 10A – Operational Waste Management Strategy 04 (OWMS)

Thameside West ES Addendum Vol. III Appendix 10B – Site Waste Management Plan 03 (SWMP)

Thameside West ES Vol. I Main Report Ch. 11 – Waste (ES Waste Chapter)

This document does not address guidance presented by the GLA in its Circular Economy Statement Pre-Consultation Draft, which has not yet been formally published.

1 Policy S17 – (1)

All materials arising from demolition and remediation works will be reused and/or recycled

1.1 Excavation waste

As noted in the Site Waste Management Plan, there is potential to re-use a proportion of the spoil arising from the Silvertown Tunnel development in enabling earthworks for the Thameside West site. This is one effective means of promoting the on-site recycling of construction, demolition and excavation (CD&E) waste and the principles of the circular waste economy. It is likely that a large proportion of the soil required to construct the engineered capping across the entire Thameside West site could be derived from the open-cut and cut-and-cover sections of the Silvertown Tunnel.

Basement excavation within the Thameside West application has been minimised where possible to optimise the opportunity to redistribute Silvertown Tunnel excavation spoil, reducing the transport impacts of this material being

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removed from the site. That said, some areas of localised, gross or mobile contamination will be subject to excavation and treatment/removal off-site.

The beneficial re-use of the spoil arising from excavation works will require that considerable attention is given to planning the following: the management of spoil as it arises, its segregation, transportation, temporary stockpiling, placing and compaction. This level of attention to the detail of material management would be expected of any competent contractor and would result in the conservation of resources, and the sustainable sourcing of materials, and would also increase efficiency.

1.2 Demolition waste

Maximising the recovery of materials and resources from demolition has economic, as well as environmental benefits. Anticipating the percentage of demolition waste that can be recycled or reclaimed is difficult. Therefore, estimated average percentages have been extracted and adapted from BRE publications. These are shown in Table 1-1 and have been used to calculate the estimated reduction in demolition waste that could be achieved if good practice is followed.

Table 1-1 Typical recovery percentages and quantities for demolition waste

	%	Tonnes
Demolition waste generated	100	3,037
Reclaiming of demolished material	15	456
Recycling of demolished material	75	2,278
Disposal of demolished material	10	304

1.3 Construction waste recovery and savings

Further savings could potentially be achieved throughout the construction stage where targets for waste recovery and segregation are set. Examples of good practice methods such as designing out waste and managing waste to a high standard are highlighted in later sections of this design note.

1.3.1 River wall replacement

Where good practice methods are followed on-site, it is estimated that approximately 19,977 tonnes out of 21,029 tonnes of construction waste from the river wall replacement works can be diverted from landfill.

1.3.2 Main works

Where good practice methods are adhered to on-site, a further 50,690 tonnes of construction waste can be diverted from landfill. This figure could rise to 56,129 tonnes diverted from landfill if best practice methods were to be used on-site.

1.4 Total potential waste savings

It is estimated that 450,516 tonnes of waste will be generated from the demolition, excavation and construction stages of the project (3,037 tonnes from demolition; 345,752 tonnes from excavation; 80,698 tonnes from construction; and 21,029 tonnes of waste from the river wall replacement works). This total assumes that no design mitigation measures or waste recovery/diversion from landfill practices have been implemented.

Following BRE guidelines, it is anticipated that approximately 2,733 tonnes of demolition waste can be diverted from landfill.

Where waste reduction measures through design are incorporated, then construction waste could be reduced by approximately 24% to 61,331 tonnes.

Furthermore, if a best practice approach is taken during the construction phase, then 56,129 tonnes of waste could be diverted from landfill through reclamation and recycling.

Finally, with regards to the river wall replacement works, if a best practice approach is taken during the CD&E works, then all 21,029 tonnes of waste generated could be diverted from landfill.

2 Policy SI7 – (2)

How the proposal's design and construction will reduce material demands and enable building materials, components and products to be disassembled and re-used at the end of their useful life

2.1 River wall replacement

It has been assumed that all excavated soil and removed fill in the river wall replacement will be re-used on-site for backfilling and ground profiling. This is an effective means of promoting the principles of a circular economy on-site. Additionally, it has been assumed that the new steel sheet piling (SSP) will be prefabricated off-site and brought in in sections which will then be assembled together on-site. As such, it is anticipated that these two construction activities will generate close to zero waste on-site.

2.2 Designing out waste

The proposed development will look to implement the waste hierarchy. In line with this, it will prioritise measures which look to reduce waste generation through the design process. Opportunities to design out waste have been (and will continue to be) investigated and potentially integrated as the project develops.

The following measures have been considered by the Phase 1 architects and masterplanner to design out waste:

- Where possible, elements of the development will be fabricated and constructed off-site. The Phase 1 design features multiple modularity and opportunities for pre-fabrication;
- The size and design of new building elements for Phase 1 has been optimised in order to eliminate unnecessary elements and reduce off-cuts resulting from the construction process. Where practicable, this approach will also be adopted in the outline component of the development proposals;
- The complexity of the design has been reduced and the construction process standardised in order to reduce the quantity of materials required. There is significant repetition of components in the Phase 1 design, an effective means of reducing off-cut waste on-site; and
- Where possible, excavated material will be re-used on-site. A fundamental part of the levels strategy for the masterplan is around re-using spoil from the Silvertown Tunnel excavation works.

Additional waste minimisation design measures should also be considered during subsequent design stages and, where possible, be incorporated into the project design.

2.3 Designing for disassembly and reuse

The scope of the SWMP and OWMS for the development has not to date extended to consider development end-of-life disassembly or reuse. The following will be recommended for consideration in the detailed design stages, as key opportunities to allow this:

- During detailed design the design team should consider designing the buildings to allow safe disassembly at end of use and to facilitate maximum salvage and reuse of materials and building elements;

- Material, component and product selection at detailed design stage will consider ways of improving adaptability and allowing reuse and waste avoidance at the end of their useful life;
- The storage of information in the development's Building Information Model will facilitate an end-of-life strategy; and
- Consider implementing contracts with suppliers that have mechanisms in place for materials retrieval, or procure based on service agreements.

3 Policy SI7 – (3)

Opportunities for managing as much waste as possible on site

3.1 Materials management on-site

- The principal contractor will establish a system prior to construction commencing to ensure that the correct quantities of materials are ordered. This will reduce the volume of unused materials going to landfill;
- Dedicated areas will be created that allow for the correct storage of new building materials to avoid contamination/spoiling;
- Timely ordering of materials will reduce the time that materials are stored on site and prevent spoiling;
- Provision of clearly marked segregated bins/skips for construction materials to avoid cross-contamination and to facilitate recycling; and
- All waste generated will be stored in designated areas that are isolated from surface drainage. Waste containers will be covered to prevent dust and litter being blown out and rainwater accumulating. Containers will be inspected regularly and replaced when full.

3.2 Waste segregation on-site

Waste will be segregated on-site wherever possible. When this is not viable, mixed materials will be stored and sent to a local Materials Recovery Facility (MRF). The following recommendations aim to minimise the amount of waste produced and increase the proportion of waste that is segregated:

- A specific area should be allocated and labelled to facilitate the segregation of waste materials for re-use, recycling and recovery;
- Recovery and recycling of packaging waste in accordance with packaging legislation will take place on site;
- Waste streams should be segregated on-site, with containers/skips provided for this purpose;
- Training will be provided for all site personnel, informing them of the correct disposal routes for materials. A site waste champion will be appointed to oversee correct segregation/disposal and keep a record of all resources generated on-site. It is recommended that a designated senior person is appointed as site waste champion; and
- Green waste associated with landscaping works will be managed by the contractor carrying out said works.

4 Policy SI7 – (4)

Adequate and easily accessible storage space and collection systems to support recycling and re-use

The following measures outlined in the Operational Waste Management Strategy will help promote circular economy outcomes:

- Residential waste across the proposed development will be managed by a facilities management (FM) team, who will ensure that residents are well informed about best recycling practices;
- All residential dwellings will be provided with a number of small receptacles to allow residents to segregate recyclable waste;
- Dedicated waste storage rooms have been incorporated across the site, with sufficient capacity provided for both residual waste and mixed recyclables; and
- Dedicated storage points for bulky waste have been accommodated across the scheme. These spaces provide an opportunity for residents and the FM team to promote re-use initiatives. For example, residents wanting to donate a piece of furniture for re-use can communicate this to other residents through the FM team.

5 Policy SI7 – (5)

How much waste the proposal is expected to generate, and how and where the waste will be managed in accordance with the waste hierarchy

5.1 Excavation waste

Preliminary assessments indicate that approximately 276,602 m³ of spoil/waste arisings will be generated from piling and substructure excavation works. Using the WRAP waste volume to mass conversion factor (July 2014) for excavation waste of 1.25 tonnes/m³, it is estimated that approximately 345,752 tonnes of spoil will be generated from excavation works coming forward as part of the Thameside West application. Effective management of this material in accordance with the waste hierarchy will be the responsibility of the contractor.

5.2 Demolition waste

Using an industry average waste generation benchmark of 244 kg/m³ gross floor area (GFA)¹, in total, it is estimated that approximately 3,037 tonnes of demolition waste will be generated from those buildings demolished as part of the Thameside West application.

This waste will contain high proportions of easily excludable, re-usable and recyclable materials that should be diverted from landfill disposal by the contractor in accordance with the waste hierarchy.

5.3 Construction waste

Approximately 21,029 tonnes of CD&E waste will be produced by the river wall replacement works, if conventional construction waste management methods are followed.

Construction waste from these works will predominantly be composed of concrete and structural steel trimmings. All excavated soil and removed fill in the river wall replacement should be re-used on-site for backfilling and ground profiling.

Approximately 80,698 tonnes of construction waste will be produced, if conventional construction waste management methods are followed. This will contain significant quantities of re-usable and recyclable materials (i.e. concrete, timber, metals). Therefore, a high recycling rate for the proposed development should be achieved by the contractor.

¹ Environmental Protection Agency (2003) *Estimating Building Related Construction and Demolition Material Amounts*.

5.4 Operational waste

It has been estimated that, in total, approximately 1,084,161 litres of waste will be produced by residents across the outline scheme, per week. This includes 833,970 litres of residual waste and 250,191 litres of mixed recyclables.

Of this, approximately 77,610 litres of waste will be produced by residents in Phase 1 of the scheme each week. This includes 59,700 litres of residual waste and 17,910 litres of mixed recyclables.

Estimated weekly waste generation for non-residential elements of the development are outlined in the Operational Waste Management Plan.

6 Policy SI7 – (6)

How performance will be monitored and reported

6.1 Site waste management responsibilities

The principal contractor will be responsible for waste management upon appointment. The SWMP will be updated at least every 6 months or if a major change occurs, such as a change of material supplier or waste contractor. All waste removal dockets or consignment notes must be collected and stored on-site. Levels of waste generation should be included in the monthly environmental report to allow the project team to track how the project is progressing against waste targets.

On completion of the development, the principal contractor will produce a report that will detail total waste produced and actual recycling rate achieved. This will be added to the SWMP document and filed in a separate section.

The full SWMP will also include information and copies of data recording forms detailing the information recorded when any waste material leaves the site. In addition, the following aspects of site waste management should be audited:

- Delivery recording arrangements;
- Materials handling and storage;
- Use of materials (including surplus materials);
- Auditing of disposal areas (i.e. skip auditing); and
- Site staff awareness of waste management procedures.

Prospective waste management companies tendering for waste management work shall be audited and interviewed before any agreement is made between the client and waste management company. The waste management company with the best environmental performance will be selected for the project and be subject to ongoing audits to ensure that they are meeting required standards.

6.2 Operational waste management

No specific process for monitoring and reporting of operational waste volumes, segregation and treatment destinations is outlined in the OWMS. Operational waste management across the development will be overseen by the FM team, who could be charged with implementing a suitable ongoing reporting and feedback process.

Phase 1, Future Phases and RMAs

It is noted that Phase 1 of the development is already at detailed design stage, and as such it may not be feasible to implement some recommendations where they were not already covered in the work carried out by the team prior to the writing of this report.

In relation to the outline scheme, the measures outlined above will help to reduce waste generation at design stage, on-site during demolition, excavation and construction and throughout the operation of the Thameside West development. This should be revisited and addressed in greater detail as each phase of the scheme comes forward under Reserved Matters Applications, in order to ensure that the development promotes the principles of the circular economy.