

Abacus Projects Limited

Inglewood, Land South of White Rock

Waste Management Strategy Report

30.11.2017 Revision 01

SUSTAINABILITY



SUSTAINABILITY

Inglewood Waste Management Strategy Report



Foreword

Purpose of this Report

This Waste Management Strategy Report has been prepared by Hoare Lea in support of the planning application submitted on behalf of Abacus Projects Limited and Deeley Freed Estates Limited (hereafter referred to as the 'Applicant') for the proposed Inglewood Development (hereafter referred to as the 'Proposed Development').

Project Description

The Proposed Development includes a mix of residential accommodation types including an element of affordable housing (rental and shared ownership) – up to 400 residential units of varying types and tenures has been proposed. The Proposed Development also includes the provision of a two entry Primary School which will also be used as a Community Space outside of School hours, and a Public House (Pub).

The Application Site is within Torbay Council and located to the west of the built up area of Paignton; south of Long Road and west of Brixham Road. It is 4 miles from the centre of Torquay to the north east; 1.8 miles from the centre of Paignton to the north east; and 2.6 miles from the centre of Brixham to the south east. The site is located on Paignton's urban fringe, with the residential areas of Goodrington and Hookhills immediately to the east of Brixham Road. Torbay Business Park abuts the site to the north.

The Proposed Development is circa 37.2 hectares (92 acres) and land identified for development is approximately 32 hectares (80 acres) in size, about half of which being granted planning permission in 2009. Approximately 5 hectares (12 acres) set aside for public open space.



Audit Sheet

Rev.	Date	Description	Prepared	Verified
01	30.11.2017	Issued for submission	K. Adair / T. Agoro	J. Ford

This report has been prepared for Abacus Project Limited only and expressly for the purposes set out in an appointment dated 16/11/2017 and we owe no duty of care to any third parties in respect of its content. Therefore, unless expressly agreed by us in signed writing, we hereby exclude all liability to third parties, including liability for negligence, save only for liabilities that cannot be so excluded by operation of applicable law. The consequences of climate change and the effects of future changes in climatic conditions cannot be accurately predicted. This report has been based solely on the specific design assumptions and criteria stated herein.



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Executive Summary

The Proposed Development is located in Torbay and includes a mix of residential accommodation types – which in total provides up to 400 residential units of varying types and tenures. It also includes the provision of a two entry Primary School as well as a Public House (Pub).

As part of planning requirement, Torbay County Council (TCC) require major developments to address Waste Policy W2:

“Developments which are likely to generate significant volumes of waste must include a Waste Audit and Five Year Waste Management Plan, setting out how waste generation will be reduced during the construction and operation of the development. This should include provision of appropriate on-site facilities for re-use, recycling (composting where appropriate) and collection of waste.”

However, while a full Waste Management Audit and 5 Year Waste Management Plan is expected for Detailed Planning Applications, the Proposed Development is undergoing an Outline Application. Therefore, a Waste Management Strategy outlining the application of sustainable waste management principles and a high level assessment of waste arisings is considered appropriate for the scale of the Proposed Development and commensurate to the current level of design detail.

This report summarises the Waste Management Strategy for the Proposed Development; that is, operational and construction waste management. The report covers the following:

- ▶ Residential elements (houses and apartments)
- ▶ Non-residential elements (Pub and primary school)

Operational Waste Management

For the operational waste management, the anticipated waste volumes have been calculated based on CIBSE Guide G (2004) benchmark data. Table 1 summarises the anticipated waste volumes (per week) for each accommodation type; this assumes the provision of 1,100 litre Eurobins. In accordance with TCC waste collection policy, all waste bins would be collected once a week for the apartments and school, and twice a week for the Pub.

In order to reduce the amount of waste storage area required, the current waste collection frequency could be reviewed and potentially increased. Where central or waste storage/collection clusters are incorporated, portable waste compactors/balers could also be provided to reduce the volume of waste such as for cardboard, paper and plastic film, although this would require an area dedicated to this equipment and storage of the bales (see Appendix C for details).

Construction Waste Management

In order to promote resource efficiency via the effective management and reduction of construction waste, a review of current good and best practice guidelines in relation to construction waste management has been undertaken. A brief narrative has been provided on the principles of sustainable construction waste management which the contractor would be required to incorporate during the construction process – this includes the provision of a Resource Management Plan (RMP) as part of their Construction Method Statement.

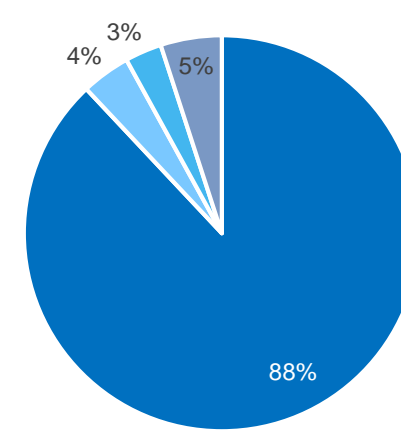


Figure 1: Proposed Development Accommodation Mix.

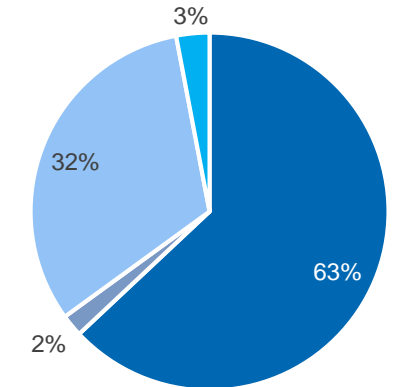


Figure 2: Anticipated Waste Arisings Per Week.

Table 1: Estimated Waste Volumes.

Accommodation Type	Waste Volumes (m ³ per Week) based on CIBSE Benchmark Data			
	General	Paper/Cardboard	Food Waste	Glass
Houses	10	21	13	17
Apartments	0.31	0.66	0.43	0.54
Public House (Pub)	1.56	19.30	1.09	9.18
School	0.11	1.52	0.50	0.64

SUSTAINABILITY

Inglewood Waste Management Strategy Report



1. Introduction

The Proposed Development is located in Torbay and includes a mix of residential accommodation types – which in total provides up to 400 residential units of varying types and tenures. It also includes the provision of a two entry Primary School as well as a Public House (Pub); see Figure 3.

This report summarises the Waste Management Strategy for the Proposed Development; that is, operational and construction waste management. The report covers the following:

- ▶ Residential elements (houses and apartments)
- ▶ Non-residential elements (Pub and primary school)

For the operational waste strategy, the anticipated waste volumes have been calculated based on CIBSE Guide G (2004) benchmark data using the advised areas of each building type taken from the Masterplan in Figure 3. **Please refer to Section 2.0 for further discussion on the operational waste strategy.**

For the construction waste strategy, a brief narrative has been provided based on a review of current good and best practice guidelines in relation to sustainable construction waste management. The contractor would be required to incorporate these principles and measures during and throughout the construction process. **Please refer to Section 3.0 for further discussion on the construction waste strategy.**

Table 2: Area Schedule.

Building Type	Gross Internal Area (m ²)	Proportion
Houses	37,728	87%
Apartments	1,710	4%
Public House (Pub)	1,494	3%
Primary School	2,192	5%
Total	43,124	100%

Table 3: Estimated Waste Volumes.

Unit	Waste Volumes (m ³ per Week) based on CIBSE Benchmark Data			
	General	Paper/Cardboard	Food Waste	Glass
Houses	10	21	13	17
Apartments	0.31	0.66	0.43	0.54
Public House (Pub)	1.56	19.30	1.09	9.18
School	0.11	1.52	0.50	0.64



Figure 3: Inglewood Masterplan (Ref 15230_P_010 Rev A).

1.1 Policy Drivers

Policy W1 – Waste Hierarchy

All developments should seek to minimise the generation of waste, having regard to the waste hierarchy:

1. Prevention

Using less material in design, manufacture and re-use. Using less hazardous material and other measures to minimise waste generation.

2. Re-use and recycling

Increase recycling and composting through the kerbside collection regime and ensuring the development of new facilities where appropriate. Explore opportunities for storage, re-use and collection facilities. Provision of waste audit statements demonstrating accordance with the waste hierarchy for major developments.

3. Recovery

Maximise the recovery of residual waste, through a partnership approach with other Devon Authorities for the use of the site in Plymouth for 'energy from waste recovery'.

4. Disposal

Minimise the amount of residual waste which is disposed of and minimise the exporting of waste for disposal to Devon.

Policy W2 – Waste Audit for Major and Significant Waste Generating Developments

Torbay Local Plan policy W2 requires developments which are likely to generate significant volumes of waste must include a Waste Audit and Five Year Waste Management Plan, setting out how waste generation will be reduced during the construction and operation of the development. This should include provision of appropriate on-site facilities for re-use, recycling (composting where appropriate) and collection of waste.

Schemes should include measure to:

- ▶ Prevent and minimise, re-use and recycle waste (including composting where appropriate);
- ▶ Minimise the pollution potential of unavoidable waste;
- ▶ Seek alternative modes of transport (to the use of roads) to move waste;
- ▶ Make provision for the storage and collection of waste. Planning contributions for off-site waste management facilities may also be required; and
- ▶ Dispose of unavoidable waste in an environmentally acceptable manner.

The Proposed Development and Addressing Policy W2

While a full Waste Management Audit and 5 Year Waste Management Plan is expected for Detailed Planning Applications, the Proposed Development is undergoing an Outline Application. **Therefore, a Waste Management Strategy outlining the application of sustainable waste management principles and a high level assessment of waste arisings is considered appropriate for the scale of the Proposed Development and commensurate to the current level of design detail.**

1.2 Guidance Documents

The following documents have been used as guidelines to inform this waste management strategy.

- ▶ Building Regulations 2000 (incorporating 2010 amendments) Part H6
- ▶ British Standard BS 5906:2005 "Code of Practice for Storage and Onsite Treatment of Solid Waste from Buildings"
- ▶ CIBSE Guide G: Public Health Engineering (2004)
- ▶ BREEAM 2014 New Construction
- ▶ Home Quality Mark

At this stage, it is assumed that the following waste streams will be collected:

- ▶ Residual waste (regular collection)
- ▶ Recyclable material (regular collection)
- ▶ Food waste (regular collection)
- ▶ Additional future third stream (regular collection)
- ▶ Bulky waste including waste electrical and electronic equipment (collection on request)
- ▶ Hazardous waste (collection on request)

1.3 Definitions

Several waste streams are discussed in this report and the following definitions should be assumed throughout:

- ▶ **Residual waste** - waste that cannot be recycled (including both waste that is inherently unrecyclable and waste that has only been rendered unrecyclable by having been mixed with other waste).
- ▶ **Recyclable materials** - materials that can be re-processed into marketable products providing they have been kept separate from other waste. Please note that 'co-mingled' describes dry recyclable material stored together. This would then be separated into different materials such as paper, card, plastic etc. at an offsite facility recycling centre.
- ▶ **Biodegradable waste** - waste that is capable of undergoing anaerobic or aerobic decomposition. Examples include garden and kitchen waste (including fruit and vegetables peelings, meat scraps, bone, paper, and dairy products). This is according to the definition of "biodegradable waste" included in BS5906:2005.
- ▶ **Bulky waste** – single household items of such size and weight that cannot be accommodated in an individual waste container (bin in a bin store), such as furniture, as defined in BS5906:2005.
- ▶ **WEEE** – waste electrical and electronic equipment (WEEE) has been identified as a "priority waste stream" by the European Commission. WEEE includes items such as electrical household appliances, IT equipment, electrical toys, lighting equipment and electrical tools.
- ▶ **Hazardous waste** - any material discarded by a household, which is difficult to dispose of, or which puts human health or the environment at risk because of its chemical or biological nature, as defined in BS5906:2005. Examples include fluorescent tubes, paints, motor fluids and clinical waste.

2. Operational Waste Management

The Proposed Development would require separate operational waste management strategies for the:

- ▶ Residential elements (houses and apartments); and
- ▶ Non-residential elements (Pub and primary school)

2.1 Residential Waste Strategy

The houses will have their waste collected by TCC which would provide separate bins for general waste (1 x 240 litre wheeled bin), food waste (1 x 25 litre bin) and mixed recycling (2 x 40 litre boxes). Waste collections will be managed by TCC and in line with their current waste collection strategy (see appendix B) – also summarised below:

- ▶ General waste wheelie bins – collected fortnightly
- ▶ Food waste bins – collected weekly
- ▶ Recycling boxes (paper/card, plastic, cans/foil, glass, electricals, batteries, textiles) – collected weekly.

However, the waste from each apartment will be collected from a shared waste store, and so calculations have been undertaken to determine the potential storage volumes and space that would be required. These calculations have been undertaken in line with those for the non-residential buildings.

In order to reduce the amount of waste storage area required, the current waste collection frequency could be reviewed and potentially increased. Where central or waste storage/collection clusters are incorporated, portable waste compactors/balers could also be provided to reduce the volume of waste such as for cardboard, paper and plastic film, although this would require an area dedicated to this equipment and storage of the bales (see Appendix C for details). Indicative waste storage locations are shown in Figure 4.

2.2 Non-residential Waste Strategy

The following waste streams have been assessed separately for the Pub and Primary School:

- ▶ General Waste
- ▶ Paper and Cardboard
- ▶ Food Waste
- ▶ Glass Bottles

While it is currently anticipated that the same waste streams would be collected for both the Pub and the School, the waste collection frequencies may vary to take into account the different volumes of waste that will be produced for each. 1,100 litre Eurobin⁷, will be used for the storage of general waste from the commercial units and apartments, with separate Eurobins for food waste, paper/cardboard and glass. These bins could be arranged with 0.15m between each Eurobin as recommended by BS 5906:2005, and 1.6m between each row to allow independent removal of each bin. The overall footprint required for each Eurobin is around 4.6m² per bin although the area for manoeuvring can be adjusted according to the number of rows and other bin types. Two Eurobins in two rows would require 6.4 m². This will reduce the overall area required for waste storage. See Appendix C for more details of indicative bin layouts and sizes.

See Section 2.3 overleaf for calculations estimating the waste volumes, storage areas and the number of bins required for each accommodation type.

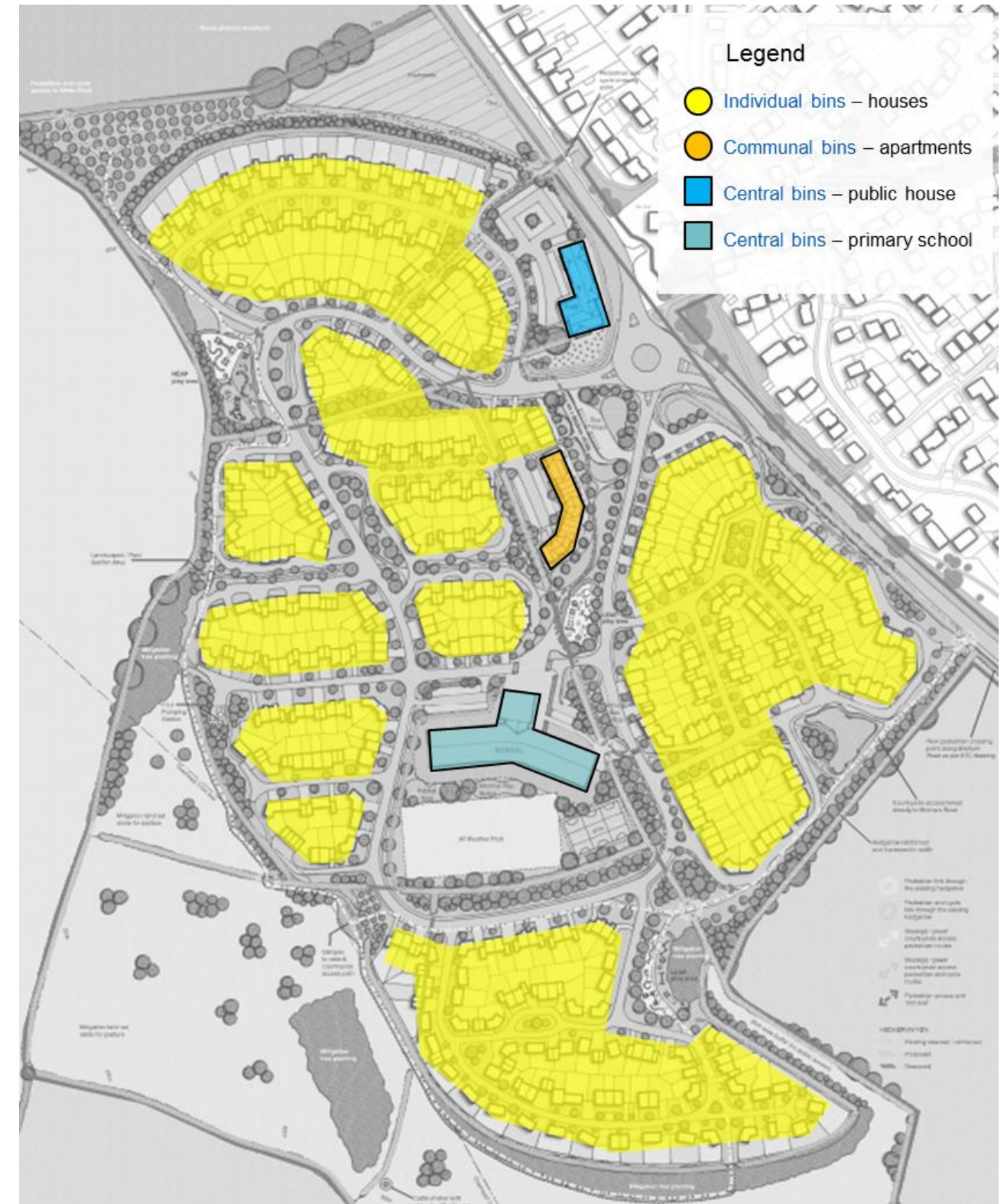


Figure 4: Indicative Waste Storage Locations for the Proposed Development.

2.3 Estimated Operational Waste Volume Calculations

The operational waste volumes shown below have been calculated and estimated based on CIBSE Guide G (2004) benchmark data. Unless otherwise stated, the estimated waste storage areas and the number of bins required for each accommodation type assumes the provision of 1,100 litre Eurobins.

Table 4: Anticipated Residential Waste Arisings – Houses.

Waste Stream	Volume (m ³ /week)	Volume (m ³ /collection)	No. of bins required per dwelling	Collection Frequency
Food	13.31	13.31	1	Once per week
Paper and cardboard	20.58	20.58	1	Once per week
General	9.68	19.36	1	Once per fortnight
Glass	16.95	16.95	1	Once per week

Table 5: Anticipated Residential Waste Arisings – Apartments.

Waste Stream	Volume (m ³ /week)	Volume (m ³ /collection)	No. of bins required	Collection Frequency
Food	0.43	0.43	1	Once per week
Paper/Cardboard	0.66	0.66	1	
General	0.31	0.31	1	
Glass	0.54	0.54	1	

Table 6: Anticipated Commercial Waste Arisings – Public House.

Waste Stream	Volume (m ³ /week)	Volume (m ³ /collection)	No. of bins required	Collection Frequency
Food	1.09	0.55	1	Twice a week
Paper/Cardboard	19.3	9.65	9	
General	1.56	0.78	1	
Glass	9.18	4.59	5	

Table 7: Anticipated Commercial Waste Arisings – Primary School.

Waste Stream	Volume (m ³ /week)	Volume (m ³ /collection)	No. of bins required	Collection Frequency
Food	0.5	0.5	1	Once per week
Paper/Cardboard	1.52	1.52	2	
General	0.11	0.11	1	
Glass	0.64	0.64	1	

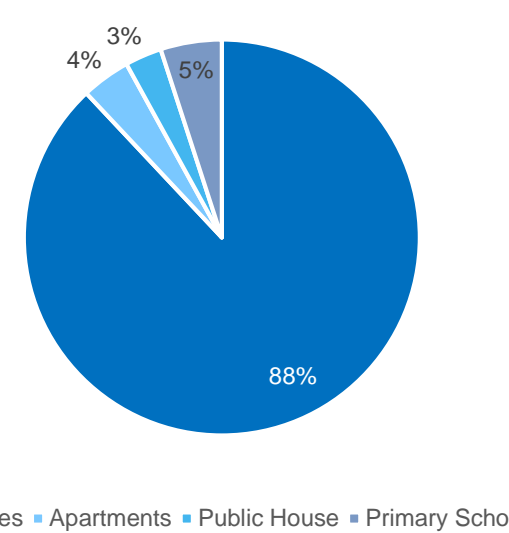


Figure 5: Proposed Development Accommodation Mix.

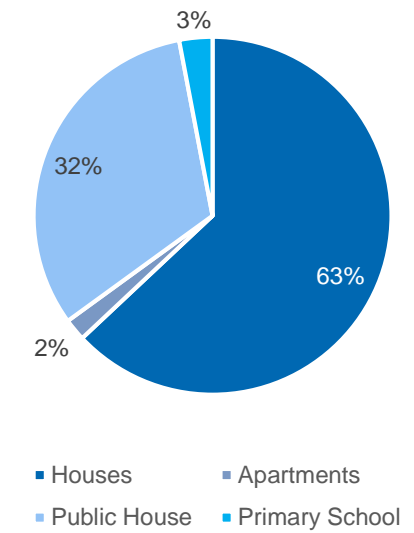


Figure 6: Anticipated Waste Arisings Per Week.

3. Construction Waste Management

3.1 Relevant Policies and Guidance

In order to promote resource efficiency via the effective management and reduction of construction waste, a review of current good and best practice guidelines in relation to construction waste management has been undertaken, and used to provide a brief narrative on the proposed strategy for reducing and managing construction waste at the Proposed Development.

Environmental policies, standards and assessment tools pertinent to construction waste management include all of the following:

- ▶ The Waste (England and Wales) Regulations 2011 Waste hierarchy
- ▶ Torbay County Council Policy W1 and W2
- ▶ WRAP: Designing out waste guidance – a design team guide for buildings
- ▶ WRAP: Procurement requirements for reducing waste and using resources efficiently
- ▶ WRAP: Achieving good practice Waste Minimisation and Management Guidance for construction clients, design teams and contractors
- ▶ CIRIA: Waste minimisation and recycling in construction – boardroom handbook
- ▶ BRE: SMART Waste tool
- ▶ Resource Management Plan (RMP)

In accordance with Torbay County Council Policy W1, the general approach for managing construction waste at the Proposed Development will be in accordance with the Waste Hierarchy (See Figure 7), with a focus on prevention, reuse and recycling of materials throughout design and construction.

3.2 The Waste Hierarchy

3.2.1 Waste Prevention

Material resource efficiency, and therefore waste prevention, could be achieved on through the implementation of the following measures:

- ▶ Specification and use of construction materials with robust properties and with resistance to environmental degradation.
- ▶ Designing for off-site construction could be considered. Off-site factory production of building elements and components can reduce material wastage, especially when used extensively.
- ▶ Good practice initiatives to consider when designing for material optimisation include:
 - ▶ Can the design be simplified without compromising the design concept?
 - ▶ Can the design be coordinated to minimise excess cutting and jointing of materials?
 - ▶ Is the building designed to standard material dimensions?
 - ▶ Can the range of materials required be standardised to encourage reuse of offcuts?
- ▶ Use of the BRE SMART Waste tool during construction to encourage monitoring of waste production.

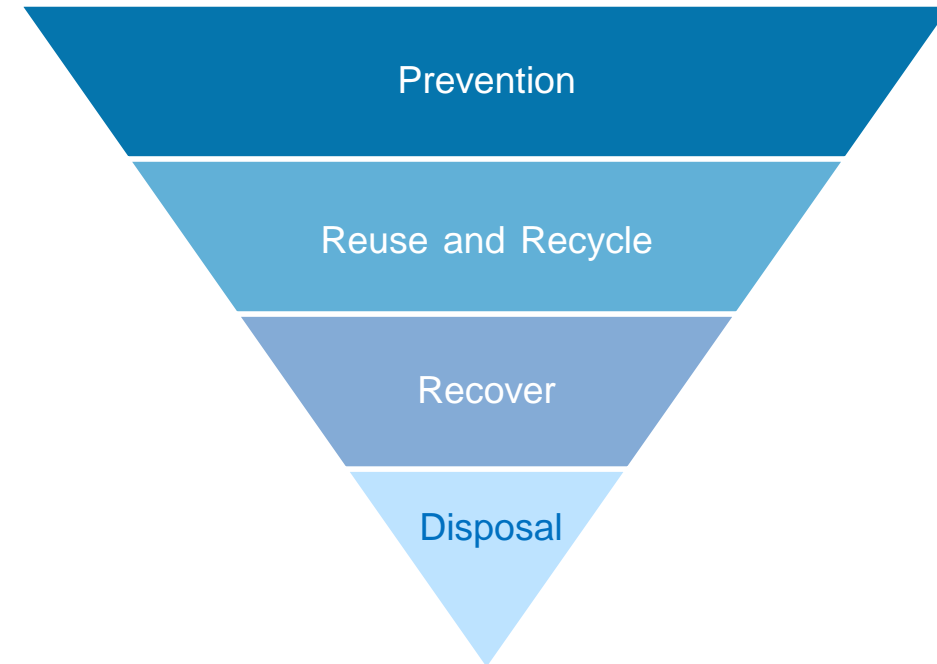


Figure 7. The Waste (England and Wales) Regulation 2011 Waste Hierarchy.



Figure 8: Waste Skips for On-site Segregation and Recycling of Construction Waste.

3.2.2 Material Reuse and Recycling

- ▶ Plan construction waste management by developing and implementing a Resource Management Plan, to include methods and targets for waste recycling and reuse.
- ▶ Encourage the setting of construction waste targets for diversion from landfill, in line with best practice requirements.
- ▶ Specifying materials with recycled content, where feasible, and materials with potential for reuse after the end of life of the building.
- ▶ Utilisation of materials recovered onsite locally, e.g. construction and demolition waste, pulverised fuel ash (PFA) from energy from waste facilities.
- ▶ Implementation of on-site recyclable waste segregation into separate waste groups.
- ▶ On-site training / toolbox talks on the importance of material reuse and recycling, to encourage personnel at all levels to implement reuse and recycling measures.

3.2.3 Waste Recovery and Disposal

Recovery and disposal of waste should only be considered where material reuse and recycling is not feasible. Partnerships with recovery facilities such as the energy from waste facility in Plymouth should be considered for residual waste management, and landfill only used as a last resort measure for difficult to process wastes.

3.3 Environmental Assessments and Benchmarks

The Building Regulations Research Environmental Assessment Method (BREEAM) and Home Quality Mark (HQM) provide sustainability criteria for the management of construction/operational waste for commercial and residential buildings respectively. For construction waste, credits are awarded for meeting construction resource efficiency and diversion from landfill targets. Relevant BREEAM credit requirements are as follows:

3.3.1 BREEAM 2014 New Construction (Wst 01: Construction Waste Management)

Up to Three Credits – Construction Resource Efficiency

- ▶ Where a Resource Management Plan (RMP) has been developed covering the non-hazardous waste related to on-site construction and dedicated off-site manufacture or fabrication (including demolition and excavation waste) generated by the building’s design and construction.
- ▶ Where construction waste related to on-site construction and dedicated off-site manufacture/fabrication (excluding demolition and excavation waste) meets or is lower than the benchmarks in Table 8.

One Credit – Diversion of Resources from Landfill

- ▶ The percentages of non-hazardous construction (on-site and off-site manufacture/fabrication in a dedicated facility) in Table 9, demolition and excavation waste (where applicable) generated by the project have been diverted from landfill.
- ▶ Waste materials will be sorted into separate key waste groups as per (according to the waste streams generated by the scope of the works) either on-site or through a licensed contractor for recovery.

Table 8: BREEAM 2014 Construction Resource Efficiency Requirements.

BREEAM Credits	Amount of waste generated per 100m ² (gross internal floor area)	
	m ³	tonnes
One Credit	≤ 13.3	≤ 11.1
Two Credits	≤ 7.5	≤ 6.5
Three Credits	≤ 3.4	≤ 3.2
Exemplary Level	≤ 1.6	≤ 1.9

Table 9: BREEAM 2014 Diversion from Landfill Requirements.

BREEAM Credits	Type of Waste	Volume	Tonnage
One Credit	Non demolition	70%	80%
	Demolition	80%	90%
	Excavation	N/A	N/A
Exemplary Level	Non demolition	85%	90%
	Demolition	85%	95%
	Excavation	95%	95%

3.3.2 Home Quality Mark

One Credit – Product Procurement Policy

- ▶ By the end of RIBA stage 2 (or equivalent), the client or developer has a documented policy and procedure that sets out procurement requirements for all suppliers and trades to adhere to relating to opportunities for minimising construction waste on-site.
- ▶ The documented policy and procedure must be disseminated to all relevant internal and external personnel and included within the construction contract to ensure that they are enforceable on the assessed project.
- ▶ The documented policy and procedure must encourage the specification of products which can help to minimise waste arisings (for example, consider materials that can be reused once the home has been deconstructed, consider recycling or take-back arrangements and packaging recycling or minimisation).

Up to 8 Credits – Construction Resource Efficiency

- ▶ Where a Resource Management Plan (RMP) has been developed covering the non-hazardous waste related to on-site construction and dedicated off-site manufacture or fabrication (including demolition and excavation waste) generated by the building’s design and construction.
- ▶ Where construction waste related to on-site construction and dedicated off-site manufacture/fabrication (excluding demolition and excavation waste) meets or is lower than the benchmarks in Table 10.

Up to 4 Credits – Diversion of Construction Waste from Landfill

- ▶ Waste materials will be sorted into separate key waste groups as per (according to the waste streams generated by the scope of the works) either on-site or through a licensed contractor for recovery.
- ▶ Credits are awarded for the project’s performance with regards to the diversion of non-hazardous construction and demolition (where applicable) waste from landfill, in line with the benchmarks in Table 11.

Up to 2 Credits – Diversion of Excavation Waste from Landfill

- ▶ Maximum credits have been achieved from the construction and demolition diversion requirements above.
- ▶ At least 95% (by volume or tonnage) of excavation waste is diverted from landfill.

Table 10: Construction Resource Efficiency Requirements.

Amount of waste generated per 100m ² (gross internal floor area)		
m ³	tonnes	Credits
≤ 13.9	≤ 8.5	2
≤ 8.1	≤ 4.9	4
≤ 4.8	≤ 2.9	6
≤ 3.5	≤ 1.9	8

Table 11: Diversion from Landfill Requirements.

Type of Waste	% diverted from landfill (volume)	% diverted from landfill (tonnage)	Credits
Construction	70	80	2
Demolition	80	90	
Construction	85	90	4
Demolition	85	95	

4. Conclusion

This report summarises the Waste Management Strategy for the Proposed Development; that is, operational and construction waste management. The report covers the following:

- ▶ Residential elements (houses and apartments)
- ▶ Non-residential elements (Pub and primary school)

Addressing Torbay Local Plan Policy W2

As part of planning requirement, Torbay County Council (TCC) require major developments to address Waste Policy W2:

“Developments which are likely to generate significant volumes of waste must include a Waste Audit and Five Year Waste Management Plan, setting out how waste generation will be reduced during the construction and operation of the development. This should include provision of appropriate on-site facilities for re-use, recycling (composting where appropriate) and collection of waste.”

However, while a full Waste Management Audit and 5 Year Waste Management Plan is expected for Detailed Planning Applications, the Proposed Development is undergoing an Outline Application.

Therefore, a Waste Management Strategy outlining the application of sustainable waste management principles and a high level assessment of waste arisings is considered appropriate for the scale of the Proposed Development and commensurate to the current level of design detail.

Background and Guidance Documents

The following documents have been used as guidelines to inform this waste management strategy.

- ▶ Building Regulations 2000 (incorporating 2010 amendments) Part H6
- ▶ British Standard BS 5906:2005 “Code of Practice for Storage and Onsite Treatment of Solid Waste from Buildings”
- ▶ CIBSE Guide G: Public Health Engineering (2004)
- ▶ BREEAM New Construction 2014
- ▶ Home Quality Mark

At this stage, it is assumed that the following waste streams will be collected:

- ▶ Residual waste (regular collection)
- ▶ Recyclable material (regular collection)
- ▶ Food waste (regular collection)
- ▶ Additional future third stream (regular collection)
- ▶ Bulky waste including waste electrical and electronic equipment (collection on request)
- ▶ Hazardous waste (collection on request)

4.1 Operational Waste Management

Residential Waste Strategy

The houses will have their operational waste collected by TCC which would provide separate bins for general waste, food waste and mixed recycling. However, the waste from each apartment will be collected from a shared waste store. The anticipated waste volumes have been calculated based on CIBSE Guide G (2004) benchmark data.

In order to reduce the amount of waste storage area required, the current waste collection frequency could be reviewed and potentially increased. Where central or waste storage/collection clusters are incorporated, portable waste compactors/balers could also be provided to reduce the volume of waste such as for cardboard, paper and plastic film, although this would require an area dedicated to this equipment and storage of the bales (see Appendix C for details).

Non-residential Waste Strategy

Bins will be located in the waste storage area at the rear of each commercial development. While it is currently anticipated that the same waste streams would be collected for both the Pub and the School, the waste collection frequencies may vary to take into account the different volumes of waste that will be produced for each. 1,100 litre ‘Eurobins’, will be used for the storage of general waste from the commercial units and apartments, with separate Eurobins for food waste, paper/cardboard and glass.

4.2 Construction Waste Management

In order to promote resource efficiency via the effective management and reduction of construction waste, a review of current good and best practice guidelines in relation to construction waste management has been undertaken, and used to provide a brief narrative on the proposed strategy for reducing and managing construction waste at the Proposed Development.

In accordance with Torbay County Council Policy W1, the general approach for managing construction waste at the Proposed Development will be in accordance with the Waste Hierarchy with a focus on prevention, reuse and recycling of materials throughout design and construction.

The Contractor would be required as part of their Construction Method Statement to include the provision of a RMP; considering the relevant criteria and resource efficiency targets from BREEAM and the Home Quality Mark.

5. Appendix A: Torbay County Council Residential Waste Collection Strategy

Torbay County Council (TCC) provides separate waste and recycling containers for residential properties including:

- ▶ General waste wheelie bins – collected fortnightly
- ▶ Food waste bins – collected weekly
- ▶ Recycling boxes (paper/card, plastic, cans/foil, glass, electricals, batteries, textiles) – collected weekly.

Table 12: Summary of Torbay County Council Waste Collection and Segregation Policy.

Wheeled Bins		Food Waste Bins		Recycling Bins	
Accepted	Not accepted	Accepted	Not accepted	Accepted	Not accepted
<ul style="list-style-type: none"> ▶ General household rubbish that cannot be recycled ▶ Polystyrene ▶ Non packaging plastic e.g. toys and plant pots ▶ Black plastic food trays ▶ Plastic wrapping e.g. cling film and plastic bags ▶ Wallpaper 	<ul style="list-style-type: none"> ▶ Recyclable waste ▶ Food waste ▶ Garden waste ▶ DIY waste ▶ Bulky household waste ▶ Clinical waste ▶ Hazardous waste 	<ul style="list-style-type: none"> ▶ All cooked and uncooked food waste including; ▶ Fruit and vegetables ▶ Meat and fish ▶ Cheese and dairy ▶ Bread, pasta, rice, cereals ▶ Tea bags and coffee grounds ▶ Plate scrapings 	<ul style="list-style-type: none"> ▶ Bones ▶ Plastic food wrapping ▶ Cardboard ▶ Garden waste or cut flowers ▶ Oils or liquids 	<ul style="list-style-type: none"> ▶ Paper ▶ Household plastic packaging ▶ Food tins and drinks cans ▶ Aerosols ▶ Textiles and clothes ▶ Batteries ▶ Printer cartridges ▶ Car batteries ▶ Glass bottles and jars ▶ Cardboard ▶ Foil ▶ Cartons ▶ Spectacles ▶ Cooking oil ▶ Engine oil ▶ Electrical items 	<p>There are a number of exclusions in regard to the types of waste that can be recycled using the recycling boxes.</p> <p>Full details can be found on Torbay County Council’s website: http://www.torbay.gov.uk/recycling/what-goes-in-my-bin/recycling-boxes/</p>

6. Appendix B: Typical Bin Storage Layout and Bin Dimensions

An example of a possible arrangement of the bins in a store is shown below. The hinges of the bins would be closest to the wall so that a bin could be opened easily from the walkway. There should also be sufficient space between bins and between a bin and the wall. BS 5906:2005 recommends a distance of 150mm. The figure below is only indicative, the number of bins shown are examples only.

The bins would be positioned lengthways along two walls with sufficient space in between for a third line of bins (shown as dotted rectangles). This third line would be left free to provide a walkway for residents to access each bin. The dotted areas merely indicate that the walkway will be sufficiently sized for bins to be manoeuvred easily.

Note – **the distance between the bins must be sized to allow for a wheelchair user to turn** and return in the other direction and for safe removal of bins. The minimum width to allow the removal of a 1280 or 1100 litre bin is 1550 mm allowing for the recommended 150mm clearance either side of the bin store.

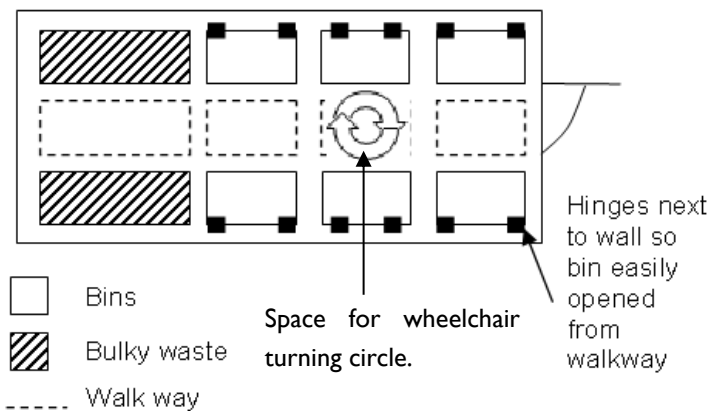


Figure 9: Typical bin store layout

Bins suggested for the bin stores are of the vertical wheeled bin or Eurobin style. Two types are described.

According to BS EN 840-2:2012 and BS EN 840-3:2012 maximum bin sizes are:

- ▶ 240L bin – 585(L) x 740(D) x 1110(H)
- ▶ 360L bin – 780(L) x 740(D) x 1100(H)
- ▶ 1100L bin – 1380(L) x 1245(D) x 1480(H)
- ▶ 1280L bin – 1780(L) x 1250(D) x 1480(H)

* All dimensions are in mm. Bins can be of either flat lid or dome lid type design. The maximum dimensions are listed so both bin types can be accommodated. There should be sufficient space between bins, and between a bin and the wall. BS5906:2005 recommends a distance of 150mm; ample space should be provided for using and manoeuvring a given bin without moving the other bins.

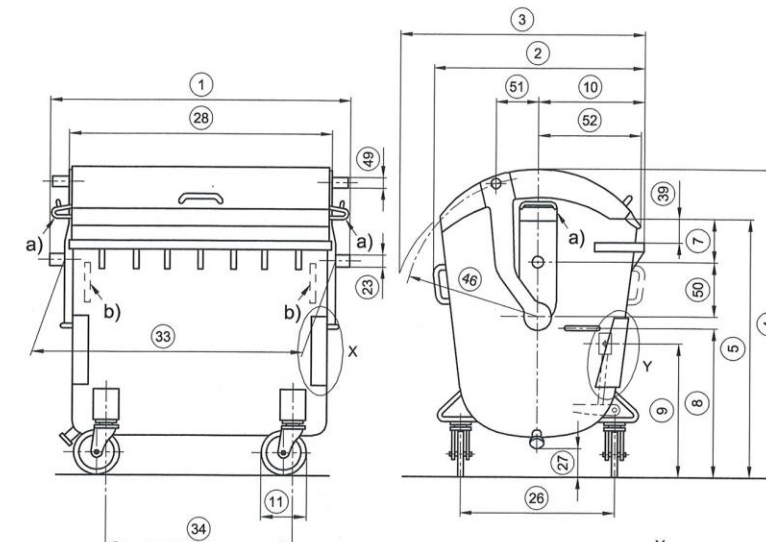


Figure 10: Typical Eurobin with dome lid (taken from BS EN 840-3:2004)

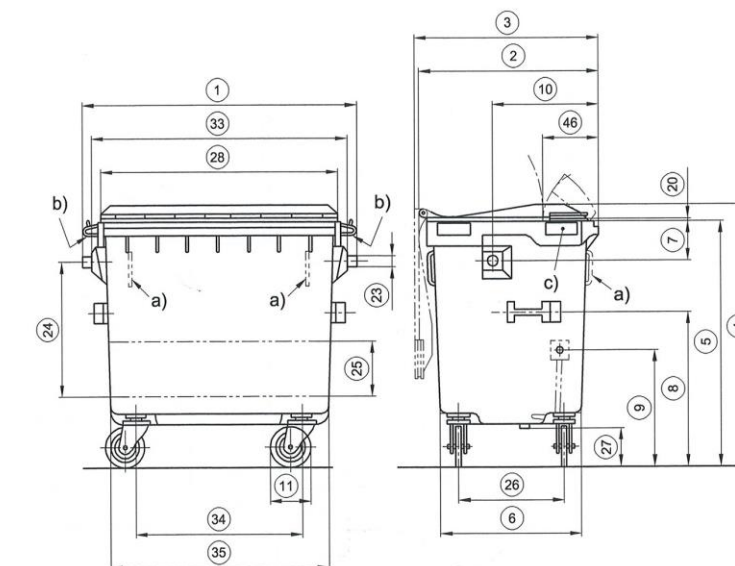


Figure 6 Typical Eurobins with flat lid (taken from BS EN 840-4:2004)

7. Appendix C: Waste Compactors

Compactors are typically used where a single waste stream exceeds 10 m³ a day. This typically occurs when 350 – 400 properties are serviced by one area. There are two types of compactor used, portable and static. These require sufficient room to be installed, operated, and for the waste container to be collected. There are no compactor sizing standards, therefore two typical manufactures details are contained in the appendices for sizing guidelines.

Compactors need to be installed with sufficient clearance from walls, ceilings and other equipment and usually require a bin lift in order to empty site Eurobins (this also requires a 3 phase power supply).

Compactors will require specific permission from the local authorities to be installed. This is to ensure that the compactors specified can meet the local authorities waste collection arrangements. Often a full reduction in bin store size cannot be taken for installing a compactor, as bin storage is required to provide in case the compactor should this be out of service for maintenance etc.

This may be negotiable with each respective authority. Additionally food waste and recyclable waste streams are difficult to compact, therefore separate provision for bin storage may be required for these streams.



Figure 2: Example of a portable compactor



Figure 7: Example of a static compactor

8. Appendix D: Other Issues for Consideration

8.1 Access

Each bin store should be normal storey height and fitted with a double door to provide easy access to the store for the residents, building management and waste collection personnel. There should be no raised threshold at bin store entrances to allow easy bin movement and wheelchair user access. Access routes to and from bin stores should be direct, free from obstructions, have a firm, slip resistant, spill resistant surface and allow easy manoeuvring of a wheelchair. **It is recommended that any communal areas or lift finishes where it is expected bin manoeuvring will take place are specified with robust wall finishes, with impact protection as required to doors, corners and walls. Floor finishes should be firm, slip resistant and spill resistant (i.e. no carpets).**

Where compactors are installed, or compactor vehicles are expected to access bin storage areas, at least **5.64m clear height** is required to allow for the collection of the compactor and the lifting of bins by bin hoists.

Residents should not need to travel a horizontal distance greater than 30m between their dwelling and their local bin store. THIS IS A BUILDING REGULATION REQUIREMENT.

Bins should not be moved a distance of more than 10m between a bin store and the collection vehicle and procedures comply with the Manual Handling Regulations. For routes longer than this, it should be considered whether to mount containers on a trolley which can be manhandled or hauled by a small electric truck to a suitable collection point. Where this route goes near or along a public pathway or roadway, the vehicle should be road legal.

Roads should have suitable foundations and surfaces to withstand the maximum payload of collection vehicles (**BS 5096 recommends 26 tonnes**). Manhole covers, gratings etc. located on the highway must also be strong enough to withstand this weight.

Vehicles should not be expected to reverse. If this is unavoidable, then the maximum reversing distance should be 10m. A safe stopping bay or equivalent should be provided with sufficient turning area and manoeuvring space for the collection vehicle (which may be a rigid eight-wheeled HGV) as specified by the Freight Transport Association's publication 'Designing for Deliveries'. Clearances will need to be sufficient for the collection vehicles in terms of access and manoeuvring. The ground should be smooth and hard surfaced.

8.2 Security

Security is often a high priority consideration for occupiers of residential and non-residential properties and these requirements extend to the facilities provided for waste storage and collection.

To address security issues, the waste storage chamber should be either external to the building that produces the waste or it should be capable of being isolated from the main building. This will ensure that access into the main building cannot be achieved through the waste storage chamber. Where the waste storage chamber forms part of a building it should preferably have two access points, i.e. an internal access point with a security lock for the waste producer and a second external point for the waste collecting agent and only one egress point (to outside the building).

8.3 Risk

To ensure safe employment of the waste management strategy, the following points should be noted:

Bins or compactors should only be moved by authorised personnel. **It should be noted a full 1,100 is rated to weigh nearly 500kg** when full and may require dedicated lifting and manoeuvring equipment (e.g. electric tractor) depending on the manoeuvre performed.

- ▶ Any waste management plant (e.g. Balers, shredders, compactors) should only be operated by trained authorised personnel.
- ▶ Waste management facilities should be regularly maintained and any faults repaired promptly to ensure smooth and safe functioning of the system.
- ▶ All waste should be placed inside the bins, and bin lids closed, to keep bin stores clean and prevent access to the waste by vermin.
- ▶ Considerable fire risks are involved when large quantities of waste or recycled materials are stored. BS 5906:2005 states that bin stores should be constructed within a fire compartment structure, which is designed to contain a fire. Where risks are greater, for example in multi-storey buildings, suitably sized manual fire extinguishers should be deployed. A dedicated automatic fire sprinkler or water mist system may also be considered.
- ▶ After transferring waste to the bins, staff, residents and non-residential tenants should ensure that doors to the bin store are closed (and locked) to prevent unauthorised access.

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