

OPERATIONAL PHASE
WASTE MANAGEMENT PLAN

FOR

CAIRN HOMES PROPERTIES LTD
7 GRAND CANAL
GRAND CANAL STREET LOWER
DUBLIN 2

RELATING TO A **PROPOSED**

RESIDENTIAL DEVELOPMENT

AT

**CLONBURRIS
Co. DUBLIN**

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1.0 INTRODUCTION

This document presents the Operational Phase Waste Management Plan (OWMP) for the control, management and monitoring of waste associated with the proposed residential development at Clonburris, Co. Dublin.

The development will consist of the construction of 569 dwellings, a creche, innovation hub and open space in the Clonburris South West Development Area of the Clonburris SDZ Planning Scheme 2019 as follows:

A) 173 no. houses comprising 8 no. 2 bedroom houses, 153 no. 3 bedroom houses and 12 no. 4 bedroom houses (147 no. dwellings in CSW-S4 consisting of 8 no. 2 bedroom houses, 127 no. 3 bedroom houses & 12 no. 4 bedroom houses & 26 no. 3 bedroom dwellings in CSW-S3); all 2 no. storey comprising semi-detached, terraced, end terrace units (with parking and private open space);

B) 148 no. duplex apartments/apartments (88 no. in CSW-S4 & 60 no. in CSW-S3) comprising 74 no. 2 bedroom units and 74 no. 3 bedroom units, in 16 no. 3 no. storey buildings. In CSW-S4 Duplex Blocks A,B,C,D,E,F,G,J,K, comprise 8 no. units (4 no. 2 bed & 4 no. 3 bed units), Duplex Block H comprises 16 no. units (8 no. 2 bed & 8 no. 3 bed units); In CSW-S3 Blocks L, N & O comprise 8 no. units (4 no. 2 bed & 4 no. 3 bed units), Block M comprises 14 no. units (7 no. 2 bed & 7 no. 3 bed units), Block P comprises 10 no. units (5 no. 2 bed & 5 no. 3 bed units), Block Q comprises 12 no. units (6 no. 2 bed & 6 no. 3 bed units), all to have terraces/pitched roof;

C) 396 no. apartments as follows: within CSW-S4, Block 1 consists of 172 no. apartments (76 no. 1 bedroom, 91 no. 2 bedroom and 5 no. 3 bedroom apartments), in a 2-building arrangement both 6 no. storeys in height. Within CSW-S3, Block 2 (4 storeys) comprises 16 no. 1 bedroom apartments and 22 no. 2 bedroom apartments, Block 3 (4 storeys) comprises 16 no. 1 bedroom apartments and 22 no. 2 bedroom apartments (all apartments to have terrace or balcony).

D) Provision of an innovation hub (626 sq. m) and creche (c. 547 sq. m) in a part 3/4 storey 'local node' building in CSW-S4;

E) Vehicular access will be from the permitted Clonburris Southern Link Street and R113 to the east (along with provision of internal haul routes (for construction) to connect to the R136 to the west);

F) Public Open Space/landscaping of c. 4.1 hectares (to include Local Park and MUGA in CSW-S3, Grand Canal Park, along the southern and eastern boundaries of the site to connect to existing Grand Canal towpath) as well as a series of communal open spaces to serve apartments and duplex units (c. 0.39 ha).

G) All ancillary development works including footpaths, landscaping boundary treatments, public, private open space areas, car parking (656 no. spaces) and bicycle parking (672 no. spaces), single storey ESB substations/bike/bin stores, 'Gateway' entrance signage (2 no.), solar panels at roof level of apartments, and all ancillary site development/construction works;

H) Permission is also sought for revisions to attenuation permitted under SDZ20A/0021 as well as connection to water supply, and provision of foul drainage infrastructure.

The Objective of this Waste Management Plan is to maximise the quantity of waste recycled by providing sufficient waste recycling infrastructure, waste reduction initiatives and waste collection and waste management information to the residents of the development.

The Goal of this Waste Management Plan is to achieve a residential recycling rate of 50% of managed municipal waste by 2020 in accordance with The Eastern-Midlands Region Waste Management Plan 2015-2021.

The Waste Management Plan shall be integrated into the design and operation of the development to ensure the following:

- That sufficient waste management infrastructure is included in the design of the development to assist residents minimise the generation of mixed waste streams.
- That the principle of waste segregation at source is the integrated into the development by the provision of separate bin systems, signage and notifications.
- That the facility management company shall record the volumes and types of waste generated by the development to assess on an annual basis if the 50% recycling rate is being achieved.
- That all waste materials generated by site activities are removed from site by appropriately permitted waste haulage contractors and that all wastes are disposed of at approved waste licensed / permitted facilities in compliance with the Waste Management Act 1996 and all associated Waste Management Regulations.
- That the Facilities Management Company will manage wastes storage areas and provide annual bulky waste collection services to facilitate residents.

2.0 WASTE MANAGEMENT PLAN – OPERATIONAL PHASE

The Operational Phase of the Waste Management Plan has been prepared with regard to The Eastern-Midlands Region Waste Management Plan 2015-2021 as referenced in the South Dublin County Council Development Plan 2016 – 2022 and which defines the following Waste Targets:

- 1% reduction per annum in the quantity of household waste generated per capita over the period of the plan.
- Achieve a recycling rate of 50% of managed municipal waste by 2021
- Reduce to 0% the direct disposal of unprocessed residual municipal waste to landfill

Chapter 7.5.0 – Waste Management of the South Dublin County Council Development Plan 2016 – 2022 – includes the following Objectives and Actions relating to Domestic Waste Management:

IE5 OBJ1 To support the implementation of the Eastern-Midlands Region Waste Management Plan 2015-2021 by adhering to overarching performance targets, policies, and policy actions.

IE5 OBG 8 To secure appropriate provision for the sustainable management of waste within developments including the provision of facilities for the storage, separation and collection of such waste.

Actions

Support and facilitate the separation of waste at source into organic and non-inorganic streams or other waste management systems that divert waste from landfill and maximise the potential for each waste type to be re-used, recycled or composted and divert organic waste from landfill.

Key Aspects to achieve Waste Targets

- All residential units shall be provided with information on the segregation of waste at source and how to reduce the generation of waste by the Facilities Management Company.
- All waste handling and storage activities shall occur in the dedicated communal apartment waste storage areas or within the curtilage of individual houses.
- The development's Facility Management Company shall appoint a dedicated Waste Services Manager to ensure that waste is correctly and efficiently managed throughout the development.
- The Operational Phase of the Waste Management Plan is defined by the following stages of waste management for both the residential and commercial aspects of the development:
 - | | |
|---------|--|
| Stage 1 | Occupier Source Segregation |
| Stage 2 | Occupier Deposit and Storage |
| Stage 3 | Bulk Storage and On-Site Management |
| Stage 4 | On-site treatment and Off-Site Removal |
| Stage 5 | End Destination of wastes |

The operational phase of the WMP has been prepared with regard to British Standard BS 5906:2005 Waste Management in Buildings-Code of Practice which provides guidance on methods of storage, collection, segregation for recycling and recovery for residential building.

All residential units will include a 3 - bin waste segregation at source system together with the communal waste storage areas have been designed with regard to Section's 4.8 and 4.9 Refuse Storage of The Department of Housing, Planning and Local Government – Sustainable Urban Housing : Design Standards for New Apartments – Guidelines for Planning Authorities. 2018.

Section 3 below describes how the development will be designed and operated in compliance with the above guidelines and standards.

3.0 RESIDENTIAL UNITS DOMESTIC WASTE MANAGEMENT

The Facilities Management Company shall be responsible for the implementation of all aspects of the Domestic Waste Management Plan which are detailed as follows.

The Facilities Management Company shall employ an appropriately qualified and experienced staff member who will be responsible for all aspects of waste management at the development.

All accommodation units shall be provided with a Waste Management Information document, prepared by the Facilities Management Company, which shall clearly state the methods of source waste segregation, storage, and recycling initiatives that shall apply to the Management of the development. This Information document shall be issued to all residential units on an annual basis.

Houses / Duplex Units

The design of residential houses and duplex units shall provide sufficient internal kitchen space for the storage of up to 10kg of general unrecyclable waste, green recyclable waste and organic waste.

Individual houses shall have external storage space for 3 no. 220 litre waste bins for segregating recyclable, non-recyclable and organic waste. Residential houses shall be served by private waste collection contractor.

Duplex Units shall avail of the communal waste storage areas.

Apartment Units

The design of the residential apartments shall provide sufficient internal kitchen space for the storage of up to 10kg of general domestic waste, green recyclable waste and organic waste. A 3-compartment bin system shall be integrated into the kitchen design or be included as free-standing system to have a capacity of up to 30 litres. Each unit shall include waste storage bins which will be of such a size that will allow their easy manual handling to be brought to the communal waste storage areas.

Image of domestic kitchen 3-bin systems to segregate waste at source



Waste Management duties of the Facility Management Company

The Facilities Management Company shall be responsible for the implementation of all aspects of the Domestic Waste Management Plan which are detailed as follows.

The Facilities Management Company shall employ an appropriately qualified and experienced staff member who will be responsible for all aspects of waste management at the development.

All accommodation units shall be provided with a Waste Management Information document, prepared by the Facilities Management Company, which shall clearly state the methods of source waste segregation, storage, and recycling initiatives that shall apply to the Management of the development. This Information document shall be issued to all residential units on an annual basis.

It shall be the responsibility of the Facilities Management Company to ensure that appropriate signage is provided in each apartment lobby/entrance hall notifying apartment residents of their obligations to recycle domestic waste items in accordance with the requirements of the contracted Waste Collection contractor and to inform residents of the location of the local can and glass recycling banks.

It shall be the responsibility of the Facilities Management Company to ensure that all domestic waste generated by apartment residents is managed to ensure correct storage prior to collection by an appropriately waste permitted waste collection company on a weekly basis.

The Facilities Management Company shall conduct daily inspections of the waste storage areas and shall sign a daily check list which shall be displayed within the area.

The Facilities Management Company shall ensure that an adequate supply of biodegradable organic waste bags are in place at all times.

It shall be the responsibility of the Facilities Management Company to maintain and ensure the cleanliness of all waste storage areas to prevent odours and the attraction of vermin.

The Facilities Management Company shall engage a specialist cleaning contractor on a regular basis to clean and sterilise all communal waste storage areas.

It is expected that a single Waste Collection contractor shall be engaged to remove all mixed domestic waste and recyclable wastes from the waste storage areas and from individual houses on a weekly basis. The name of the waste collection contractor(s) once appointed shall be forwarded to the Environment Department of South Dublin County Council.

Communal Waste Storage Areas

The residential apartment and duplex unit blocks shall be served by surface level common waste storage areas which shall include clearly visible guidelines on the appropriate segregation of different waste types.

Signage shall be installed to inform residents indicating the location of the local can and glass recycling banks. This will encourage to bring these items for recycling themselves.

Signage shall be installed to inform residents of their obligations to reduce waste, segregate waste within the home and dispose of waste in the correct bin will be clearly posted within the waste storage area.

All bulk waste storage bins shall be clearly labelled with exactly what type of waste materials may be deposited within them.

The communal waste storage areas shall be designed to include the following aspects:

- A defined pedestrian route shall be marked from the lift/stair cores to the waste storage area.
- A non-slip surface shall be provided within the waste storage area.
- The ground floor waste storage area shall be of a block construction with a roof.
- The waste storage shall be passively ventilated.
- The waste storage area shall be fitted with sensor lighting.
- The waste storage area shall be fitted with CCTV cameras and associated signage.
- The waste storage area shall be designed to provide safe access from the apartment units by mobility impaired persons.
- A dedicated and clearly labelled area shall be provided in which mobility impaired persons may place wastes into receptacles at a lower level which will be subsequently transferred to the bulk storage bins on a daily basis by the Facilities Management Company.
- The waste storage areas shall include ground drainage to allow for their regular cleaning and disinfection.

- The Facilities Management Company shall engage a mobile bin cleaning service provider to clean waste bins on a regular basis.
- Each communal waste storage area shall contain a brown organic waste bulk bin. Appropriate signage shall be placed on all brown bins informing residents of the exact nature of organic waste that can be placed in the bin. Signage will also state that all organic waste must be placed within biodegradable bags before placing in the bulk bin.
- Each communal waste storage area shall contain a biodegradable waste bag dispenser which will facilitate and encourage residents of apartments and duplexes to separately segregate food and organic waste within their apartments in a dedicated bin.

Image of Typical Communal waste storage area



A battery box and a WEEE Bin shall also be provided in the communal waste storage areas, an example of which is shown in the following image. This shall be managed by a specialist waste contractor who will be responsible for its routine collection.

Image of WEEE & Battery Waste Storage



Waste Management & Record Keeping

The Facilities Management Company shall maintain a weekly register detailing the quantities and breakdown of general mixed domestic waste, recyclable waste and organic waste wastes removed from the development. Supporting documentation shall be provided by the Waste Collection Contractor on a monthly basis. This will allow for waste recycling targets to be tracked to achieve the 50% recycling target.

The Facilities Management Company shall prepare an annual information report for all residential units detailing the quantities and waste types generated by the development for the previous year. The report shall include reminder information on the correct segregation at source procedures and the correct placement of wastes in the waste storage area. Other aspects of ongoing waste management continuous improvement shall also be stated. This annual report shall also be submitted to South Dublin County Council's Environment Department.

Annual Bulky Waste & WEEE Collections

The Facilities Management Company shall provide a bulky waste and WEEE collection and transport service to the closest recycling centres on an annual basis which will allow residents to have bulky items such as appliances and furniture removed from their houses and apartments and transported to a licenced facility. This initiative will also reduce the potential for illegal waste collections and fly-tipping in the local area.

4.0 WASTE TYPES & QUANTITIES

The most recent EPA Waste statistics (2018) on household waste generation states 315kg is produced per person per year.

A value of 0.863Kg of waste generated per person per day has been therefore assumed for the purposes of this report to estimate the volume of waste to be generated at the proposed fully occupied development will be c. 1761Kg/day, 12330Kg/week or 90m³/week.

Table 1 Residential Waste Types per day/week

Waste Type	% Waste	Kg/week	Kg/day
Organic waste	30.6	3773	539
Paper	12.5	1541	220
Cardboard	3.6	444	63
Composites	1	123	18
Textiles	15.5	1911	273
Plastics	13.6	1677	240
Glass	3.4	419	60
Metals	3.1	382	55
Wood	1.2	148	21
Hazardous municipal waste	0.9	111	16
Unclassified combustables	1.4	173	25
Unclassified incombustables	1.2	148	21
Fines	11.7	1443	206
Bulky Waste & WEEE	0.3	37	5
Totals	100	12330	1761

5.0 APARTMENT / DUPLEX COMMUNAL WASTE STORAGE AREA DESIGN

The development shall have communal bin storage areas which shall be of sufficient size to house the required number of 1100 litre wheelie bins as detailed in Table 2 below.

The dimensions of standard 1100 litre bin are:

Width (mm)	1360
Depth (mm)	1180
Height (mm)	1455
Floor Area per bin (m ²)	1.7

To allow free access to the bins and provide sufficient space for their movement and to provide contingency capacity, the required bin store area = bin floor area x 1.5.

Table 2 Communal Bin Store Area Requirements

Block	Mimimum Total Bin Store Area (m ²)
Duplex Block A B C D	13
Duplex Block E F G	13
Duplex Block H J K	13
Duplex Block N Q P & Apartment Block 2	25
Duplex Block L M O & Apartment Block 3	25
Apartment Block 1	47

6.0 WASTE COLLECTION STRATEGY

All bulk waste bins shall be brought from the apartments communal bin storage areas to the designated demarcated bin collection areas within the development at road-level by the Facilities Management staff.

The development shall include 6 No. waste bin collection points as follows:

Table 3 Bin Collection Points Area Requirements

Block	BinCollection Area (m ²)
Duplex Block A B C D	5
Duplex Block E F G	5
Duplex Block H J K	5
Duplex Block N Q P & Apartment Block 2	10
Duplex Block L M O & Apartment Block 3	10
Apartment Block 1	13

Emptied bins shall be returned to the bin storage areas immediately following collection.

Appendix I presents the site plan showing the proposed bin storage areas.

Appendix II presents the waste collection vehicle dimensions and turning dimensions.

Image of bulk bin transport from bin stores to collection point



7.0 CRECHE WASTE MANAGEMENT

Waste generated by the Creche shall be managed by the operators of the creche unit who shall engage a commercial waste contractor to collect waste generated.

Wastes from the creche shall be stored in 4 no. commercial waste bins within the curtilage of the premises and shall be segregated into grey (mixed waste), green (dry recyclable), and brown (organic waste).

8.0 WASTE MANAGEMENT IN COMMUNAL AREAS AND OFFICES

The internal and external communal areas and offices within the development will include 3-bin waste segregation systems.

Colour coded and clearly labelled waste bins for plastics, paper & cardboard, organic materials and non-recyclable general waste shall be installed in communal areas/rooms for easy and clear segregation by residents, an example of which is shown below.

The facilities management company shall be responsible for maintaining these bins.

Image of internal communal space/office waste segregation recycling bin system



Image of external communal areas waste segregation recycling bin system



9.0 CONCLUSIONS

The proposed development at Clonburris shall be designed and managed to provide residents with the required waste management infrastructure to minimise the generation of un-segregated domestic waste and maximise the potential for segregating and recycling domestic waste fractions.

The Objective of this Waste Management Plan is to maximise the quantity of waste recycled by residents by providing sufficient waste recycling infrastructure, waste reduction initiatives and waste collection and waste management information services to the residents of the development.

The Goal of this Waste Management Plan is to achieve a residential recycling rate of 50% of managed municipal waste by 2021 (and future targets in subsequent Regional Waste Management Plans).

Residents will be provided with waste recycling and proper waste disposal information by the site's Facility Management Company who will be responsible for providing clean, safe and mobility impaired accessible communal waste storage areas.

The Facility Management Company shall maintain a register of all waste volumes and types collected from the development each year including a break-down of recyclable waste and where necessary, shall introduce initiatives to further encourage residents to maximise waste segregation at source and recycling. They shall also provide an annual bulky waste collection service for all residents.

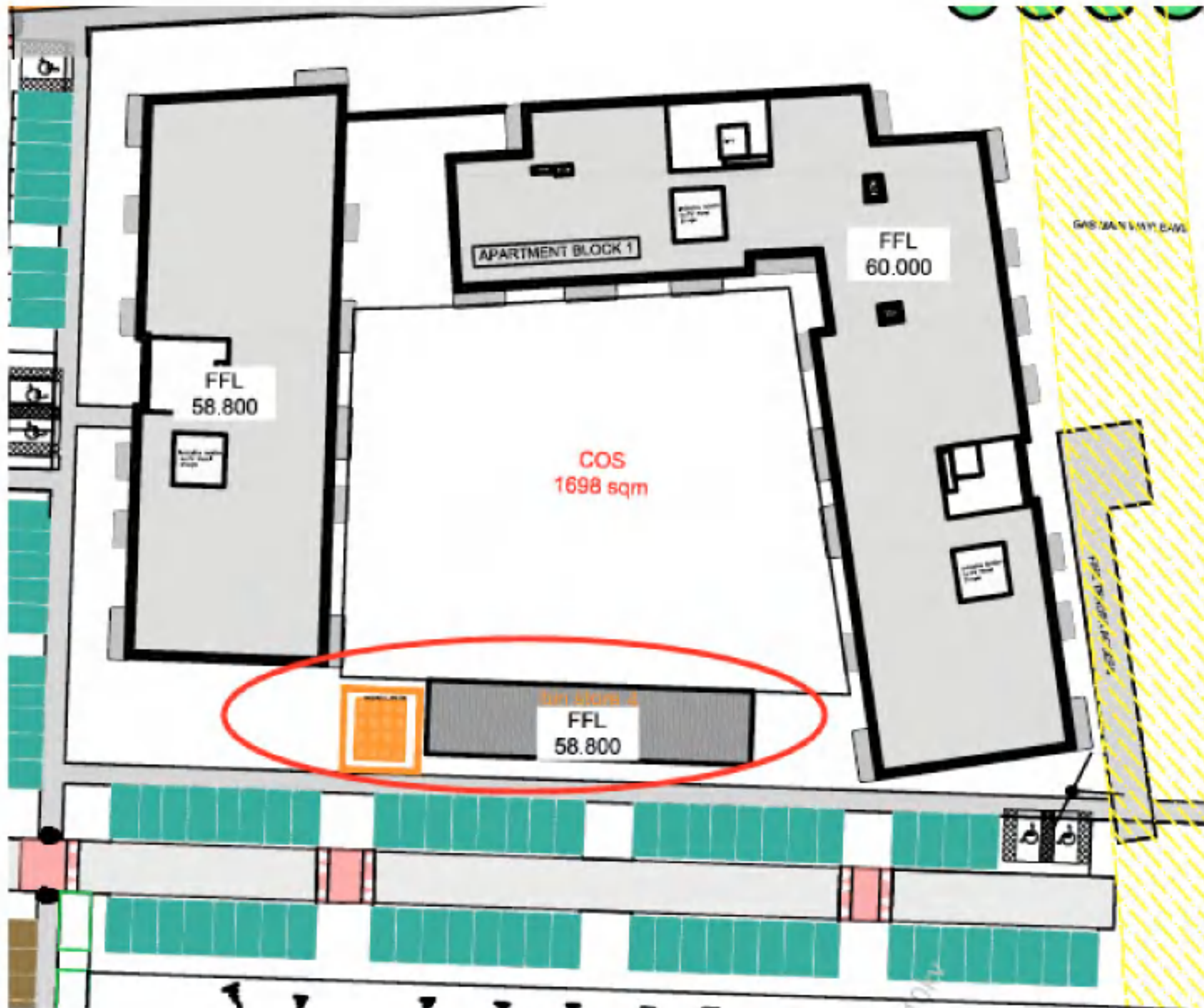
The development shall be designed to provide adequate domestic waste storage areas for common residential areas (Apartments and Duplex units) and for individual houses. This will promote the appropriate segregation at source of domestic generated waste from all residential units at the development. Communal waste bin storage areas shall be designed in a manner to ensure that appropriate signage for the correct disposal and recycling of waste is available for residents.

The Facility Management Company shall prepare an annual report for South Dublin County Council and residents on the quantities of waste generated within the development to demonstrate how waste reduction and recycling targets are being achieved with regard to the targets defined in The Eastern-Midlands Region Waste Management Plan 2015-2021.

APPENDIX I
Communal Bin Store Locations





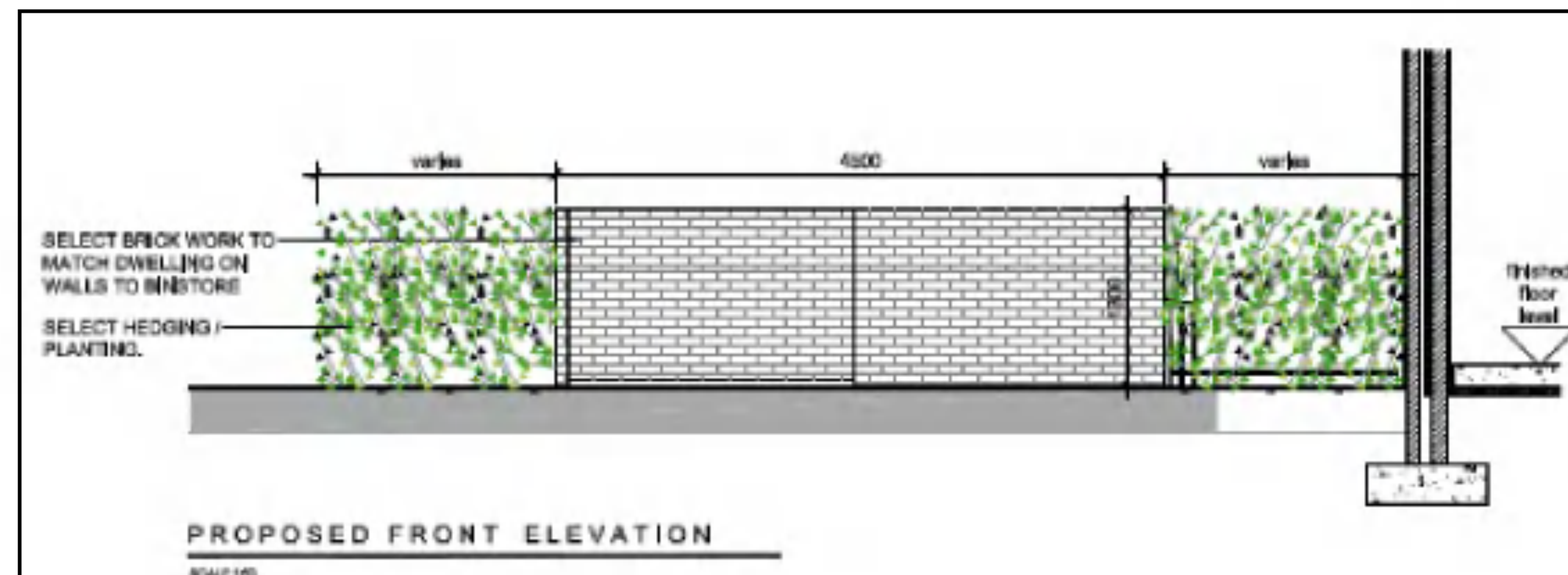
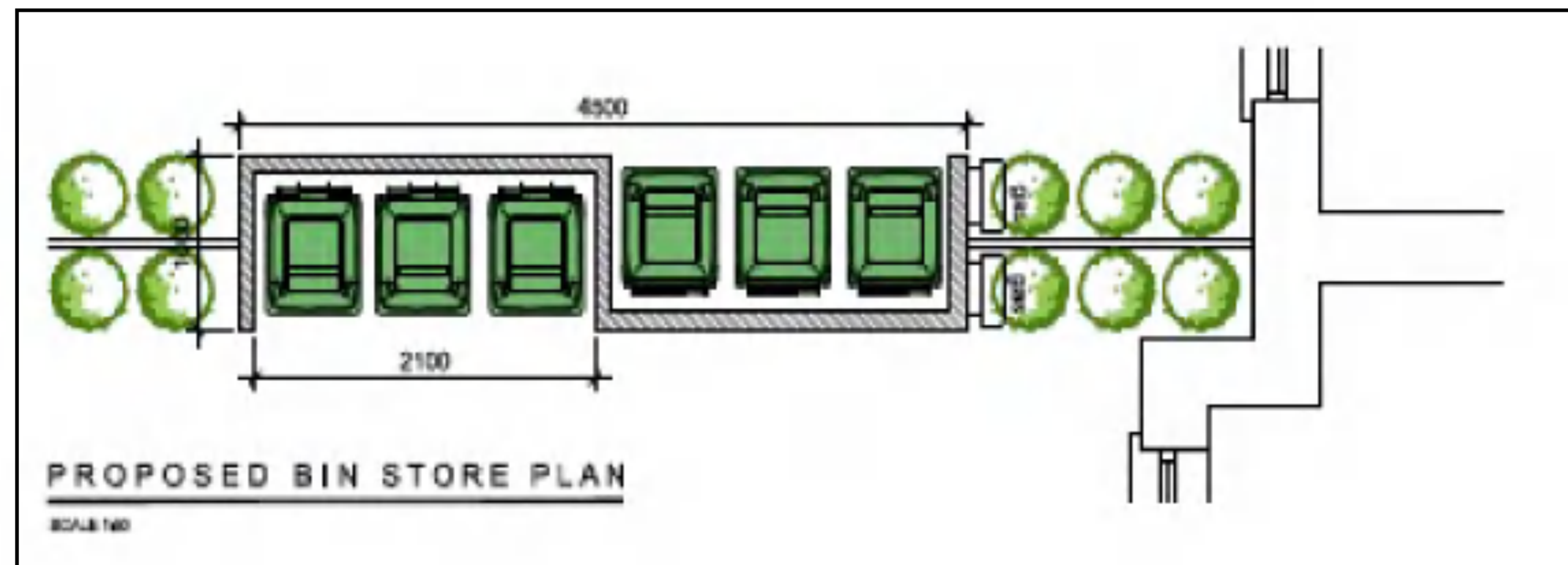


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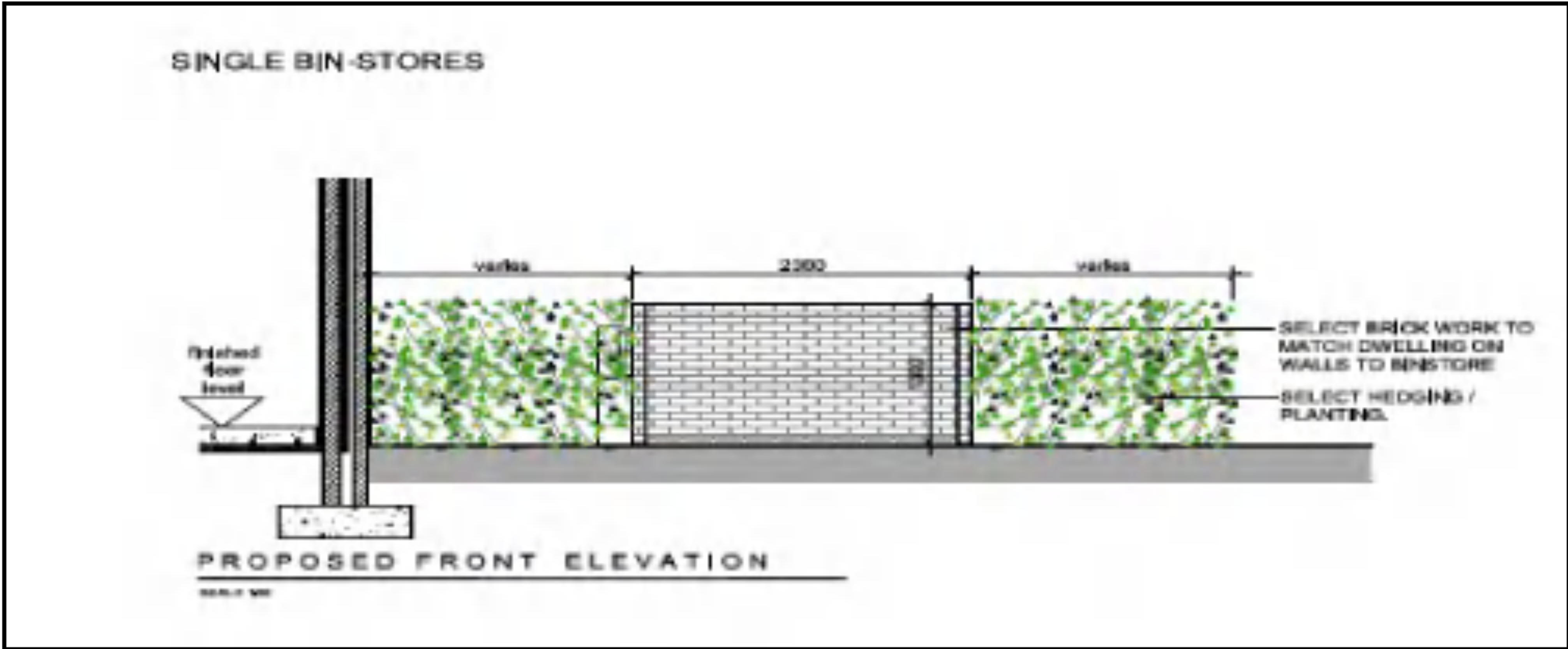
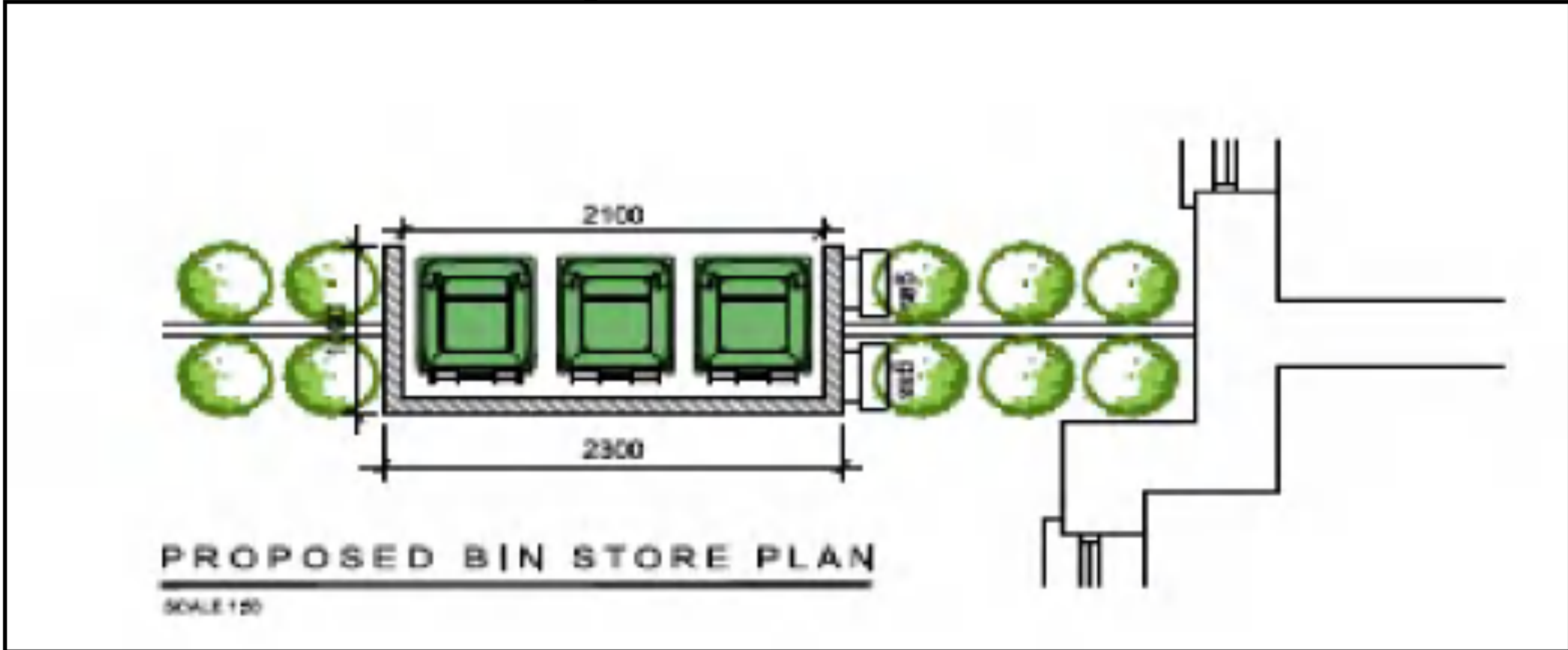
CAIRN - Clonburris
Operational Waste Management Plan

APPENDIX II

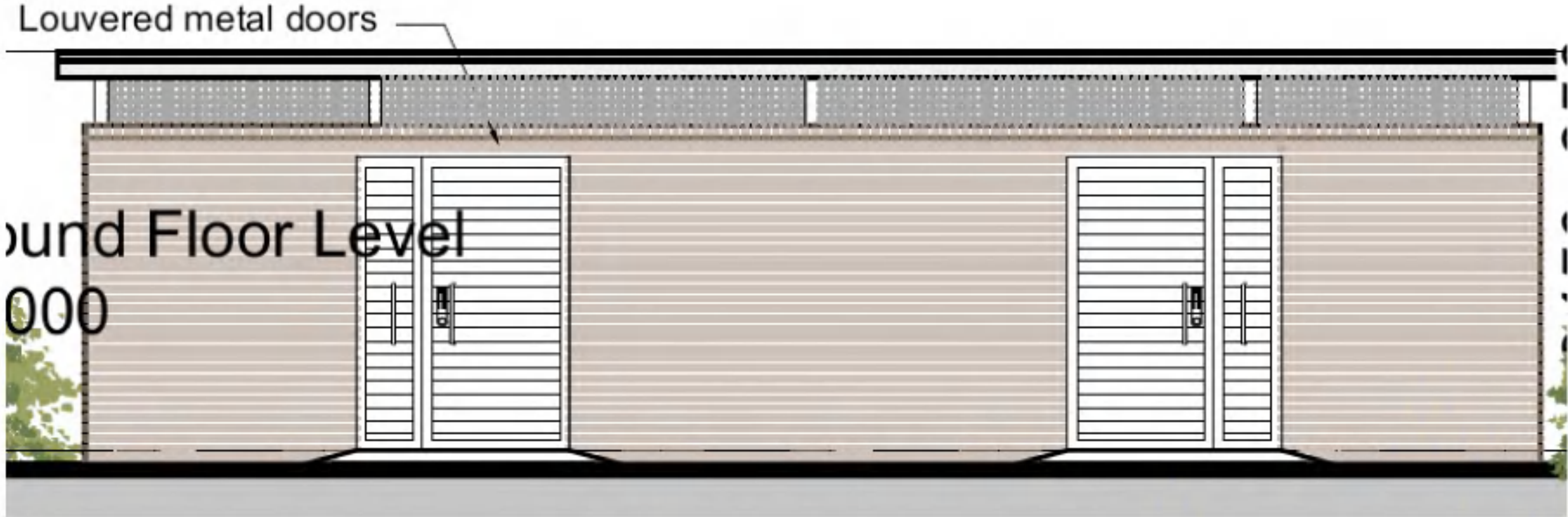
Example of House Bin Store Designs Double Bank of Bin-Stores



Single Bank of Bin-Stores



Example of Apartment Communal Bin Store Design



APPENDIX III

Bin Collection Vehicle dimensions and minimum turning requirements

