MODUS
Transport & Traffic Engineering

Operational Waste Management Plan

The Baybrook

16 Twenty Fourth Avenue, Brighton

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Document Information

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Definitions

In this OWMP, a term has the following meaning unless otherwise specified and is shown below.

Term	Description
Bin carting / transfer route	The proposed route to move bins between the bin storage area (storage point) and the servicing point.
Bin (bulk / wheelie)	A container (steel or plastic) use for disposal and storage of refuse items. Bins come in various types and sizes from MGB's to up 360L and bulk from 660L to 4500L.
Collection / Servicing point	The designated area allocated to the temporary storage of waste bins for the period of servicing only. The point may be within or external to a development.
Composter	A container or machine used for composting specific organic material
Digesters and dehydrators	Machines / devices specifically designed to reduce food waste volumes to allow for efficient disposal. Digesters typically process the material into sludge while dehydrators remove liquid from food waste generating a fertiliser as the end product. Disposal of end product can be used on either internal gardens or on external gardens/farms.
General waste	Waste, other than domestic clean-up waste, green waste, recyclable waste, interceptor waste or waste discharged to a sewer, produced as a result of the ordinary use or occupation of domestic or commercial premises.
Gross Floor Area (GFA)	The GFA of all stories of a building is measured from the outside of the external walls or the centre of a common wall. It is commonly measured in square metres (m^2).
Hazardous waste	Solid waste that is or contains toxic material, for example light bulbs, fluorescence lights, batteries.
Mobile Garbage Bin (MGB)	A plastic bin used for the storage and collection of refuse that is up to 360L in capacity. MGB's are typically used for kerbside collection for residential dwellings and on-site collection for commercial development.
Organic Waste	Waste that comes from plants or animals that is biodegradable for example green waste and food waste.
Recycling	All material suitable for re-manufacture or re-use, e.g. glass bottles and jars; plastics such as PET, HDPE and PVC; aluminium aerosol and steel cans and lids; milk and juice cartons; soft drink, milk and shampoo containers; paper, cardboard, junk mail, newspapers and magazines.
Refuse	Refuse is material generated and discarded from residential and commercial buildings including general waste, recyclables, green waste and bulky items.
Refuse Chute	Refuse disposal in multi-storey buildings through refuse chutes, which typically includes access at all floors and discharging in bulk bins in ground floor or basement refuse room. Examples include single chute for waste only, or single chute with dual system or dual chute for disposal of waste and recycling.
Refuse Area / Storage point	The area allocated to the permanent storage of waste bins. This is the normal location of the waste bins and excludes the period when the bin is serviced. A storage point may be a common storage point or an individual bin storage point.
Refuse Collection Vehicle (RCV)	A vehicle specifically designed for collecting and emptying refuse bins and refuse compactors.
Rear-Loading RCV	A truck specially designed to collect refuse (typically 240L-1100L bins), from a rear loading mechanism and haul the collected waste to a solid waste treatment facility.
Transfer	Manual transfer means physical transfer of refuse material and associated bulk bins or trolleys without assistance.

1 Introduction

1.1 Overview

Modus has been engaged by LDK Senior Living to prepare an Operational Waste Management Plan (OWMP) in support of the proposed residential care / retirement living development (The Baybrook), located at 16 Twenty Fourth Avenue, Brighton.

This proposal seeks to apply for a development application for Stage 1 and 2, with Stage 3 to be subject to an additional application.

This OWMP is to be used as a guide during the operational phase of the development only and additional requirements for demolition and/or construction phases will need a separate WMP. The purpose of the OWMP is to satisfy Brisbane City Council (BCC) requirements and detail the following information:

- Refuse (type and quantity) likely to be generated during the occupancy of the proposed development.
- Refuse collection arrangements, including disposal, storage and transfer, during the occupancy of the proposed development.
- Operational requirements, including equipment and systems, and design requirements for the proposed development.

1.2 References

For the purpose of this assessment, the following references have been utilised:

- Development Plans, prepared by Rothelowman
- Brisbane City Council Plan 2014
    - SC6.26 Refuse Planning scheme policy
    - 9.3.18 Retirement and residential care facility code
- Traffic Impact Assessment (TIA), prepared by Modus

1.3 Limitations

Modus has completed this OWMP in accordance with the usual care and thoroughness of the consulting profession. The assessment is based on accepted waste management practises and standards applicable at the time of undertaking the assessment. Modus disclaims responsibility for any changes to project planning or equipment requirements that may occur after completion of the assessment.

2 Existing Conditions

2.1 Site Location

The development site is located at 16 Twenty Fourth Avenue, Brighton and is bounded by Twenty Fifth Avenue to the north, Hornibrook Highway to the west, residential dwellings to the east and community facilities (including Men's Shed, Residential care facilities and Brighton Health Campus) to the south.

Furthermore, the development site is currently zoned Community facilities within the Brisbane City Council (BCC) Local Government Area.

The site location is shown in Figure 2-1.

Figure 2-1 Site Location

Source: Nearmap

2.2 Existing Development

The development site currently is a vacant lot with heritage sheds.

3 Proposed Development

The proposed development will comprise of a Residential Care/ Retirement Facility Development constructed over two (2) stages, accommodating a total of 155 residential units (care units and ILU apartments), with ancillary facilities such as café, a theatre, restaurants, wine bar, salons and pharmacy and multipurpose room.

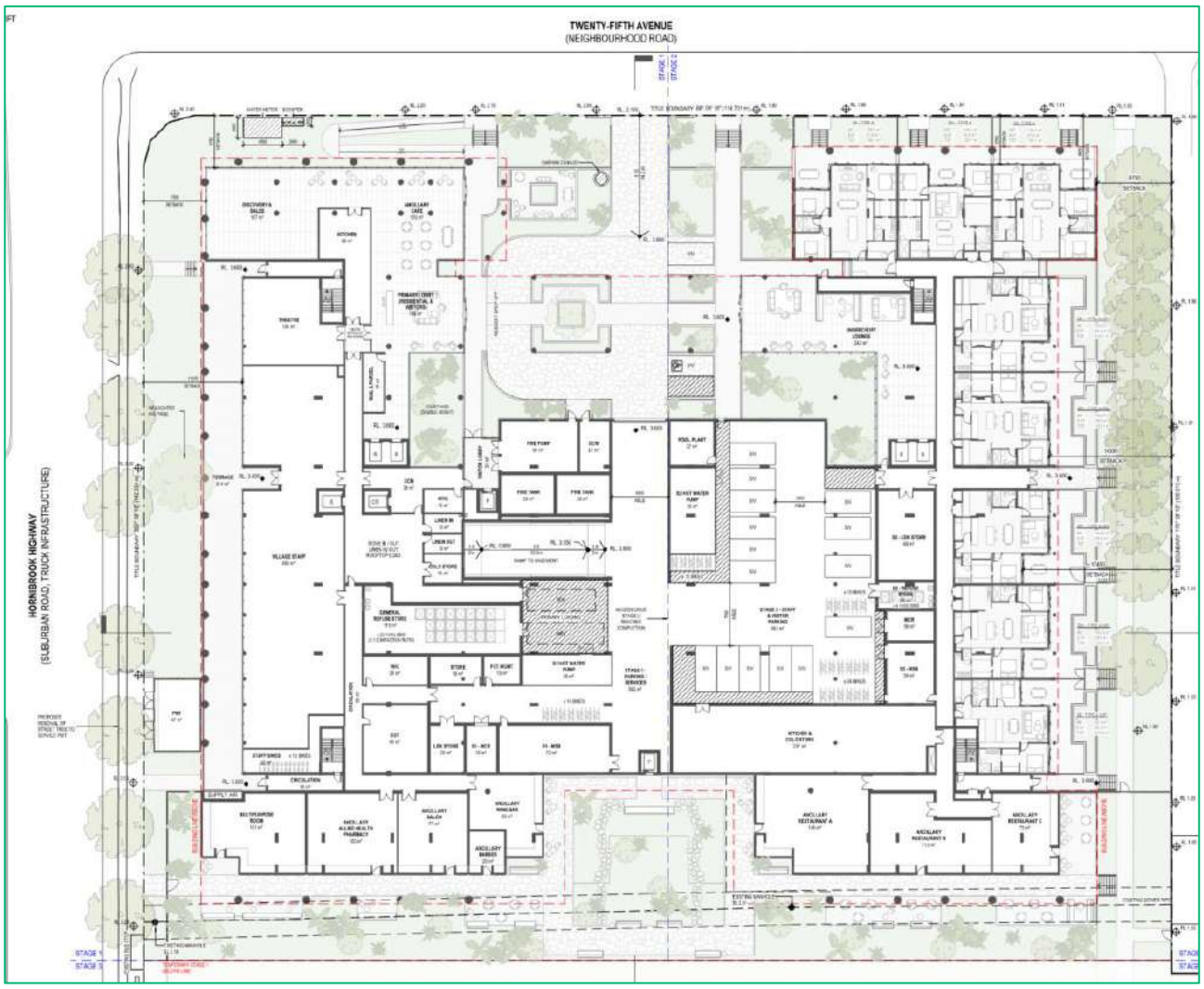
The proposed development yield is outlined in Table 3-1.

Table 3-1 Development Summary

Stage 1	Development Yield
Stage 1	▸ 83 units o 10 x Memory care studio o 9 x high care studio o 48 x two-bedroom units o 16 x three-bedroom units
Stage 2	▸ 72 units o 54 x two-bedroom units o 18 x three-bedroom units

The proposed site plan is illustrated on Figure 3-1. A copy of the development plans can be found in Appendix A.

Figure 3-1 Proposed Development



4 Refuse Generation

4.1 Refuse Generation

The anticipated refuse to be generated by the proposed site may consist of the streams outlined in **Appendix B**.

To assess the waste generation for the proposed site, Modus has applied the current BCC generation rates as outlined below in Table 4-1.

Table 4-1 Proposed Refuse Generation Rates

Stages	Use	Generation Rate	
		General Waste	Commingled Recycling
Stage 1	Retirement Units	80 L/unit/week	80 L/unit/week
Stage 2	Retirement Units	80 L/unit/week	80 L/unit/week

The refuse volumes are considered to be conservative and may vary according to the operation of the development and each building. As such, bin numbers and collection frequencies may need to be altered to suit the building operation once operational.

4.2 Refuse Calculations

The refuse equipment for the site is based on the volumes calculated in Table 4-1. Further waste management / minimisation equipment may vary depending on the operation of the development. Table 4-2 and Table 4-3 shows the bin requirements (number, size & area) to accommodate the bins for each stage.

Table 4-2 Stage 1 Refuse

Description	Yield	General Waste	Commingled Recycling
Retirement Units	83 units	6,640	6,640
Total	-	**6,640**	**6,640**
Compaction (3:1 ratio)		2,213	-
Collection Volumes		1,107	3,320
Collection Frequency (per week)		2	2
Bin Size (L)		1100	1100
No. Bins (+1 bin under chutes at all times)		1^{+1}	3^{+1}
Bin Area		$2.7m^2$	$5.3m^2$
Bin Storage Area		$111m^2$	

Table 4-3 Stage 2 Refuse

Description	Yield	General Waste	Commingled Recycling
Retirement Units	72 units	5,760	5,760
Compaction (3:1 ratio)		1,920	-
Collection Volumes		960	2,880
Collection Frequency (per week)		2	2
Bin Size (L)		1100	1100
No. Bins (+1 bin under chutes at all times)		1^{+1}	3^{+1}
Bin Area		$2.8m^2$	$5.6m^2$
Bin Storage Area		$20m^2$	

4.3 Equipment

The refuse bins to be utilised for the proposed development is outlined below in Table 4-4.

Table 4-4 Refuse Bins

Type	Dimensions	Comments
80L-120L	559 x 279 x 635mm (L x W x H)	For all streams Tenant to supply and positioned in various locations. For best practice, it is recommended that bins are placed in a central location in lieu of under each individual desk. Several options and sizes available from numerous suppliers, depending on preference and space available.
1100L	1280 x 1080 x 1340mm (L x W x H)	For general waste and recycling Generally supplied by private contractor prior to operation. Sizes may vary slightly depending on the contractor.

Depending on the operation of the development, additional refuse minimisation equipment and procedures can be implemented. Refuse minimisation and recommendations are detailed in Section 6.

4.4 Additional Equipment

The proposed arrangements for additional refuse equipment to be utilised is outlined below.

- Due to the large refuse volumes generated, a compactor (3:1 ratio) is proposed to manage the general waste stream and is proposed to be provided for stage 1 and 2 of the building.
- Furthermore, dual chutes have been proposed for each stage. A hopper will be located on each level for disposal, which will terminate into the bulk bins on the ground floor.
- Further detail on the proposed arrangements will be reviewed in the detail design stage with the nominated manufacturer.

5 Refuse Arrangements

5.1 Refuse Disposal

The proposed disposal arrangements are provided in Table 5-1.

Table 5-1 Retirement Units

Stream	Process
General Provisions (Waste and Recycling)	▸ At least one day worth of storage capacity for refuse will be provided within each unit and communal areas. ▸ Small bins / receptacles will be provided within each unit and around various locations of the communal areas. ▸ As required, residents will dispose of their refuse to the appropriate receptacles / bins during the day. ▸ Staff will collect the refuse from the units/communal areas after each day, or as required, and dispose of the refuse directly to the dual chute on each level via hoppers. ▸ Staff will collect the refuse from units on the ground floor and directly dispose to the bins in the refuse room.
General Waste	▸ Bins should always be lined with bags and tied before removal. ▸ Waste should not exceed 3kg in weight or the dimensions of the receptacles or the waste chute. ▸ Waste bins should be accompanied by recycling bins.
Commingled Recycling	▸ Items for recycling must not be bagged and disposed in loose form. ▸ Recycling waste should not exceed 3kg in weight or the dimensions of the receptacles or recycling chute. ▸ Larger recycling items that cannot be disposed via the recycling chute are to be arranged with building management or be provided with a small bin / crate in a communal area to be decanted into the appropriate bin for disposal to the refuse storage room. ▸ Recycling bins should be accompanied by waste bins.
Medical Waste	▸ Depending on the type of waste, bins may be lined with bag and tied before removal. ▸ All sharps should be disposed in an approved container. ▸ All waste must be securely stored in a location only accessible by designated staff.

5.2 Refuse Storage

The proposed refuse storage area arrangements are as follows:

- One (1) refuse room is provided for each stage to accommodate all required bins on the ground floor.
- The stage 1 refuse room will be utilised for servicing and can accommodate stage 2 bins for refuse collection.
- Bin wash facilities will be provided within the refuse rooms.
- The refuse rooms are enclosed to reduce amenity impacts (odour, visual and noise).
- The discharge area under chutes is recommended to be partitioned for safety purposes, to allow staff/designated contractors to enter the room for servicing.

The configuration and size of the refuse storage area allow a minimum 1.5m combined clearance between bins / walls and has been designed to ensure the bins are accessible. The refuse rooms are shown in Figure 5-1 and Figure 5-2. The recommended requirements are detailed in **Appendix C**.

Figure 5-1 Stage 1 Refuse Room (Storage and Collection)

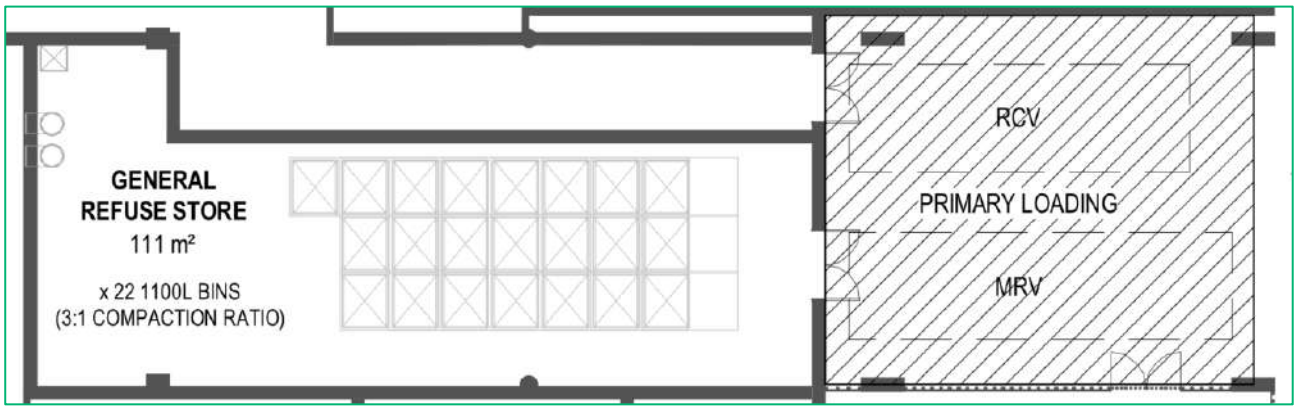


Figure 5-2 Stage 2 Refuse Storage Room

5.3 Refuse Transfer

The proposed transfer arrangements are as follows:

- Residents or designated staff will dispose the refuse to the chutes and refuse room respectively.
- As required throughout the week, designated staff will rotate full bins under the chutes and responsible for rotating bins under the chutes and transferring bulk bins between the stage 1 and 2 refuse rooms as required.
- Prior to servicing, all bins will be located in the stage 1 refuse room for servicing. Bins from stage 2 will be transferred along a flat grade and approximately 40m.
- Designated contractor will be responsible for collecting bins directly from the refuse room to the loading area and return them once serviced.

The transfer requirements are detailed in **Appendix D**.

5.4 Servicing Arrangements

Due to the constraints of the proposed design, it is proposed that collections will be undertaken by a private contractor (Cleanaway) using their fleet. In accordance with Section 5(4) of the Refuse PSP, written confirmation has been received and provided in Appendix H.

The proposed servicing provisions are as follows:

- Servicing will be conducted by a private contractor via a rear-loading RCV.
- The RCV will enter and exit the site in a forward gear, via Twenty Fifth Avenue. A single reversing movement will be required on-site to manoeuvre into the loading area.
- The RCV will stand on-site in a formal loading area with minimum dimensions of 3.5m (W) x 10.5m (L), including space behind the RCV for servicing. A minimum 3.6m height clearance will be provided and servicing will be conducted on a flat grade.
- The loading area is directly adjacent to the refuse room (within 5m), where contractors will collect bins directly from the refuse room and return them once serviced.
- Vehicle access and manoeuvring is shown in the TIA prepared by Modus.
- Waste and recycling will be serviced will be serviced on a maximum collection frequency of twice per week. All collections will be coordinated / managed by the building manager / designated staff.

The recommended servicing design requirements are detailed in **Appendix D**.

5.5 Operational Management

The operational management and procedures can vary based on the operation of the development.

Appendix E details the minimum recommended arrangements for roles and responsibilities, maintenance and cleaning, training and education, safety, signage and monitoring and review. A blank table is also provided, to be completed by the appropriate personnel as required.

6 Refuse Minimisation

Refuse minimisation is an important part of any site operation and ensuring that diversion from landfill is minimised, to achieve the desired target rates as outlined in the QLD sustainability requirements.

To determine the feasibility of collection volumes and assist with achieving desired landfill diversion targets, it is recommended that a baseline audit is undertaken at various stages of building occupancy (i.e. at a minimum of 50% and 80% dwelling occupancy or 0-1 month, 1-3 months, 3-6 months, 6-12 months and yearly thereafter) by an external contractor.

Based on the outcome of the audit, a management plan can be developed and implemented for continual improvement of the operational performance of the site and assist with implementation of waste minimisation strategies.

6.1 Equipment

Refuse minimisation is an important part of any site operation. Minimisation systems are summarised in Table 6-1 and are presented as options only. To assess the feasibility, further investigation is required by the developer at the concept stage and/or building management at the operational stage. Additional refuse management equipment is detailed in Table 6-2. The equipment suppliers are further outlined in **Appendix F**.

Table 6-1 Refuse Minimisation Equipment

Type	Streams	Comments
Composter / digestor	Food Waste	Compost bins / digestors can process compostable material and garden organics on-site. This reduces the volume of waste to landfill and converts organic materials into soil or mulch through natural decomposition. A variety of compost bin arrangements and systems are commercially available for use.
Waste Conversion	General waste	Converting waste by reducing its volume and weight means less material to be disposed of, which results in fewer RCV trips. This allows cost savings and reduces environmental impacts. An example of waste conversion is an OMPECO system, which converts waste into a sterilised, dehydrated material. The final product reduces up to 80% less volume and 50% less weight than the original waste material and can be used in waste to energy systems as it is reasonably dry with a high calorific value. The process involves crushing / grinding of the material and is heated to approximately 100˚C, evaporating moisture from the material.
Compaction	General waste, cardboard, plastics	Various compaction equipment exists for reducing the volume of refuse and ultimately less bins and/or fewer collections / service vehicle trips are required, to reduce costs and environmental impact. Examples of typical waste compaction equipment include bin press equipment and public place litter bins with a built-in compaction mechanism.
Container deposit schemes	Eligible plastic / glass / aluminium bottles	Container deposit / refund schemes are currently in place in QLD. This includes bottle return facilities and (automated) reverse vending machines. Tenants, staff and cleaners should be encouraged to separate containers that qualify for the schemes from the waste or recycling streams, and return them to a designated return points. Dedicated storage space or bins should be provided within tenancies or communal areas.

Table 6-2 Refuse Management Equipment

Type	Streams	Comments
Dual Chute	General waste, commingled recycling	A hopper will be located on each residential level for disposal of all waste and recycling. The dual chute will terminate into the appropriate bins in the refuse room on the ground floor.
Refuse Trolley	General waste, recycling, food waste, paper / cardboard	Safety and mobility disposal can be assisted by trolleys for everyday use. Multi-purpose bin trolleys are used to transport bulky and awkward loads and are used widely in hospitals, laundries, manufacturing and warehouses.

6.2 Signage

Waste signage guidelines are provided by local and state government. Various signage for the bin storage areas including safety and facility signage should be arranged through appropriate providers. Example signage for the site including bin storage area and equipment, and safety signage is demonstrated in **Appendix G**.

7 Summary

Modus has been engaged by LDK Senior Living to provide waste management advice for the proposed retirement village development located at 16 Twenty Fourth Avenue, Brighton. Modus has the following findings:

Refuse Equipment

Stages	General Waste	Commingled Recycling	Additional Equipment
Stage 1	▸ 2 x 1100L bulk bins	▸ 4 x 1100L bulk bins	▸ 1x Dual Chute ▸ 2x 1100L bins to be under chutes ▸ Compaction for waste (3:1 ratio)
Stage 2	▸ 1 x 1100L bulk bin	▸ 3 x 1100L bulk bins	▸ 1x Dual Chute ▸ 2x 1100L bins to be under chutes ▸ Compaction for waste (3:1 ratio)

Refuse Disposal

- Each dwelling / communal area will be provided with receptacles for storage of daily refuse volumes.
- Once a day, or as required, residents/staff will dispose all refuse material to the dual chute/bins on the ground floor.

Refuse Storage

- One (1) refuse room is provided for each stage to accommodate all required bins on the ground floor.
- The stage 1 refuse room will be utilised for servicing and can accommodate stage 2 bins for refuse collection.
- Bin wash facilities will be provided within the refuse rooms.
- The refuse rooms are enclosed to reduce amenity impacts (odour, visual and noise).
- The discharge area under chutes is recommended to be partitioned for safety purposes, to allow staff/designated contractors to enter the room for servicing.

Refuse Transfer

- Residents and designated staff will dispose the refuse to the chutes and refuse room respectively.
- As required throughout the week, designated staff will rotate full bins under the chutes and responsible for rotating bins under the chutes and transferring bulk bins between the stage 1 and 2 refuse rooms as required.
- Prior to servicing, all bins will be located in the stage 1 refuse room for servicing. Bins from stage 2 will be transferred along a flat grade and approximately 40m.
- Designated contractor will be responsible for collecting bins directly from the refuse room to the loading area and return them once serviced.

Refuse Servicing

- Servicing will be conducted by a private contractor via a rear-loading RCV.
- The RCV will enter and exit the site in a forward gear, via Twenty Fifth Avenue. A single reversing movement will be required on-site to manoeuvre into the loading area.
- The RCV will stand on-site in a formal loading area with minimum dimensions of 3.5m (W) x 10.5m (L), including space behind the RCV for servicing. A minimum 3.6m height clearance will be provided and servicing will be conducted on a flat grade.
- The loading area is directly adjacent to the refuse room (within 5m), where contractors will collect bins directly from the refuse room and return them once serviced.
- Vehicle access and manoeuvring is shown in the TIA prepared by Modus.
- Waste and recycling will be serviced will be serviced on a maximum collection frequency of twice per week.

APPENDIX A - Development Plans

LIFT KEY -

- R — RESIDENTIAL LIFT
- C/D — CARE LIFT
- S — SERVICE LIFT
- P — PODIUM LIFT

DEVELOPMENT APPLICATION

Revisions

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Project: **The Baybrook**
16 Twenty Fourth Avenue, Brighton

Drawing: **Floor Plan - Level Ground**

Project No: **224250**

Author: **MBS**

Scale: @ A1 **1 : 250**

Drawing No.: **DA-A01.101** **A**

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Project: **The Baybrook**
16 Twenty Fourth Avenue, Brighton

Drawing: **Floor Plan - Level 02**
Project No: **224250**
Author: **MBS**
Scale: @ A1 **1 : 250**
Drawing No.: **DA-A01.102** **A**

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Project: **The Baybrook**
16 Twenty Fourth Avenue, Brighton

Drawing: **Floor Plan - Level 03**
Project No: **224250**
Author: **MBS**
Scale: @ A1 **1 : 250**
Drawing No.: **DA-A01.103** **A**

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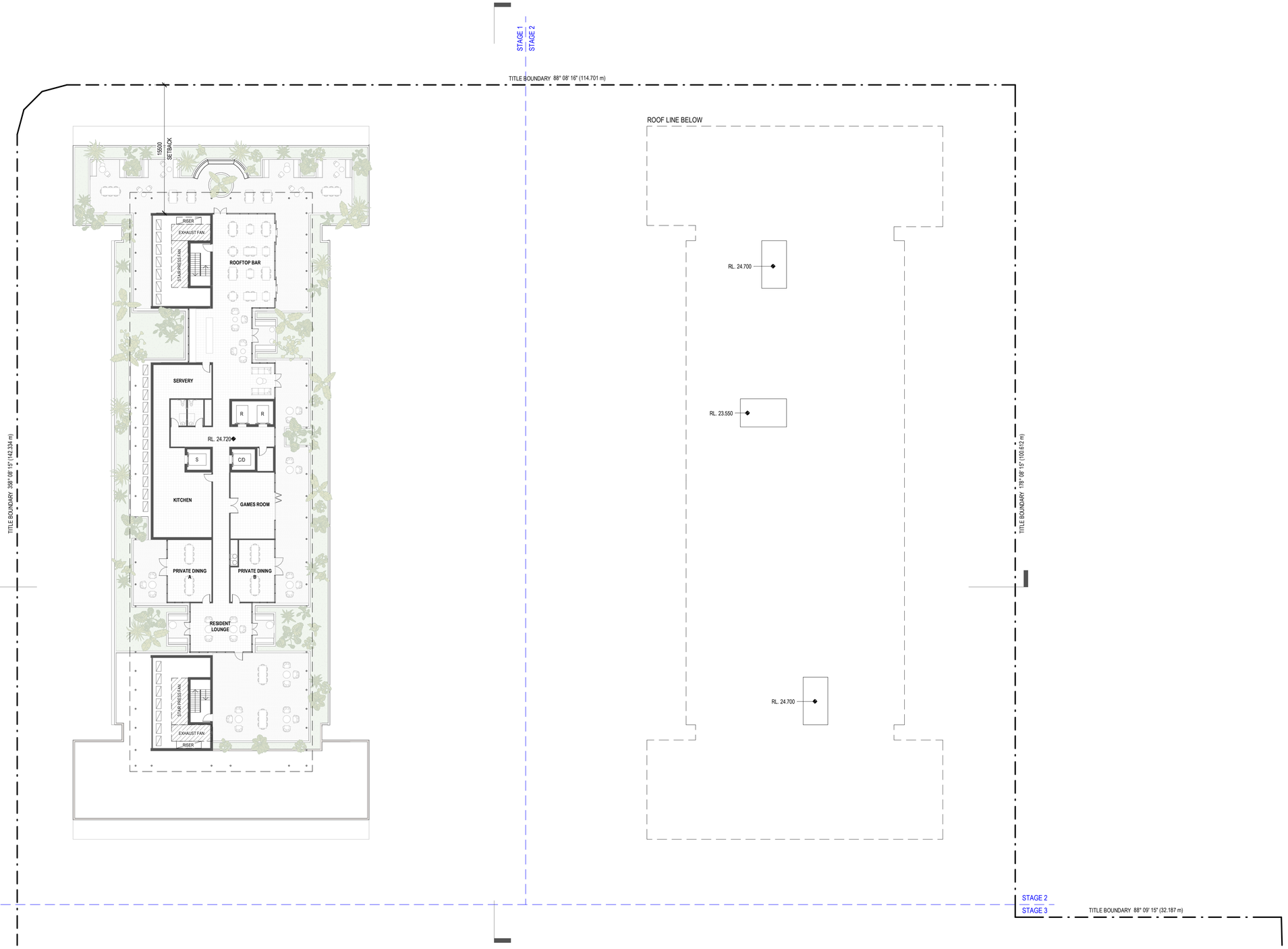

DEVELOPMENT APPLICATION

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Project **The Baybrook**
16 Twenty Fourth Avenue, Brighton

Drawing **Floor Plan - Level 07**
Project No **224250**
Author **MBS**
Scale: @ A1 **1 : 250**
Drawing No. **DA-A01.107** **A**

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APPENDIX B – Proposed Refuse Streams

Stream		Description
Frequently Generated		
General Waste	General Waste, Food Waste	General waste items are non-recyclable and can be putrescible (organic matter which can break down) or non-putrescible (non-organic matter which cannot break down).
Commingled Recycling	Semi-rigid plastics, glass, aluminium, steel / tin cans, glass, cardboard, paper	Commingled recycling includes everyday items that are collected and later processed for recycling into new products and resources. Recycling separation diverts waste to landfill.
Medical Waste	Medical Waste	Clinical waste is generated from medical, nursing, dental, pharmaceutical or other clinical activity. It has the potential to cause injury or infection and therefore needs to be handled with care. Clinical waste includes, but is not limited to; human or animal tissue, body fluids, sharps and soiled bandages.
Infrequently Generated		
Green Waste	Landscaping, trees, potted plants	This development does not generally produce green waste (other than landscaping). Maintenance contractors are typically engaged to remove material and should be directed to send to a resource recovery / composting facility to avoid landfill.
Hard Waste / Bulky Goods	Furniture, white goods, appliances	Storage and collection should be coordinated with building management or designated staff. Where available, space can be provided in the refuse room or within a designated area. When transferring heavy material, it is recommended to utilise assisted transfer such as pallet jacks or forklifts. Please refer to local and QLD government websites for further information.
Hazardous Waste	Paints, fluorescent globes, mobiles, batteries, and cartridges Electronic Waste (computers, printers, TV's)	Storage and collection should be coordinated with building management or designated staff and handled with care. Space should be provided in a secure and separate area. Refer to local and state government websites for further information.

APPENDIX C – Bin Storage Area Design Requirements

Component	Requirement
Refuse Room / Storage point	▸ Allow the bins to be serviced in-situ or easily transported to a separate servicing point (no steps or lips on bin-carting route). ▸ Waste-carting distance should not exceed 60m and in any case be reasonable to ensure ease of use. ▸ Generally positioned away from entrances to shops or residential premises and located at least 5m from any door, window or fresh air intake within the development (habitable rooms) or any adjoining site (excluding the storage of wheelie bins at each individual dwelling), particularly food preparation areas (including food storage). ▸ Screened to ensure bins are not visible from a public place or sensitive land use. ▸ Safe access to the disposal area. ▸ Of sufficient size to accommodate the required number of bins. Allowance is to be made for a minimum of 0.1m clearance surrounding each container, or for the storage of multiple bins – one metre clearance around the combined bin area (whichever is the lesser). ▸ Provide adequate storage and unobstructed access for all users to safely and easily access via the provision of suitably located bulk bins or wheelie bins. ▸ The floors, walls and ceilings of waste and recycling storage areas and chute room(s) are to be finished with a rigid, smooth-faced impermeable material capable of being easily cleaned. ▸ Is enclosed on all sides except for the gated entrance to ensure bins are not visible from a public place, neighbouring properties, passing vehicles or pedestrian traffic external to the site. A close-fitting and self-closing door or gate operable from within the room is to be fitted to all waste and recycling storage areas. ▸ Doors/gates to the waste and recycling storage rooms are to provide a minimum clearance width of 1.3m. At least one door or gate to the waste and recycling storage area is to have sufficient dimensions to allow the entry and exit of waste containers of a capacity nominated for the development. ▸ The height of the bin storage area to be a minimum of 2.1m in accordance with the National Construction Code and Building Code of Australia, to allow for waste bins to be opened and closed. ▸ Lightweight roller shutter-type doors or grilles should be considered for access to waste and recycling storage areas, as these do not impact on the available storage space. If these types of doors or grilles are used, the requirement for a close-fitting and self-closing door remains, so that waste collectors can access the waste and recycling storage area other than through the roller door or grille. Where required, the refuse room is to be fire rated in accordance with the National Construction Code and Building Code of Australia. ▸ The design shall restrict the entry of trespassers, vermin or other animals into the area. ▸ The waste and recycling storage area is to be provided with an adequate supply of water for cleaning purposes with a hose cock. This does not include within chute rooms. ▸ The storage area is to be adequately ventilated by either: i. Natural ventilation openings to external air. The dimension of the openings are not to be less than 5% of the bin bay or bin room floor area. ii. A mechanical exhaust ventilation system in accordance with relevant Australian standards.

	▸ Waste and recycling areas are to be provided with artificial light controlled by switches located both outside and inside the storage area. ▸ Any facet of the waste and recycling management system that is visible from outside the building is to be in keeping with the dominant design of the remainder of the development.
Refuse Chutes	▸ Be compliant with the National Construction Code (NCC); ▸ Have adequate strength for its purpose, including additional reinforcing where necessary at joins, bends and hopper intersections; ▸ Be insect and vermin proof; ▸ Be constructed and installed to prevent the following during use and operation of the system: i. transmission of vibration to the structure of the premises; ii. excessive odour – there must not be a noticeable odour beyond the waste disposal and storage points; iii. excessive noise to the occupants of the building; ▸ Comply with the waste chute manufacturer's technical specifications and/or operational limitations, including installation design features and ancillary equipment required to prevent blockages and noise disturbances; ▸ Be fitted with a shutter at the base of the chute for closing off the chute manually during bin exchange and automatically in case of fire; ▸ Be fitted with fire sprinklers; and, ▸ Have chute pipes with access provided at appropriate levels and a nylon brush or similar appliance on a pulley system, for clearing obstructions and cleansing.
Bin wash-down facility	▸ Constructed hardstand area with a solid concrete base or acceptable equivalent. ▸ Roofed and designed to prevent entry to rainwater. ▸ The floors are graded to fall to a drainage point. The floor is to be provided with a ramp to the doorway where necessary. ▸ Drainage point connected to sewer in accordance with trade waste requirements. ▸ Provided with a hosecock for cleaning. ▸ Not be located within a building structure, unless it is: i. in a purpose-built storage area which is air locked, fly and vermin proofed, and used solely for the storage of waste; ii. in a well-ventilated portion of the basement and not within 30m of an opening to a food premises or food handling area; or iii. demonstrated that no / minimal putrescible / organic waste is generated by the proposed development type.

APPENDIX D - Servicing Requirements

Component	General Requirement
Bin servicing point	▸ Is of sufficient size to accommodate the bins. ▸ Sufficient access and clearance for the collection vehicles to service the bins, including adequate unobstructed overhead space for the swinging arm action of the collection vehicle. ▸ Bins serviced safely while minimising the impediment of traffic flow during servicing. ▸ Separated from car parking bays, loading bays, footpaths and pedestrian access, and any other similar areas. ▸ Clear of speed control devices or similar provisions (including entry and exit to the site) which inhibit direct access to the bins for servicing. ▸ Servicing occurs on the roadway of the lowest order where possible. ▸ Positioned on a level pad. ▸ Over 5m from any door, window or fresh air intake within the development or any adjoining site. ▸ Bins to be removed from and returned to the storage point. ▸ Constructed hardstand with a solid concrete base or acceptable equivalent (unless points are located on the kerbside directly in front of the relevant development). ▸ Screened to minimised the view of bins from neighbouring properties or passing vehicles and pedestrian traffic external to the site. ▸ Positioned away from entrances to shops or residential premises.
Bin carting	▸ The route must be via hard stand pathways / internal roads and can be easily moved to the temporary storage area, and is not stored on a section of the driveway that falls away (e.g. to the basement). The route must occur within the property boundary. ▸ The route must allow bins to be easily manoeuvred and be devoid of steps or steep rises. ▸ The route must not impede traffic flow and extend through habitable parts of a building, or a food premises, and only occur through common property or publicly accessible locations. ▸ Bin carting distance generally should not exceed 100 metres and in any case be reasonable to ensure ease of use.

APPENDIX E – Operational Management

Process	Procedure
Roles and Responsibilities	Responsibilities have to be assigned for all on-going refuse management operations. This is generally completed by a building manager, staff and / or cleaners. The on-going responsibilities help managing responsibilities and monitor the refuse operations in order to maintain efficient services and a safe environment. These include and are not limited to the following: Scheduling / organising refuse collections Transferring bins between refuse rooms Washing bins Ensuring users / occupants are informed of all waste, recycling, organics and bulky waste arrangements Coordination of contractors, including specialised equipment and cleaning Monitoring and reviewing all waste management procedures
Maintenance and Cleaning	Regular on-going maintenance and cleaning is required to maintain a clean and hygienic environment for all users, including management / staff, residents, visitors and contractors. This includes, and is not limited to the following: Refuse storage areas Refuse transfer areas, including lifts and staircases Refuse equipment, including bins and chutes
Training and Education	Training and education is required to ensure operational efficiency and sustainability of the equipment and facilities within the development. Training and on-going education should be conditioned within all body corporate and leasing contracts. It is recommended that building management circulate ongoing recycling rate results to highlight current rate and performance against benchmarked recycling rate target.
Safety	Safety is an important part of all refuse management operations and is the responsibility of all users. A full risk assessment should be conducted by building management and all contractors. Contractors must provide required documentation to appropriate personnel prior to development occupancy and delivery of equipment.
Signage	All receptacles, bins and other refuse management equipment must have adequate signage. Standard signage will be provided in and around waste collection / storage areas and will be colour coded in accordance with AS 4123.7–2006 mobile waste containers and all local government regulations. Signage should be included, and not limited to the following: Refuse storage and collections areas Refuse transfer areas Refuse disposal points Refuse equipment All signage should be clear, legible and easy to read.
Monitoring and Review	Regular monitoring and reviews will ensure operational efficiency and sustainability of the refuse management arrangements for the development. This includes, and is not limited to the following: Refuse equipment Refuse rooms It is recommended that waste auditing / reviews are conducted a minimum of at least once every 12 months. Audits may be undertaken by external contractor or internally by visual inspection during on-site waste management handling activities. Additionally, refuse weights and movements should be noted to assist with economic feasibility.

A blank operational checklist is provided below to be appropriately filled out as required by building management / staff. This table has been designed to maintain efficient services and a safe environment and help manage responsibilities / monitor the refuse operations.

Task	Responsibility	Checked	Comments

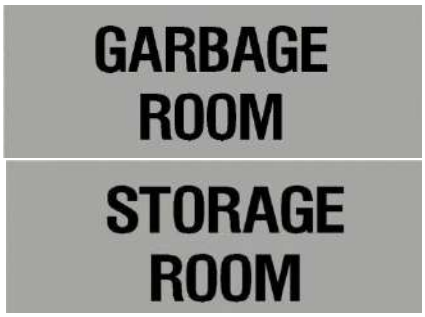
APPENDIX F – Equipment / Systems Manufacturers and Suppliers

Manufacturer / Supplier	Equipment / Systems
Elephants Foot Recycling Solutions http://www.elephantsfoot.com.au	Compactors, Bin Lifters
Waste Initiatives https://wasteinitiatives.com.au	Compactors and Balers, Shredders, Sorting Equipment
Wastech http://wastech.com.au	Compactors, Bin Lifters
Pakmor http://pakmor.com.au	Compactors, Bin Lifters
Miltek http://www.miltek.com.au	Compactors
Closed Loop Organics https://closedloop.com.au/upcycling-products,	Composting
Materials Handling https://www.materialshandling.com.au	Bin Lifters, Spill containment, Bins, Bin Cleaning
Spacepac Solutions http://www.spacepac.com.au	Bin tugs / trailers, trolleys / assisted transfer equipment
Draffin https://draffin.com.au	Bin lifters
Electrodrive / Lift Master http://www.electrodrive.com.au	Bin tugs / trailers, bin lifters
Absorbenviro http://www.absorbenviro.com.au	Spill containment equipment
Trade Environmental http://www.tradeenviro.com.au	Spill containment equipment
Spillstationaustralia www.spillstation.com.au	Spill containment equipment
Compost Revolution https://compostrevolution.com.au	Composting
Urban Composter https://www.urbancomposter.com.au	Composting
ORCA Digester https://www.feedtheorca.com	Composting
Rubbermaid https://rubbermaidcommercial.com.au/products/waste-management	trolleys / assisted transfer equipment, spill containment, bins
Sulo http://www.sulo.com.au	trolleys / assisted transfer equipment, bins, composting
Australian Waste Management https://www.australianwastemanagement.com.au/products	Bin lifters, bins
ReturnIT https://www.returnit.com.au/qld/	Various models exist including bottle return facilities and (automated) reverse vending machines

APPENDIX G –
Example Signage

Standard Signage

Refuse Room / Facility Signage



Safety Signage

Refuse Bins

Medical Waste Bins

Refuse Chute Signage

APPENDIX H – Private Contractor Confirmation

Outlook

RE: Written confirmation Cleanaway can service the Baybrook site

From Tiffany McKenzie <Tiffany.McKenzie@cleanaway.com.au>
Date Tue 12/16/2025 3:54 PM
To Genevieve Kenyon-Slade <Genevieve.Kenyon-Slade@LDK.com.au>
Cc Scott Tait <Scott.Tait@cleanaway.com.au>; Arthur Stamatiou <arthur.stamatiou@moduseng.com.au>; David Jameson <David.Jameson@LDK.com.au>

1 attachment (3 MB)
MOD24851QLD - SK01B.pdf;

Hi Genevieve,

Upon viewing the attached swept path I can confirm Cleanaway has the vehicles and fleet capabilities to fulfil the waste collection services.

Upon completion of building, Cleanaway would reserve the right to evaluate and complete physical onsite assessment to confirm access capabilities and quantity of bins for supply.

If you require further information, please do not hesitate to contact me.

Kind regards

Tiffany McKenzie
Account Manager
650B Southport Nerang Rd, Molendinar QLD 4214
Australia
M: +61 467 762 761
P 13 13 39
E: tiffany.mckenzie@cleanaway.com.au | www.cleanaway.com.au

From: Genevieve Kenyon-Slade <Genevieve.Kenyon-Slade@LDK.com.au>
Sent: Thursday, 11 December 2025 1:24 PM
To: Tiffany McKenzie <Tiffany.McKenzie@cleanaway.com.au>
Cc: Scott Tait <Scott.Tait@cleanaway.com.au>; Arthur Stamatiou <arthur.stamatiou@moduseng.com.au>; David Jameson <David.Jameson@LDK.com.au>
Subject: Written confirmation Cleanaway can service the Baybrook site