Operational Waste Management Plan

Proposed Mixed-Use Development

At Mark Lane – Precinct One

On Behalf of Phillip Usher Construction

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Revision Record

Issue No.	Author	Reviewed/Approved	Development Stage / Revision Description	Date
1.	M. Krisanski	S.Kenny	OWMP – Preliminary	20/04/2026
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3.				
4.				

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Contents

Table Index

Figure Index

1 Introduction

1.1. Background

Colliers International Engineering & Design (TTMC) has been engaged by Phillip Usher Constructions to prepare an Operational Waste Management Plan (OWMP) to support a development application for a Material Change of Use (MCU) for the proposed residential-led, mixed-use development. The site is located at 803, 807 & 811 Main Street, 6, 18, 26, 26A, 32, 32A, 38 ,44, 46,48 & 52 Mark Lane and 352 Vulture Street, Kangaroo Point

This report will accompany a Development Application to be lodged with Economic Development Queensland (EDQ).

1.2. Scope

The content of this OWMP is intended to provide information on the typical movement of waste streams from generation to collection. Information on refuse management is given for each use and each building within the development.

Detailed information including site plans and drawings, recommended refuse management equipment and system specifications, common refuse signage as well as a list of terms and abbreviations are provided in the appendices.

The recommendations in this report relate to the operational phase of the development only. Additional requirements for refuse management during or after demolition or construction phases are not included and require a dedicated plan.

The items covered within the OWMP are described in Table 1.1.

Table 1.1: Scope Items

Item	Description
Refuse streams	Identification of refuse streams & anticipated development refuse volumes likely to be produced
Refuse separation	Recommendations for appropriate segregation methods for each refuse stream
Refuse collections	Assessment of refuse collection vehicle (RCV) access and manoeuvring
Refuse storage	Detailed analysis of refuse storage facilities and design
Refuse transfer	Assessment of refuse transfer between refuse storage and collections areas
Refuse disposal	Recommendations for refuse disposal within the development
Refuse management equipment	Identification of recommended and optional refuse management systems and equipment
Refuse management operations	Recommendations for operational efficiency and ongoing management, including refuse minimisation, tenant education and safety
Building design	Recommendations for design of refuse management facilities

1.3. Site Analysis

The site is located at 807 & 811 Main Street, and 6, 18, 26, 26A, 32, 32A, 38, 44, 46, 48 and 52 Mark Lane, Kangaroo Point near the intersection of Main Street and Vulture Street, as shown in Figure 1.1. overleaf . The site has road frontages to Mark Lane, Main Street and Vulture Street. The real property description includes the parcels as detailed in

Table 1.2.

Table 1.2: Real Property Description for Site

Address	RPD
52 Mark Lane	Lot 1 on RP99764
48 Mark Lane	Lot 1 on RP99240
46 Mark Lane	Lot 2 RP11186
44 Mark Lane	Lot 5 on RP11186
38 Mark Lane	Lot 3 on SP352812
32 Mark Lane	Lot 1 on RP11182
32A Mark Lane	Lot 1 on RP11180
26 Mark Lane	Lot 2 on SP260456
26A Mark Lane	Lot 2 on RP11180
18 Mark Lane	Lot 1 on SP260456
803 Main Street	Lot 10 on SP352833
807 Main Street	Lot 9 on SP184393
811 Main Street	Lot 8 on SP184393
352 Vulture Street	Lot 1 on SP328486

The site is located within the Brisbane City Council (Council) Local Government Area, is zoned as a Mixed Use (Inner City) within the Kangaroo Point Neighbourhood Plan, and part of the Main Street and Vulture Street sub-precincts.

The site has frontages on Main Street to the East, Vulture Street to the South and Mark Lane to the North. Vehicular access into the site will occur via Mark Lane and Vulture Street.

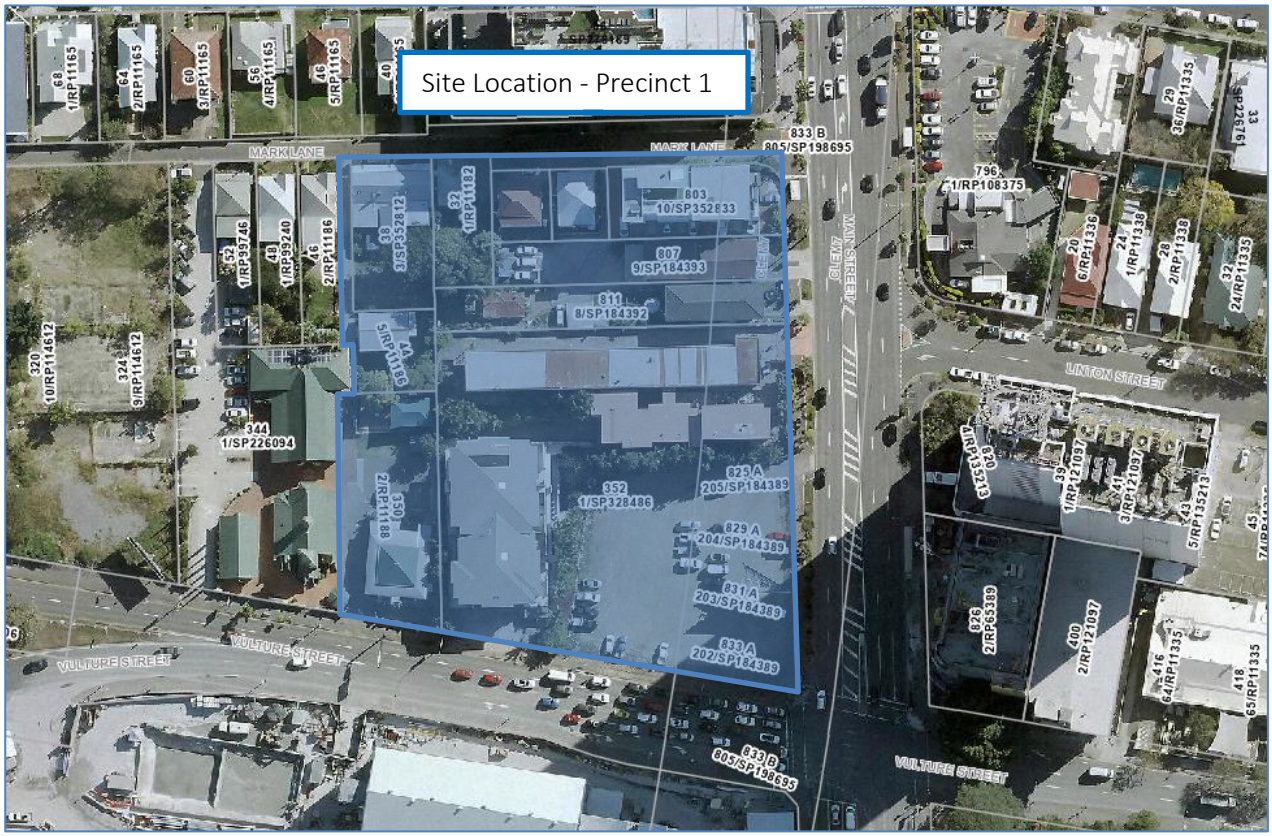

Figure 1.1: Site Location
Source: Brisbane Interactive Map, Image Dated 2025

1.4. Site Statistics

The proposed development comprises two residential towers and one hotel tower, together with a pre-function area, retail outlets, a childcare centre, and a community use centre. Resident and hotel amenities, including swimming pools, landscaped terraces, and BBQ facilities, are provided at rooftop levels within Tower 2 and Tower 3 and across various levels within Tower 1.

Table 1.3 provides a summary of the proposed development and is included to provide context for the refuse volume assessments presented in Section 2 of this report.

The apartment numbers and gross floor areas (GFA) identified within Table 1.3 relate specifically to refuse-generating components of the development only. Areas such as corridors, common circulation spaces, lobbies, storerooms, and plant and equipment rooms have been excluded, as these do not generate refuse in the context of waste storage and collection requirements. For comprehensive details regarding the full range of land uses proposed as part of the development, reference should be made to the accompanying town planning documentation

Table 1.3: Development summary

Description	Use	Location / Levels	Measure (Units / GFA)
Tower 1	- Commercial – Community Use Library/community hall/community centre/art gallery (no kitchen facilities) - Commercial – Child Care - Residential	Level 2-3 Level 8 Level 9-51	1,675m² (GFA) 958m² (GFA) 683 Units
Tower 2	- Residential - Retail F&B (265m²+370m² +117m²)		270 Units 752m² (GFA)
Tower 3	- Hotel - Offices (FOH) - Pre-Function - Restaurant - Café Bar	Level 4 -13	177 Keys 870m² (G FA 870m² (G FA) 870m² (G FA)

Note: A kitchen is proposed on the Plaza Level; however, it functions as a centralised food production and preparation facility supporting the Restaurant, Café, pre-function spaces, and Hotel operations. The kitchen does not operate independently, is not patron-accessible, and does not constitute a standalone refuse-generating tenancy.

Accordingly, refuse generated within the Plaza Level kitchen has been fully accounted for within the refuse generation calculations for the associated Restaurant, Café, pre-function, and Hotel uses. For assessment purposes, the kitchen is considered an integral operational component of these uses rather than a discrete refuse source.

While no separate refuse allocation is required for the Plaza Level kitchen, the hotel and retail refuse rooms have been designed with capacity in excess of minimum requirements, providing sufficient flexibility to accommodate refuse generated from this area and addressing any potential concerns under this application.

2 Regulatory Refuse Management Requirements

This section provides the detailed refuse calculations and describes the arrangements for the collection, storage, transfer and disposal of refuse within the development as deemed to satisfy current assessment benchmarks. This includes associated bin quantities, storage capacities, equipment details, collection frequencies and site access details.

2.1. Regulatory and Governance Considerations

2.1.1. Council's Refuse Planning Scheme

This plan has been prepared to align with Council's refuse requirements of SC6.26 Refuse Planning Scheme Policy (PSP) v35. Additionally, PO2, PO63 of the Centre or mixed-use code, PO32 of the Multiple dwelling code and PO8 of the Infrastructure design code.

Colliers has referred to Council's requirements as outlined in the Refuse PSP under section 2, 3, 4 and 5 as these sections are related to general requirements for all developments and specific controls for both residential and non-residential uses.

A checklist detailing the specific design details addressed to achieve compliance with Council's Refuse PSP requirements is located in *Appendix A*.

2.2. Anticipated Refuse Volumes

2.2.1. Residential Refuse Volumes

The refuse volumes utilised for the calculation of residential refuse storage are based on Council's standard rated waste entitlement. The entitlement is unchanged from the freestanding dwelling rate regardless of dwelling size. The rated entitlement applied to refuse calculations below is a requirement for development consent and not reflective of actual refuse generation which is historically lower.

A residential collection frequency of three (3) times per week has been adopted for both general waste and Commingled recycling, consistent with comparably sized developments previously approved by Council.

Table 2.1 outlines the standard refuse generation rates adopted for the assessment. Table 2.2, Table 2.3 present the calculated refuse generation volumes for each residential tower (Tower 1 and Tower 2).

A summary of the residential refuse bin requirements is provided later in Section 2.3 (Table 2.10) which forms the basis for the design and sizing of the refuse collection facilities (refer to Section 2.5).

Table 2.1: Refuse Generation Rates

Generation Rate	Applied To	Measure	General Waste	Recycling
Residential	All Residential Units	L / Unit / Week	240	240

Table 2.2: Residential Refuse Calculations - Tower 1

Area Description	Measure	Quantity	General Waste L/Week	Comingle Recycling L/Week
Residential Apartments	Unit	683	163,920	163,920
Total Weekly Volumes Compacted (L / Week)			54,640*	N/A
Volumes per Day (L / Day)			7,806*	23,417
Volumes per Collection (L / Collection)			18,213*	54,640
Collection and Equipment Details	Collections per Week		3	3
	Storage Capacity		3 Days	3 Days
	Equipment Size		1,100L	1,100L
	Equipment Quantity Required		16.56	49.67
	Equipment Quantity Provided**		17 + 1	50 + 1

*Compaction ratio of 3:1 used for calculation purposes

**(+1) relates to additional bins required to remain under chute during collections

Table 2.3: Refuse Calculations - Tower 2

Area Description	Measure	Quantity	General Waste L/Week	Comingle Recycling L/Week
Residential Apartments	Unit	270	64,800	64,800
Total Weekly Volumes Compacted (L / Week)			20,000*	N/A
Volumes per Day (L / Day)			2,857*	8,571
Volumes per Collection (L / Collection)			6,667	20,000
Collection and Equipment Details	Collections per Week		3	3
	Storage Capacity		3 Days	3 Days
	Equipment Size		1,100L	1,100L
	Equipment Quantity Required		6.55	19.64
	Equipment Quantity Provided		7 + 1	20 + 1

*Compaction ratio of 3:1 used for calculation purposes

**(+1) relates to additional bins required to remain under chute during collections

2.2.2. Non-residential Refuse Volumes

The refuse generation rates and collection frequencies adopted for the calculation of non-residential refuse volumes are based on Council-prescribed rates to ensure compliance for food and beverage tenancies. A five-day-per-week operational schedule has been applied to the Childcare and Community Use components of the development, while seven-day-per-week operations have been assumed for all other non-residential uses.

A collection frequency of three (3) days per week has been adopted for all non-residential uses. This frequency represents the maximum permissible service frequency for non-residential tenancies within a 'Mixed Use' zone, as specified in Table 2 – Non-residential Service Frequency Requirements of the Refuse PSP. All waste collections are undertaken from the development's internal loading bays.

Table 2.4 outlines the standard refuse generation rates adopted for the assessment. Table 2.5 details any further subdivision of the recommended recycling generation rates into additional streams, with percentage allocations applied in accordance with the anticipated refuse composition of each tenancy type, where required.

Table 2.6 to Table 2.9 present the calculated refuse generation volumes for the non-residential components of the development. These volumes form the basis for the design and sizing of the non-residential waste storage areas.

Table 2.4: Non-residential Refuse Generation Rates

Generation Rate	Applied To	Measure	General Waste	Recycling
Motel / Hotel (Accommodation room only)	Hotel	L / Occupant / Day	5L	5L
Office	Hotel FOH or Supporting Service Areas	L/100m2/day	10L	20L
Retail >150m^2	Restaurant, Café Bar, Retail F&B	L/100m2/day	600L	200L
Retail <150m^2	Retail F&B	L/100m2/day	300L	200L
Function Facility - Conference centre/reception centre (with preparation of food or liquor for consumption)	Pre-Function	L/100m2/day	250L	120L
Childcare Centre*	Childcare Applied against	L/100m2/day	250L	120L
Library/community hall/community centre/art gallery (no kitchen facilities)	Community Use	L/100m2/day	10L	20L

*Refuse generation for the childcare centre has been assessed on a functional use basis, consistent with Brisbane City Council waste management principles. Internal operational areas have been included in the refuse calculations, while outdoor playground areas have been excluded, as they do not support refuse-generating activities. This methodology has been previously applied by Colliers on comparable developments and accepted by Brisbane City Council and is considered to provide an accurate and reasonable representation of anticipated waste generation associated with the use.

Table 2.5: Typical Recycling Composition for Non-Residential Uses

Area Description	Recycling	
	Commingle Recycling	Paper / Cardboard
Food and Drink Outlet / Kitchen	40%	60%
Hotel	80%	20%
Office (Hotel Support)	80%	20%

Note: Community Use and Childcare recycling volumes do not include further separation however the Commingled bins assigned can be assigned to the appropriate streams produced when those areas are operational

Table 2.6: Non-residential Refuse Calculations - **Childcare**

Area Description	Measure	Quantity	General Waste L/Week	Comingle Recycling L/Week
Childcare Centre	GFA (m^2)	958	11,975	5,748
Total Weekly Volumes (L / Week)			**11,975**	**5,748**
Volumes per Day (L / Day)			**2,395**	**1,150**
Volumes per Collection (L / Collection)			**7,185**	**3,449**
Collection and Equipment Details	Collections per Week		3	3
	Storage Capacity		2 Days	2 Days
	Equipment Size		1,100L	1,100L
	Equipment Quantity Required		6.53	3.14
	Equipment Quantity Provided		6	3

*General waste is reduced to 3 x1100L bins by use of a Bin Press or equivalent (compaction 3:1).

Table 2.7: Non-residential Refuse Calculations - **Community Use**

Area Description	Measure	Quantity	General Waste L/Week	Comingle Recycling L/Week
Community Use	GFA (m^2)	1,675	838	1,675
Total Weekly Volumes (L / Week)			**838**	**1,675**
Volumes per Day (L / Day)			**168**	**335**
Volumes per Collection (L / Collection)			**503**	**1,005**
Collection and Equipment Details	Collections per Week		1	2
	Storage Capacity		5-7 Days	3 Days
	Equipment Size		1100L	1100L
	Equipment Quantity Required		0.76	0.91
	Equipment Quantity Provided*		1	1

* Colliers notes that the estimated refuse volumes and associated bin quantities are based on compliant waste generation rates, which are typically applicable to a standalone Community Use facility. collection frequency has been considered, the proposed servicing frequency aligns with waste collection vehicles already scheduled to attend the site, thereby avoiding additional vehicle movements. An audit of actual refuse generation following approximately three to six months of occupation is recommended to better inform and refine the ongoing waste collection frequency required for the Community Use facility.

Table 2.8: Non-residential Refuse Calculations – **Retail General (Upper Ground)**

Area Description	Measure	Quantity	General Waste L/Week	Comingle Recycling L/Week	Cardboard L/Week
Retail 1	GFA (m^2)	265	12,243	1,484	2,226
Retail 2	GFA (m^2)	125	2,457	655	983
Retail 3	GFA (m^2)	369	17,094	2,072	3,108
Total Weekly Volumes (L / Week)			**31,794**	**4,211**	**6,317**
Total Weekly Volumes Compacted (L / Week) *			**10,598**	**N/A**	**2,106**
Volumes per Day (L / Day)			**1,514**	**603**	**301**
Volumes per Collection (L / Collection)			**4,542**	**1,805**	**902**
Collection and Equipment Details	Collections per Week		3	3	3
	Storage Capacity		3 Days	3 Days	3 Days
	Equipment Size		1,100L	1,100L	1,100L
	Equipment Quantity Required		4.13	1.64	0.82
	Equipment Quantity Provided		4	2	1

*General waste compacted volumes via Bin Press or equivalent (compaction 3:1).

Table 2.9: Non-residential Refuse Calculations – **Hotel & Ancillary**

Area Description	Measure	Quantity	General Waste L/Week	Comingle Recycling L/Week	Cardboard / Paper L/Week
Hotel	Rooms	177	6195	4,956	1,239
Hotel FOH & BOH (Office)	GFA (m^2)	486	340	544	136
Café	GFA (m^2)	161	7,438	902	1,352
Restaurant	GFA (m^2)	408	18,850	2,285	3,427
Pre-Function	GFA (m^2)	400	7,000	1,344	2,016
Total Weekly Volumes (L / Week)			**32,823**	**8,687**	**6,155**
Total Weekly Volumes Compacted (L / Week)			**10,941**	**N/A**	**2,052**
Volumes per Day (L / Day)			**1,563**	**1,241**	**293**
Volumes per Collection (L / Collection)			**4,689**	**3,723**	**879**
Collection and Equipment Details	Collections per Week		3	3	3
	Storage Capacity		3 Days	3 Days	3 Days
	Equipment Size		1,100L	1,100L	1,100L
	Equipment Quantity Required		4.26	3.38	0.80
	Equipment Quantity Provided		5	4	1

*General waste compact5ed volumes via Bin Press or equivalent (compaction 3:1).

2.3. Refuse Bin, Equipment Requirements and Specification

Table 2.10, Table 2.11 and Table 2.12 outline the total number of bins and additional equipment required for the development based on the volume calculations above.

As actual refuse volumes may vary from assessment benchmarks or over time according to evolving waste streams and operation of the site, bin numbers and sizes may need to be altered to suit the building operation and occupant needs.

Table 2.10: Residential Total Bin Requirements

Tower	Refuse Stream	Bin / Storage – Size or Type	Number Required
Tower 1 - Residential	General Waste	1,100L	17 + 1 1 to remain on equipment during servicing
	Commingled Recycling	1,100L	50 + 1 1 to remain on equipment during servicing
Tower 2 - Residential	General Waste	1,100L	7 + 1 1 to remain on equipment during servicing
	Commingled Recycling	1,100L	20 + 1 1 to remain on equipment during servicing

Table 2.11: Non-Residential Bin Requirements

Tower 1	Refuse Stream	Bin / Storage – Size or Type	Number Required
Tower 1 -Childcare	General Waste	1,100L	3
	Commingled Recycling	1,100L	3
Tower 1 - Community Use	General Waste	1100L	1
	Commingled Recycling	1100L	1
Tower 2 – Retail (Upper ground)	General Waste	1,100L	4
	Commingled Recycling	1,100L	2
	Cardboard	1,100L	1
Tower 2 – Hotel (Including Ancillary and F&B)	General Waste	1,100L	5
	Commingled Recycling	1,100L	4
	Cardboard	1,100L	1

Table 2.12: Additional Equipment

Component	Description	Quantity	Capability / Specification - See *Appendix D* for further details
Residential	Individual Unit bins - Stream Separated Receptacles	2 per unit	A minimum of 1 receptacle for each stream is required in each unit. Refer to Section 2.4.1.
	Dual Refuse Chutes	2 (1 per Tower)	Co-located refuse chutes for the disposal for general waste and Commingled recycling. Disposal points provided on each habitable level. One chute system in each Tower. Colliers recommend a 600mm chute diameter for Commingled recycling applications.
	Integrated Chute Discharge Compactor	2 (1 per Tower)	For use with general waste only. Will have a capacity to achieve an average compaction ratio of 3:1. *Elephant's Foot Ceiling Mounted Chute Compactor is used for architectural design purposes. Models with comparable capabilities may be installed.*
	4-bin 1100L Linear Bin Rotation System	4 (2 per Tower)	Automates bin rotation beneath the chute discharge for both general waste and Commingled recycling in each building. Reduces the overall level of building management intervention required. *Elephant's Foot 2 and 3 Bin Conveyor used for architectural design purposes. Models with comparable capabilities may be installed.*
Non-Residential	Individual Stream Receptacles	TBD	Receptacles for the immediate disposal of refuse into separate streams. Typically, bins typically up to 60L in volume placed BoH in central bin stations. Further details in Section 2.4.1
	Bin Press (Subject to need)	3 (1 in the Childcare, Retail and Hotel Refuse Rooms)	Bin press to assist with the compaction of general waste and cardboard, to reduce the number of bins required for the site. 3:1 Compaction ratio required.
	Refuse / Cleaners Trolleys	TBD	Used to assist in the manual transfer of refuse to the bulk bins in the refuse room for final disposal.
	Used Cooking Oil Storage	1 (per Kitchen Space)	Required for food and beverage tenancies using fry vat equipment. Portable storage tank stored BOH of each tenancy. Bulk oil tanks may be used in either refuse store where significant volumes generated
	Refuse Weighing Scales – National Measurement Institute (NMI) Certified	TBD (Optional and recommended)	Recommended to assist in tracking of refuse weights prior to collection for improved data recording and weighted on-charging of disposal costs. Scales must maintain NMI certification. Either platform scales in loading dock or mobile scales for cleaners' trolleys.

2.4. Refuse Disposal

The tables in this section summarise general recommended disposal arrangements for frequently generated and infrequently generated refuse for each development component. Section 2.4.1 describes the frequently generated refuse streams that are generated in high volumes for any given period and require significant capacity for storage prior to collections. Section 2.4.2 describes the infrequently generated refuse streams that are generated in relatively low volumes, and where minimal provision for storage can be easily managed by collection frequency and ad hoc storage arrangements.

2.4.1. Frequently Generated Refuse

Table 2.13: Disposal of Frequently Generated Waste

Refuse Stream	Disposal Details
WASTE	
General Waste	Residential Apartments – Space for bins to store one day's worth of generated refuse will be provided in each residential apartment and serviced apartment. Each day or as required, general waste will be transferred by residents to the dual chute access hoppers on each habitable residential level in each tower. The refuse chute will be discharged directly into the bulk bins stored in the chute discharge room. The chute hopper doors will be colour-coded for easy identification and to support the separation of refuse streams. Instructions on the use of the chute system and accepted items in each stream will be required to be included in the resident apartment manual. Waste bins should always be lined with bags and the bags tied before removal. Operationally, bins used for general waste should be limited to 40L or less and not exceed the dimensions of the chute hoppers in any direction. Bins are typically positioned in a cupboard beneath the kitchen sink. Waste bins should be accompanied by a Commingled recycling bin in order to facilitate separation of general waste and recycling. Receptacles may be placed in all communal areas where refuse will be generated such as the common amenity podium for collection and storage of at least one day of general waste. Bin quantities will be determined during the operational phase. A recycle bin will be positioned wherever a general waste bin is positioned to maximise recovery. Building management will assist with disposal of all refuse generated in communal areas. Non-residential – Tenancy operators will be required to provide receptacles for each separate refuse stream in a sufficient quantity to hold one days' or peak service periods' worth of refuse. After each day of operation or as required, refusers will be transferred by staff / cleaners to the non-residential refuse room and decanted into the appropriate bulk bins. The number and location of bins required will be determined during tenancy fit out and careful consideration should be given to the placement and types of bins to optimise source separation. Food & beverage tenancy waste will be captured by bins up to 90L in volume that will be placed within the kitchen or back-of-house area to meet the design or layout criteria of the cafe or restaurant operators. General waste from non-food-based tenancies is generated in lower quantities on a per customer basis than F&B outlets. Bins should be placed according to the operational requirements of the tenant.

Table 2.14: Disposal of Frequently Generated Recoverable

Refuse Stream	Disposal Details
Organic (Food) Waste	Separating organic or food waste from general waste is recommended to reduce the total amount of general waste produced. Separation may be considered and begin at any stage during the operational phase of the development. Residential – While Council does not currently offer a food organics collection service to multiple unit dwellings, commercial options are available at additional cost. Alternatively, domestic compositing equipment may be used for individual units or communally. Communal composting must be facilitated and managed by a building manager or caretaker to ensure correct usage. Where food waste is separated, caddy bins or bins less than 20L should be used in residential kitchens, for disposal of food waste. The bins are then transferred to the refuse room for collection. The content is then decanted in bulk bins or composting equipment provided. Transfer and collection should occur on a frequent basis to minimise odor amenity issues. Non-residential – Caddy bins or bins no larger than 60L should be used in high volume situations such as commercial kitchens, for disposal of food waste. The bins are then transferred to the refuse room for collection. The content is then decanted in bulk bins or processing equipment provided within the refuse enclosure. Colliers recommend food rescue services are considered for consumable but non-saleable food items.
RECYCLING	
Commingled, including • glass • aluminum • steel cans • tins • cardboard • semi rigid plastics	Residential Apartments – Items for recycling must not be bagged and disposed in loose form. This can be done by decanting the materials from the individual receptacles into the recycling chute. The refuse chute will discharge directly into the appropriate bulk bin stored in the chute discharge room. The chute hopper doors will be colour-coded for easy identification and to support the separation of refuse streams. Instructions on the use of the chute system and accepted items in each stream will be required to be included in the resident manual. Residents will access the central refuse storage room directly for disposal of all oversized recyclable materials, lifts will be utilised for vertical transfer. Residents will have receptacles within their individual units for collection and storage of at least one day's of recycling. Recycling bins are typically placed under the kitchen sink next to the general waste bin. Recycling bins will usually be used for all recycling materials (Commingled recycling). However, residents are encouraged to make use of the container refund scheme and separate eligible containers from the Commingled recycling material (see below). Receptacles will be placed in all communal areas where refuse will be generated for collection and storage of at least one day of Commingled recycling. Bin quantities will be determined during the operational phase. Non-residential – Items for recycling must not be bagged and disposed in loose form. Commingled recycling from tenancies such as food and beverage outlets including restaurants, takeaways, cafés can be captured by bins up to 90L that will be placed within the kitchen or back-of-house area to meet the design or layout criteria of the café or restaurant operators. Recycling from general non-food retailing tenancies overwhelmingly consists of clean cardboard which should be collected separately from Commingled recycling if large quantities are produced.
	Container deposit / refund schemes are currently in place in Queensland. Various models exist including bottle return facilities and (automated) reverse vending machines. Occupants should be encouraged to separate containers that qualify for the schemes from the waste or recycling streams and send back to a return point. Storage space or dedicated bins within the units or refuse rooms can be provided.
Cardboard and Plastic (plastic film / low-density polyethylene / high density polyethylene)	Non-residential – Cardboard and plastics can be disposed separately from Commingled recycling if large quantities are produced. Where separated, cardboard and plastics must not be mixed. They must be stored individually. Where possible, large cardboard boxes and plastic film or packaging should be removed from the refuse stream prior to going into the individual tenancies. This involves decanting at the loading dock and providing trolleys or stackable containers for use in transporting the decanted goods to each tenancy.

2.4.2. Infrequent Waste

Table 2.15: Disposal of Infrequently Generated Waste

Refuse Stream	Disposal Details
Garden Organics refuse / Green Waste	Garden organic refuse (also referred to as green waste) will be produced from landscaped areas or potted plants around this development. Green waste is produced largely on a weather or seasonal dependent basis and based on plant selections. Green waste is usually removed by the designated maintenance contractor. Interim storage is not provided. The engaged contractor will be required to send this material to a composting or resource recovery facility rather than to a landfill. Alternatively, where onsite composting occurs, green waste may be combined with food waste for composting. Output product may be reused in site landscaping where appropriately matured or pasteurised as outlined in *AS 4454-2003 Composts, soil conditioners and mulches*.
Hard Waste / Bulky Goods	Hard waste collections will be coordinated in line with Council's hard waste collection arrangements for residential uses, and hard waste / bulky goods moved to the loading or a designated area for removal prior to collection. When storing bulky goods in a loading area, it is recommended that items are placed on a pallet for efficient loading via a pallet jack or forklift onto the RCV. Non-residential uses will utilise bulk bins provided for bulky waste disposal or make other coordinated collection arrangements where items are unsuitable for bulk bin disposal or where significant volumes are generated such as during tenancy refits.
Hazardous Waste - Batteries	Batteries are highly volatile and must be disposed of separately and never in the general waste or Commingled recycling bins. Colliers recommend a communal disposal point provided by site management and located in the main lobby of each tower or alternate easily accessible location for use by both residential and non-residential uses.
Hazardous Waste (paints, chemicals) Electronic Waste	It is expected that the building management will assist residents or tenancy operators with disposal of hazardous or liquid waste and any paint or chemicals as required and requested. Hazardous waste must be handled with due care, separated and securely stored for collection by a specialist waste contractor. Please refer to local and QLD government websites for further information.

2.5. Refuse Storage, Access and Rotation Requirements

All refuse will be stored within bins housed within dedicated refuse storage areas. Separate storage areas are provided for residential and non-residential uses. All refuse storage and servicing areas are provided on Lower Ground (Vulture Street) Level for Tower 1 and or Upper Ground (Mark Lane) Level for Tower 2 and the Hotel.

2.5.1. Residential Refuse Storage Areas

A chute discharge and refuse room has been provided beneath the chute termination for each tower.

Tower 1 refuse room and chute discharge is located on the Vulture St, Lower Ground Level, while the refuse room and chute discharge for Tower 2 is on the Mark Lane Upper Ground Level. The chute discharge rooms are designed to house the chute discharge equipment including bin rotation and compaction equipment required for each tower. The dual chute systems will offset from the core at a sufficient height above ground to enable the chute to discharge into the appropriate position on the bin rotation equipment. The chute discharge point and associated equipment will be separated from the rest of the room by a chain mesh fence or the equivalent.

An area in each refuse room has been provided for the day-to-day storage of the refuse bins, either awaiting servicing or awaiting to be rotated on the rotation systems. Building management will be responsible for the rotation of bins on and off the equipment and transfer of equipment during collections for Tower 1 (Refer to Sections 2.5.2 and 2.5.3)

Residents will also have restricted access to the refuse room to dispose of large items that are not suitable to be disposed of via the chute systems. Access is provided at the eastern end of each refuse room. Residents will not interact with or have access to chute discharge equipment areas.

The refuse rooms are sufficiently sized to accommodate all of the residential bins required for tower 1 and 2 as outlined in Table 2.10.

Figure 2.1 and Figure 2.2 depicts refuse room and chute discharge points for both Tower 1 and Tower 2 respectively.

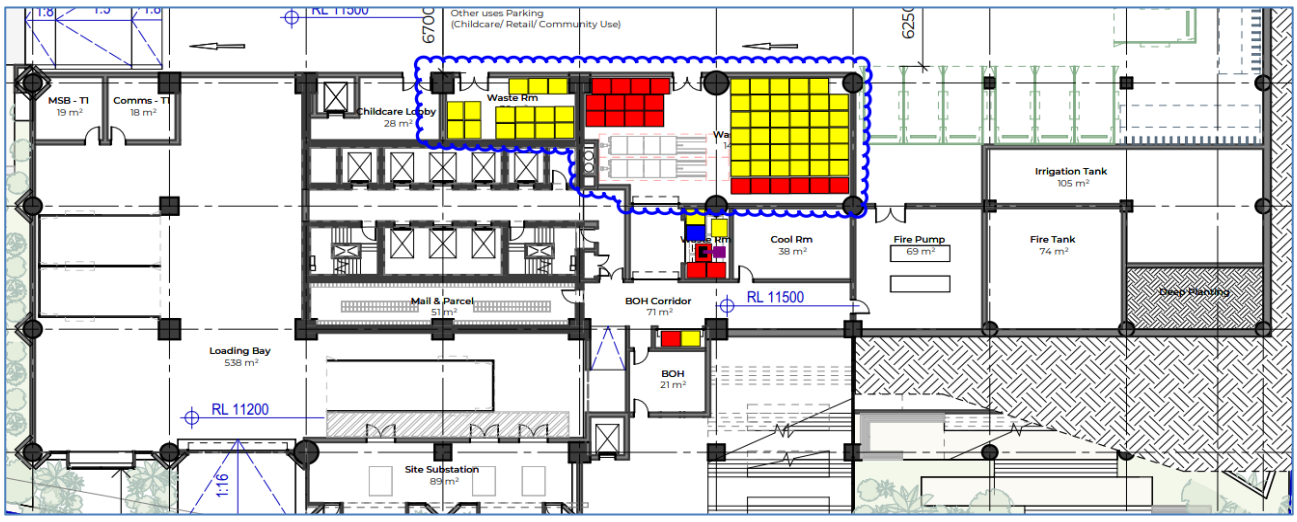

Figure 2.1: Tower 1 Refuse Discharge, Storage and Collection Room

Source: Woods Bagot, Drawing SK12002, Overall Arrangement Plans_ Lower Ground (Vulture Street)_Revision B

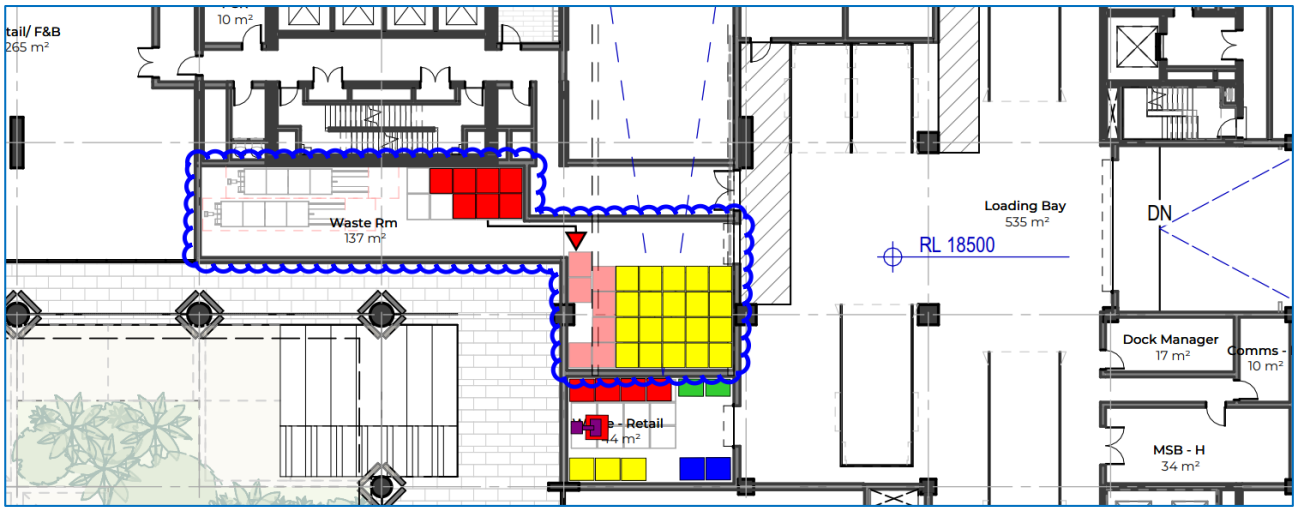

Figure 2.2: Tower 2 Refuse Discharge, Storage and Collection Room

Source: Woods Bagot, Drawing SK12002, Overall Arrangement Plans_ Lower Ground (Vulture Street)_Revision B

2.5.2. Non-residential Refuse Storage Areas

Dedicated refuse storage areas have been provided to serve the non-residential components of the development, including retail and commercial tenancies within each tower.

Refuse generated by the Childcare and Community Use uses is accommodated in a dedicated storage area located beneath Tower 1 at the Vulture Street Lower Ground Level. Separate refuse rooms are provided for the general retail tenancies, as well as the hotel, associated operational areas, and food and beverage uses. These facilities are located beneath Towers 2 and 3 at the Upper Ground Level.

Each refuse storage area has been designed to accommodate the full complement of bins and associated waste handling equipment required for the respective uses. The rooms also function as the designated waste collection points for collection contractors, enabling efficient servicing entirely within the development and avoiding any reliance on public domain or shared circulation areas.

Childcare Centre

Compliant waste generation rates and corresponding refuse volumes have been assessed to determine the maximum bin provision and the required refuse storage area for the childcare centre, as illustrated in Figure 2.3.

The childcare centre has an operational gross floor area (GFA) of 959 m². Applying an industry-standard planning allowance of approximately 8 m² per child, the centre is expected to accommodate up to 120 children. Based on accepted childcare waste generation benchmarks, the anticipated daily waste generation equates to approximately 125 litres per 100 m² of GFA for general waste and 63 to 125 litres per 100 m² of GFA for recycling.

These calculated rates indicate comparatively low overall waste volumes for the proposed childcare use. On this basis, Colliers considers that the provision of waste compaction infrastructure is not required at commencement of operations. It is therefore recommended that any compaction equipment be treated as optional and subject to operational review following an initial three to six-month occupancy and monitoring period, should waste generation volumes exceed current projections

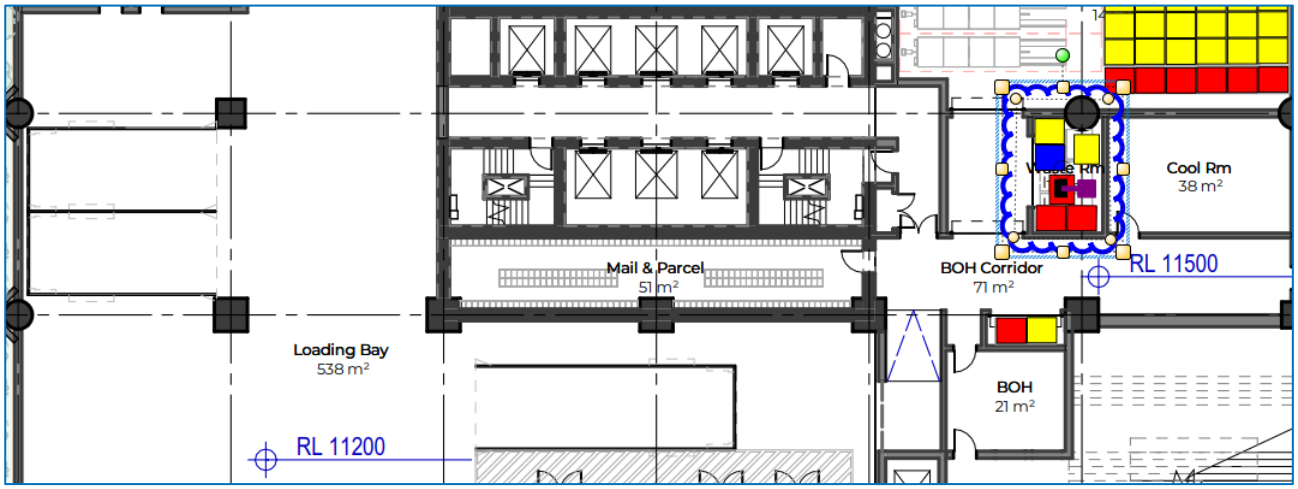

Figure 2.3: Childcare Centre Refuse Room

Source: Woods Bagot, Drawing SK12002, Overall Arrangement Plans_ Lower Ground (Vulture Street)_Revision B

Community Use

Provision has been made within the Community Use back-of-house areas for the placement of 240-litre waste bins, as illustrated in Figure 2.4. As the Community Use is not a standalone facility and is instead located within a broader mixed-use development, it is anticipated that refuse generated by Community Use operations and staff will be materially lower than the compliant waste volumes adopted for design purpose.

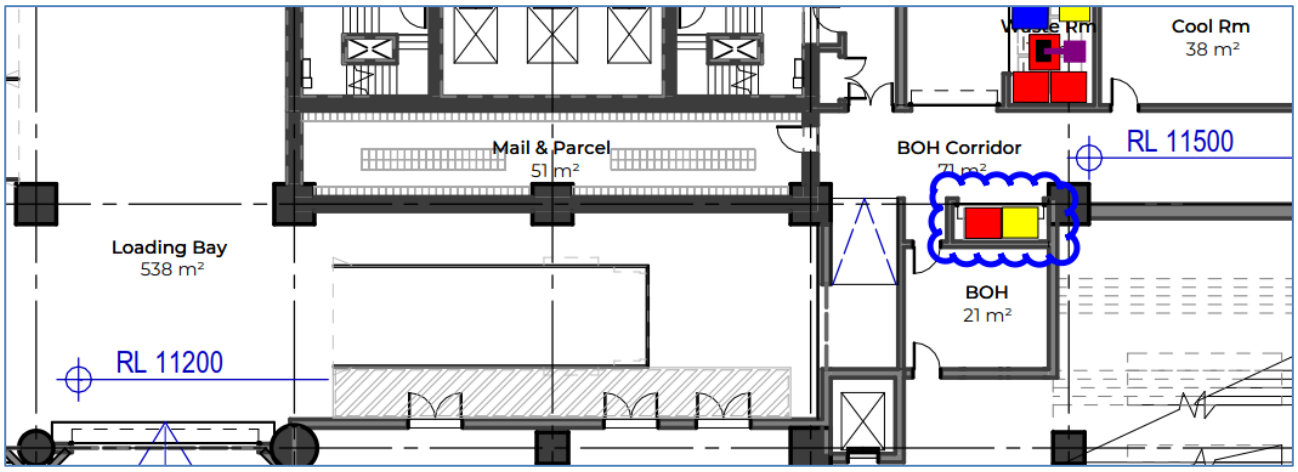

Figure 2.4: Community Use BOH / Refuse Area

Source: Woods Bagot, Drawing SK12002, Overall Arrangement Plans_ Lower Ground (Vulture Street)_Revision B

Retail – Upper Ground

Provision is made for a dedicated retail refuse room at the Upper Ground Level to service the retail tenancies within that level of the development, as illustrated in Figure 2.5. The refuse room has been strategically located to provide convenient tenant access while maintaining separation from public circulation areas. The room has been sized to accommodate the full complement of waste and recycling bins required in accordance with the compliant waste generation estimates. In addition, the layout demonstrates capacity for additional recycling, cardboard, and food waste bins beyond the minimum calculated requirements, providing operational flexibility and allowance for future changes in tenancy mix, recycling practices, or waste minimisation initiatives. The refuse room also functions as the nominated collection point for waste contractors, enabling efficient and contained waste servicing within the site.

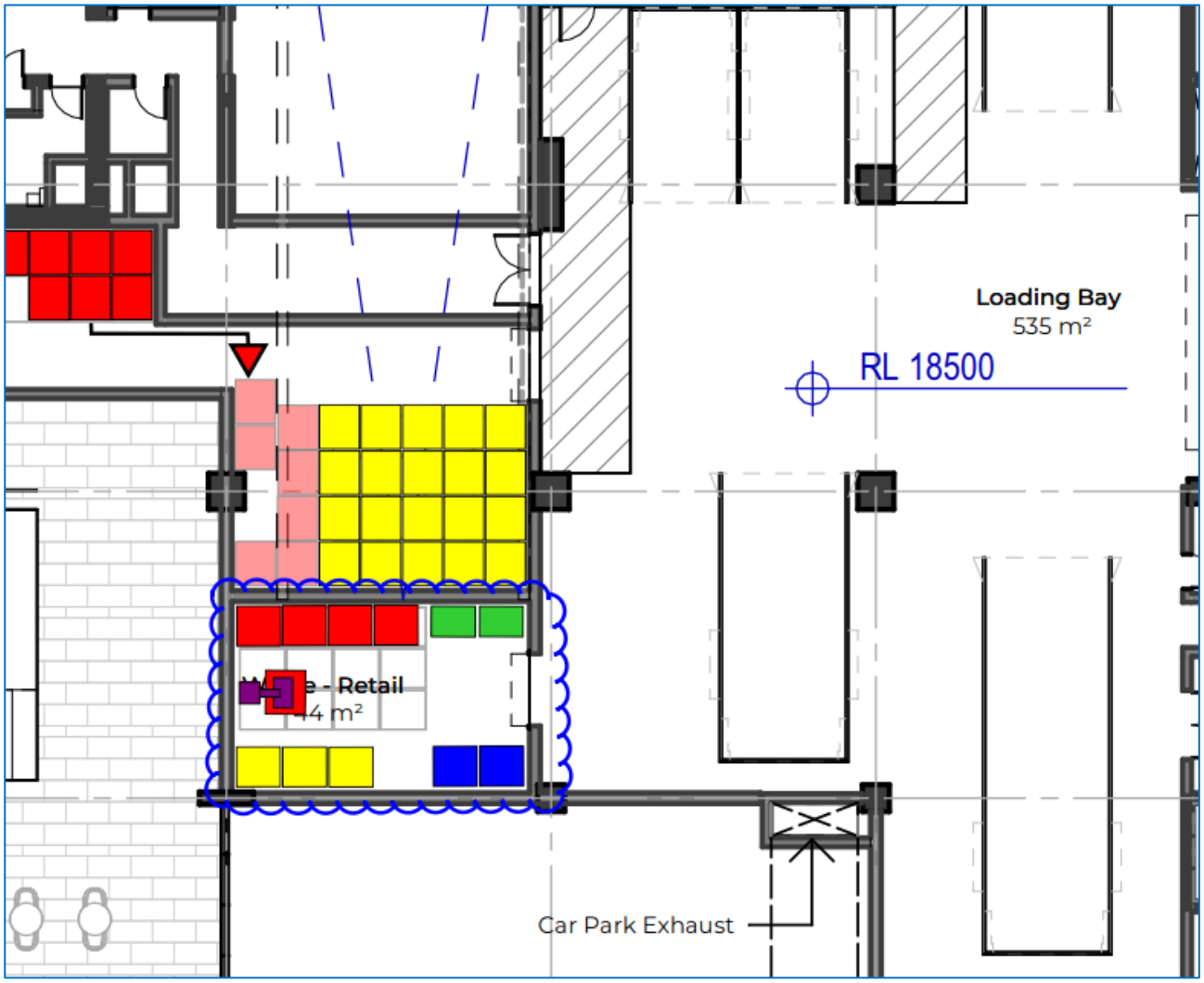

Figure 2.5: Retail Refuse Room

Source: Woods Bagot, Drawing SK12004, Overall Arrangement Plans_ Upper Ground (Mark Lane)_Revision B

Hotel (Including Ancillary and F&B)

Provision is made for a dedicated refuse room to service the hotel rooms, associated ancillary uses, and food and beverage areas, as illustrated in Figure 2.6. The refuse room has been appropriately located to support efficient servicing of hotel operations while maintaining separation from guest areas and public circulation. The room has been sized to accommodate the required waste, recycling, and food waste bins in accordance with the compliant waste generation estimates. In addition, the layout allows for supplementary recycling, cardboard, and organic waste bins beyond the minimum requirements, providing operational flexibility to respond to changes in hotel occupancy, food and beverage operations, or enhanced waste separation initiatives. The refuse room also serves as the designated collection point for waste contractors, enabling efficient and self-contained waste collection within the development.

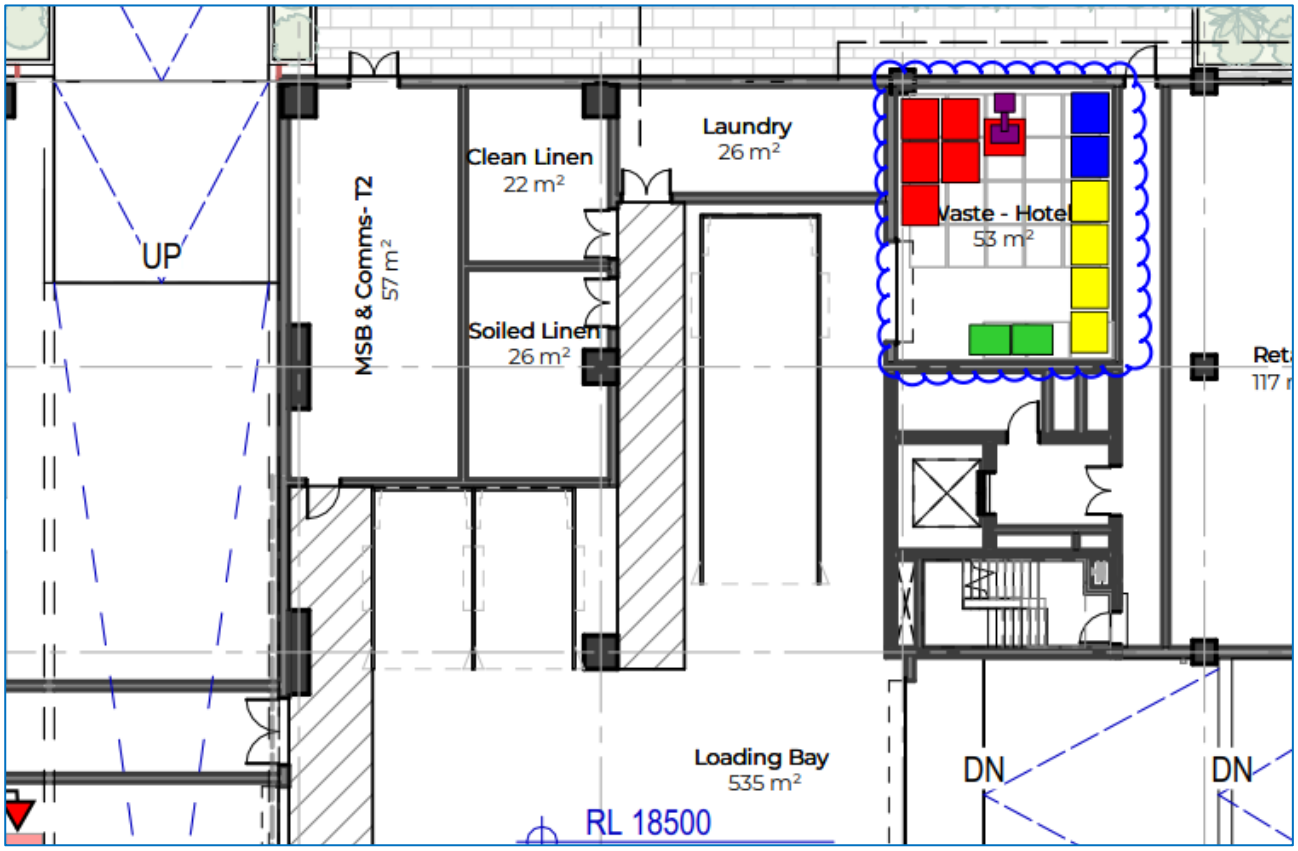

Figure 2.6: Hotel Refuse Room

Source: Woods Bagot, Drawing SK12004, Overall Arrangement Plans_ Upper Ground (Mark Lane)_Revision B

2.5.3. Refuse Storage Area Design Requirements

Table 2.16 outlines the refuse storage area design criteria addressed for each storge area in order to minimise odours, deter vermin, protect surrounding areas, and make it a user-friendly and safe area.

Table 2.16: Refuse Storage Area Design Requirements

Positioning Considerations
Positioned in immediate proximity or directly accessible to the designated loading point
Storage provided is conveniently accessible to residents for disposal or accessed via chutes.
Is in a purpose-built storage room which is designed to be unattractive to vermin and used solely for the storage of refuse leaving the site only.
Not located adjacent to or within any habitable portion of a building or place used in connection with food preparation (including food storage).
Is positioned away from entrances to shops or residential premises
Is over 5m from any door, window or fresh air intake within the development or any adjoining site.
Visual Amenity Considerations
Is enclosed on all sides except for the access points to ensure bins are not visible from a public place, neighbouring properties, passing vehicles or pedestrian traffic external to the site.
Is designed to minimise their visual impact on the surrounding areas.
Functional Design Considerations
Is of sufficient size to accommodate the bins with sufficient clearance around the combined bin area
Doors / shutters wide enough to allow for the easy removal of the largest container to be stored.
Permits unobstructed access for removal of the containers to the service point.
The height of the bin storage area allows for waste bins to be opened and closed.
Does not have any steps or lips where bins are required to be moved.
Adequate artificial lighting.
Be fire rated and ventilated in accordance with the National Construction Code – Building Code of Australia.
Bin Washing and Room Cleaning Considerations
A hose cock provided inside each room for cleaning bins and the enclosures.
The walls, ceilings, floors and equipment are to be designed and constructed of impervious material with a smooth finish to allow for easy cleaning.
Coved at the intersection with the walls with coving integral to the floor.
The floors to be graded to fall to a drainage point.
Drainage points connected to sewer in accordance with trade waste requirements.
Roofed and designed to prevent entry by rainwater.

2.6. Refuse Transfer

2.6.1. Residential Refuse Transfer

Residents within each tower will dispose of all household refuse via the dedicated dual refuse chute system. The chutes facilitate the vertical transfer of waste by gravity from residential levels directly to the refuse rooms located below, eliminating the need for manual transport of general household waste through common areas. Bulky recyclable items that are not suitable for chute disposal will be transported using the lifts and deposited within the appropriate refuse rooms. A chain-mesh barrier will be provided within the refuse rooms to separate the chute discharge points from the rest of the refuse room area.

The building manager or caretaker will be responsible for the rotation and changeover of bins located on the conveyor systems to ensure adequate disposal capacity is maintained beneath the refuse chutes.

The following will apply to transfer of bins to loading bay for collections

Tower 1 – Building personnel will assist with the transfer of bins from the refuse room to a convenient and manageable distance from the loading bay. In coordination with the collection contractor and knowledge of the scheduled arrival time, selected bins may be positioned within the loading bay area in advance of collection to facilitate efficient bin rotation and servicing. All bins will be returned to the refuse room immediately following collection.

Tower 2 – Building personnel will ensure that all bins requiring collection are positioned at the front of the refuse rooms prior to scheduled servicing. Waste collection contractors will collect bins directly from the Tower 2 refuse rooms, manoeuvre them to the refuse collection vehicle (RCV) lifting mechanism, and return the bins to their designated storage positions within the refuse rooms following servicing.

Building personnel will be responsible for the cleaning of bins following collection, as required, and for returning bins to their allocated storage locations for day-to-day use.

2.6.2. Non-residential Refuse Transfer

Designated tenancy staff or precinct cleaners will transfer all refuse generated from the non-residential / Retail tenancies to the retail refuse room directly. The back of house corridors and shared areas will be utilised for the transfer of refuse at grade. It is anticipated refuse or cleaners' trolleys will be used for the transfer of bulk quantities of refuse at a time and to reduce the manual handling required in the transfer of refuse.

The collecting contractor will collect all bins directly from the non-residential storage areas , manoeuvre them to the RCV for emptying and return bins to their respective rooms after service.

2.6.3. Refuse Transfer Design Requirements

Table 2.17 demonstrates the criteria addressed in the design of the refuse transfer path for all uses.

Table 2.17: Refuse Transfer Path Design

The bins to be transferred via hard stand pathway.
Allows bins to be easily manoeuvred.
Does not impede traffic flow.
Does not extend through any habitable parts of a building or food premise
Does not have any lips, stairs or steps for bins to be manoeuvred easily.

2.7. RCV and Bin Servicing Arrangements

The refuse collection methodology is consistent for both residential and non-residential uses; all refuse will be collected by Rear Loading RCV.

- Council's appointed waste collection contractor will be responsible for the collection of all residential refuse.
- All non-residential refuse will be collected by a private contractor

Tower 1 waste collection vehicles will access the loading bay via Vulture Street. For servicing, refuse collection vehicles (RCVs) will enter the site via the designated driveway crossover on Vulture Street and proceed to the Lower Ground level loading bay in a forward gear. A single reverse manoeuvre will be undertaken into the loading bay in closest proximity to the refuse rooms. Upon completion of collection, all bins will be returned to their designated storage areas, with residential bins repositioned by building personnel and non-residential bins repositioned by the private collection contractor. RCVs will then exit the site in a forward gear via Vulture Street.

Tower 2 and Tower 3 (Hotel) waste collection vehicles will access the loading bay via Main Street. For Tower 2 servicing, RCVs will enter the site via the designated driveway crossover and proceed to the shared Upper Ground Level loading bay in a forward gear. A single reverse manoeuvre will be undertaken into the loading bay in closest proximity to the relevant residential, retail, or hotel refuse rooms. Upon completion of collection, all bins will be returned to their designated storage locations, and RCVs will exit the site in a forward gear via Main Street.

Figure 2.7 and Figure 2.8 illustrate the swept path analysis for each loading bay and the on-site manoeuvring of RCV vehicles up to a 10.3m. Further details regarding vehicle access arrangements and on-site manoeuvring are provided in the Transport Report submitted with the application. Full size drawings are provided in the appendices.

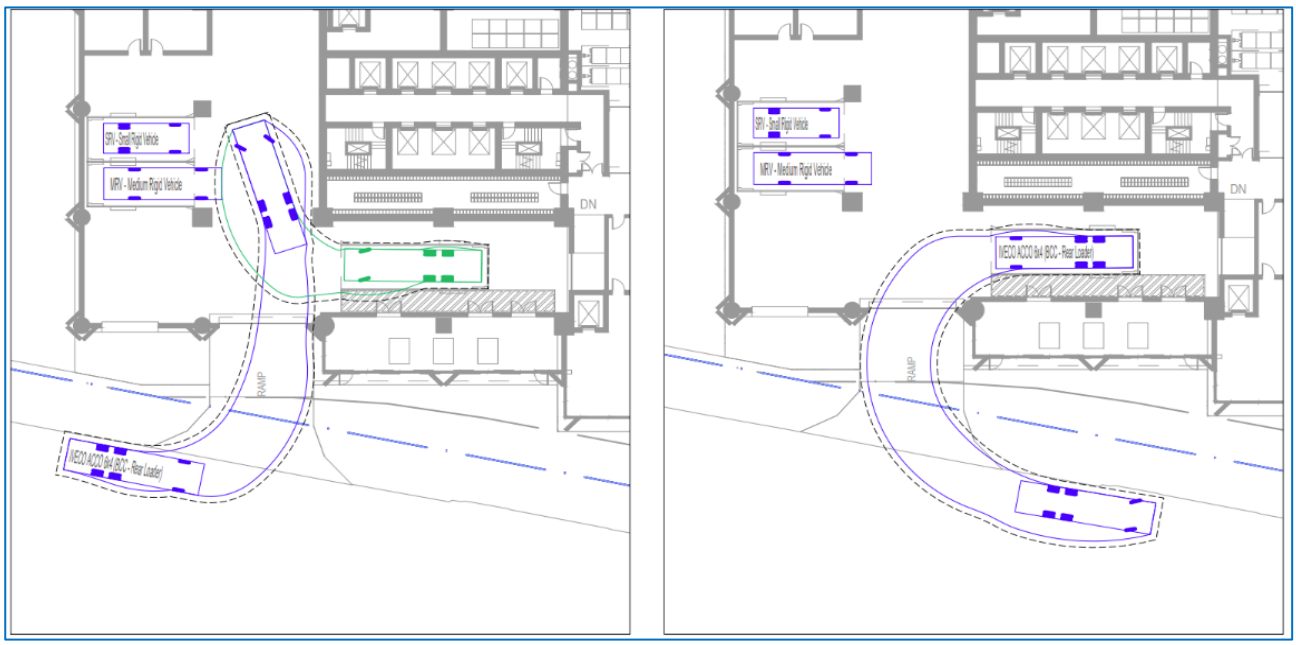

Figure 2.7: Tower 1 - RCV Swept Paths
Source: Colliers E&D, Drawing 23BRT0331-03, Lower Ground - RCV Access/ Egress, Rev A

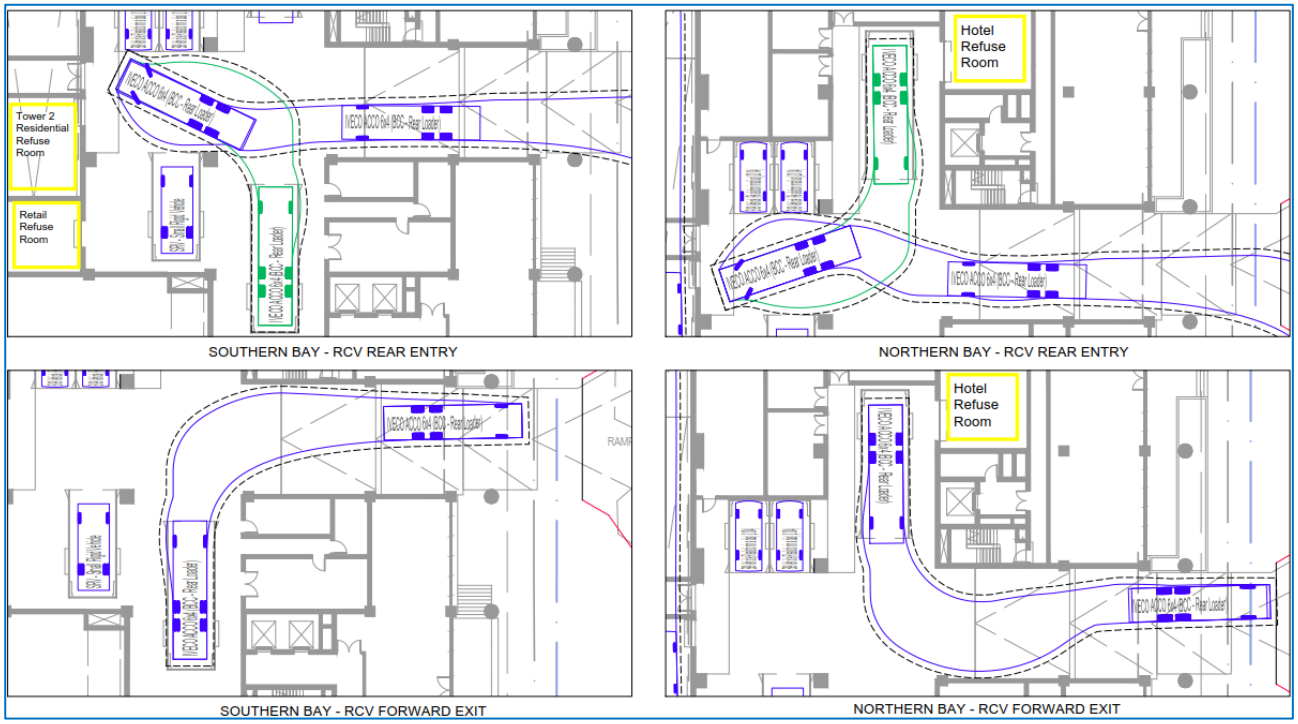

Figure 2.8: Tower 2 & 3 - RCV Swept Paths (Southern and Northern Bay)
Source: Colliers E&D, Drawing 23BRT0331-05, Upper Ground, Rev A

2.7.1. Refuse Transfer Design Requirements

Table 2.18 demonstrates the features of each bin servicing area.

Table 2.18: Service Area Design

Has sufficient access and clearance for the waste and recycling collection vehicles to service the bins, including no overhead obstructions.
Allows bins to be serviced safely while minimising the impediment to vehicle movements during servicing.
Is clearly separated from car parking bays, footpaths and pedestrian access.
Is devoid of stairs, lips or ramps and allows bins to be manoeuvred easily.
Does not block the entry and exit to the property.
Is not adjacent to a kitchen or eating area for public use.
Is over 5m from any door, window or fresh air intake within the development or any adjoining site.
Is screened sufficiently to minimise the view of bins from neighbouring properties or passing vehicles and pedestrian traffic external to the site.
Is positioned away from entrances to shops or residential premises.
Includes CCTV or other video monitoring designed to record RCV's collecting bins.

3 Recommended Operational Refuse Management

This section does not contain information relevant for building design assessment.

This section relates to the outcomes and waste management practices of the development during the operational phase as recommended by Colliers. It is intended for use as a live document by the end user of the development to assist with the ongoing management of the development.

3.1. Anticipated Residential Refuse Volumes

Colliers have worked extensively with operating residential developments within the Brisbane local government area. This includes establishing typical volumes of refuse generated through volumetric assessment. Colliers have established a flat generation rate applicable to developments containing mixed unit sizes. This rate is used to provide more accurate recommendations relating to anticipated bin numbers and building management intervention through bin rotations beneath the refuse chute.

It should be noted that the recommendations and comments in this section are based on the maximum aggregate audit results of operational sites completed by Colliers and do not factor in potential demographic or socio-economic factors and therefore not site specific however, give an estimation of likely waste generation. Site specific auditing is recommended to establish actual generation and composition of refuse for this site. Site specific auditing allows refinement of the overall refuse strategy.

3.1.1 Refuse Profile and Stream Separation

Refuse generated by residential uses including multiple dwelling residential apartments includes a substantial volume of food waste. Colliers recommend that food organic waste is separated from the general waste stream. Onsite compositing or organics processing equipment should be considered within the final design, and an area should be made available within the communal open space for the instigation of composting during the operational phase of the development. Where onsite composting or processing occurs, this must be undertaken through an onsite manager to ensure the correct use.

Alternatively, commercial collections may be undertaken by the development at an additional cost. Council do not provide rating concessions for initiatives to reduce waste. Where commercial collections are undertaken this is an additional waste expense over Council's waste rating charge.

Colliers recommend that Container Deposit Scheme (CDS) receptacles are also available for resident use, this may provide additional revenue to the development (such as social club funds) or be donated to charity. Single item recyclable streams as captured by CDS offer a higher value recyclable product than achieved through Commingled recycling.

Similarly, consideration should be given to the separation of bulky cardboard. Oversized cardboard improperly disposed of is a leading cause of blockages in recycling chute applications.

3.1.1. Recommended Residential Refuse Bins and Equipment

Table 3.1 outlines the number of bins and additional equipment that may be implemented where an additional level of sustainability and landfill diversion is sought. The recommended level of stream separation may be implemented at any stage during the occupational phase of the site.

These recommendations are provided to assist in the instigation of collection services and provided based on Colliers recommended stream separation.

Additional services may be provided utilising the bin rooms adjoining each tower chute discharge room as proposed within the development application.

Table 3.1: Recommended Bin Requirements (Total)

Refuse Stream	Bin / Equipment - Type or Size	Bins Required	Storage Capacity Between Collections
General Waste	1,100L	18+2 1 to remain beneath each chute discharge during servicing	3 Days
Food Organics	240L	27	Servicing every 3days recommended
Commingled Recycling	1,100L	35 + 2 1 to remain beneath each chute discharge during servicing	3 Days
CDS	660L	29	7 Days
Bulky Cardboard	1,100L	4	3 Days
E-waste (Excluding batteries)	660L	2	Ad Hoc
Mixed Batteries	Countertop Receptacle	2	Ad Hoc

3.2. Anticipated Non-residential Refuse Volumes

The volume and composition of non-residential refuse can vary based on the final tenancy use. The exact volume of refuse generated by each tenancy will also be influenced by each operator and their preferences.

Based on both Colliers experience with operating sites and published third-party audit data, it is anticipated the site will generate less refuse than the generation calculations required for development compliance. The storage areas provisioned for non-retail storage may be used to implement best practice stream separation or reduce the collection service frequency which will reduce carbon generation in turn.

3.3. On-going Management

The tables below relate to a cycle of ongoing implementation, operation, review and amendment of the refuse strategy. These tables are intended to serve as a live document to be completed and updated during the operational phase of the development and therefore intentionally left blank.

Responsibilities will be assigned for all on-going refuse management related activities during the operation of the development. Colliers recommend the appointment of dedicated personnel to champion refuse management and sustainability. The following lists (Table 3.2 to Table 3.4) are designed to help manage and assign responsibilities and monitor the refuse operations. On-going management of the refuse strategy will maintain efficient services, a safe environment and improve on sustainability outcomes.

3.3.1. Implementation Phase

Refuse management tasks during the implementation of the refuse strategy are required prior to and during the early stages of building occupancy. An opportunity to revisit these tasks is provided at set intervals with the review of the refuse strategy.

Table 3.2: Implementation Checklist

Task	Assigned	Remarks
Verify the as-built form of all refuse related areas. This task does not refer to building certification but is typically undertaken by a specialist waste consultant prior to building certification. This provides an opportunity to identify variances in building form versus design and recommend alternate or mitigating refuse management strategies. This task may also be required during significant building refits or renovation.		
Appoint personnel to oversee or undertake refuse management tasks. A building or facilities manager is typically appointed undertakes most operational tasks, engaging contractors for specialist tasks.		
Conduct internal safety review. An internal safety review is required to be undertaken to identify potential hazards in the implementation of the refuse strategy and risk mitigation opportunities. This includes the use of any refuse management equipment installed, as well as refuse transfer paths		
Development of policy and procedures Must be undertaken after safety review and abide by all relevant occupational health and safety legislation, regulations and guidelines to ensure site safety for visitors, staff and contractors. Also includes assessment of any manual handling risks and preparation of a manual handling control plan for waste and bin transfers.		

Task	Assigned	Remarks
Engage refuse collection contractors. Either Council's collections contractor or a private contractor must conduct a site visit for the purposes of risk assessing the site prior to conducting services. Contractors must ensure that a full risk assessment of equipment, surfaces and related gradients is complete and procedural documentation is provided to the appropriate personnel. RCV manoeuvrability testing and the establishment of service frequency and timing is also undertaken at this time.		
Install signage in all refuse disposal and storage points. Signage is required to be installed to educate building occupants on location of disposal and refuse storage points. Additionally, to identify the accepted items disposed of in each refuse. The installed signage should be colour coded in accordance with *AS 4123.7 – 2006 Mobile waste containers*. Examples of signage are provided in the appendices.		
Leasing Body Corporate Agreements All leasing contracts and body corporate agreements should contain clauses pertaining to waste management arrangements and use of any associated equipment.		
Education and Training. Provision of equipment manuals, induction, training, health and safety procedures, risk assessments and personal protective equipment (PPE) to all staff / contractors associated with all waste management activities in order to control hazards. The step is repeated through the operational phase of the development as required due to changes is users or personnel.		
Consider fit out and move-in refuse. Higher volumes of waste are generated during the initial resident move-in or final tenancy fit out. This typically includes large volumes of cardboard. Additional bins or collections may be required. This also applies to high turnover events and refits or renovation.		
Baseline Refuse Auditing A baseline audit for non-residential uses once the development reaches 80% occupancy undertaken by a specialist waste consultant is recommended to identify refuse volumes and stream composition. This information is then used to establish potential recoverable material percentage based on initial waste practices and set recycling rate targets.		
Establish Baseline Targets The baseline audit results should be used to establish baseline landfill reduction and recycling rate targets. Baseline targets should be achievable with a view to continual improvement to enable the celebration of success and promote buy-in by building occupants.		

3.3.2. Occupation / Operational Phase

Refuse management tasks during the occupation or operational phase of the development relate to the day to day and business as usual operational tasks that must be undertaken to execute the refuse strategy.

Table 3.3: Occupation / Operation Checklist

Task	Assigned	Remarks
Facilitate disposal from communal areas, public realm and tenancies. Appointed building manager / caretaker is required to transfer refuse generated in communal areas and the public realm to the refuse storage area for final disposal, this includes litter removal. Best practice operations include having dedicated cleaning staff assigned to handle all waste generated, rather than tenancy staff. This results in maximum recovery of available streams.		
Manage rotations of bins to ensure convenient access. Check bin fill levels and rotate / swap bins as required. Sufficient capacity must be provided for the disposal of all streams at all times including reduced personnel on site (such as weekends or public holidays). Where equal access to a refuse stream is not maintained, other streams may be contaminated leading lost resources.		
Manage bin transfers to agreed servicing point. Bins are required to be presented to the temporary holding or agreed servicing point prior to the scheduled service time and ensure the area is free from obstruction. Late bin placement or servicing obstruction may lead to missed bin services.		
General cleaning. Regular cleaning and maintenance of all refuse management facilities is important to maintain a safe and hygienic environment for visitors, staff and contractors. General cleaning is required for all refuse holding and transfer areas including • Refuse bins, rooms and storage areas • Refuse transfer areas including lifts and staircases • Any other refuse management equipment		
Perform spot checks on bin contents and refuse streams. Building management regularly check for correct bin use and stream contamination. Early intervention prevents the development of poor practice and lost resources. Feedback and education is provided to the relevant parties (see below).		
Ongoing education and communication. On-going education is important to ensure people continue to use the facilities as originally intended and to avoid ongoing contamination of recoverable refuse streams. Appointed personnel should be actively involved in education of occupants and encouraging participation in recycling activities. Widespread communication of the achievements of the refuse strategy and areas for improvement encourage participant buy-in.		

3.3.3. Review and Amendment Phase

The review and amendment refuse management tasks relate to tasks undertaken on a routine (e.g. quarterly, bi-annually or annually) or ad hoc basis. At the completion of the review and amendment phase, the cycle restarts with the implementation of the amended refuse strategy.

Table 3.4: Review and Amendment Checklist

Task	Assigned	Remarks
Coordination of specialised cleaning contractors as required. Typical specialised cleaning services may include cleaning internal areas of compaction equipment (if selected); this reduces risk of blockage, odour and risk of fire.		
Maintenance and servicing of refuse management equipment as per schedule. Frequency depends on equipment, building operation and manufacturer specification. Routine maintenance reduces downtime and detrimental impact of unscheduled equipment breakdown.		
Coordination of specialised equipment contractors as required. May extend to ad hoc services requiring specialist equipment such as bulky / hard waste removal.		
Internal safety review. Routine safety reviews are required to identify changes to the site, work practices or legislation that may impact existing policies and procedures. Reviews should include visual inspection of equipment and user PPE. Any policy or procedure updates arising from a safety review must be immediately communicated.		
Audit operational refuse volumes and composition. As similarly undertaken at the beginning of occupancy a review by a specialist waste consultant is recommended to identify refuse volumes and stream composition. This information is then used to establish potential recoverable material percentage and identify opportunities for improvement in refuse strategy. Alternatively, an internal audit may be undertaken by visual inspection during on-site waste management handling activities. For example, cleaners may observe contents of waste receptacles when decanting caddies in larger bins and recording results, this method is less accurate than a comprehensive audit, however, give immediate indicative results and may be undertaken on an ongoing basis.		
Review bin quantities and refuse management equipment. Reviewing bin quantities and equipment is required ensure operational sustainability of refuse volumes and equipment remains fit for purpose. Consideration should be given where alternate equipment may provide improved outcomes. This review may form part of the external audit process (above) as recommendations made.		

Task	Assigned	Remarks
Review service frequency and methodology on 6 monthly intervals with collecting contractor. The service frequency and service methodology should be reviewed once development is fully occupied and on rolling 6 monthly basis to ensure the optimum cost efficiency in services provided and explore options for additional services. Any potential changes to the bin numbers or bin sizes should be made in liaison with the appointed contractor to confirm cost or contract implications.		
Review of recycling rate target to target continual improvement. Once benchmarked performance has been assessed against the existing targeted recycling rate a new target can be established that strives for continual improvement. Any changes in targeted recycling rates and the achievements of the refuse strategy should be widely communicated to all uses.		
Update and amend OWMP based on review outcomes. On completion of the refuse strategy review the OWMP should be updated to reflect refuse strategy amendments and to enable implementation of refuse strategy.		

Appendix A Council PSP Compliance Checklist

BCC SC6.26 Refuse Planning Scheme Policy		
Item	Requirement	Compliance / Comment
Section 2 – General Requirements		
(1)	A written design proposal for waste collection is to be provided giving full details of the proposed solution, bin sizes, number of bins and the storage and collection areas, frequency of collection and the refuse collection vehicle size. Table 1 provides the dimensions and types of bins. Table 3 provides the specifications and types of collection vehicles.	Details provided in this OWMP.
(2)	The collection of refuse is to be considered during the planning phase of development. This includes the physical manoeuvring area for the refuse collection vehicle and the bin storage areas and collection points. Access for other road users including pedestrians, cyclists, motorists and other service providers (e.g. postal) is to be maintained.	Considerations provided within this OWMP and Transport Engineering documentation.
(3)	The type of refuse service that is to be used (domestic or commercial) is identified, including whether the refuse collection vehicle is to be front loading, side loading or rear loading (sufficient height must be available).	Domestic refuse collected by rear loading RCV. 3.6m available in each loading area.
(4)	Uses with high trip-end densities provide a transport impact assessment report in accordance with the Transport, access, parking and servicing planning scheme policy with an assessment of refuse storage and collection included.	See Transport Engineering documentation for details.
(5)	Where a Refuse Collection Vehicle (RCV) is required to manoeuvre from an on-site position, allow an additional 500mm clearance for vehicle turning dimensions (swept paths) and servicing. Three clear swept path lines must be demonstrated for the RCV, namely wheel path, vehicle body path and 500mm clearance path.	See Transport Engineering documentation for details.
(6)	The waste collection system is to achieve the following outcomes: a. both the customer and service provider can access the bin storage area and collection point conveniently; b. the location, design and operation of the bin storage and collection system do not have unreasonable adverse acoustic, odour or visual impacts on the development, surrounding properties or the streetscape; c. the supply and servicing of either mobile garbage bins or bulk bins or refuse compactors complies with the requirements of this planning scheme policy.	Complies Complies – All collection services will be undertaken wholly on site. Complies
Section 3 - Access and Manoeuvrability		
(1)	The manoeuvring of the refuse collection vehicle is undertaken in a safe and efficient manner, without detrimental impacts to pedestrian amenity or safety, Council or private infrastructure or the function of the road network.	See Transport Engineering documentation for details.
(2)	For multiple dwelling development accessed via a local, neighbourhood, district or suburban road, the refuse collection vehicle may enter the site in a reverse gear in a single movement.	Forward-in, forward- out manoeuvring provided across the site.
(3)	For multiple dwellings development accessed via an arterial road, or where the refuse collection vehicle cannot reverse onto the site in a single movement, the refuse collection vehicle must enter and leave the site in a forward gear.	Forward-in, forward- out manoeuvring provided across the site.
(4)	For development (other than a multiple dwelling) accessed via an arterial, suburban, district or minor road adjacent to an intersection with a major road, the refuse collection vehicle must enter and leave the site in a forward gear.	Forward-in, forward- out manoeuvring provided across the site.
(5)	Where refuse collection is from an on-site position, the area trafficked by the refuse collection vehicle must comply with requirements under the Transport, access, parking and servicing planning scheme policy including a minimum aisle/carriageway width of 6.5m wide.	Complies
(6)	For detached dwellings on rear lots, pavements/carriageways trafficked by a refuse collection vehicle have a minimum width of 5.5m.	N/A

Section 3 - Access and Manoeuvrability - Continued		
(7)	All entry and exit points are of a width and design that allows for sufficient ingress and egress for the refuse collection vehicle, including a minimum 6.5m crossover which is free from overhead projections inclusive of gardens or trees.	Complies
(8)	To maximise safety, the distance required for refuse collection vehicles to reverse on-site is minimised. Where on-site turnaround of the refuse vehicle cannot be achieved, the bin storage area and collection point is located within 20m of the street frontage.	Complies – Minimal reversing required in each loading point.
(9)	Turnaround facilities for a refuse collection vehicle exist or are provided for where involving staged subdivision developments or where development is located on a no through road. Turning and manoeuvring facilities for refuse collection vehicles are provided to meet design requirements for the vehicles identified in Table 3.	N/A
(10)	Subdivision layouts are to provide for the safe and efficient operation and manoeuvring of a side-lift loading refuse collection vehicle. Layouts that require a refuse collection vehicle to reverse more than 20m are to be avoided. Where the provided transport network results in a stub road for a proposed future road connection, interim turnaround facilities must be provided in compliance with the Transport, access, parking and servicing planning scheme policy and the Infrastructure design planning scheme policy.	N/A
(11)	Adequate lift clearances are provided to overhanging trees and wires in accordance with Table 3.	Complies – 3.6m provided in both loading bays.
(12)	The required vertical and horizontal clearances are provided for the service to operate safely and efficiently. Operational clearance dimensions are shown in Table 3 for various types of collection arrangements.	Complies
(13)	Access for a refuse collection vehicle to the collection point is maintained at all times.	Servicing occurs in shared loading bays.
(14)	Where non-residential development is proposing to use an alternative design vehicle other than those named in Table 3, written confirmation from the proposed licensed waste collection contractor giving full details of the bin size and the refuse collection vehicle size must be provided.	N/A
(15)	In instances where the gradient of the on-site manoeuvring area is greater than 5% (1:20), the pad that the collection vehicle will stand on while accessing refuse bins at the collection point, is to have a maximum gradient of 2% (1:50).	Complies – RCV will stand on a flat grade for servicing in both loading bays.
Section 4 - Residential Refuse Collection		
(1)	Residential development must be serviced by Council or their appointed collection contractor.	Complies
(2)	Residential development is to provide sufficient capacity for 240L of refuse and 240 or 360L of recycling per dwelling, allowing for one collection per week.	Servicing 3 times per week is proposed for all towers.
(3)	Residential development is to utilise kerbside collection where the locations for both the bin storage area and kerbside collection point can be appropriately accommodated in accordance with section 4.1.	Greater than 10 dwellings kerbside collection not proposed.
(4)	On-site collection must be provided for in the following cases: a. the development cannot accommodate external (fronting public road) kerbside collection; or b. the development comprises greater than 10 dwellings; or c. where the road verge is not properly shaped to the standard 1:50 gradient and a minimum of 2.5m wide or where the longitudinal road gradient is greater than 1:10.	Complies
(5)	Refuse and recycling collection for a mixed-use development ensures residential and commercial bins are stored separately with separate access to each.	Complies for all towers.
Section 4.1 - Kerbside Collection (MGB's) – N/A Greater than 10 dwellings, kerbside collection not proposed		

Section 4.2 – On-site Collection (Bulk Bins) – This section applies to Residential services		
(1)	In accordance with section 4, development will avoid adverse impacts to residents, pedestrians and roads users by providing sufficient capacity to achieve one collection per week while ensuring sufficient refuse and recycling capacity is provided to meet the needs of residents.	Complies
(2)	An on-site dedicated pedestrian route is provided and is separate from the required vehicle manoeuvring area to ensure pedestrian safety is protected. The pedestrian route is to provide access from the site's frontage to the development and will have a minimum width of 1.2m.	Complies
(3)	Bulk bins of 1.1m^3 or less are positioned so that collection personnel do not have to move them more than 5m. If a gradient is evident, speed bumps are provided to stop bulk bins from rolling away from the collection point.	Refuse storage immediately adjoins servicing area.
(4)	Bulk bins of 1.5m^3 or more are positioned so that front-lift refuse vehicles can drive directly to the container without relocating the bulk bin. If this cannot be achieved due to physical constraints, then the bulk bins are not moved more than 3m from the storage area to the collection point.	N/A – 1.1m^3 bins proposed.
(5)	The storage areas for bulk bins are: a. contained in a roofed and wholly screened enclosure or room of sufficient size for the bulk bin quantity required; b. easily accessible for residents and for the required servicing of bins; c. screened from neighbouring properties to mitigate odour, amenity and noise; d. of a design to mitigate the harbourage of vermin or attraction of scavenging animals; e. provided with natural or temperature-controlled ventilation if in an enclosed room; f. of a design which maintains a minimum internal vertical clearance of 2.1m; g. kept clear of obstructions, such as fixed bay separators, that impede the ability to change from existing bin sizes or which otherwise limit future refuse collection options; h. are not to contain other amenities such as air-conditioning compressors, hot water systems or electrical hubs.	Complies
(6)	Best practice may include allowing additional space for the storage of extra containers to separately store either organic waste or other recyclables in the future.	Adequate space provided.
(7)	If a refuse or recycling chute is provided: a. it is to be constructed to allow refuse to fall into the centre of the bin; b. it is to have a door / lid to ensure clean changeover of bins; c. the chute room must be of suitable size to allow for an additional bin/s to remain under the chute discharge/s at all times; d. separate chutes and bulk bins are to be used for each waste stream; e. the room containing the chute and bin or compactor excludes all but authorised personnel; f. design best practice may include developments greater than 15m (3 storeys) in height utilising twin chutes or single chute dual stream technology with openings on each residential floor to enable chute disposal of both refuse and recycling.	Complies
(8)	Environmental best practices may also include the installation of a trapped waste connection to the sewer system.	Complies

Section 5 – Non-Residential Refuse Collection		
(1)	Non-residential development is to provide sufficient capacity to achieve low-frequency servicing in line with Table 2.	Complies – 3 services per week proposed for all uses.
(2)	Refuse generation rates for specific uses are provided in Table 4https://cityplan.brisbane.qld.gov.au/eplan/rules/0/269/0/27675/0/crossrefhref - Rules/0/269/1/49070/0. These figures are to be used to calculate the refuse and recycling capacity required. *Note—Where a refuse generation rate is not defined in Table 4, the applicant is responsible for providing evidence in support of the refuse generation proposed.*	Complies
(3)	Sufficient information is provided to demonstrate that refuse collection can occur in an efficient and safe manner on site without adverse impact on amenity (acoustic, odour or visual impacts) and pedestrian and vehicular traffic.	Complies
(4)	This information may include evidence from a refuse collection contractor to demonstrate that collection will occur outside normal service/delivery or business times, where seeking permission to allow a refuse collection vehicle to use service bays or parking spaces on the site for access.	Details on servicing provided within this OWMP.
(5)	Bulk bins of 1.1m3 or less are positioned so that collection personnel do not have to move them more than 5m. If a gradient is evident, speed bumps are provided to stop bulk bins from rolling away from the collection point. *Note—Standard design arrangements, including gradients, are contained in the Transport, access, parking and servicing planning scheme policy.*	Complies
(6)	Bulk bins of 1.5m3 or more are positioned so that front-lift refuse collection vehicles can drive directly to the container without relocating the bulk bin. If this cannot be achieved due to physical constraints, then the bulk bins are not moved more than 3m from the storage area to the collection point.	N/A 1.1m^3 bins proposed.
(7)	The storage area for refuse bins are: a. contained either within a building or a roofed and wholly screened enclosure of sufficient size for the bin quantity required. Table 1 provides the bin types and dimensions; *Note—Where screening is utilised to form part or all of a refuse storage area, the screening is to have a maximum of 25% openings, with a maximum opening dimension of 50mm, and are to be permanently fixed, durable and maintainable.* b. easily accessible for occupants and for the required servicing of bins; *Note—Allow for at least an additional 0.5m clearance surrounding each container, or for the storage of multiple bins, 1.5m clearance around the combined bin area (whichever is lesser).* c. screened from neighbouring properties to mitigate impacts from odour, amenity and noise; d. of a design to mitigate the harbourage of vermin or attraction of scavenging animals; e. provided with natural or temperature-controlled ventilation if in an enclosed room; f. of a design which maintains a minimum internal vertical clearance of 2.1m; g. kept clear of obstructions, such as fixed bay separators, that impede the ability to change from existing bin sizes or which otherwise limit future refuse collection options; h. are not to contain other amenities such as air-conditioning compressors, hot water systems or electrical hubs.	Complies
(8)	Best practice may include allowing additional space for the storage of extra containers to separately store either organic waste or other recyclables in the future.	Refuse area sufficiently sized.
(9)	Where disposal of industrial or commercial liquid waste by discharge to a road tanker, the road tanker is to be wholly on-site during collection.	Complies

Appendix B Site Plans and Drawings

Drawing No	Sheet Title	Current Revision
PRESENTATION		
1 OVERALL ARRANGEMENT		
01 Drawing List		
SK01000	Drawing List	B
11 Site Plan, Grid and Setout		
SK11000	Site Plan : Existing	B
SK11010	Site Plan : Proposed	A
12 Plans		
SK12000	Plans : Basement 02	B
SK12001	Plans : Basement 01	B
SK12002	Plans : Lower Ground (Vulture St)	B
SK12003	Plans : Plaza	B
SK12004	Plans : Upper Ground (Mark Ln)	B
SK12005	Plans : Level 01 - Podium	B
SK12006	Plans : Level 02 - Podium	B
SK12007	Plans : Level 03 - Podium	B
SK12008	Plans : Level 04 - Podium	B
SK12009	Plans : Level 05 - Podium Roof	B
SK12010	Plans : Level 06 - Typical	B
SK12011	Plans : Level 11 - Hotel Roof	B
SK12033	Plans : Level 33 - T2 Amenities	B
SK12034	Plans : Level 34 - T2 Roof Plant	B
SK12036	Plans : Level 36 - T1 Amenities	B
SK12037	Plans : Level 37 - T1 High Rise	B
SK12049	Plans : Level 49 - T1 Amenities	B
SK12050	Plans : Level 50 - T1 Roof Plant	B
SK12051	Plans : Roof Plan	B
13 Elevations & Sections		
SK13001	Elevations : North (Mark Ln)	B
SK13002	Elevations : West (New Lane)	B
SK13003	Elevations : South (Vulture St)	B
SK13004	Elevations : East (Main St)	B
SK13011	Sections : Sheet 01	B
SK13012	Sections : Sheet 02	B
SK13013	Sections : Sheet 03	B
SK13014	Sections : Sheet 04	B
SK13015	Sections : Sheet 05	A
18 Areas		
SK18101	Area Plans : GFA - Sheet 01	B
SK18102	Area Plans : GFA - Sheet 02	B
SK18111	Area Plans : Landscape - Sheet 01	B
SK18112	Area Plans : Landscape - Sheet 02	A
SK18500	Area Plans : Communal Space	B
SK18600	Area Plans : Site Coverage	B
2 GENERAL ARRANGEMENT		
22 Floor Plans		
SK22101	Floor Plan : T1 - Typical Low Rise	B
SK22102	Floor Plan : T1 - Typical High Rise	B
SK22201	Floor Plan : T2 - Typical Floor	B
SK22301	Floor Plan : Hotel Typical	B
SK22302	Floor Plan : Hotel Typical	B
3 GENERAL ARRANGEMENT		
32 Sections		
SK32051	Sections : Street Interface - Sheet 01	A
SK32052	Sections : Street Interface - Sheet 02	A
SK32053	Sections : Street Interface - Sheet 03	A
SK32054	Sections : Street Interface - Sheet 04	A
SK32055	Sections : Street Interface - Sheet 05	A
9 GENERAL		
90 Shadow Study		
SK90001	Shadow Study : Summer	B
SK90002	Shadow Study : Winter	B
SK90003	Shadow Study : Equinox	B

Parking Schedule_Allocation

Allocation	Level	Count	Type
Childcare			
Childcare	LOWER GROUND - P1	21	
		21	
Hotel			
Hotel	PLAZA - P1	38	
Hotel	PLAZA - P1	5	Tandem Parking
		43	
Tower 1			
Tower 1	BASEMENT 02 - P1	136	
Tower 1	BASEMENT 01 - P1	55	
Tower 1	BASEMENT 01 - P1	13	Tandem Parking
Tower 1	LEVEL 01 - P1	2	
Tower 1	LEVEL 01 - P1	81	
Tower 1	LEVEL 02 - P1	81	
Tower 1	LEVEL 03 - P1	81	
Tower 1	LEVEL 04 - P1	2	
Tower 1	LEVEL 04 - P1	81	
		532	
Tower 2			
Tower 2	BASEMENT 02 - P1	40	
Tower 2	BASEMENT 02 - P1	11	Tandem Parking
Tower 2	BASEMENT 01 - P1	37	
Tower 2	BASEMENT 01 - P1	11	Tandem Parking
Tower 2	LOWER GROUND - P1	32	
Tower 2	LOWER GROUND - P1	11	Tandem Parking
Tower 2	LEVEL 01 - P1	34	
Tower 2	LEVEL 01 - P1	12	Tandem Parking
Tower 2	LEVEL 02 - P1	34	
Tower 2	LEVEL 02 - P1	12	Tandem Parking
Tower 2	LEVEL 03 - P1	34	
Tower 2	LEVEL 03 - P1	12	Tandem Parking
Tower 2	LEVEL 04 - P1	34	
Tower 2	LEVEL 04 - P1	12	Tandem Parking
		326	
Visitor T1			
Visitor T1	BASEMENT 01 - P1	103	
		103	
Visitor T2			
Visitor T2	LOWER GROUND - P1	41	
		41	
Grand total: 1066		1066	

Bike Schedule

Comments	Level	Bike Rack
Tower 1		
Tower 1	BASEMENT 02 - P1	104
Tower 1	BASEMENT 01 - P1	58
Tower 1	LOWER GROUND - P1	244
Tower 1	LEVEL 01 - P1	70
Tower 1	LEVEL 02 - P1	70
Tower 1	LEVEL 03 - P1	70
Tower 1	LEVEL 04 - P1	70
		686
Tower 2		
Tower 2	BASEMENT 02 - P1	114
Tower 2	BASEMENT 01 - P1	114
Tower 2	LOWER GROUND - P1	48
		276
Visitor T1		
Visitor T1	LOWER GROUND - P1	174
		174
Visitor T2		
Visitor T2	LOWER GROUND - P1	70
		70
Grand total		1206

Unit Mix - Hotel

Name	Count
Premium	
Premium	47
Premium: 47	
Standard	
Standard	120
Standard: 120	
Suite	
Suite	10
Suite: 10	
Grand total: 177	

Unit Mix - Tower 01

Name	Count
1 Bed - T1	
1 Bed	60
1 Bed + MPR	175
1 Bed - T1: 235	
2 Bed - T1	
2 Bed	315
2 Bed + MPR	108
2 Bed - T1: 423	
3 Bed - T1	
3 Bed + MPR	25
3 Bed - T1: 25	
Grand total: 683	

Unit Mix - Tower 02

Name	Count
1 Bed - T2	
1 Bed	54
1 Bed - T2: 54	
2 Bed - T2	
2 Bed	106
2 Bed - T2: 106	
3 Bed - T2	
3 Bed + MPR	55
3 Bed - T2: 55	
4 Bed - T2	
4 Bed + MPR	55
4 Bed - T2: 55	
Grand total: 270	

Recent revision history

#	Status	Description	Date
A		DA WIP - BACKGROUND UPDATE	17/04/26
B		DEVELOPMENT APPLICATION	01/05/26

Project
Mark Lane Stage 1A and Precinct

Client
Philip Usher Constructions

Issuer
WOODS BAGOT

Project number
150740

Size check
25mm

Checked
PL

Approved
DL

Sheet size
A1

Scale

Sheet title
Overall Arrangement
Drawing List

Sheet number
SK01000

Revision
B

Status
For Information

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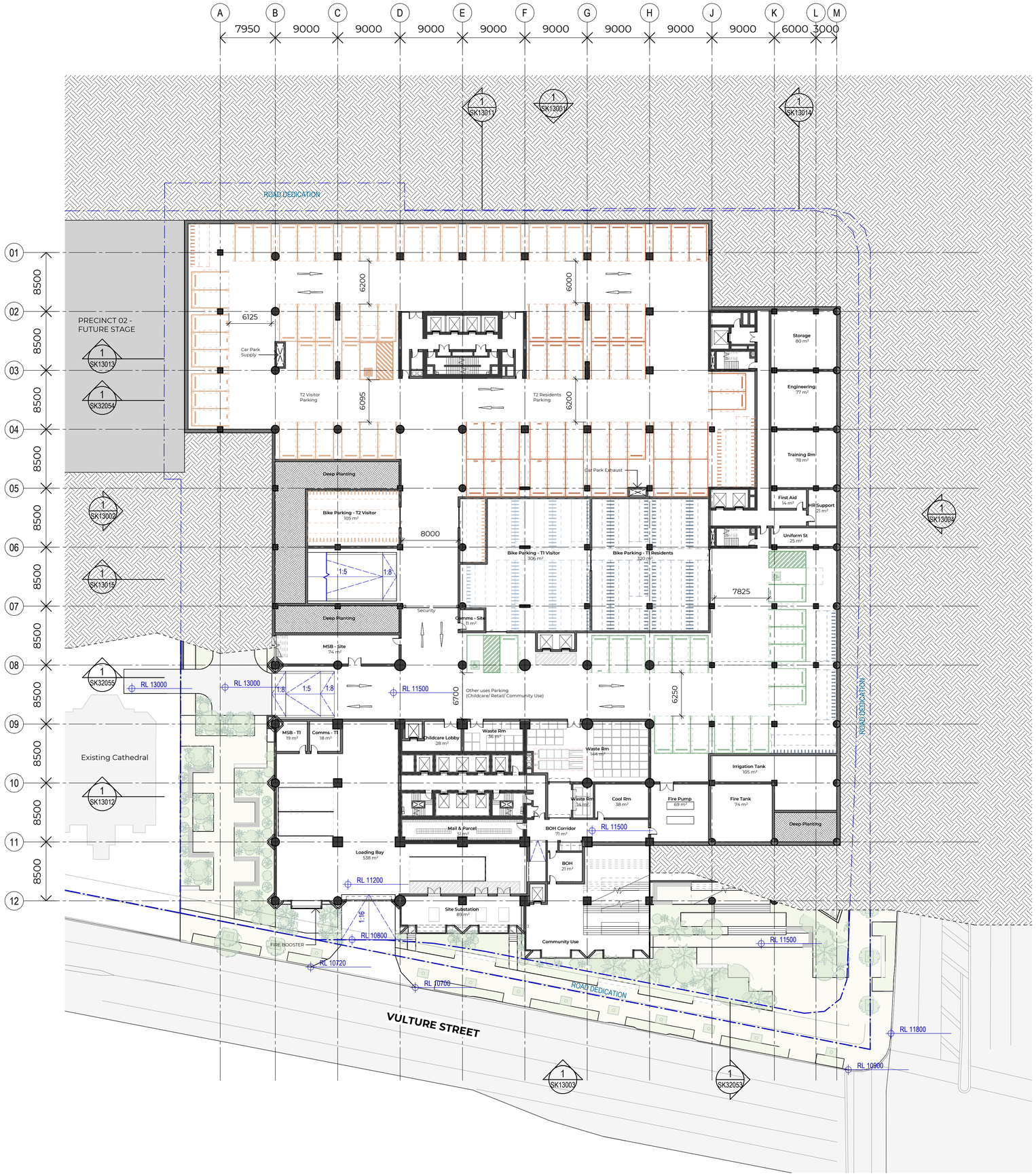

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Recent revision history

#	Status	Description	Date
A		DA WIP - BACKGROUND UPDATE	17/04/26
B		DEVELOPMENT APPLICATION	01/05/26

Notes

Contractor must verify all dimensions on site before commencing work or preparing shop drawings.

Do not scale drawings.

Parking Allocation

- Hotel
- Other Uses
- Tower 1 - Visitor
- Tower 1 - Residents
- Tower 2 - Visitor
- Tower 2 - Residents

Project
Mark Lane Stage 1A and Precinct

Client
Philip Usher Constructions

Issuer
W—B
WOODS BAGOT

Project number
150740

Size check
25mm

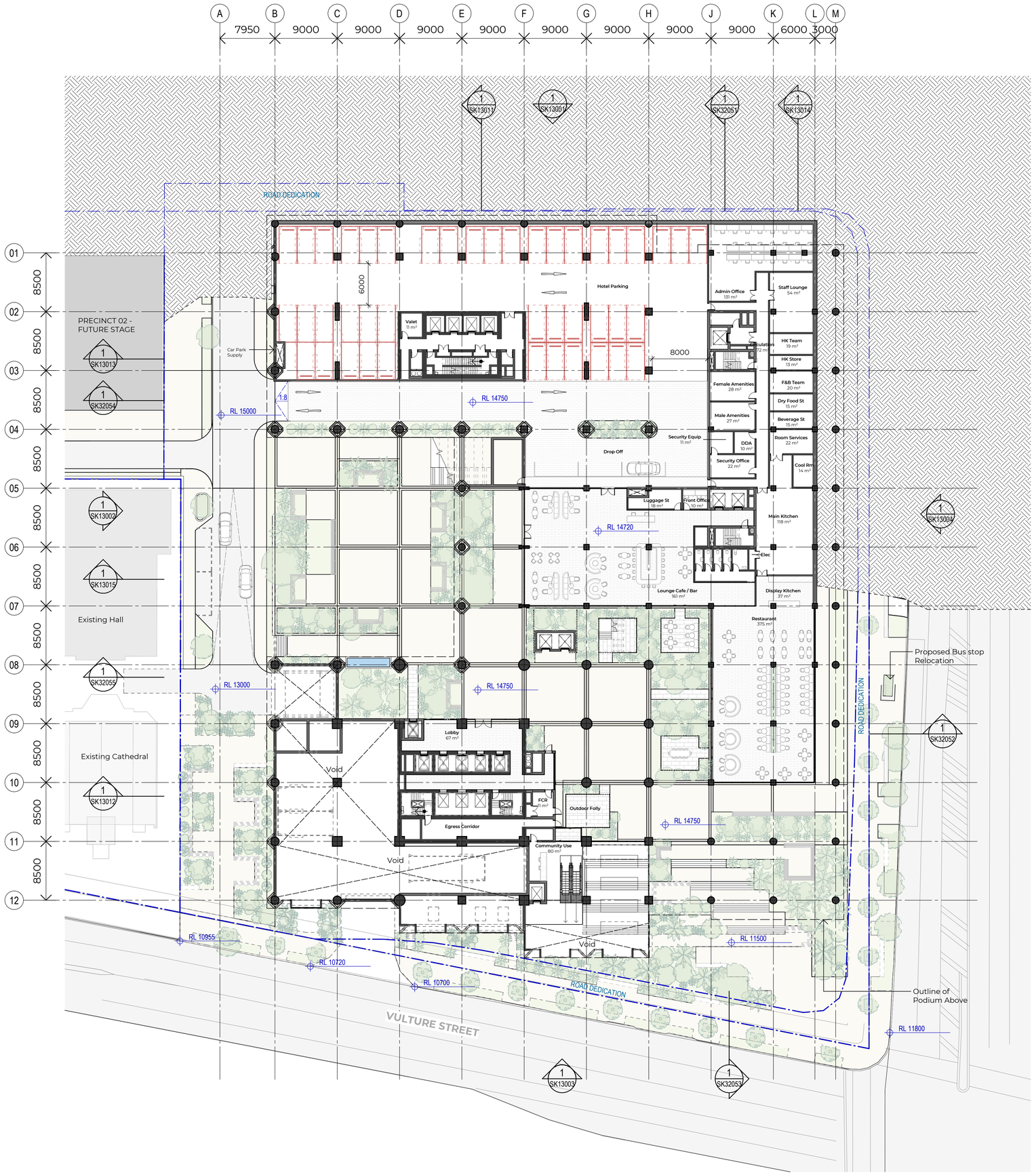
Checked	Approved	Sheet size	Scale
PL	DL	A1	1 : 300

Sheet title
Overall Arrangement Plans
Lower Ground (Vulture St)

Sheet number
SK12002

Revision
B

Status
For Information



Recent revision history

#	Status	Description	Date
A		DA WIP - BACKGROUND UPDATE	17/04/26
B		DEVELOPMENT APPLICATION	01/05/26

Parking Allocation

- Hotel
- Other Uses
- Tower 1 - Visitor
- Tower 1 - Residents
- Tower 2 - Visitor
- Tower 2 - Residents

Project
Mark Lane Stage 1A and Precinct

Client
Philip Usher Constructions

Issuer
W—B
WOODS BAGOT

Project number	Size check
150740	25mm

Checked	Approved	Sheet size	Scale
PL	DL	A1	1 : 300

Sheet title
Overall Arrangement Plans
Plaza

Sheet number	Revision
SK12003	B

Status
For Information

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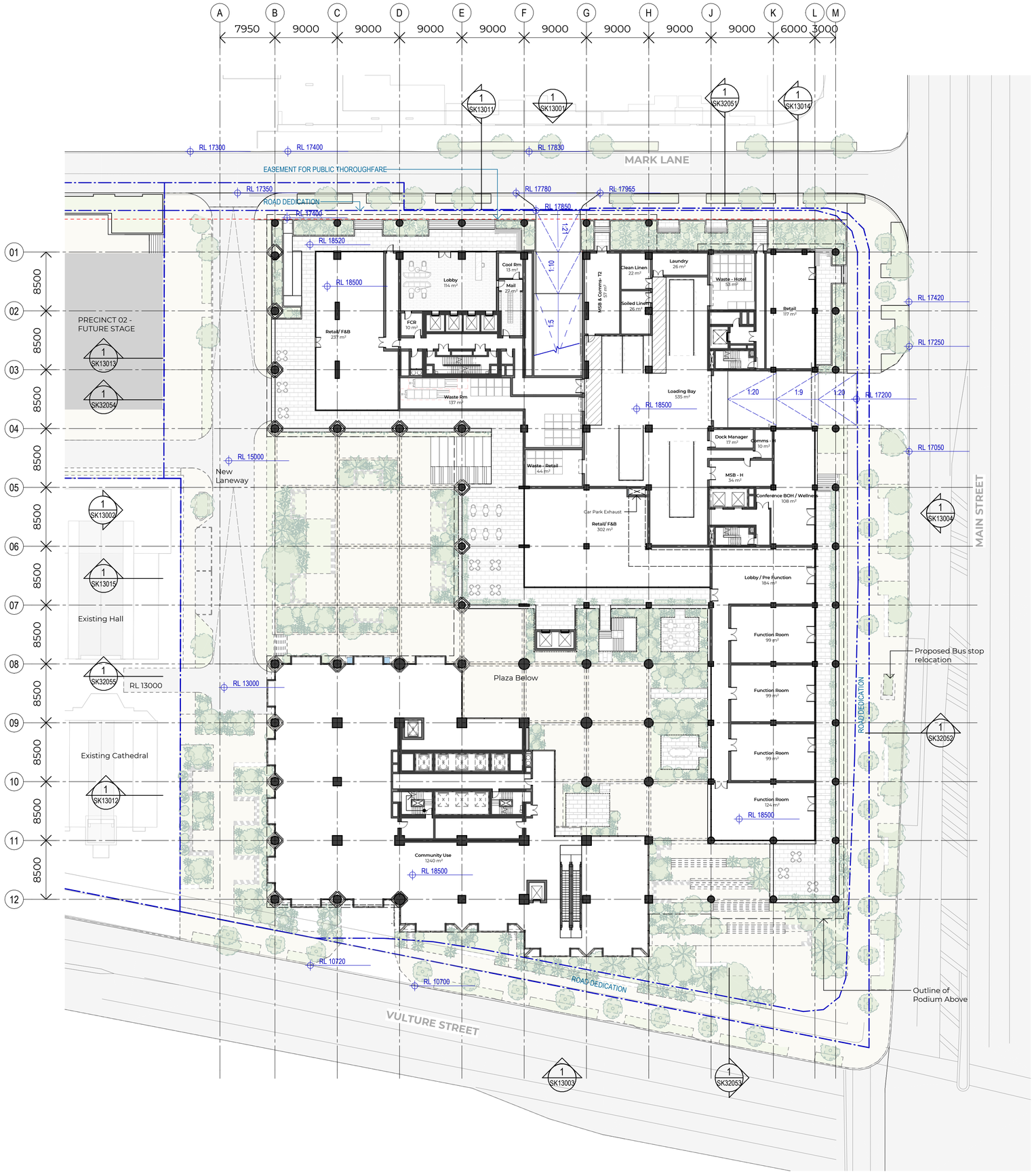

Recent revision history

#	Status	Description	Date
A		DA WIP - BACKGROUND UPDATE	17/04/26
B		DEVELOPMENT APPLICATION	01/05/26

Project
Mark Lane Stage 1A and Precinct

Client
Philip Usher Constructions

Issuer
W—B
WOODS BAGOT

Project number	Size check
150740	25mm

Checked	Approved	Sheet size	Scale
PL	DL	A1	1 : 300

Sheet title
Overall Arrangement Plans
Upper Ground (Mark Ln)

Sheet number	Revision
SK12004	B

Status
For Information

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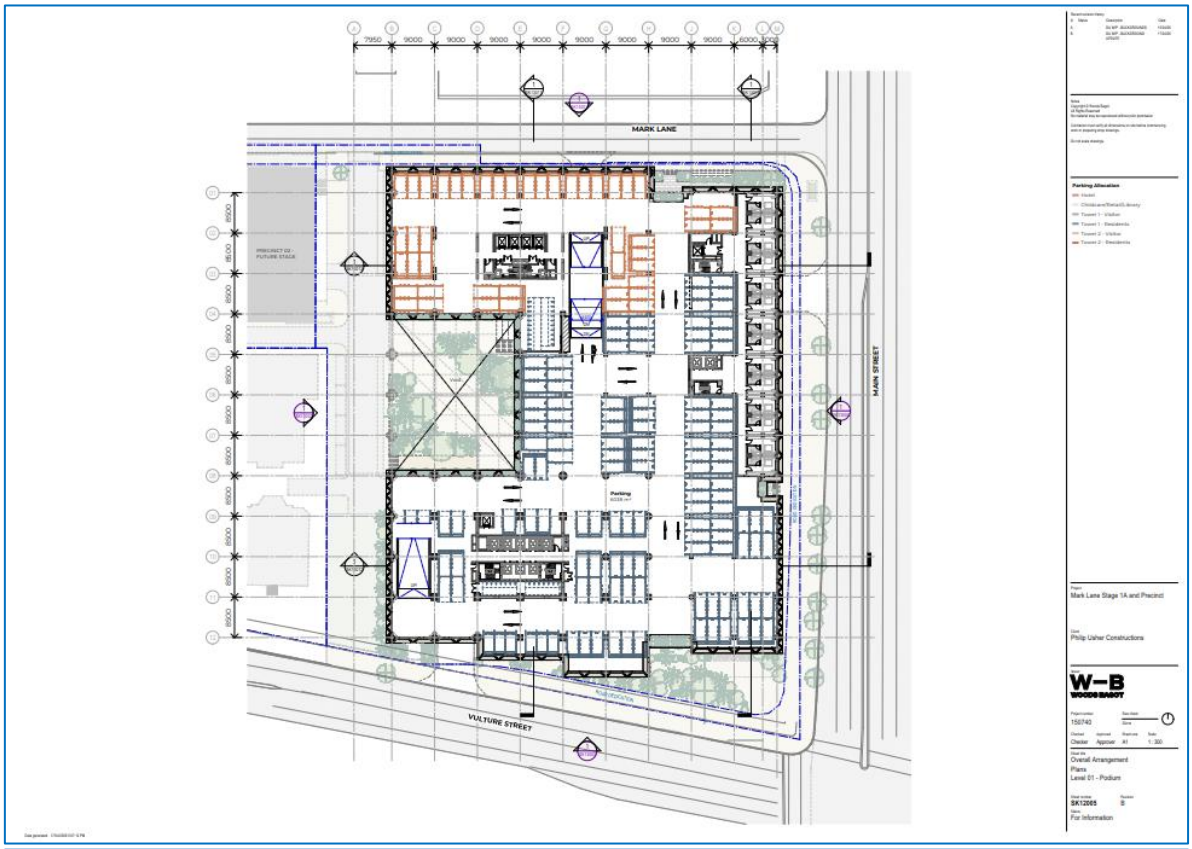
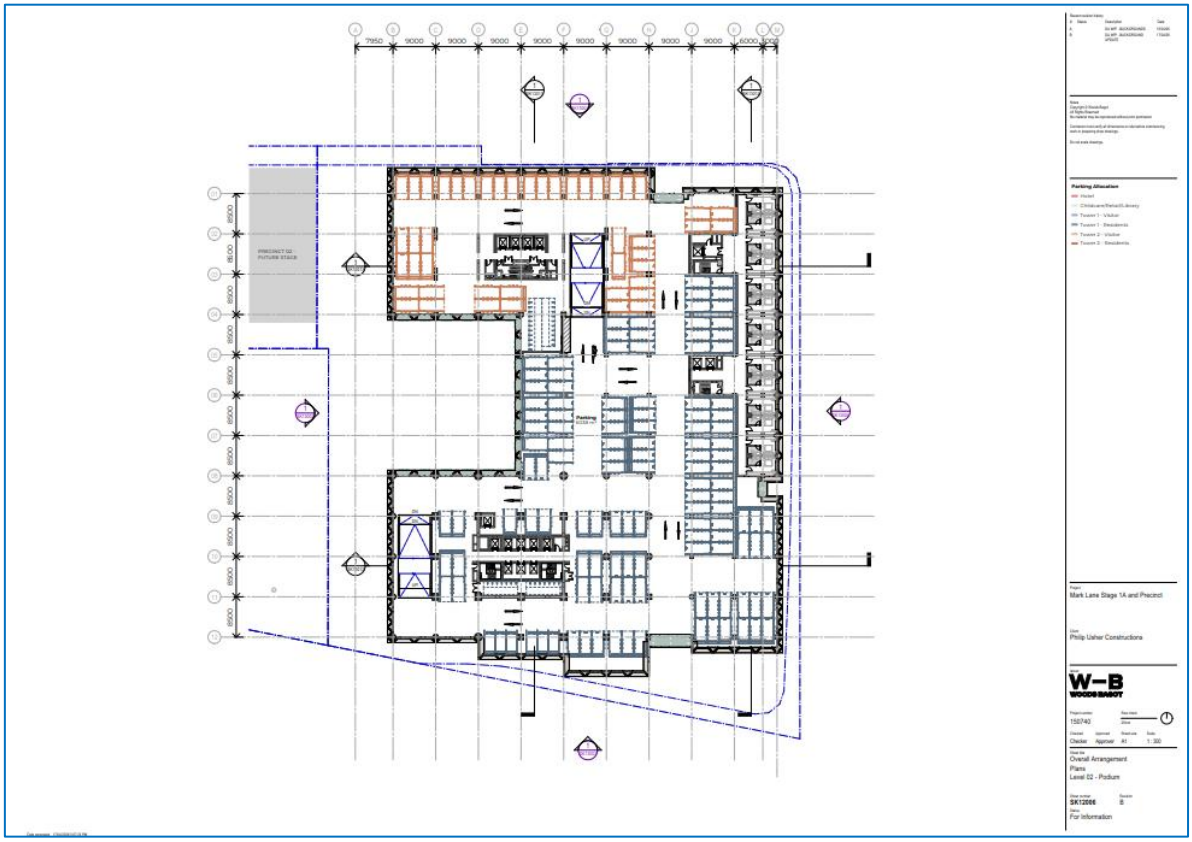

MARK LANE
MAIN STREET
VULTURE STREET
PRECINCT 02 - FUTURE STAGE
Parking
Mark Lane Stage 1A and Precinct
Philip Usher Constructions
W—B
WOODS BAGOT
Overall Arrangement
Plans
Level 01 - Podium
SK12005
For Information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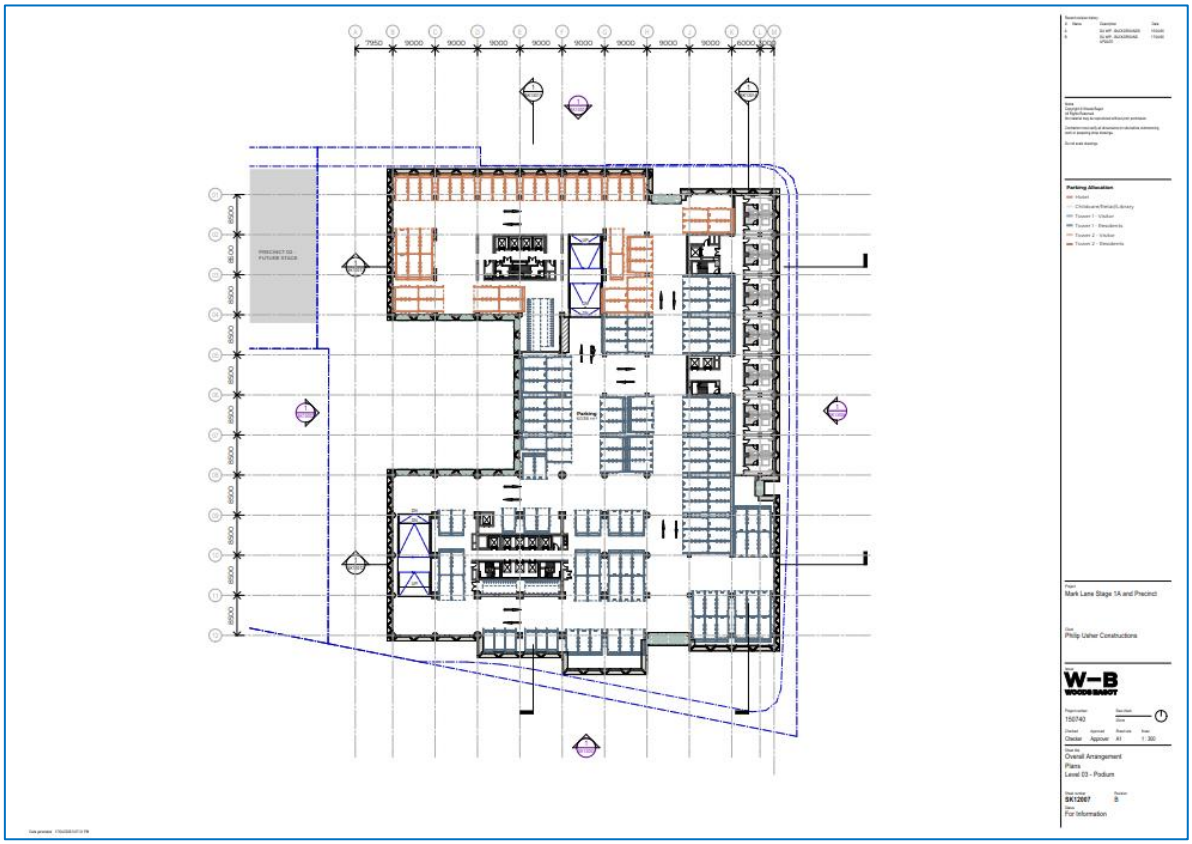
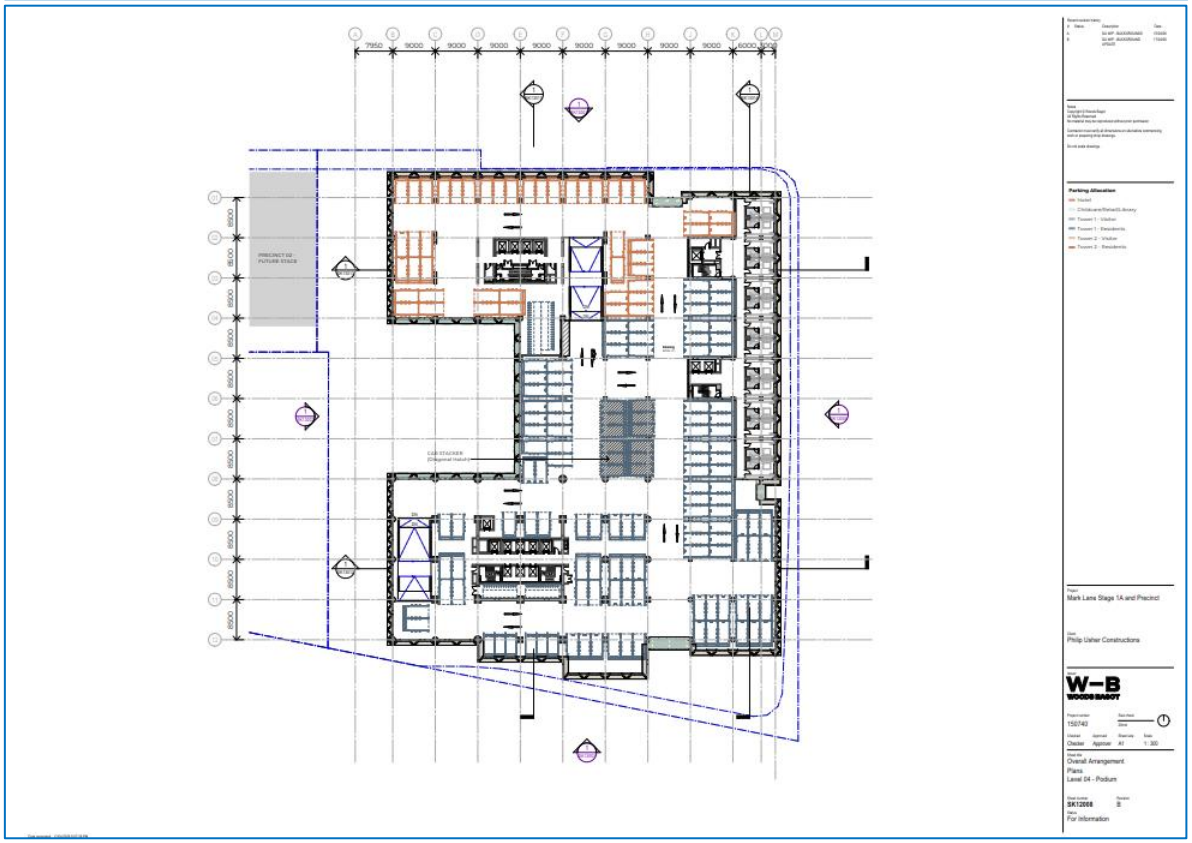
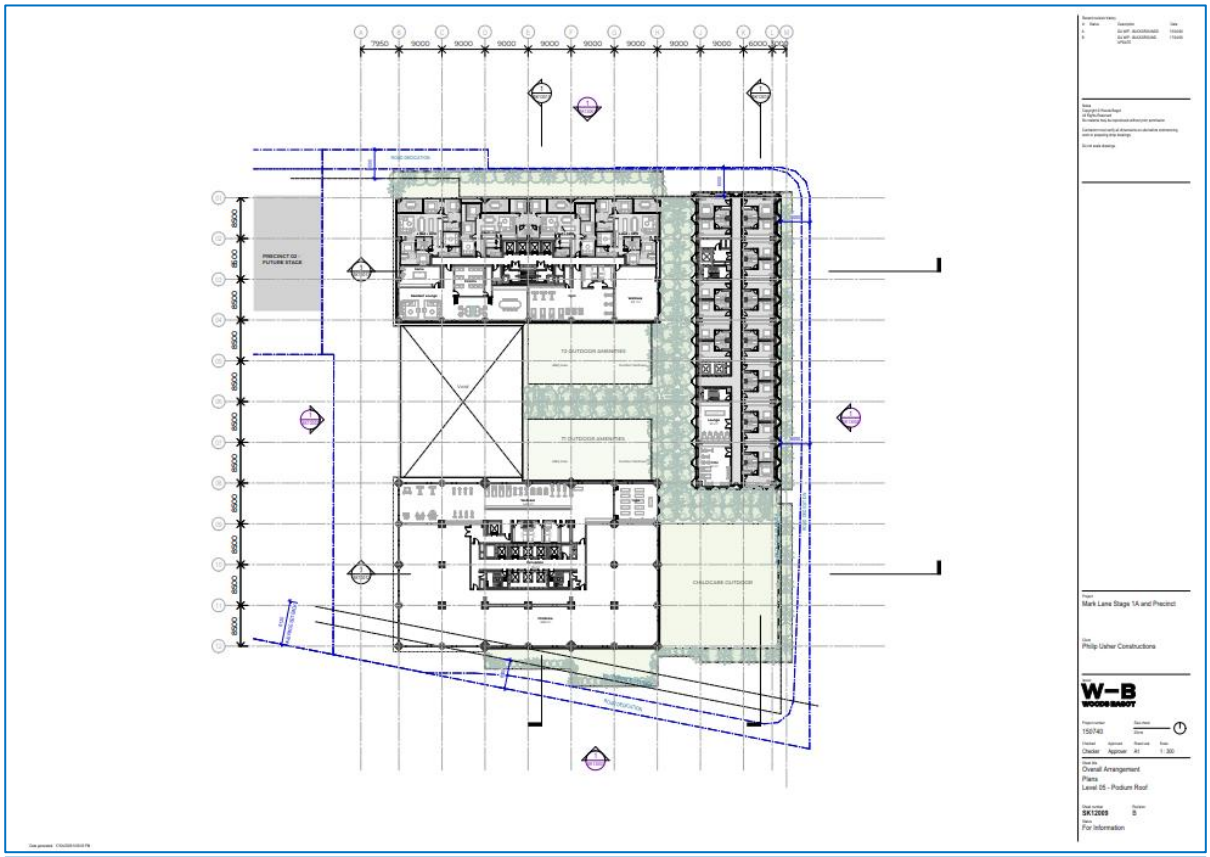
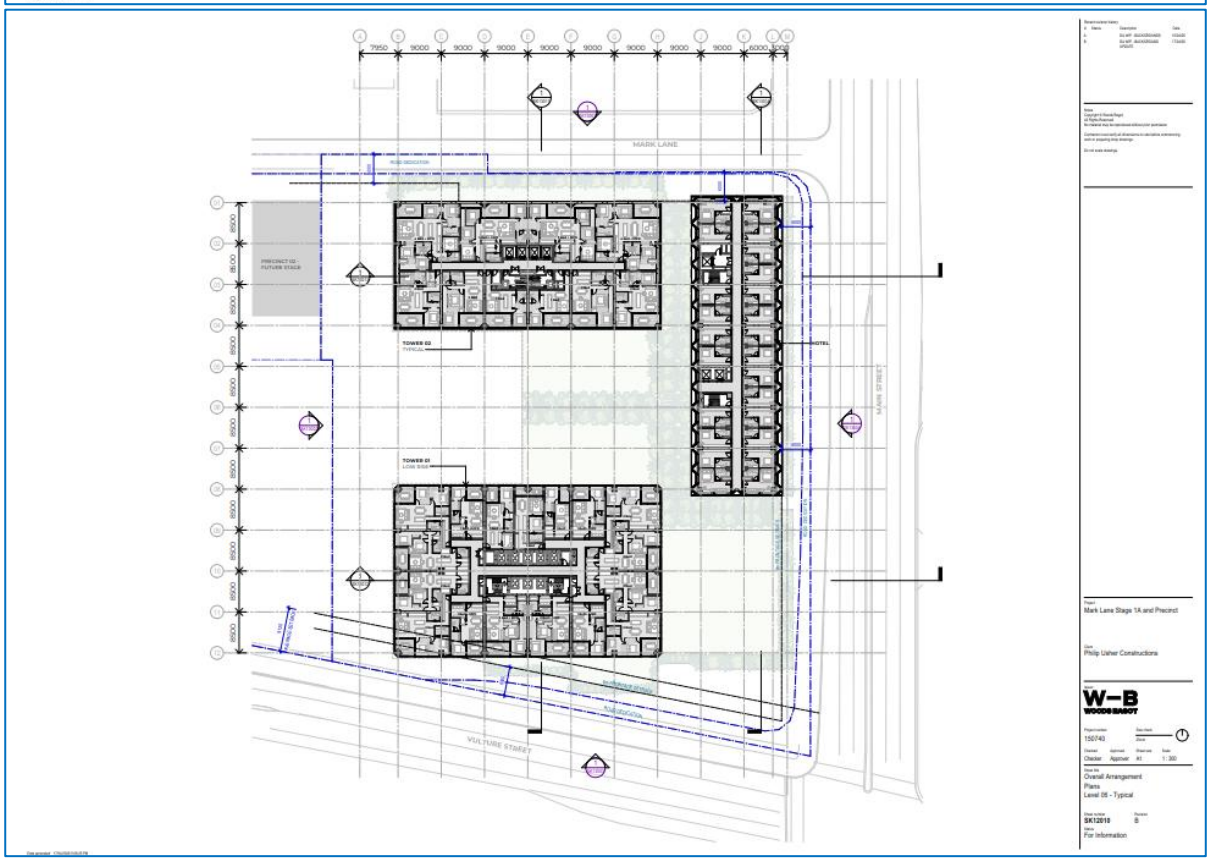
Parking
Mark Lane Stage 1A and Precinct
Philip Usher Constructions
W—B
WOODS BAGOT
Overall Arrangement
Plans
Level 02 - Podium
SK12006
For Information






PRECINCT 02 - FUTURE STAGE
CHILDCARE OUTDOOR
Mark Lane Stage 1A and Precinct
Philip Usher Constructions
W-B
Overall Arrangement
Plans
Level 05 - Podium Roof
SK12005
For Information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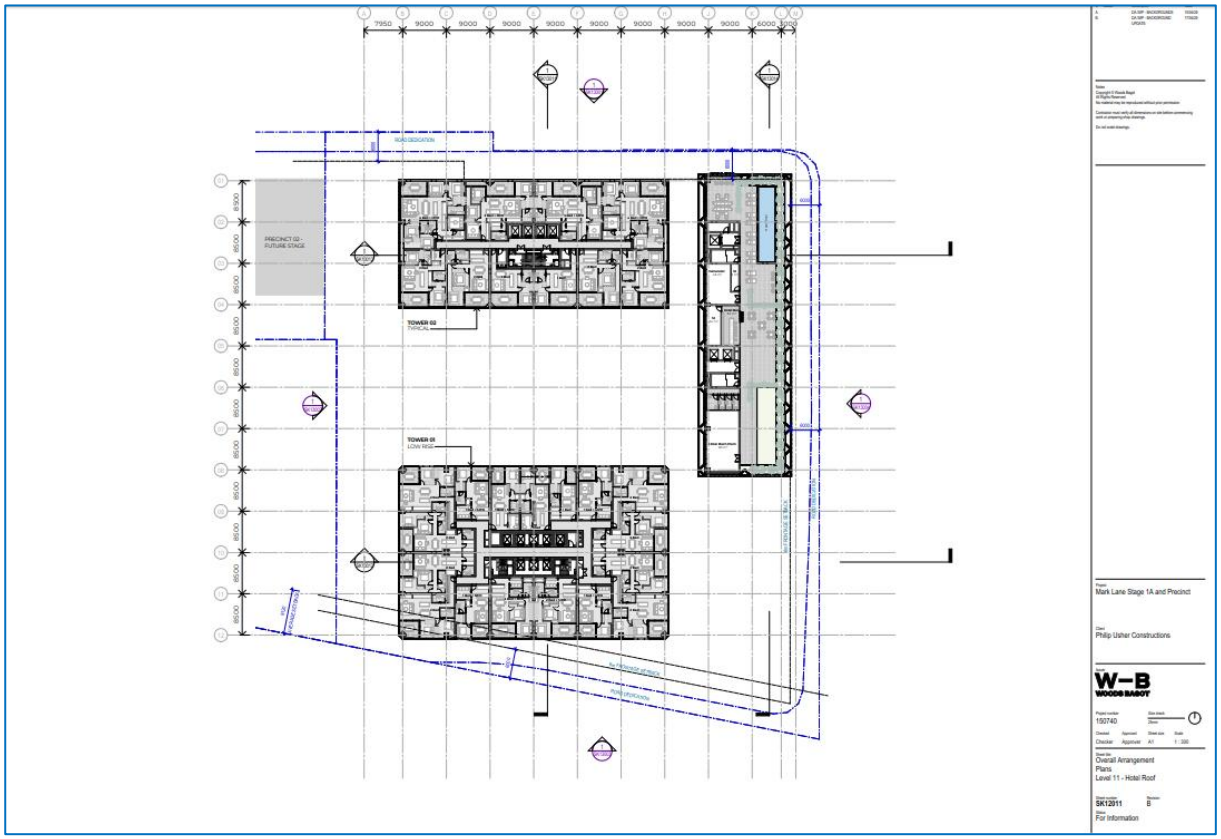
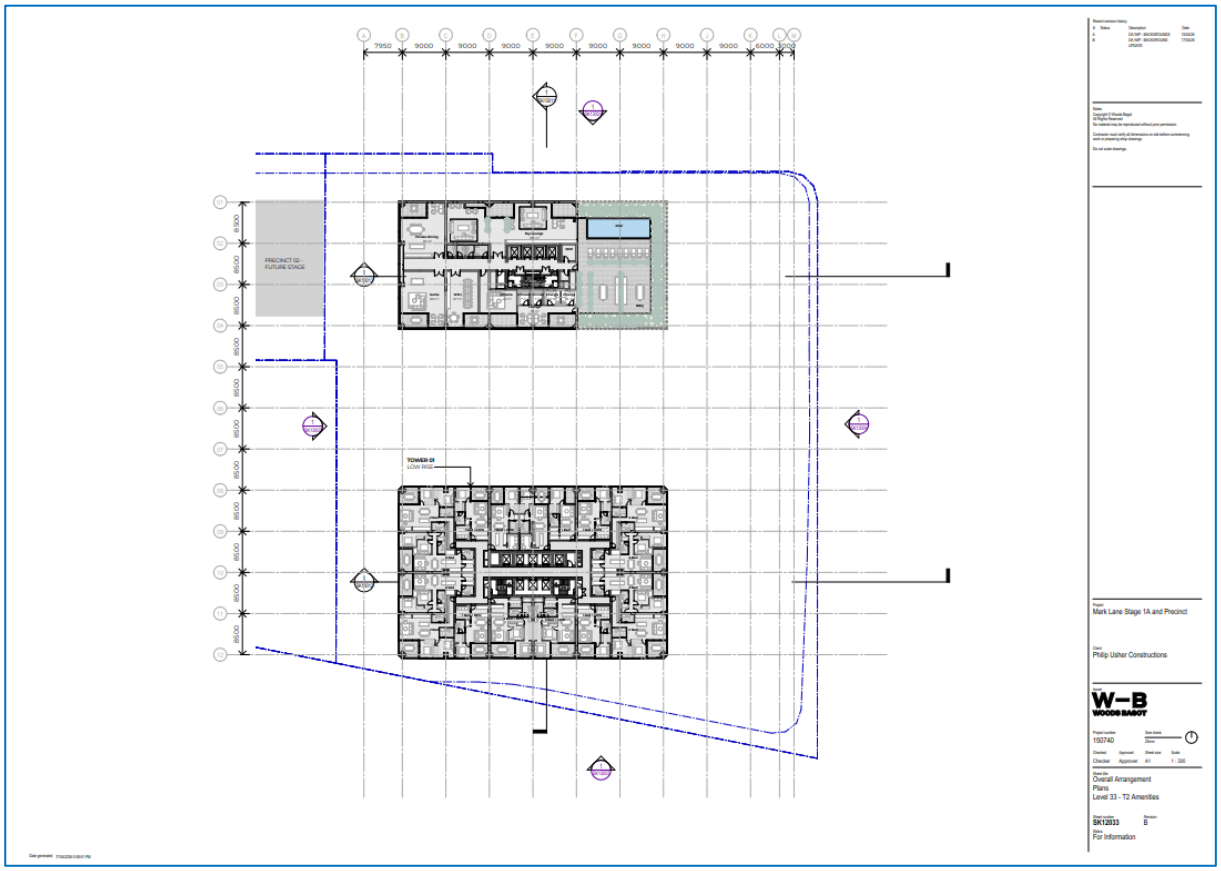
TOWER 02
TYPICAL
TOWER 01
LOW RISE
HOTEL
MARK STREET
VULTURE STREET
Mark Lane Stage 1A and Precinct
Philip Usher Constructions
W-B
Overall Arrangement
Plans
Level 05 - Typical
SK12010
For Information


PRECINCT 02 - FUTURE STAGE
TOWER 02 TYPICAL
TOWER 03 LOW RISE
Mark Lane Stage 1A and Precinct
Philip Usher Constructions
W–B WOODS BAGOT
Overall Arrangement Plans
Level 11 - Hotel Roof
SK12011
For Information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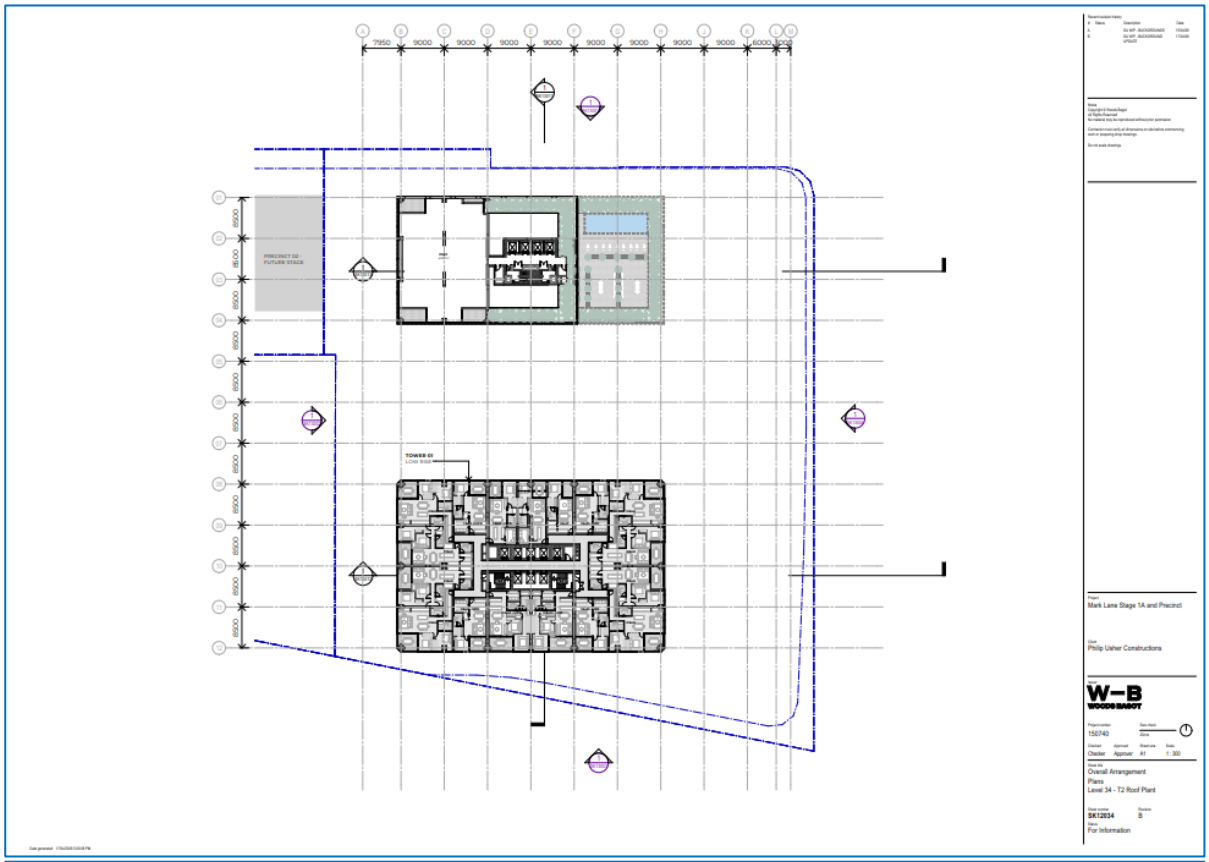
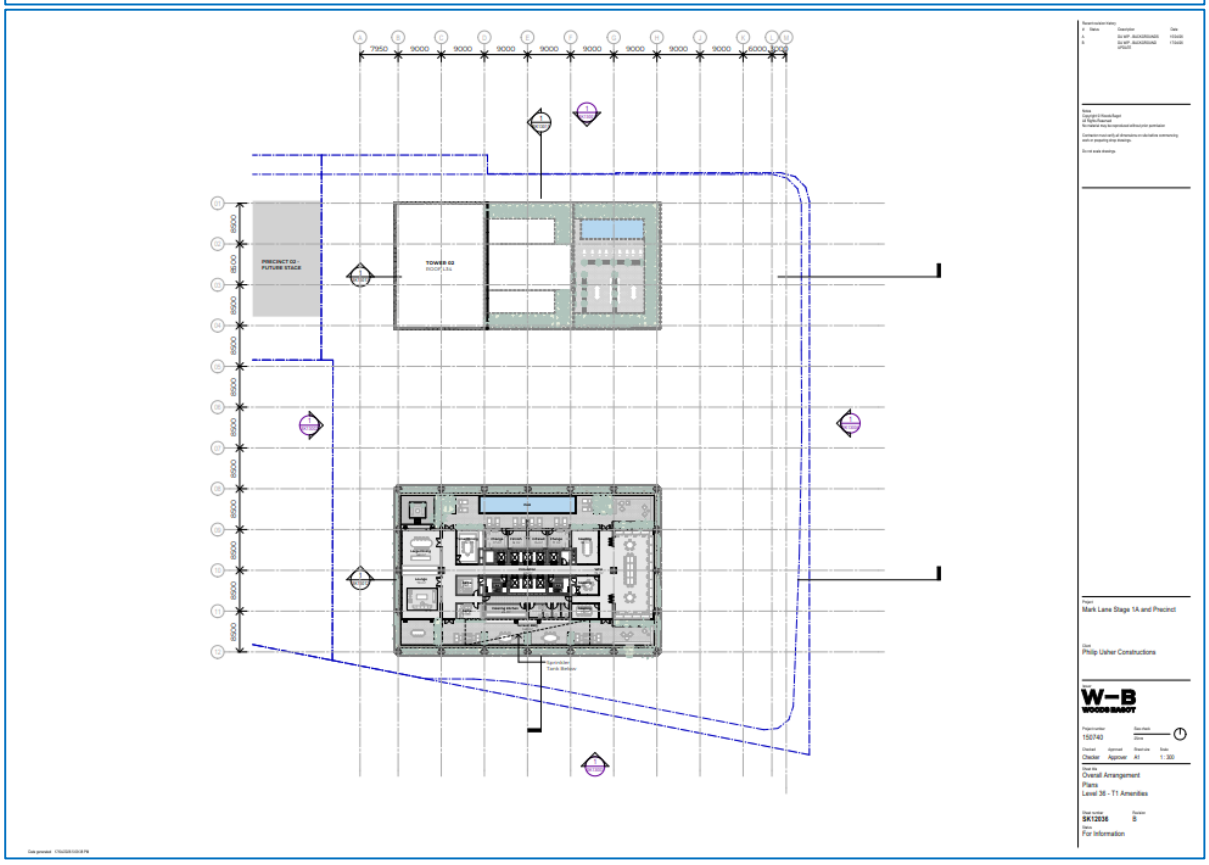
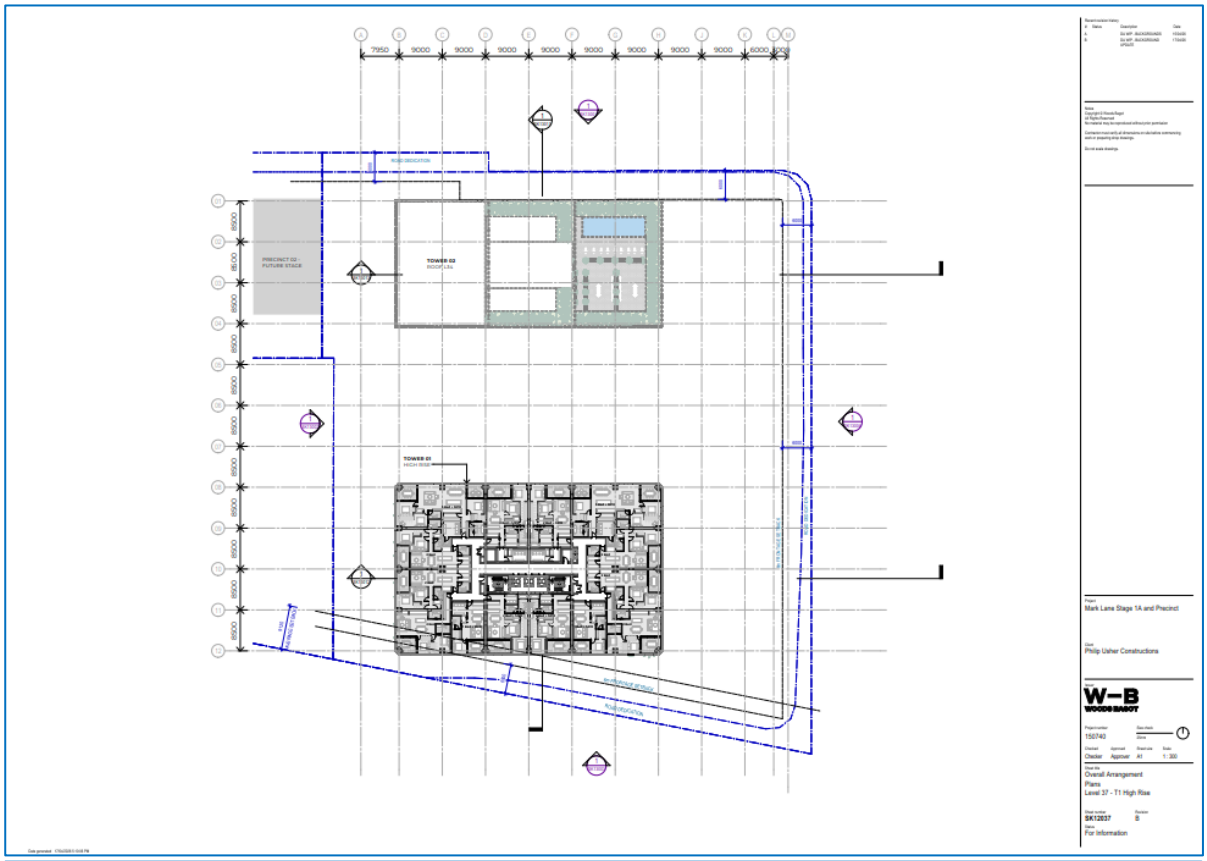
TOWER 03 LOW RISE
Mark Lane Stage 1A and Precinct
Philip Usher Constructions
W–B WOODS BAGOT
Overall Arrangement Plans
Level 33 - T2 Amenities
SK12033
For Information


PRECINCT 02 -
FUTURE STAGE
TOWER 01
Mark Lane Stage 1A and Precinct
Philip Usher Constructions
W-B
WOODS BAGOT
Overall Arrangement
Plans
Level 34 - T2 Roof Plant
SK12034
For Information


PRECINCT 02 -
FUTURE STAGE
TOWER 02
Mark Lane Stage 1A and Precinct
Philip Usher Constructions
W-B
WOODS BAGOT
Overall Arrangement
Plans
Level 36 - T1 Amenities
SK12036
For Information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Philip Usher Constructions
W–B
WOODS BAGOT
Overall Arrangement
Plans
Level 37 - T1 High Rise
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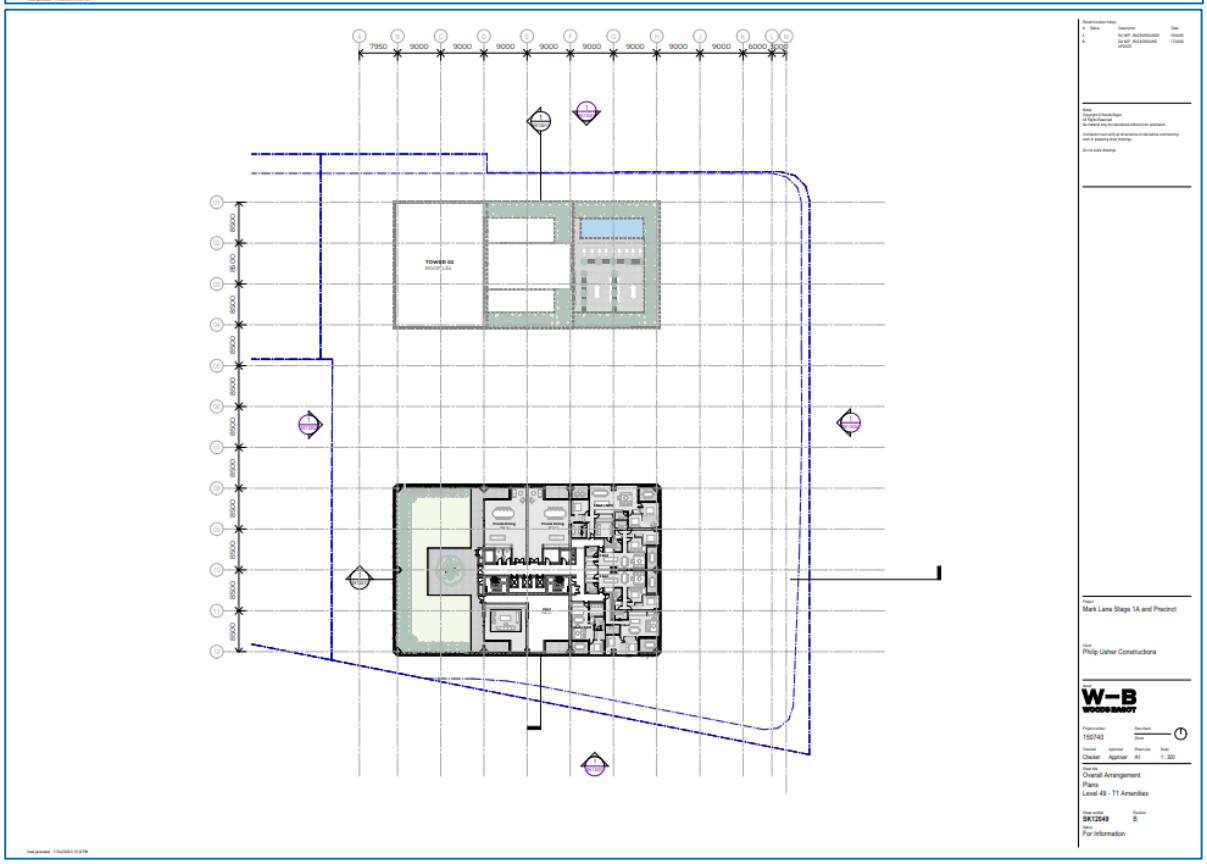
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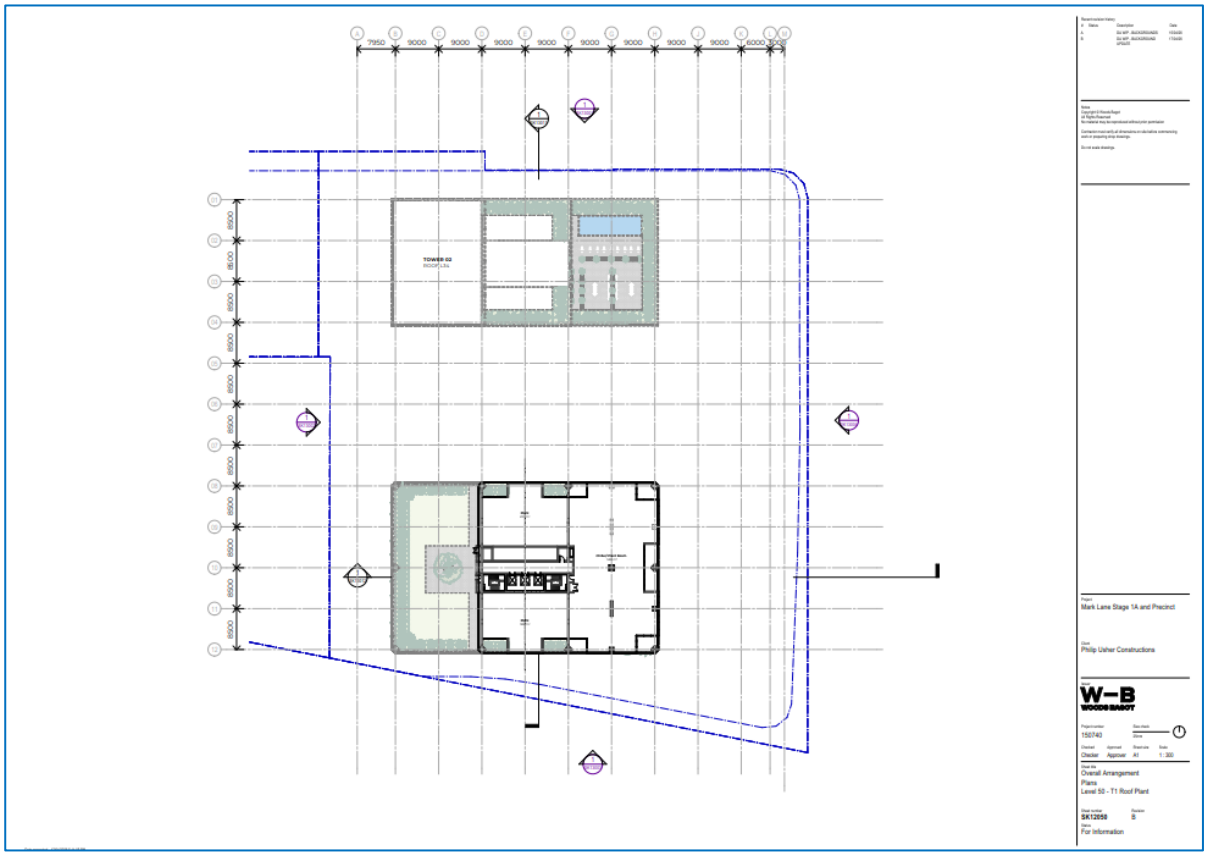
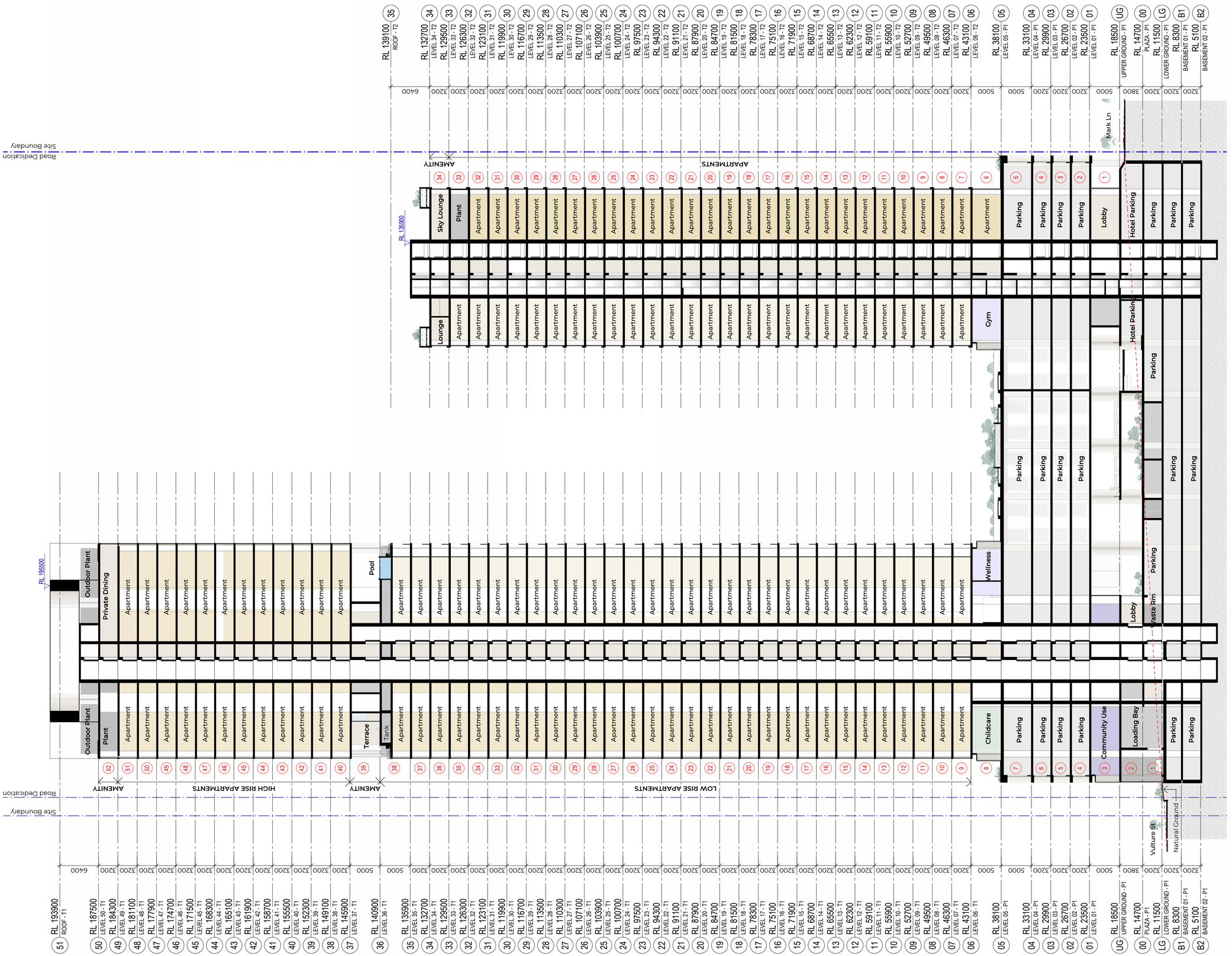
Philip Usher Constructions
W–B
WOODS BAGOT
Overall Arrangement
Plans
Level 49 - T1 Amenities
SK12049
For Information


TOWER 02
Mark Lane Stage 1A and Precinct
Philip Usher Constructions
W–B
Overall Arrangement
Plans
Level 50 - T1 Roof Plant
SK12050
B
For Information


TOWER 02
HOTEL
TOWER 01
Mark Lane Stage 1A and Precinct
Philip Usher Constructions
W–B
Overall Arrangement
Plans
Roof Plan
SK12051
B
For Information



Recent revision history

#	Status	Description	Date
A		DA WIP - BACKGROUND UPDATE	17/04/26
B		DEVELOPMENT APPLICATION	01/05/26

Project
Mark Lane Stage 1A and Precinct

Client
Philip Usher Constructions

Issuer
W—B
WOODS BAGOT

Project number	Size check
150740	25mm

Checked	Approved	Sheet size	Scale
PL	DL	A1	1 : 300

Sheet title
Overall Arrangement Sections
Sheet 01

Sheet number
SK13011

Revision
B

Status

Date generated 30/04/2026 9:35:03 PM

Recent revision history

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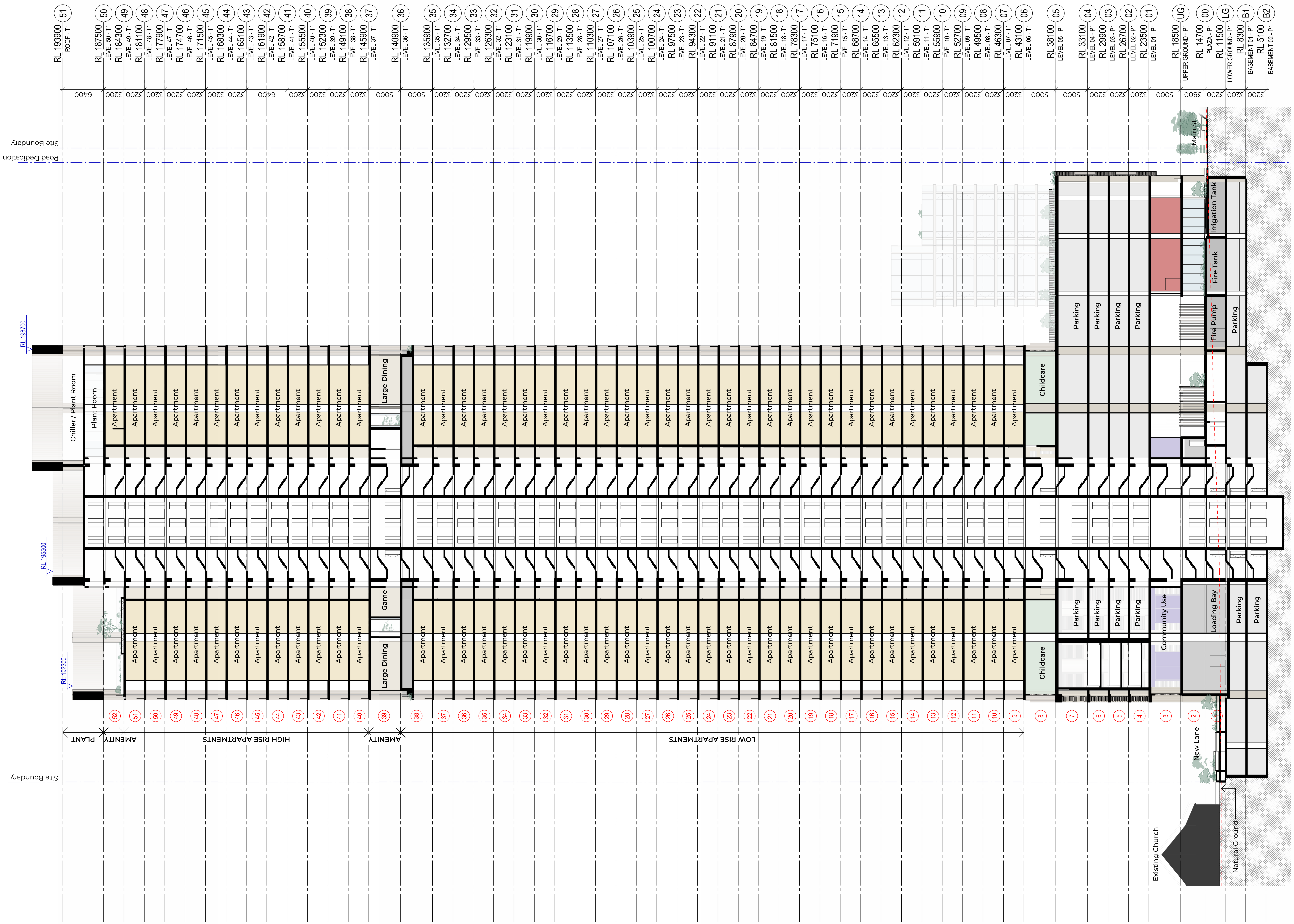
B		DEVELOPMENT APPLICATION	01/05/26



Notes

Contractor must verify all dimensions on site before commencing work or preparing shop drawings.

Do not scale drawings.

Project
Mark Lane Stage 1A and Precinct

Client
Philip Usher Constructions

Issuer
WOODS BAGOT

Project number	Size check
150740	25mm

Checked	Approved	Sheet size	Scale
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Sheet title
Overall Arrangement
Sections
Sheet 02

Sheet number	Revision
SK13012	B

Status

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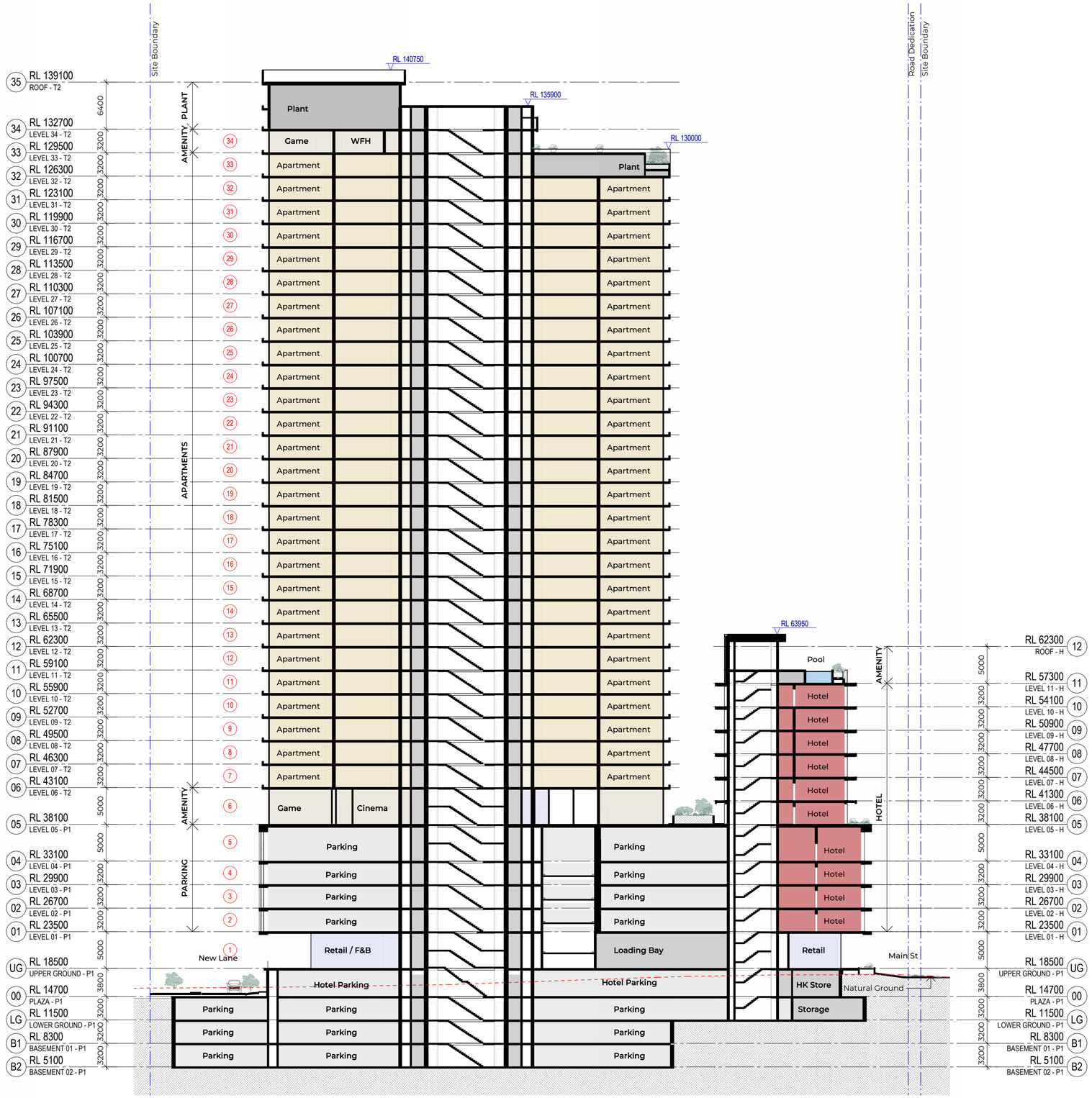

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Recent revision history

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B		DEVELOPMENT APPLICATION	01/05/26

Project
Mark Lane Stage 1A and Precinct

Client
Philip Usher Constructions

Issuer
W—B
WOODS BAGOT

Project number 150740
Size check 25mm
Checked PL
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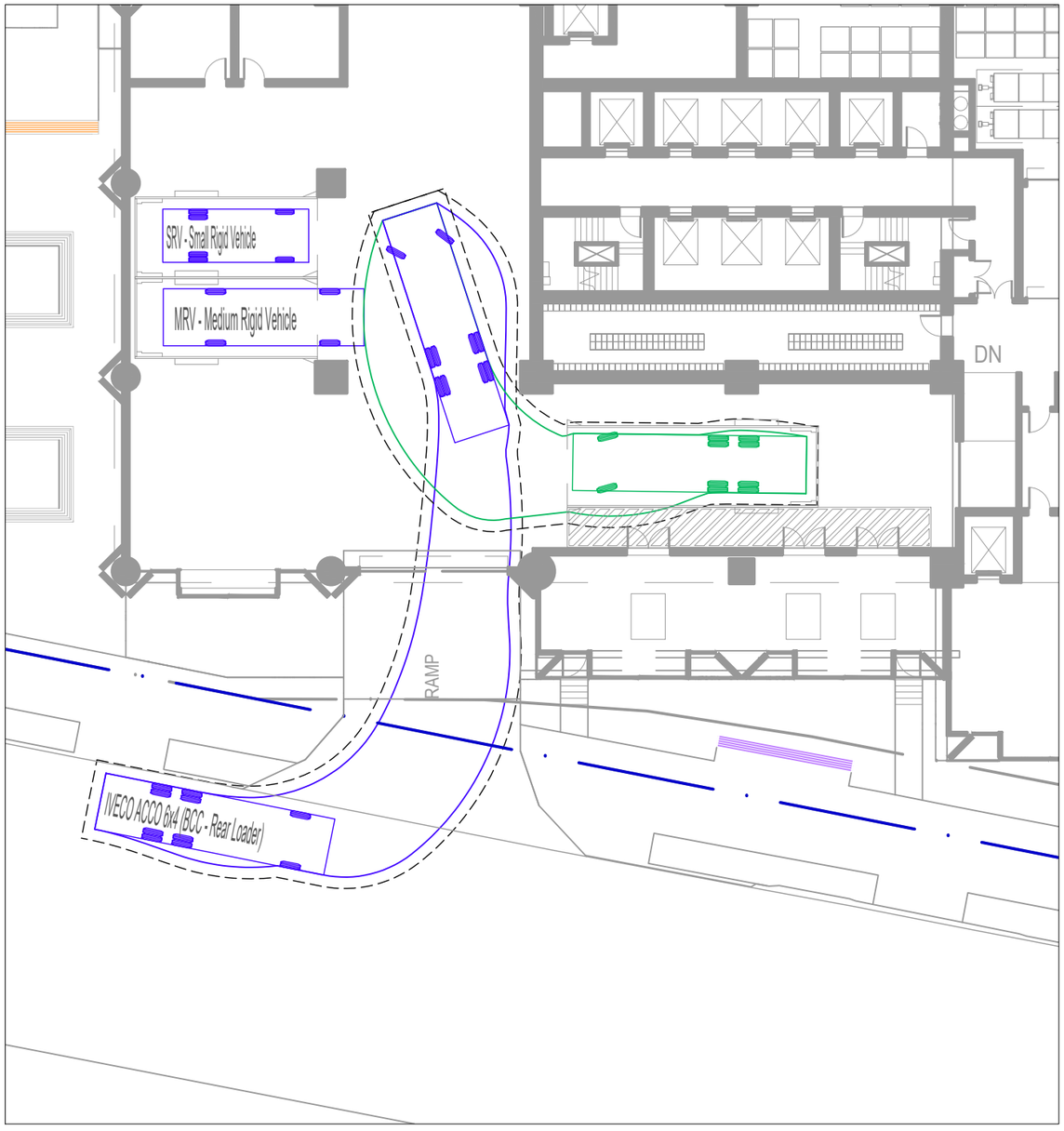
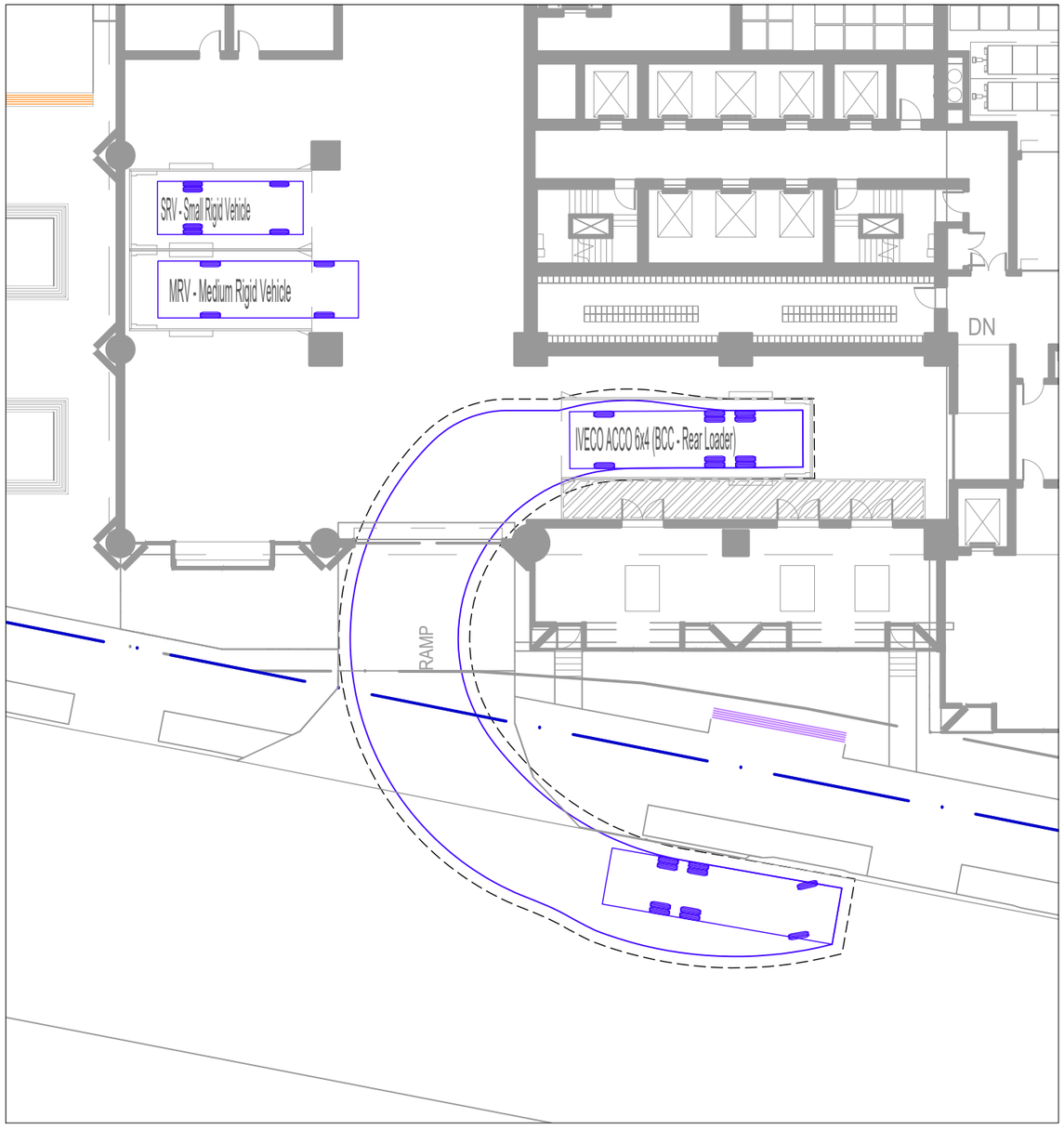
Sheet title
Overall Arrangement Sections Sheet 03

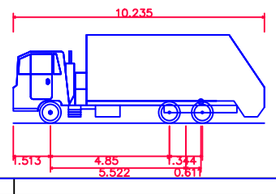
Sheet number **SK13013**
Revision B
Status

Appendix C Swept Path Analysis





VEHICLE PROFILES



IVECO ACCO 6x4 (BCC – Rear Loader)

Overall Length	10.235m
Overall Width	2.500m
Overall Body Height	3.600m
Min Body Ground Clearance	0.260m
Track Width	2.500m
Lock–to–lock time	6.00s
Curb to Curb Turning Radius	9.757m

PRELIMINARY ADVICE ONLY

29 April 2026

REV.	DATE	AMENDMENT DESCRIPTION	DRAWN	CHECKED	APPROVED
A	29-04-26	ORIGINAL ISSUE	AS	JK	DW

SCALE 0 4 8 12 16 20m

SCALE 1:400 AT ORIGINAL SIZE

NORTH

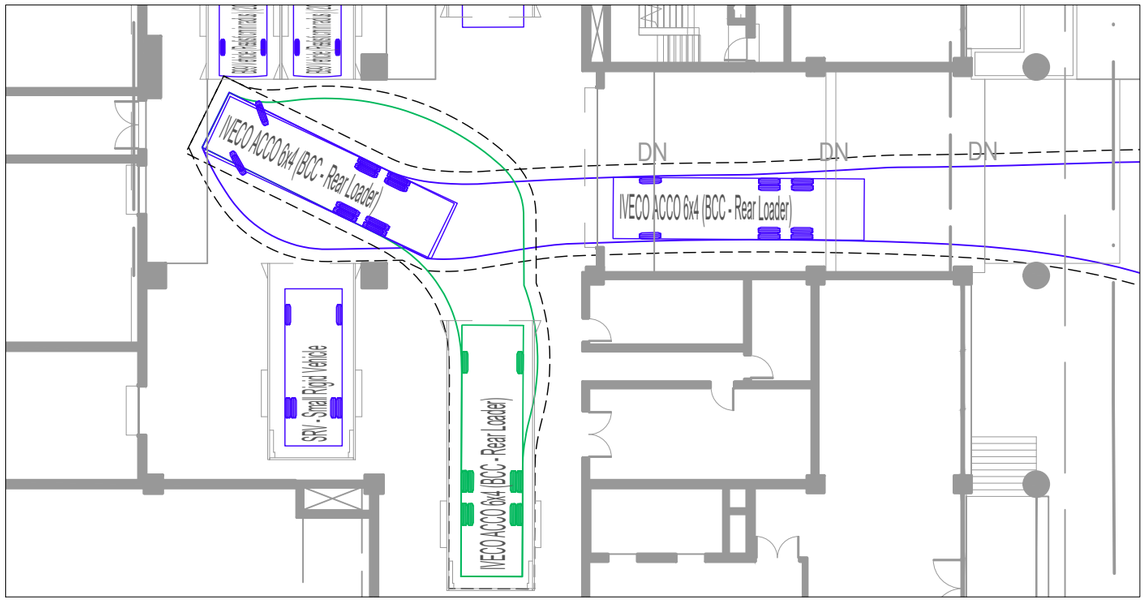
CLIENT: Philip Usher

Colliers International Engineering & Design (TTMC) Pty Ltd
ABN 65 010 868 621
LEVEL 8, 369 Ann Street, BRISBANE QLD 4000
P.O. BOX 12015, BRISBANE QLD 4003
T: (07) 3327 9500 F: (07) 3327 9501
E: ttmbris@ttmgroup.com.au W: www.ttmgroup.com.au

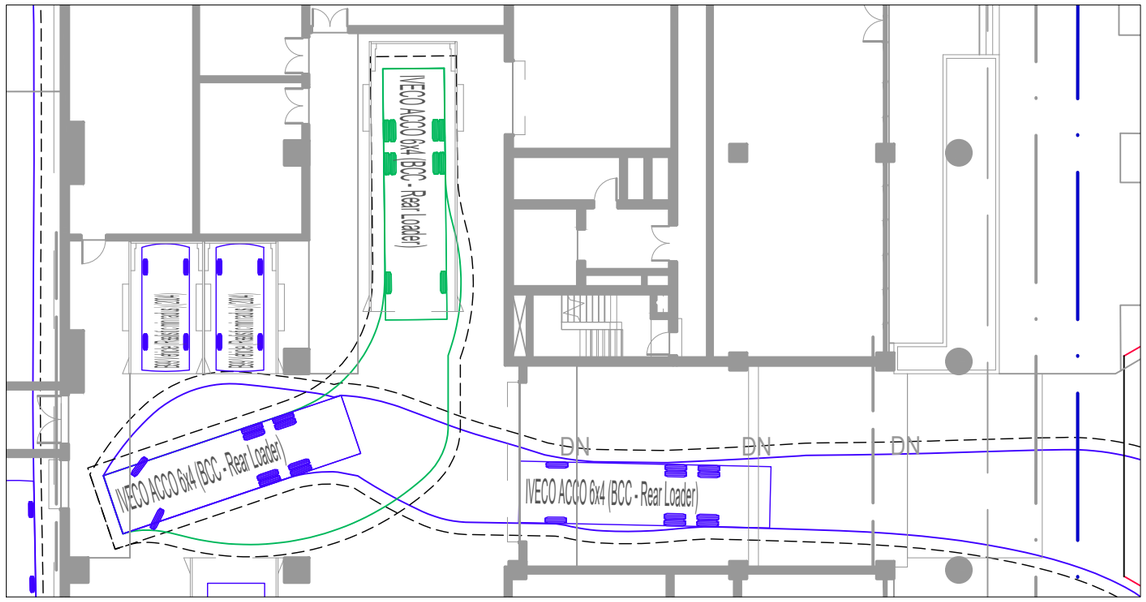
PROJECT: **Vulture St - Main Street Precinct, Kangaroo Point**

DRAWING TITLE: **SWEPT PATH ANALYSIS**
Lower Ground - RCV Access/ Eggress

PROJECT NUMBER	23BRT0331
ORIGINAL SIZE	A3
DRAWING NUMBER	23BRT0331- 03
REVISION	A
DATE	29 Apr 2026
SHEET	4 OF 4



SOUTHERN BAY - RCV REAR ENTRY



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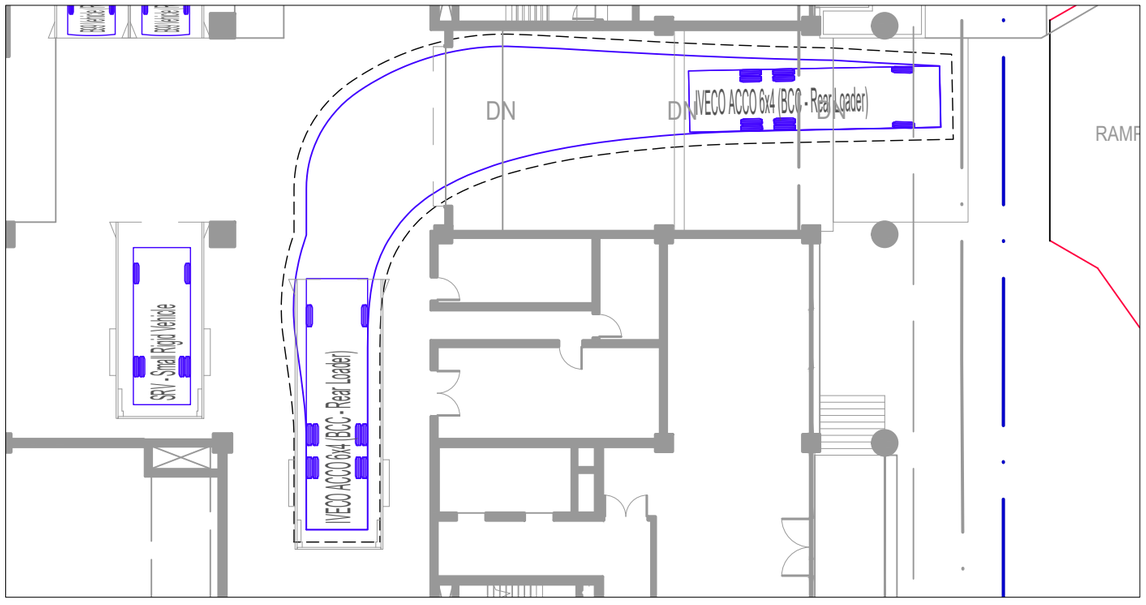

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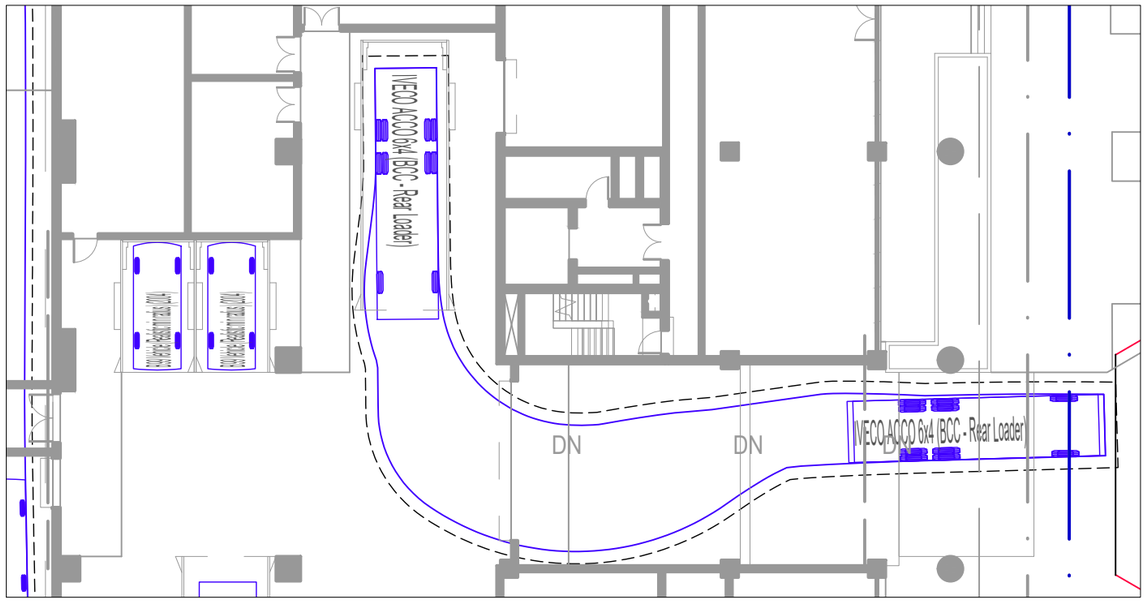

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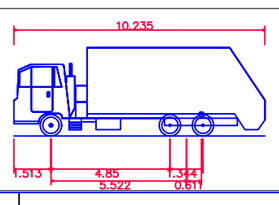
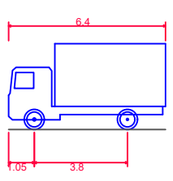


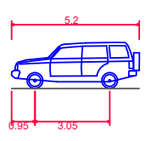
IVECO ACCO 6x4 (BCC – Rear Loader)

Overall Length	10.235m
Overall Width	2.500m
Overall Body Height	3.600m
Min Body Ground Clearance	0.260m
Track Width	2.500m
Lock-to-lock time	6.00s
Curb to Curb Turning Radius	9.757m



SRV - Small Rigid Vehicle

Overall Length	6.400m
Overall Width	2.330m
Overall Body Height	3.500m
Min Body Ground Clearance	0.398m
Track Width	2.330m
Lock-to-lock time	4.00s
Curb to Curb Turning Radius	7.100m
Design Speed Forward	5.0km/h
Clearance Envelope	0.XXXm



B99 Vehicle (Realistic min radius) (2004)

Overall Length	5.200m
Overall Width	1.940m
Overall Body Height	1.878m
Min Body Ground Clearance	0.272m
Track Width	1.840m
Lock-to-lock time	4.00s
Curb to Curb Turning Radius	6.250m
Design Speed Forward	5.0km/h
Clearance Envelope	0.300m

PRELIMINARY ADVICE ONLY

29 April 2026

REV.	DATE	AMENDMENT DESCRIPTION	DRAWN	CHECKED	APPROVED
A	29-04-26	ORIGINAL ISSUE	AS	JK	DW

0 4 8 12 16 20m

SCALE 1:400 AT ORIGINAL SIZE

NORTH

CLIENT

Philip Usher

Colliers International Engineering & Design (TTMC) Pty Ltd
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P.O. BOX 12015, BRISBANE QLD 4003

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Vulture St - Main Street Precinct, Kangaroo Point

DRAWING TITLE

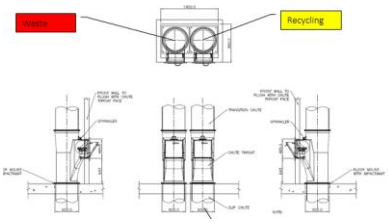
SWEPT PATH ANALYSIS
UPPER GROUND

23BRT0331	A3
DRAWING NUMBER 23BRT0331- 05	REVISION A
DATE 29 Apr 2026	SHEET 1 OF 3

Appendix D Systems and Specifications

D.1 Specified Refuse Management Equipment

The table below provides contextual examples of the specific equipment types specified in this OWMP and is not intended to provide an exhaustive list of all potential options of the required equipment.

Bin / Equipment Types	Waste Streams	Examples	Information
Residential unit bins	General waste and recycling		Various options and sizes. Built and standalone bin available. Examples: https://www.bunnings.com.au
Tenancy and Communal area bins	General waste, recycling, food waste, paper / cardboard		Various options and sizes available. To be supplied depending on preference and space available. Examples: https://www.sourceseparation-systems.com.au-/product/multisort https://methodrecycling.com/au/
Refuse / Cleaners Trolleys (Optional)	All Streams		Assisted manual transfer of refuse Examples: https://rubbermaidcommercial.com.au/products/waste-management/mega-brute https://www.materialshandling.com.au/products/deluxe-compact-cleaning-carts
1100L bins	General waste, recycling, paper / cardboard		Dimensions approx. 1070 x 1240 x 1330mm (L x W x H) (dimensions depend on contractor) Examples: http://www.justwheeliebins.com.au, https://www.australianwastemanagement.com.au
Dual Refuse Chute System	General waste, recycling, food waste	 	Refuse disposal in multi-storey buildings through refuse chutes options include single chute for waste only, or single chute with diverter system or dual chute for disposal of waste and recycling Examples: https://www.wastech.com.au/products/chutes https://www.elephantsfoot.com.au/products/chutes

Bin / Equipment Types	Waste Streams	Examples	Information
Linear Conveyor	General waste, recycling, food waste		Automated bin rotation (e.g. linear or carousel) to manage bin fill level and prevent overflow under chutes Example: https://www.elephantsfoot.com.au/products/compactors/carousel-linear https://wastech.com.au
Chute Discharge Compaction	General waste	 	Compactors designed for integration with the refuse chute to minimise the volume of general waste. Examples: https://www.elephantsfoot.com.au/products/compactors/carousel-linear https://wastech.com.au
660/1100L Bin Press	General waste, paper / cardboard	 	Achieves an average compaction / waste reduction ratio of 3:1. Requires 415vpower supply. Example: https://wasteinitiatives.com.au/products/waste-compactors https://www.materialshandling.com.au-/products/bin-press-compactor/
Portable Cooking Oil Storage	Used Cooking Oil	 	Cooking oil recycling Example: https://www.cookers.com.au Cooking oil delivery, used oil collection and provision of required equipment
240L bins (Optional)	General waste, paper, recycling, green waste		Dimensions approx. 740 x 580 x 1080mm (L x W x H) (dimensions may depend on contractor) Examples: http://www.justwheeliebins.com.au, http://wheeliebinsonline.com.au
660L bins (Optional)	General waste, recycling, paper / cardboard / Food, Organic Waste		Dimensions approx. 780 x 1260 x 1330mm (L x W x H) (dimensions depend on contractor) Examples: http://www.justwheeliebins.com.au, https://www.australianwastemanagement.com.au

Bin / Equipment Types	Waste Streams	Examples	Information
Organics Household Composting, Worm Farm, Digesters (Optional)	Food waste / organics	  	Organics / food waste separation, composting and digesting; household-type and commercial grade equipment available. Examples Ecoguardians Soilfood https://www.ecoguardians.com.au/soilfood-/soilfood Urban Composter https://www.urbancomposter.com.au Worm Farm https://wormsdownunder.com.au/products-/wormmod
Counter-top E-Waste Recycling (Optional)	Electronic Waste	 	Prepaid battery collection Example: https://envirostream.com.au/product/prepaid-countertop-battery-recycling-box/ https://www.ecoactiv.com.au/product/4l-battery-recycling-prepaid-service/ Toner cartridge collection https://zerowasteboxes.terracycle.com.au-/products/ink-and-toner-catridges-zero-waste-boxes
Bin Weighing Scales (Optional)	All streams	 	Scales are used to capture all outgoing refuse weights for ongoing analysis of recycling rates. Examples https://www.osat.info/ https://gurru.com.au/bintracker/

Appendix E Refuse Signage

E.1 Refuse Signage

Waste signage guideline are provided by the Queensland government: https://www.qld.gov.au/environment/pollution/management/waste/recovery/recycling/signage.

General Refuse Signage

Other Refuse Signage

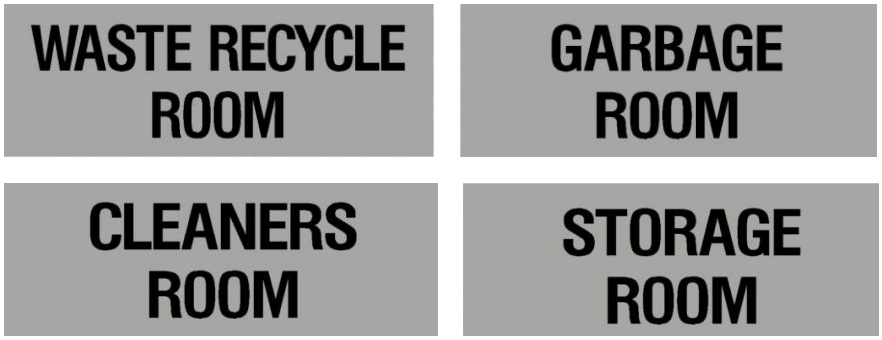
Colour coding as per AS 4123.7-2006

Mixed (Commingled) Recycling	*PMS 108*
General waste (landfill)	*PMS 032C*
Organics	*PMS 15-0343*
Paper and cardboard recycling	*PMS Process Blue C*
Soft Plastics	*PMS 1655*
Used Cooking Oil	*Grey*

E.2 Other Refuse, Facility and Safety Signage

Various signage including refuse area, safety and facility signage should be arranged through certified signage providers. Example signs can be found at http://www.signblitz.com.au, https://www.wayout.com.au or https://www.smartsign.com.

Example Refuse Room Signage



Example Facility Signage

Example Safety Signage

Appendix F Terms and Abbreviations

In this OWMP, a term or abbreviation has the following meaning unless indicated otherwise:

TERM	ABBREVIATION	DEFINITION
Equipment		
Bin (Refuse Bin)		A plastic or steel container for disposal and temporary storage of waste or recycling items. Various types and sizes exist for different items and purposes. Examples include residential unit bins, bulk bins, MGB, steely bins and specialised for medical waste or cigarette butts.
Bin Storage Area		An enclosed area designated for storing on-site refuse bins or a refuse compactor within the property.
Bulk Bin		A galvanized or steel bin receptacle that is greater than 360L in capacity generally ranging from 1.00m³ to 4.50m³ used for the storage of refuse that is used for on-site refuse collection.
Bulk Mobile Garbage Bin	Bulk MGB	A plastic (polypropylene) receptacle that is greater than 360L in capacity generally ranging from 660L to 1100L used for the storage of refuse.
Collection Point		An identified position where refuse bins are stored for collection and emptying. The collection point can also be the bin storage area.
Compactor		A receptacle that provides for the mechanical compaction and temporary storage of refuse. It allows to reduce bin numbers and collection frequency.
Composter		A container or machine used for composting specific food scraps and/or organic materials.
Food Waste Recycling System		Defined as a vacuum or pump-based system for shredding, macerating or pulping of food waste. The food waste is transferred through pressure (service) pipes to sealed liquid storage tanks.
Green Waste		All vegetated organic material such as small branches, leaves and grass clippings, tree and shrub pruning, plants and flowers.
Liquid Waste		Non-hazardous liquid waste generated by commercial premises should be connected to sewer or collected for treatment and disposal by a liquid waste contractor (including grease trap waste).
Mobile Garbage Bin	MGB	A plastic (polypropylene) bin or bins used for the temporary storage of refuse that is up to 360L in capacity and may be used in kerbside refuse collection or on-site collection.
Putrescible Waste		Putrescible waste is the component of the waste stream liable to become putrid and usually breaks down in a landfill to create landfill gases and leachate. Typically applies to food, animal and organic products.
Recycling		Recycling contains 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 Storage Room		An area identified for storing on-site MGBs or Bulk Bins within the property.
Refuse Trolley		A cart on wheels that can be used to collect smaller quantities of refuse from different areas or rooms of a building or site, and wheel the collected refuse to a (bulk) bin storage area where it is disposed. Refuse trolleys are commonly used in hotels or offices.
Regulated Waste		Regulated waste is waste prescribed under legislation as regulated waste.

TERM	ABBREVIATION	DEFINITION
Transfer (Manual Transfer)		Manual transfer means physical transfer of refuse material and associated bulk bins or trolleys without assistance.
Waste		Waste is referred to as refuse material with the exclusion of recycling, green waste, hazardous waste, special waste, liquid waste and restricted solid waste.
Waste (General Waste)		General waste is generally referred to as material free of any actual or apparent contamination such as pathological / infectious, radioactive materials and / or hazardous chemical. Reporting is used for material considered to be free of food waste.
Wheelie Bin		A MGB of up to 360L, usually with 2 wheels for easy transfer. A common type is a 240L wheelie bin used for kerbside collection in many residential areas.
Measures		
Cubic Metre	m^3	Volume in cubic metre(s) related to refuse management equipment.
Ground Floor Area	GFA	The GFA of all storeys 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.
Kilogram	kg	Kilogram(s) related to refuse weight.
Litre	L	Litre(s) related to refuse volumes.
Square Metre	m^2	Square metre(s) related to refuse areas.
Ton	T	Ton(s) related to refuse weight.
Collection Vehicles		
Body Truck		A conventional heavy vehicle with a covered loading area. It is generally not specifically designed for emptying the content of bins into the truck during refuse collections, but can be used to carry entire (full) bins for servicing by bin swap-over.
Refuse Collection Vehicle	RCV	A vehicle specifically designed for collecting and emptying refuse bins and refuse compactors.
Rear-End-Loading Refuse Collection Vehicle	REL RCV	A truck specially designed to collect municipal solid waste and recycling, typically 240L wheelie bins to 1100L bulk bins, from rear loading mechanism and haul the collected waste to a solid waste treatment facility.
Tank Truck		An RCV that is specifically designed to collect liquid wastes such as waste cooking oil and food waste pulp. The waste is typically pumped from a waste storage tank into the truck via a hose. Liquid waste management equipment is often provided by the contractor who collects the waste and operates the truck.