

30-46 AUBURN ROAD, REGENTS PARK

Waste Management Plan
Stage 3

Prepared for:

30-46 Auburn Road Pty Ltd
2a Gregory Place
Parramatta NSW 2150

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SLR 

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BASIS OF REPORT

This report has been prepared by SLR Consulting Australia Pty Ltd (SLR) with all reasonable skill, care and diligence, and taking account of the timescale and resources allocated to it by agreement with 30-46 Auburn Road Pty Ltd (the Client). Information reported herein is based on the interpretation of data collected, which has been accepted in good faith as being accurate and valid.

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1 Introduction

1.1 The Development

The Development is located at 30-46 Auburn Road, Regents Park, a residential development consisting of five towers located between Auburn Road, Regents Park and the railway line leading into Regents Park Station. The location of the site is shown in Figure 1.



Figure 1 Site location

The Development has the following features:

- Stage 1 – demolition and construction of infrastructure and landscaping
- Stage 2
 - Building A
 - Six floors
 - 35 residential units
 - 248 m² of retail
 - 83 m² of community facilities
 - Building B
 - Seven floors
 - 51 residential units

1.2 Objective

The objective of this WMP is to identify all potential waste likely to be generated at the development site during the construction and operational phases of the development, including a description of how waste would be handled, processed and disposed of, or re-used or recycled, in accordance with the requirements of the Planning Secretary's Environmental Assessment Requirements (SEARs) dated 20 December 2024 and issued for SSD-57703458. The relevant requirements of the SEARs are shown in Table 1 below.

Table 1 SEARs Addressed

Item	Description of requirement	Section reference (this report)
17.	Waste Management <ul style="list-style-type: none"> Provide the measures to be implemented to manage, reuse, recycle and safely dispose of this waste, including in accordance with any council waste management requirements 	For construction, please refer to: <ul style="list-style-type: none"> Table 3 Potential waste types and their management methods Section 4.4 Waste Avoidance Section 4.5 Reuse, Recycling and Disposal Section 4.6 Waste Storage and Servicing For operation, please refer to: <ul style="list-style-type: none"> Table 7 Potential waste types, classifications and management methods for operational waste Section 5.5 Waste storage rooms Section 5.8 Waste Movements, Collection and Servicing Council's waste management requirements can be found in: <ul style="list-style-type: none"> Section 0 Waste Management Guide for New Developments Appendix A – Canterbury Bankstown DCP 2023
	<ul style="list-style-type: none"> Identify appropriately sited waste storage areas, collection access paths/roads, appropriate servicing arrangements for the site. 	For construction, please refer to: <ul style="list-style-type: none"> Section 4.6 Waste Storage and Servicing For operation, please refer to: <ul style="list-style-type: none"> Section 5.8 Waste Movements, Collection and Servicing.

1.3 Review of WMP

This WMP requires review and updating to ensure ongoing suitability for the proposed on-going operations at the site.

This WMP will be reviewed and updated:

- To remain consistent with waste and landfill regulations and guidelines
- If changes are made to site waste and recycling management, or
- To take advantage of new technologies, innovations and methodologies for waste or recycling management.

Copies of the original WMP and its future versions should be retained by the building manager. Changes made to the WMP, as well as the reasons for the changes made, should be documented by the building manager as part of the review process.

2 Better Practice Waste Management and Recycling

2.1 Waste Management Hierarchy

This WMP has been prepared in line with the waste management hierarchy shown in Figure 3, which summarises the objectives of the *Waste Avoidance and Resource Recovery Act 2001*.

The waste management hierarchy comprises the following principles, from most to least preferable:

- Waste avoidance, prevention or reduction of waste generation. Achievable through better design and purchasing choices.
- Waste reuse, reuse without substantially changing the form of the waste.
- Waste recycling, treatment of waste that is no longer usable in its current form to produce new products.
- Energy recovery, processing of residual waste materials to recover energy.
- Waste treatment, reduce potential environmental, health and safety risks.
- Waste disposal, in a manner that causes the least harm to the natural environment.



Image from NSW EPA (2014) NSW Waste Avoidance and Resource Recovery Strategy 2014-21.

Figure 3 Waste management hierarchy

2.2 Benefits of Adopting Better Practice

Adopting better practice principles in waste minimisation offers significant benefits for organisations, stakeholders and the wider community. Benefits from better practice waste minimisation include:

- Improved reputation of an organisation due to social and environmental responsibility.
- Lowered consumption of non-renewable resources.
- Reduced environmental impact, for example, pollution, from materials manufacturing and waste treatment.
- Reduced expenses from lower waste disposal.
- Providing opportunities for additional revenue streams through beneficial reuse.

3 Waste Legislation and Guidance

3.1 Approval Requirements

The site is in the Bankstown part of the City of Canterbury-Bankstown. Although the approval authority is DPE, SLR has been guided by the Canterbury Bankstown Development Control Plan 2023 (CBDCP) and Council's *Waste Management Guide for New Developments* (the Guide). Sections relevant to waste management can be found in Appendix A.

We have addressed the relevant SEARs using Council requirements for waste storage area size, location, design and access as a guide.

3.2 Proposed Food and Garden Organics Mandates

3.2.1 Business Mandate

From 1 July 2025 the NSW Government proposes to legislate the source-separation of food and garden organics at certain business types. The Government is doing this because it has set the goal of halving the quantity of organics, including food waste, going to landfill and achieving net zero emissions from organics in landfill by 2030.

Businesses that must separate food waste from 1 July 2025 include institutions such as centre-based childcare facilities. Start dates will be staggered based on garbage bin capacity. The size of the bins at the child care centre at this development means it will not have to start separating food until 1 July 2029.

In a building complex with tenants, the requirement to arrange separation of food waste will be the responsibility of whoever is in charge of the waste collection service. Most likely this will be the building owner or manager. It will not be the responsibility of the individual tenants.

The building manager will need to ensure that there are enough bins for food waste and that organic and non-organic waste are not mixed during transportation.

Penalties will include fines for corporations and individuals, with added penalties for continuing offences.

Local councils will monitor and enforce business compliance. The EPA will monitor and enforce State and public authority compliance.

3.2.2 Household mandate

The State Government is also proposing that from 1 July 2030 household must separate food and garden organics. This will mean that councils will have to make sure all relevant residential accommodation in their local government areas are provided with enough organics collection bins for food waste and garden waste generated by residents and that organic waste collected is not mixed with other waste during transport.

Currently all councils in NSW will be covered by this requirement however, consideration is being given to exemptions for towns below a certain population size and density, and/or are a certain distance from processing facilities, or are located in certain areas.

The EPA will enforce compliance and there will be penalties and fines for councils that do not comply with added penalties for continuing offences.

3.3 Other Legislation and Guidance

The legislation and guidance outlined in Table 2 below should be referred to during the demolition, construction and operational phases of the Development.

Table 2 Legislation and guidelines

Legislation and Guidelines	Objectives
Building Code of Australia (BCA) and relevant Australian Standards	The BCA has the aim of achieving nationally consistent, minimum necessary standards of relevant health and safety, amenity and sustainability objectives efficiently.
Council of Australian Governments National Construction Code 2022	The National Construction Code 2022 sets the minimum requirements for the design, construction and performance of buildings throughout Australia.
NSW EPA's Better Practice Guidelines for Waste Management and Recycling in Commercial and Industrial Facilities 2012	These better practice guidelines present information on waste minimisation and resource recovery as well as information on commonly used waste management provisions. The guidelines also provide benchmarks for assessing waste production rates within Australia.
NSW Waste and Sustainable Materials Strategy 2041: Stage 1 – 2021-2027	Replacing the <i>NSW Waste Avoidance and Resource Recovery Strategy (2014-21)</i> , the <i>NSW Waste and Sustainable Materials Strategy 2041</i> focuses on the transition of NSW to a circular economy. The strategy focuses on minimising what is thrown away, and to use and reuse resources more efficiently, making them as productive as possible. The strategy identifies the need to identify infrastructure needs, the mandating of separation of some organic waste streams, and incentivising biogas generation from waste materials.
NSW EPA Resource Recovery Orders and Resource Recovery Exemptions	The NSW EPA has issued several resource recovery orders and resource recovery exemptions under the <i>POEO (Waste) Regulation 2014</i> for a range of wastes that may be recovered for beneficial re-use. These wastes typically include those from demolition and construction works, as well as operational waste such as food waste. <ul style="list-style-type: none"> Resource recovery orders present conditions which generators and processors of waste must meet to supply the waste material for beneficial re-use. Resource recovery exemptions contain the conditions which consumers must meet to use waste for beneficial re-use.
NSW EPA's Waste Classification Guidelines 2014	The NSW EPA <i>Waste Classification Guidelines</i> assists waste generators to effectively manage, treat and dispose of waste to ensure the environmental and human health risks associated with waste are managed appropriately and in accordance with the <i>POEO Act 1997</i> and is associated regulations.
<i>Protection of the Environment Operations Act (POEO) 1997 and Amendment Act 2011</i>	The <i>POEO Act 1997</i> and <i>POEO Amendment Act 2011</i> are administered by the NSW Environment Protection Authority (NSW EPA) to enable the NSW Government to establish instruments for setting environmental standards, goals, protocols and guidelines. They outline the regulatory requirements for lawful disposal of waste generated during the demolition, construction and operational phases of a development, as well as the system for licencing waste transport and disposal.
The Work Health and Safety Regulation 2017	The Work Health and Safety Regulation 2017 provide detailed actions and guidance associated with the topics discussed in <i>The Work Health and Safety Act 2011</i> . The primary aim of the regulation is to protect the health and safety of workers and ensure that risks are minimised in work environments. Workplaces are to ensure that they are compliant with the requirements specified in the regulations. The regulations discuss items such as actions that are prohibited or obligated in work environments, the requirements for obtaining licences and registrations, and the roles and responsibilities of staff in workplaces.

Legislation and Guidelines	Objectives
<p><i>Waste Avoidance and Resource Recovery Act 2001</i></p>	<p>The <i>Waste Avoidance and Resource Recovery Act 2001</i> aims to promote waste avoidance and resource recovery and repeals the <i>Waste Minimisation and Management Act 1995</i>. Specific objectives of the <i>Waste Avoidance and Resource Recovery Act 2001</i> include:</p> <ul style="list-style-type: none"> • encouraging efficient use of resources • minimising the consumption of natural resources and the final disposal of waste by encouraging the avoidance of waste and the reuse and recycling of waste • ensuring industry and the community share responsibility in reducing/dealing with waste, and • efficiently funding of waste/resource management planning, programs and service delivery. <p>As of 2016, the addition to the Act of Part 5 defines the legislative framework for the 'Return and Earn Container Deposit Scheme' whereby selected beverage containers can be returned to State Government authorities for a monetary refund.</p>

4 Construction Waste Management

4.1 Targets for Resource Recovery

Targets for new development are expected to contribute to state-specific targets. The NSW Waste and Sustainable Materials Strategy 2041 (DPIE, 2021) sets a target of 80% average recovery rate from all waste streams by 2030. Analysis by DPIE (2023-2024) indicates that construction and demolition waste recovery rates in 2023-2024 were 78%.

It is anticipated that the waste minimisation measures in the following sections will assist the Development to meet these targets. Waste reporting and audits can be used to determine the actual percentage of waste that are being, or have been, recycled during the site preparation, construction stages of The Development.

4.2 Waste Streams and Classifications

The construction phase of the Development will generate the following broad waste streams:

- construction waste
- plant maintenance waste
- packaging waste, and
- work compound waste from on-site employees.

A summary of likely waste types generated from construction activities, along with their waste classifications and proposed management methods, is provided in Table 3.

For further information on how to determine a waste's classification refer to the NSW EPA (2014) *Waste Classification Guidelines*.² Further information on managing construction waste is available from the NSW EPA website.³

² Available online from <https://www.epa.nsw.gov.au/your-environment/waste/classifying-waste/waste-classification-guidelines>

³ <http://www.epa.nsw.gov.au/your-environment/waste/industrial-waste/construction-demolition>

Table 3 Potential waste types and their management methods

Waste Types	NSW EPA Waste Classification	Proposed Management Method
Demolition and Construction		
Sediment fencing, geotextile materials	General solid waste (non-putrescible)	Reuse at other sites where possible or disposal to landfill
Concrete	General solid waste (non-putrescible)	Off-site recycling for filling, levelling or road base
Bricks and pavers	General solid waste (non-putrescible)	Cleaned for reuse as footings, broken bricks for internal walls, crushed for landscaping or driveway use, off-site recycling
Gyprock or plasterboard	General solid waste (non-putrescible)	Off-site recycling or returned to supplier
Sand or soil	General solid waste (non-putrescible)	Off-site recycling
Metals such as fittings, appliances and bulk electrical cabling, including copper and aluminium	General solid waste (non-putrescible)	Off-site recycling at metal recycling compounds and remainder to landfill
Conduits and pipes	General solid waste (non-putrescible)	Off-site recycling
Timber – treated	General solid waste (non-putrescible)	Reused for formwork, bridging, blocking, propping or second-hand supplier
Timber - untreated		Off-site recycling, chip for landscaping, sell for firewood, reused for floorboards, fencing, furniture, mulched secondhand supplier and remainder to landscape supplies.
Doors, windows, fittings	General solid waste (non-putrescible)	Off-site recycling at secondhand supplier
Insulation material	General solid waste (non-putrescible)	Off-site disposal
Glass	General solid waste (non-putrescible)	Off-site recycling, glazing or aggregate for concrete production
Asbestos	Special waste	Off-site disposal to a licensed landfill facility.
Fluorescent light fittings and bulbs	General solid waste (non-putrescible)	Off-site recycling or disposal, contact <i>FluoroCycle</i> for more information ⁴
Paint	Liquid waste	Off-site recycling, Paintback collection ⁵ or disposal
Synthetic rubber or carpet underlay	General solid waste (non-putrescible)	Off-site recycling, reprocessed for other uses
Ceramics including tiles	General solid waste (non-putrescible)	Off-site recycling
Carpet	General solid waste (non-putrescible)	Off-site recycling, disposal or reuse
Packaging		
Packaging materials, including wood, plastic, including stretch wrap or LDPE, cardboard and metals	General solid waste (non-putrescible)	Off-site recycling
Wooden or plastic crates and pallets	General solid waste (non-putrescible)	Reused for similar projects, returned to suppliers, or off-site recycling. Contact <i>Business Recycling</i> for more information ⁶
Work Compound and Associated Offices		

⁴ Available online from <http://www.fluorocycle.org.au/> or <http://www.environment.gov.au/settlements/waste/lamp-mercury.html>

⁵ Available online from <https://www.paintback.com.au/>

⁶ Available online from <https://businessrecycling.com.au/>

Waste Types	NSW EPA Waste Classification	Proposed Management Method
Food Waste	General solid (putrescible) waste	Dispose to landfill with general garbage
Recyclable beverage containers, such as glass and plastic bottles, aluminium cans and steel cans	General solid waste (non-putrescible)	Recycling at off-site licensed facility or at NSW container deposit scheme 'Return and Earn' facility ⁷
Clean paper and cardboard	General solid waste (non-putrescible)	Paper and cardboard recycling at off-site licensed facility
General domestic waste generated by workers such as soiled paper and cardboard, food and polystyrene	General solid waste (non-putrescible) mixed with putrescible waste	Disposal at landfill
Plant Maintenance		
Empty oil and other drums or containers, such as fuel, chemicals, paints, spill clean ups. Containers were previously used to store Dangerous Goods (Class 1, 3, 4, 5 or 8) and residues have not been removed by washing or vacuuming.	Hazardous waste	Transport to comply with the transport of Dangerous Goods Code applies in preparation for off-site recycling or disposal at licensed facility
Empty oil and other drums or containers, such as fuel, chemicals, paints, spill clean ups. Containers have been cleaned by washing or vacuuming.	General solid waste (non-putrescible)	
Air filters and rags	General solid waste (non-putrescible)	Off-site disposal
Oil filters, drained	General solid waste (non-putrescible)	Off-site recycling
Lead-acid or nickel-cadmium batteries	Hazardous waste	Off-site recycling, Contact the Australian Battery Recycling Initiative ⁸ for more information
Other batteries	General solid waste (non-putrescible)	

4.3 Construction Waste Types and Quantities

In the absence of readily available construction waste generation rates from Council, SLR has adopted the waste generation rates from Appendix A of The Hills Development Control Plan (DCP) 2012 for estimating the type and quantities of waste generated from construction of the towers. SLR has adopted the 'Block of Flats' rates to measure waste expected from the Development. We have also adopted rates for internal roads from *Light Duty Asphalt Pavements - Design, Specification and Construction 2002* Australian Asphalt Pavement Association, assuming 10% waste. These waste generation rates are shown in Table 4.

Table 4 Construction waste generation rates

Rate Type	Area (m ²)	Waste types and quantities (m ³)								
		Timber	Concrete	Bricks	Gyprock	Sand or Soil	Metal	Other	Asphalt	Granular Base
Block of flats	1,000	0.7	6.7	3.2	1.3	28.7	1.3	0.6	0	0
Internal Roads	1,000	0	2.1	0	0	0	0	0	3.0	12.5

The construction waste quantities anticipated from the construction of the Development are provided below in Table 5.

⁷Available online from <http://returnandearn.org.au/>

⁸<http://www.batteryrecycling.org.au/home>

Table 5 Estimated types and quantities of construction waste

Building	Level	Stage	GFA (m ²)	Waste types and approximate quantities (m ³)						
				Timber	Concrete	Bricks	Gyprock	Sand or Soil	Metal	Other
C	C3	3	2,800	2.0	18.8	9.0	3.6	80.4	3.6	1.7
C	C2	3	2,800	2.0	18.8	9.0	3.6	80.4	3.6	1.7
C	C1	3	2,800	2.0	18.8	9.0	3.6	80.4	3.6	1.7
C	G	3	3,000	2.1	20.1	9.6	3.9	86.1	3.9	1.8
C	1	3	2,950	2.1	19.8	9.4	3.8	84.7	3.8	1.8
C	2	3	2,036	1.4	13.6	6.5	2.6	58.4	2.6	1.2
C	3	3	2,036	1.4	13.6	6.5	2.6	58.4	2.6	1.2
C	4	3	2,036	1.4	13.6	6.5	2.6	58.4	2.6	1.2
C	5	3	2,036	1.4	13.6	6.5	2.6	58.4	2.6	1.2
C	6	3	1,972	1.4	13.2	6.3	2.6	56.6	2.6	1.2
C	7	3	1,972	1.4	13.2	6.3	2.6	56.6	2.6	1.2
C	8	3	1,972	1.4	13.2	6.3	2.6	56.6	2.6	1.2
C	9	3	1,807	1.3	12.1	5.8	2.3	51.9	2.3	1.1
C	10	3	861	0.6	5.8	2.8	1.1	24.7	1.1	0.5
C	11	3	861	0.6	5.8	2.8	1.1	24.7	1.1	0.5
Total			31,939	22	214	102	42	917	42	19

4.4 Waste Avoidance

In accordance with Council's waste policy, better practice waste management and the principles of ESD, the Building Contractor will identify opportunities for waste avoidance by:

- appropriate sorting and segregation of construction waste to ensure efficient recycling of waste,
- selecting construction materials taking into consideration their long lifespan and potential for reuse,
- ordering materials to size and ordering pre-cut and prefabricated materials,
- reuse of formwork,
- planned work staging,
- use of prefabricated components for internal fit outs,
- reducing packaging waste on-site by returning packaging to suppliers where possible and practicable, purchasing in bulk, requesting cardboard or metal drums rather than plastics, requesting metal straps rather than shrink wrap and using returnable packaging such as pallets and reels,
- careful on-site storage and source separation,
- reducing the amounts of materials used in construction where possible, such as:
 - exposing structures to reduce the use of floor, ceiling and wall cladding and finishes,

- ventilating buildings naturally to reduce use of ductwork,
- subcontractors informed of site waste management procedures, and
- co-ordination and sequencing of various trades.

The Building Contractor will investigate material selection for the reduction of embodied energy and resource depletion. This includes:

- the use of recycled concrete and steel,
- the reduction of PVC use,
- the use of low VOC (volatile organic compounds) paints, floor coverings and adhesives,
- the use of low formaldehyde wood products and post-consumer reused timber or Forest Stewardship Council certified timber where possible,
- the use of fittings and furnishings that have been recycled, are made from, or incorporate recycled materials, and have been certified as sustainable or environmentally friendly by a recognised third-party certification scheme,
- the use of building materials, fittings and furnishings including structural framing, roofing and façade cladding chosen with consideration to their longevity, adaptation, disassembly, reuse, and recycling potential, and
- the use of materials that have been certified as environmentally friendly by a recognised third-party certification scheme.

4.5 Reuse, Recycling and Disposal

Effective management of construction materials and waste, including options for reuse and recycling where applicable and practicable, will be conducted. Only waste that cannot be cost effectively reused or recycled is to be sent to landfill or appropriate disposal facilities.

Refer to Table 3 for an outline of the proposed reuse, recycling and disposal methods for potential waste streams generated by the development.

The following specific procedures should be implemented:

- concrete, tiles, and bricks should be reused or recycled off-site,
- steel should be recycled off-site, and all other metals should be recycled where economically viable,
- framing timber should be reused on-site or recycled off-site,
- windows, doors, and joinery should be recycled off-site, where possible,
- all used crates should be stored for reuse unless damaged,
- all glass that can be economically recycled should be recycled,
- all solid waste timber, brick, concrete, rock that cannot be reused or recycled should be taken to an appropriate facility for treatment to recover further resources or for disposal to landfill in an approved manner,
- all asbestos, hazardous and/or intractable waste should be disposed of in accordance with SafeWork NSW and NSW EPA requirements,

- provision for the collection of batteries, fluorescent tubes, smoke detectors and other recyclable resources should be provided on site, and
- all waste and recycling should be disposed of through a council approved system.

4.6 Waste Storage and Servicing

4.6.1 Waste Segregation

The Development will be managed ensuring effective source separation and appropriate collection of waste during construction works.

For construction stages, minimum dedicated skips, bins, and stockpiles should be considered for these materials:

- Timber and wood,
- Steel and scrap metal,
- Bricks,
- Concrete,
- General waste, and
- Other waste such as materials that may be re-used on future projects.

Where limited room is available for segregation of construction materials, consultation with recycling facilities is to be undertaken to determine which materials can be disposed of in the same skip and still be easily sorted post collection.

Separate receptacles for the safe disposal of hazardous waste types, such as light bulbs and batteries among others, will also be provided.

4.6.2 Space and Siting Requirements

Waste storage areas will be accessible and allow sufficient space for storage and servicing requirements. The storage areas will also be flexible in order to cater for change of use throughout the project. Where space is restricted, dedicated stockpile areas are to be delineated on the site, with regular transfers to dedicated skip bins for sorting.

The positions of the designated waste holding areas on site will change according to building works and the progression of the development, but must consider visual amenity, safety and accessibility in their selection. Appropriate siting of waste stockpile locations will consider slope and drainage factors to avoid contamination of stormwater drains during rain events.

All waste placed in skips or bins for disposal or recycling will be adequately contained to ensure that the waste does not fall, blow, wash or otherwise escape from the site. Waste containers and storage areas are to be kept clean and in a good state of repair.

4.6.3 Waste Servicing and Record Keeping

The Site Manager or equivalent role will:

- Arrange for suitable waste collection contractors to remove any construction waste from site,
- Ensure waste bins are not filled beyond recommended filling levels,
- Ensure that all bins and loads of waste materials leaving site are covered,
- Maintain waste disposal documentation detailing, at a minimum:
 - Descriptions and estimated amounts of all waste materials removed from site,
 - Details of the waste and recycling collection contractors and facilities receiving the waste and recyclables,
 - Records of waste and recycling collection vehicle movements, for example, date and time of loads removed, licence plate of collection vehicles, tip dockets from receiving facility, and
 - Waste classification documentation for materials disposed to off-site recycling or landfill facilities.
- Ensure lawful waste disposal records are readily accessible for inspection by regulatory authorities such as Council, SafeWork NSW or NSW EPA, and
- Remove waste during approved hours.

If skips and bins are reaching capacity, removal and replacement will be organised as soon as possible. All site-generated building waste collected in the skips and bins will leave the site and taken to a site lawfully able to accept them.

4.6.4 Waste Servicing and Transport

The frequency of the waste removal will, in most cases, be dictated by the quantities of material being deposited into each of the dedicated skip bins. All skips leaving the site will be covered with a suitable tarpaulin to ensure that the spillage of waste from the skips while in transit is eliminated.

All waste collections for construction works will be conducted between hours nominated in the approvals. All site generated building waste collected in the skips and/or bins will leave the site and be disposed of at a site lawfully able to accept it.

4.7 Site Inductions

All staff, including sub-contractors and labourers, employed during the construction phases of the Development must undergo induction training regarding waste management for the Development.

Induction training is to cover, as a minimum, an outline of the WMP including:

- Legal obligations and targets,
- Emergency response procedures on-site,
- Waste priorities and opportunities for reduction, reuse, and recycling,
- Waste storage locations and separation of waste,
- Procedures for suspected contaminated and hazardous waste,
- Waste related signage,
- The implications of poor waste management practices, and

- Responsibilities and reporting, including identification of personnel responsible for waste management and individual responsibilities.

It is the responsibility of the Site Manager or Building Contractor to notify Council of the appointment of waste removal, transport, or disposal contractors.

4.8 Signage

Standard signage is to be posted in all waste storage and collection areas. All waste containers should be labelled correctly and clearly to identify stored materials.

Signs approved by the NSW EPA for labelling of waste materials are available online⁹ and should be used where applicable. A selection of signs prepared by NSW EPA is provided in Figure 4.



Figure 4 Examples of NSW EPA labels for waste skips and bins

4.9 Monitoring and Reporting

In accordance with Council's Guidelines, a person should be nominated to be responsible for ensuring that targets are met and that waste dockets are retained from disposal and recycling facilities.

The following monitoring practices are to be undertaken to improve construction waste management and to obtain accurate waste generation figures:

- Conduct waste audits of current projects where feasible.
- Note waste generated and disposal methods.
- Look at past waste disposal receipts.
- Record this information to track waste avoidance, reuse, and recycling performance and to help in waste estimations for future waste management plans.

⁹ NSW EPA approved waste materials signage <https://www.epa.nsw.gov.au/your-environment/recycling-and-reuse/business-government-recycling/standard-recycling-signs>

Records of waste volumes recycled, reused or contractor removed should be maintained. This can include dockets or receipts verifying recycling and disposal in accordance with this WMP. This evidence should also be presented to regulatory bodies when required.

Daily visual inspections of waste storage areas will be undertaken by site personnel and inspection checklists and logs recorded for reporting to the Site Manager on a weekly basis or as required. These inspections will be used to identify and rectify any resource and waste management issues.

Waste audits are to be carried out by the Building Contractor to gauge the effectiveness and efficiency of waste segregation procedures and recycling and reuse initiatives. Where audits show that the above procedures are not carried out effectively, additional staff training will be undertaken, and signage re-examined.

4.10 Roles and Responsibilities

All personnel have a responsibility for their own environmental performance and compliance with all legislation. It will be the responsibility of the Building Contractor to implement the WMP, and an employee and subcontractor responsibility to ensure that they always comply with the WMP.

Where possible, an Environmental Management Representative should be appointed for the Development. Suggested roles and responsibilities are provided in Table 6.

Table 6 Suggested roles and responsibilities for construction waste management

Responsible Person	General Tasks
Construction Site Manager	Ensuring plant and equipment are well maintained.
	Ordering only the required amounts of materials.
	Keeping materials segregated to maximise reuse and recycling.
	Ultimately responsible for routinely checking waste sorting and storage areas for cleanliness, hygiene and safety issues, contaminated waste materials, and also ensuring that all monitoring and audit results are well documented and carried out as specified in the WMP.
Construction Environmental Manager or equivalent	Approaching and establishing the local commercial reuse of materials where reuse on-site is not practical.
	Establishing separate skips and recycling bins for effective waste segregation and recycling purposes.
	Ensuring staff and contractors are aware of site requirements.
	Provision of training of the requirements of the WMP and specific waste management strategies adopted for the Development.
	Contaminated waste management and approval of off-site waste transport, disposal locations and checking licensing requirements.
	Approval of off-site waste disposal locations and checking licensing requirements.
	Assessment of suspicious potentially contaminated materials, hazardous materials and liquid waste.
	Monitoring, inspection and reporting requirements.

Daily visual inspections of waste storage areas may be delegated to other on-site staff. All subcontractors will be responsible for ensuring that their work complies with the WMP through the project induction and contract engagement process.

5 Operational Waste Management

5.1 Targets for Resource Recovery

Targets for new development are expected to contribute to state-specific targets. The NSW Waste and Sustainable Materials Strategy 2041 (DPIE, 2021) sets a target of 80% average recovery rate from all waste streams by 2030. Analysis by DPIE (2023-2024) indicates that the commercial and industrial waste recovery rate in 2023-2024 was 51%.

It is anticipated that the waste minimisation measures in the following sections will assist the Development to meet these targets. Waste reporting and audits can be used to determine the actual percentages of waste that are, or have been, recycled during operation.

5.2 Waste Streams and Classifications

The operation of the Development will generate the following broad waste streams:

- domestic waste, such as general waste, recyclable paper and cardboard and comingled containers
- bulk packaging waste, such as cardboard boxes
- garden organic waste from the landscaping areas
- food waste, and
- bulky waste items, such as furniture.

Potential waste types, their associated waste classifications, and management methods are provided in Table 7. For further information on how to determine a waste's classification, refer to the NSW EPA (2014) *Waste Classification Guidelines*.¹⁰ Suggestions for recycling drop off locations and contacts can be found at <https://businessrecycling.com.au/> for each waste type.

Table 7 Potential waste types, classifications and management methods for operational waste

Waste Types	NSW EPA Waste Classification	Proposed Management Method
General Operations		
Clean office paper	General solid (non-putrescible) waste	Paper recycling at off-site licensed facility
Cardboard including bulky cardboard boxes	General solid (non-putrescible) waste	Cardboard recycling at off-site licensed facility
Recyclable beverage containers, glass and plastic bottles, aluminium cans, steel cans	General solid (non-putrescible) waste	NSW container deposit scheme 'Return and Earn', container recycling at off-site licensed facility
Food waste	General solid (putrescible) waste	Compost on or off-site or dispose to landfill with general garbage
Lead-acid or nickel-cadmium batteries	Hazardous waste	Off-site recycling, Contact the Australian Battery Recycling Initiative ¹¹ for more information
Other batteries	General solid waste (non-putrescible)	
Mobile Phones	General solid waste (non-putrescible)	Off-site recycling; can be taken to the Mobile Muster program. Contact Mobile Muster for more information

¹⁰ Available online from <https://www.epa.nsw.gov.au/your-environment/waste/classifying-waste/waste-classification-guidelines>

¹¹ <http://www.batteryrecycling.org.au/home>

Waste Types	NSW EPA Waste Classification	Proposed Management Method
Bulky polystyrene	General solid (non-putrescible) waste	Off-site recycling or disposal at landfill
Furniture	General solid (non-putrescible) waste	Off-site reuse or disposal to landfill
E-waste	General solid waste (non-putrescible)	Off-site recycling
Clinical waste	Special waste	Stored, handled, collected and disposed of according to AS 3816 and the <i>Protection of the Environment Operations Act 1997</i>
Printer toners and ink cartridges	General solid waste (non-putrescible)	Off-site recycling, free disposal box or bags and pickup service exists for printer toners and ink cartridges
General garbage, including non-recyclable plastics	General solid (putrescible and non-putrescible) waste	Disposal at landfill
Maintenance		
Spent smoke detectors ¹² - some commercial varieties	Hazardous waste	Disposal to landfill, or off-site disposal at licensed facility
Spent smoke detectors - others	General solid (non-putrescible) waste,	
Glass, other than containers	General solid (non-putrescible) waste	Off-site recycling
Light bulbs and fluorescent tubes	General solid (non-putrescible) waste	Off-site recycling or disposal, contact FluoroCycle ¹³ or Lamp Recyclers ¹⁴ for more information
Empty oil and other drums or containers, such as fuel, chemicals, paints, spill clean ups that were previously used to store Dangerous Goods (Class 1, 3, 4, 5 or 8) and residues have not been removed by washing or vacuuming.	Hazardous waste	Transport to comply with the transport of Dangerous Goods Code applies in preparation for off-site recycling or disposal at licensed facility
Empty oil and other drums or containers, such as fuel, chemicals, paints, spill clean ups that have been cleaned by washing or vacuuming.	General solid waste (non-putrescible)	
Garden organics - lawn mowing, tree branches, hedge cuttings, leaves	General solid (non-putrescible) waste	Reuse on-site or contractor removal for recycling at licenced facility

5.3 Waste Quantities

5.3.1 Residential

Council's waste guide (see Section 3.1 above) specifies that each apartment should have 120 L of garbage and 120 L of recycling capacity available each week.

Details of the number of residential dwellings in each tower in Stage 3 are shown in Table 8 below along with the total garbage and recycling capacity allocation required.

¹² The Australian Radiation Protection and Nuclear Safety Agency (ARPANSA) require that when more than 10 smoke alarms (particularly americium-241 sources) are collected for bulk disposal they must be treated as radioactive waste and the requirements of the National Health and Medical Research Council's Code of practice for the near-surface disposal of radioactive waste in Australia (1992) must be met.

¹³ <https://www.fluorocycle.org.au/>

¹⁴ <https://www.lamprecyclers.com.au/>

Table 8 Number of apartments per tower – Stage 3

Tower	Number of Residential Apartments	Garbage Capacity Allocation per Unit per Week (L)	Recycling Capacity Allocation per Unit per Week (L)	Garbage Capacity Allowed (L)	Recycling Capacity Allowed (L)
C1	49	120	120	5,880	5,880
C2	57			6,840	6,840
C3	36			4,320	4,320
Total	142			17,040	17,040

5.3.2 Childcare Centre

Waste quantity calculations for the childcare centre are based on the following assumptions:

- In the absence of waste generation rates for childcare centres in Council's documentation, use of waste generation rates for childcare in the NSW EPA's *Better practice guide for resource recovery in residential developments* as shown in Table 9 below.
- No compaction of any streams
- Five day per week operation.

Table 9 Waste Generation Rates

Tenant Type	EPA Residential Guide Classification	Litres per child per day	
		Garbage	Recycling
Childcare centre	Childcare	20	5

Taking into account the assumptions above and the waste generation rates shown in Table 9 above, Table 10 below shows estimates of the amounts of waste likely to be generated from the childcare centre.

Table 10 Childcare waste quantities

Floor	Block	Assumed Type	Number of Children	Number of days operation per Week	Total per Week (L)	
					Garbage	Recyclables
Ground	C	Childcare	106	5	10,600	2,650

5.4 Space Required

5.4.1 Residential

Bins of 1100 L capacity are proposed for garbage and recyclables. Council has agreed to three collection per week for each stream which is assumed in the calculations. A bulky waste space allowance of 4 m² is also required for each building.

Table 11 below shows the total number of bins and the space required for residential waste storage at Block C.

Table 11 Residential waste storage area Stage 3 - Block C

Stage		3
Per Week (L)	Garbage	17,040
	Recycling	17,040
Bin Capacity		1100 L
Collection Frequency per Week	Garbage	3
	Recycling	3
Number of Bins	Garbage	7
	Recycling	7
Area required for bins (m ²)	Garbage	11.9
	Recycling	11.9
	Total bins only	23.9
	Total including manoeuvring	47.8
Bulky waste space required (m ²)		4.0
Total including bulky waste and manoeuvring		51.8

The figures above have been calculated assuming no compaction of any materials.

5.4.2 Childcare Centre

Bins of 1100 L capacity are proposed for garbage and recyclables. Council has agreed to three collection per week for each stream which is assumed in the calculations.

Table 11 below shows the total number of bins and the space required for childcare waste storage at Block C.

Table 12 Childcare waste storage area Stage 3 - Block C

Stage		3
Per Week (L)	Garbage	10,600
	Recycling	2,650
Bin Capacity		1100 L
Collection Frequency per Week	Garbage	3
	Recycling	3
Number of Bins	Garbage	4
	Recycling	1
Area required for bins (m ²)	Garbage	6.8
	Recycling	1.7
	Total bin space	8.5
	Total including manoeuvring	12.8

The figures above have been calculated assuming no compaction of any materials.

5.5 Waste storage rooms

The drawings show the size and location of a residential recycling room and bulky waste room on level C2. The recycling room has an area of about 35 m² and the bulky waste room has an area of other about 22 m². These are shown in Figure 5 below.

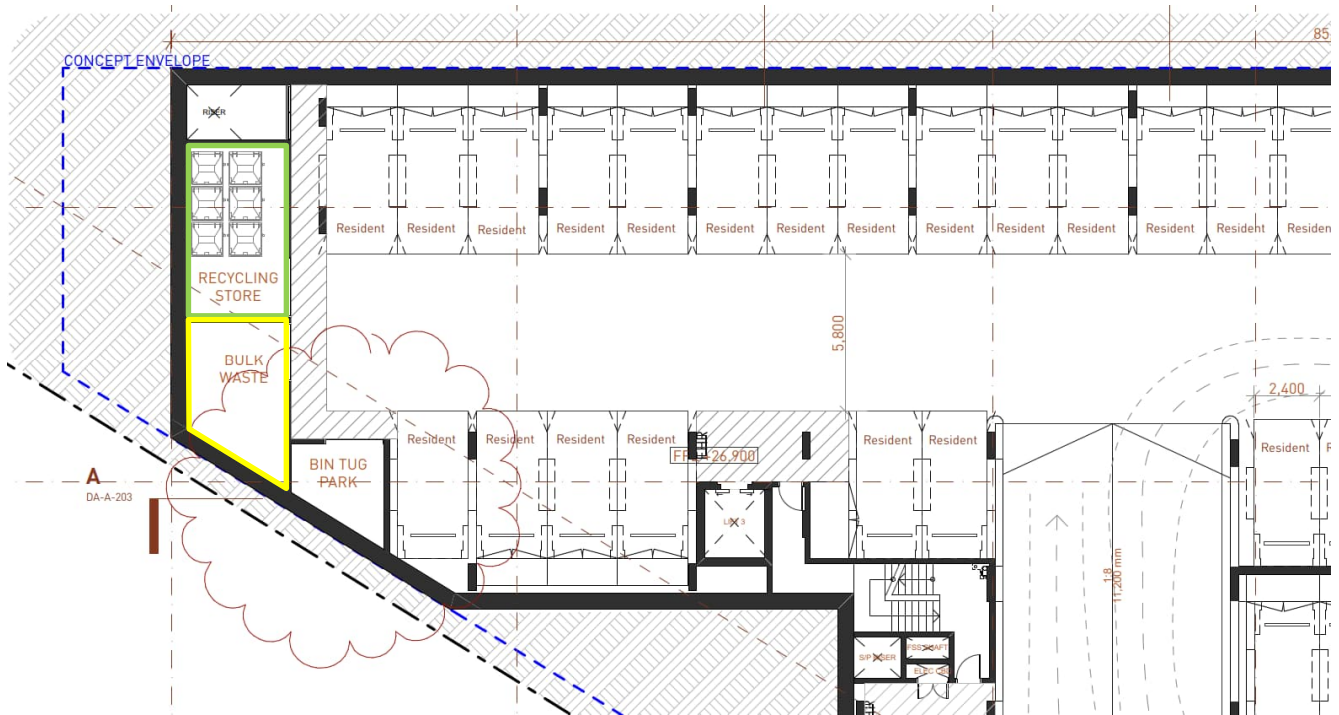


Figure 5 Recycling and bulky waste storage rooms Building C

As 23.9 m² is required for residential recycling, this can be stored in the recycling room. As only 4.0 m² is required for bulky waste, this can be stored in the bulky waste room.

The drawings also show the size and location of a room on level C1 for waste from the childcare centre. This room has an area of about 35 m². This is shown in Figure 6 below.

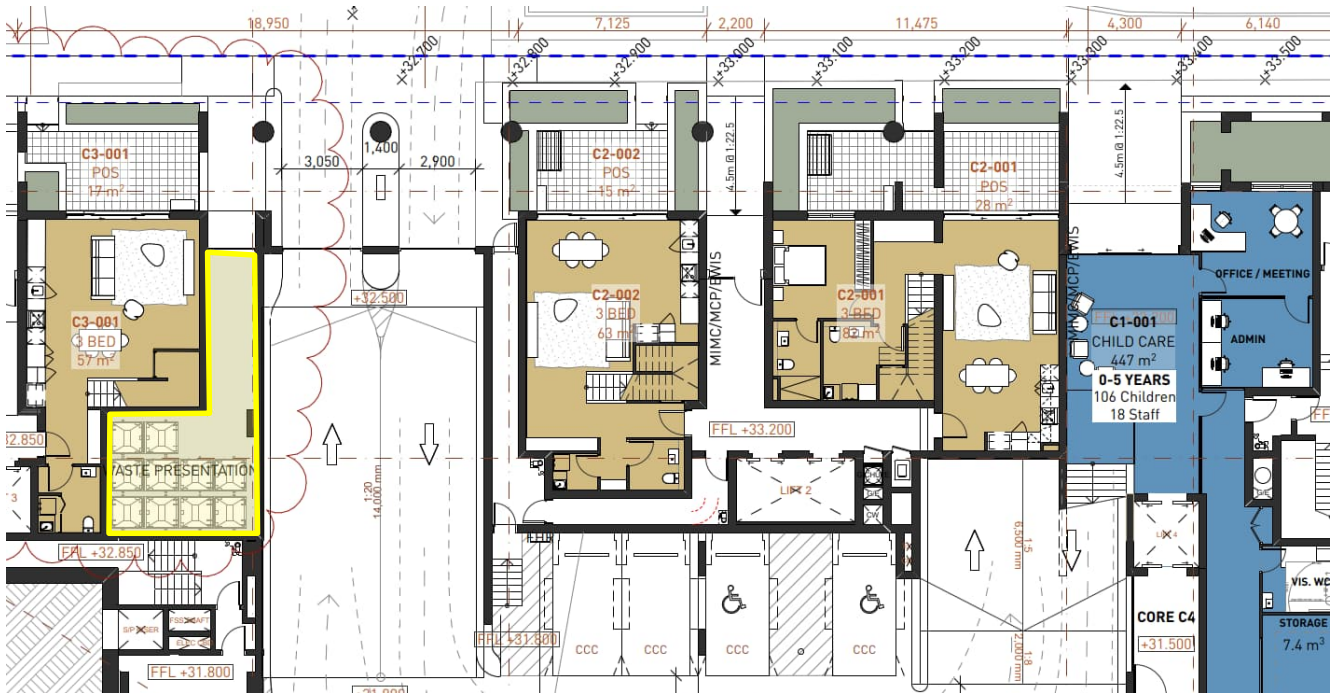


Figure 6 Childcare centre waste room Building C

As 12.8 m² is required for childcare waste, this can be stored in this room.

The drawings also show chute rooms on level C1 and C2. These will hold bins for garbage which will be transported directly from these rooms to the loading dock between Building's C and D. No interim storage is required in Building C for garbage. The C1 chute room is about 13 m² and the two chute rooms on C2 are 11.4 m² and 12.1 m² respectively. These are shown in Figure 7 below.

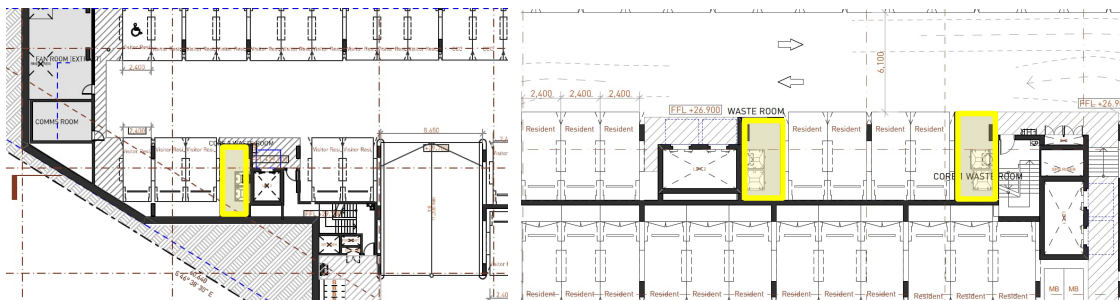


Figure 7 Chute rooms on C1 (left) and C2 (right) in Building C

Each of the chute rooms allows space for one bin under the chute and a spare bin to replace it three times per week when garbage bins are taken for collection from Building B.

5.6 Waste equipment

All bins used in the Development will:

- Have a fixed tight-fitting lid and a smooth, washable internal surface
- Always be kept in serviceable condition and at the agreed bin numbers.

Cleaning of bins will be conducted regularly and monitored by the managing body.

One chute for garbage is proposed for each of the three building cores. No compaction or bin changing equipment is proposed.

5.7 Construction of Waste Storage Rooms

In accordance with better practice waste management, waste storage rooms will be constructed to Council's requirements listed in Appendix A.

5.8 Waste Movements, Collection and Servicing

5.8.1 Residential

Residents will take garbage to the garbage chute on each floor. Recyclables will be taken to the recycling bin positioned in a cupboard next to the chute. Chute in cores C1 will empty into a chute room on Level C1. The chutes in core C2 and C3 will empty into chute rooms on Level C2. These are shown in Figure 7 above.

The recycling bins on each floor will be collected by cleaners as required and taken to the residential waste storage room on Level C2. Three times per week to coincide with Council's collection, cleaners will take the garbage bins from the chute rooms and the recycling bins from the recycling room to the loading dock between Building's C and D.

5.8.2 Childcare

Childcare centre operators will take their waste from the childcare centre to the waste storage area on Level C1 each day. Bins in the childcare waste storage area will be taken to the loading dock in Building B as required for collection.

5.8.3 Travel paths

A bin tow tug is proposed to be used to move bins from the waste storage rooms through the carpark and up the vehicle ramps to the temporary store for Council pick up. These travel paths are shown in Figure 8, Figure 9 and Figure 10 below. The tug will be stored on level C2.

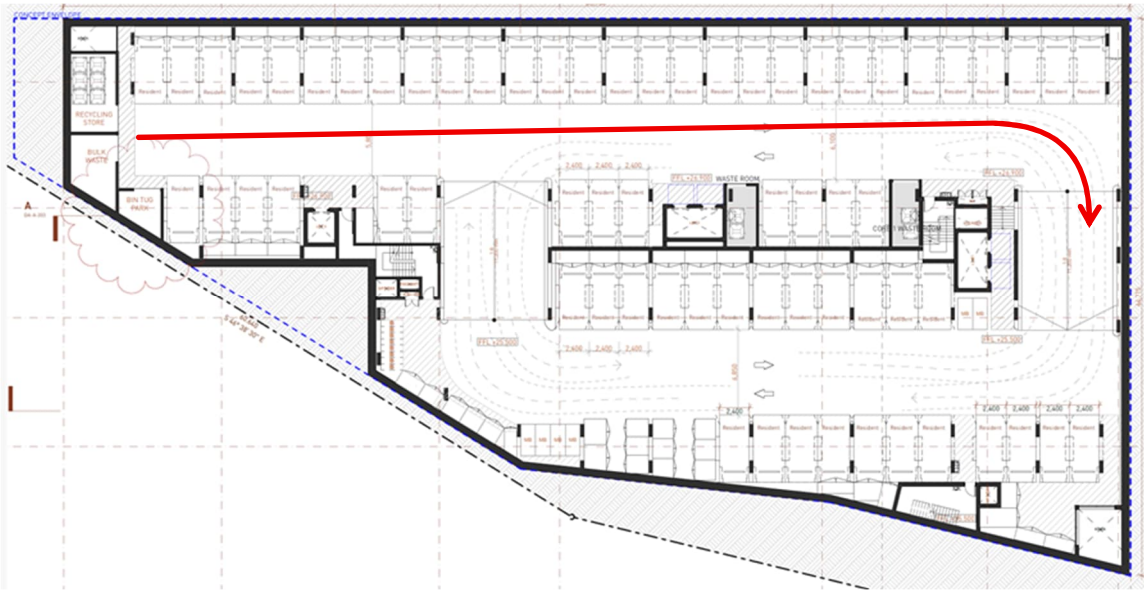


Figure 8 Level C2 travel path

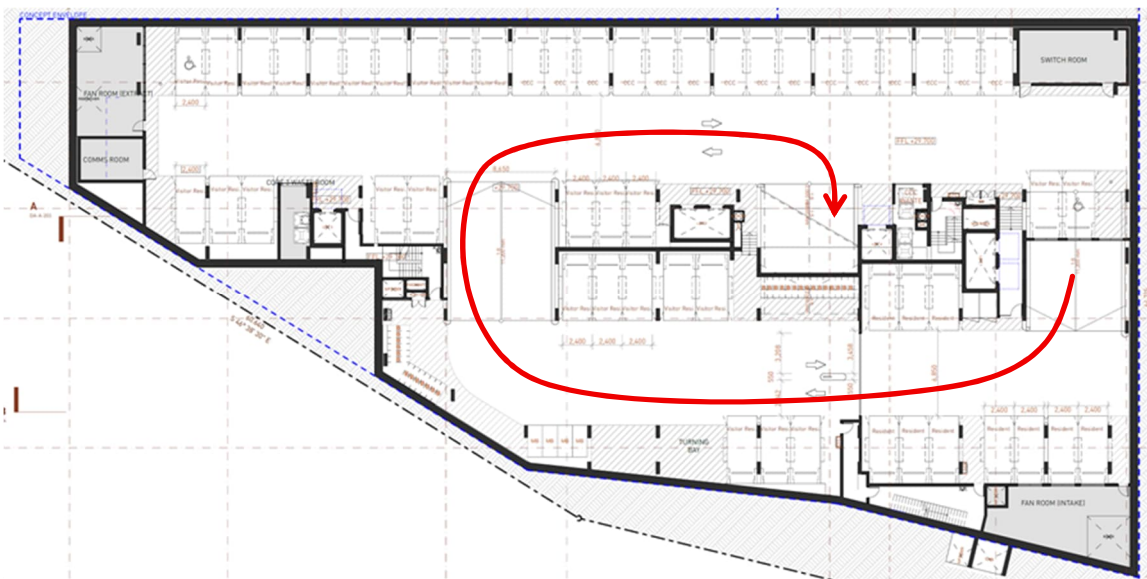


Figure 9 Level C1 travel path



Figure 10 Ground level travel path

5.8.4 Collection vehicle swept paths

Collection vehicle swept paths can be found in Appendix B.

5.9 Communication Strategies

Waste management initiatives and management measures will be clearly communicated by building managers to owners, tenants, employees, visitors, customers and cleaners. Benefits of providing this communication include:

- improved satisfaction with services,
- increased ability and willingness to participate in recycling,
- improved amenity and safety,
- improved knowledge and awareness through standardisation of services,
- increased awareness or achievement of environmental goals and targets,
- reduced contamination of recyclables stream,
- increased recovery of recyclables and organics material, if implemented, and
- greater contribution to targets for waste reduction and resource recovery, the environment and heritage conservation.

To realise the above benefits, the following communication strategies will be considered:

- Use consistent signage and colour coding throughout the Development,
- Ensure all staff are trained in correct waste separation and management procedures,
- Provide directional signage to show location of and routes to waste storage area,

- General waste and co-mingled recycling bins should be clearly labelled and colour-coded to ensure no cross contamination, where applicable,
- Employees and cleaners should adhere to the WMP for compliance, in consultation with management, and
- Repair signs and labels promptly to avoid breakdown of communications.

5.10 Signage

The waste storage and collection areas will be provided with appropriate signage. These signs will clearly identify waste management procedures and provisions to contractors, tenants and visitors will be distributed around the Development.

Key signage considerations are:

- Clear and correct labelling on all waste and recycling bins, indicating the correct type or types of waste that can be placed into a given bin, as shown in Figure 11,
- Signposts and directions to location of waste storage areas,
- Clear signage in all waste storage areas to instruct users how to correctly separate waste and recycling,
- Maintaining a consistent style colour scheme and system for signs throughout the Development,
- Emergency contact information for reporting issues associated with waste or recycling management, and
- Contractor information to be displayed in accordance with Council's Waste Management Local Approvals Policy.

Colour-coded and labelled bin lids are necessary for identifying bins. Bins will be designed and colour-coded in accordance with the Australian Standard AS 4123: Mobile Garbage Containers.

All signage will conform to the relevant Australian Standard and use labels approved by the NSW EPA¹⁵. The design and use of safety signs for waste rooms and enclosures will comply with Australian Standard AS 1319 Safety Signs for the Occupational Environment and clearly describes the types of materials designated for each bin.

¹⁵ NSW EPA waste signage and label designs <http://www.epa.nsw.gov.au/wastetools/signs-posters-symbols.htm>



Figure 11 Example of bin labels for operational waste

5.11 Cleaning, Maintenance and Security

Regular cleaning of waste and recycling storage areas will be undertaken by cleaners or facilities management staff. Facilities management staff will erect and maintain suitable signage in the waste storage areas (see Section 5.10). The waste collection area will be secured and access only available to retailers, facilities managers and collection contractors.

5.12 Monitoring and Reporting

Monitoring will ensure waste and recycling management arrangements and provisions for the Development are functional, practical and are maintained to the standard outlined in this plan, at a minimum.

Visual assessments of bins and bin storage areas will be conducted by the building manager, at minimum:

- Weekly, in the first two months of operation to ensure the waste management system is sufficient for the operation, and
- Every six months, to ensure waste is being managed to the standards outlined in this document.

In addition, audits may be conducted every six months to ensure WMP provisions are maintained.

Any deficiencies identified in the waste management system, including unexpected waste quantities, will be rectified by the Building Manager as soon as it is practical. Where audits show that recycling is not carried out effectively, management will carry out additional staff training, signage re-examination and reviews of the waste management system where the audit or other reviewing body has deemed necessary. If this waste management plan no longer sufficiently meets the needs of the Development, review, and updates to maintain suitability must be undertaken.

5.13 Roles and Responsibilities

It is the responsibility of the Building Manager, or equivalent role, to implement this WMP and a responsibility of all tenants and staff to follow the waste management procedures set out by the WMP. Any subcontractors enlisted by the Client will have roles and responsibilities identified and the Development's waste management system clearly explained. A summary of recommended roles and responsibilities is provided in Table 13.

Table 13 Operational waste management responsibility allocation

Responsible Person	General Tasks
Management	Ensure the WMP is implemented throughout the life of the operation.
	Regularly update the WMP, for example, each year, to ensure the Plan remains applicable.
	Undertake liaison and management of contracted waste collections.
	Organise internal waste audits on a regular basis.
	Manage any complaints and non-compliances reported through waste audits and other means.
	Regularly inspect all waste storage areas and waste management equipment.
	Organise cleaning and maintenance requirements for waste management equipment.
	Monitor bins to ensure no overfilling occurs.
	Ensure effective signage, communication and education is provided to alert visitors, employees and cleaners about the provisions of this WMP and waste management equipment use requirements.
	Monitor and maintain signage to ensure it remains clean, clear and applicable.
	Ensure waste and recycling storage rooms are kept tidy.
	Ensure that regular cleaning and daily transfer of bins is being undertaken by the cleaners
	Ultimately responsible for the management of all waste management equipment, cleaning requirements, waste transfer and collection arrangements.
Cleaners and Staff	Removal of general waste, recyclables, cardboard waste and hazardous waste from storage rooms for transfer to the interim waste storage area as required for collection.
	Cleaning of all bins and waste and recycling rooms on a weekly basis or as required.
	Compliance with the provisions of this WMP.
Childcare centre staff	Take waste to waste storage room for collection
	Return bins to tenancy when emptied
	Not dumping waste in the waste storage room
Residential tenants	Separate waste and place garbage in chutes and recyclables in bins on each floor
	Not dumping waste in the waste storage rooms
Gardening contractor, as applicable	Removal of all garden organics waste generated during gardening maintenance activities for recycling at an off-site location or reuse as organic mulch on landscaped areas.

APPENDIX A

Council Requirements

Canterbury Bankstown Development Control Plan 2023

The relevant sections of the CBDCP are detailed below.

Chapter 3 General Requirements

3.3 Waste Management June 2023

The Canterbury-Bankstown Development Control Plan 2023 must be read in conjunction with:

- *Work, Health and Safety legislation and standards.*
- *Waste Design for New Developments Guides. The Guides support this DCP by ensuring development implements optimal waste management systems that are fully integrated with Council's standard waste servicing system. The Guides are based on development types:*
 - *Guide A–Single Dwellings*
 - *Guide B–Multi Dwelling Housing*
 - *Guide C–Residential Flat Buildings*
 - *Guide D–Boarding Houses*
 - *Guide E–Mixed Use Development*
 - *Guide F–Commercial and Industrial.*

Note:

- *If applicable to a development application, the development controls of Chapter 3.3 of this DCP will prevail if there is an inconsistency with the applicable Waste Design for New Developments Guide.*
- *Development applications must submit a Waste Management Plan in accordance with the applicable Waste Design for New Developments Guide and the Demolition and Construction Guide.*
- *Council's standard waste servicing system is a heavy rigid vehicle (HRV) as per the Australian Standard AS 2890.2, Parking facilities: Off-street commercial vehicle facilities.*

SECTION 2–STANDARD SERVICE SPECIFICATIONS FOR RESIDENTIAL DEVELOPMENT

Development controls

2.1 The weekly generation rates per dwelling are:

General waste	Recycling	Garden organics
140L	120L	120L *

Note: All bin allocations are rounded up to the next whole number (for example the calculation of 4.4 bins will be rounded to 5 bins).

** Residential flat buildings, shop top housing and mixed-use development are allocated 1 bin per 10 dwellings.*

2.2 The bin sizes for residential development are:

Residential development	Waste stream		
	General waste	Recycling	Garden organics
Attached dwellings, dwelling houses, dual occupancies, secondary dwellings, semi-detached dwellings	140 L	240 L	240 L
Manor houses, multi dwelling housing, multi dwelling housing (terraces)	140 L/240 L/660 L/1,100 L	240 L/660 L/1,100 L	240 L
Residential flat buildings, shop top housing, mixed use development	660 L/1,100 L or hook lift bin with compactor	660 L or 1,100 L	240 L

2.3 The standard bin dimensions are:

Standard bin type	Dimensions		
	Height	Width	Depth
140L mobile garbage bin	930 mm	530 mm	610 mm
240 L mobile garbage bin	1,060 mm	580 mm	730 mm
660 L bulk bin	1,250 mm	1,370 mm	850 mm
1,100 L bulk bin	1,470 mm	1,370 mm	1,245 mm
Hook lift/compactor bin (10 m ³ –30 m ³)	2.5 m	2.5 m	6 m

Note: Dimensions are a guide only and may differ depending on the manufacturer. An additional 15cm is to be provided around each bin in the design of the waste bin storage area, to ensure it can function effectively and efficiently, and to avoid damage to walls and doors from bins scraping against them.

2.4 The standard service frequencies for residential development are:

Residential development	Service frequency			
	General waste	Recycling	Garden organics	Bulky waste (per calendar year)
Attached dwellings, dwelling houses, dual occupancies, secondary dwellings, semi-detached dwellings	One collection per week	One collection per fortnight	One collection per fortnight**	Two collections
Manor houses, multi dwelling housing, multi dwelling housing (terraces)	One collection per week	One collection per fortnight	One collection per fortnight**	Development (5 or less dwellings)—Two collections
Low rise residential flat buildings, shop top housing, mixed use development	One collection per week	One collection per fortnight	One collection per fortnight**	Development (6 to 50 dwellings)—Four collections***
Medium rise residential flat buildings, shop top housing, mixed use development	One or two collections per week*	One collection per fortnight*	One collection per fortnight	Development (51 or more dwellings)—Six collections***
High rise residential flat buildings, shop top housing, mixed use development	Two collections per week*	One collection per fortnight*	One collection per fortnight	

Note:

*	<i>Service frequency may be increased for medium and high rise residential flat buildings, shop top housing and mixed-use development only after discussion and recommendation of Council's waste management assessment officers.</i>
**	<i>Alternative week to recycling service.</i>
***	<i>Bookings to be made by caretaker, building manager or strata manager on behalf of the whole building.</i>
Low rise	<i>Up to 4 storeys</i>
Medium rise	<i>5–8 storeys</i>
High rise	<i>9 or more storeys</i>

SECTION 3–RESIDENTIAL DEVELOPMENT

Development controls

All residential development types

3.1 Council or its contractors are solely to provide the waste services to all residential development types as required under the Local Government Act 1993.

3.2 Each dwelling is to have:

(a) A waste storage cupboard in the kitchen capable of holding two days waste and recycling and be sufficient to enable separation of recyclable materials.

(b) A suitable space in the kitchen for a caddy to collect food waste.

3.3 Development must provide an adequate sized bin storage area behind the front building line to accommodate all allocated bins.

3.4 The location of the bin storage area must not adversely impact on the streetscape, building design or amenity of dwellings.

3.5 The location of the bin storage area should ensure this area:

(a) is screened or cannot be viewed from the public domain; and

(b) is away from windows of habitable rooms to reduce adverse amenity impacts associated with noise, odour and traffic.

3.6 The location of the bin storage area is to be convenient to use for the dwelling occupants and caretakers, through reducing the bin travel distance from the bin storage area to the nominated kerbside collection point. The bin-carting route from the bin storage area to the collection point must not pass through any internal areas of the building/dwelling and must avoid stairs or slopes.

3.7 Where possible, development may consider providing each dwelling with a suitable space for composting and worm farming, located within the backyard, private courtyard or open space. Composting facilities should locate on an unpaved area, with a minimum size of 1 m² per dwelling.

3.8 Dwellings are to have access to an adequately sized on-site storage area to store bulky waste awaiting collection.

3.9 Development must comply with the requirements of the applicable Waste Design for New Developments Guide.

Residential flat buildings

3.17 In addition to clauses 3.1–3.9, residential flat buildings are to provide a communal bin storage area that is designed to integrate with Council's standard collect and return service by locating the bin storage area within 10 m of a layback to the nominated collection point and ensuring safe parking for Council's service vehicle, without blocking driveways or traffic. Nominated collection points must avoid classified roads and roads with high vehicle and pedestrian traffic.

3.18 The communal bin storage area must be of sufficient size to accommodate all allocated bins, and the location and design must:

- (a) integrate with the building form and landscape;*
- (b) locate either at ground level behind the front building line or within the basement level of the development;*
- (c) provide direct and convenient access for the occupants of the development. The maximum walking distance from any entrance of a dwelling to the communal bin storage area must not exceed 30 m (lift travel distance not included);*
- (d) allow for the safe and direct transfer of all bins from the bin storage area to the collection point;*
- (e) not adversely impact the occupants within and adjoining the development in relation to visual amenity, noise, odour and traffic;*
- (f) not interfere with car parking, landscape and any existing trees and vegetation;*
- (g) not adversely impact on the streetscape, building design or amenity of dwellings;*
- (h) comply with the requirements of the applicable Waste Design for New Developments Guide;*
- (i) ensure walls and floors are solid and impervious;*
- (j) ensure compliance with Work, Health and Safety legislation and standards.*

3.19 The bin-carting route from the bin storage area to the collection point must:

- (a) be direct and short as possible;*
- (b) be solid, impervious and a minimum 2 m wide;*
- (c) be non-slip, free from obstacles and steps;*
- (d) be a maximum grade of 1:30;*
- (e) avoid passing through any internal areas of the building;*
- (f) ensure compliance with Work, Health and Safety legislation and standards.*

3.20 Where development is proposing on-site waste servicing and collection or is deemed by Council to be unsuitable for collect and return, the development is to be designed to integrate with Council's standard waste service and to enable all allocated bins to be collected on-site. This includes:

(a) designing entry/exit points and internal roads to allow Council's waste collection vehicles to enter and exit in a forward direction;

(b) ensuring the design of the waste collection vehicle route of travel (including manoeuvring areas) and loading area complies with the Australian Standard AS 2890.2;

(c) ensuring the on-site collection point integrates into the design of the development. The collection point may be directly from the bin storage area or a nominated holding collection area within the site;

(d) ensuring the design of the on-site collection point complies with the requirements of the applicable Waste Design for New Developments Guide.

Note: Council's standard waste servicing system is a heavy rigid vehicle as per the Australian Standard AS 2890.2.

3.21 Residential flat buildings must provide a bulky waste storage room(s) for residents to store bulky waste (e.g. white goods, mattresses, furniture) awaiting collection to prevent the illegal dumping of materials on the kerbside or in common areas. The design of the bulky waste storage room(s) must ensure:

(a) it integrates with the building form and landscape;

(b) does not adversely impact on the streetscape, building design or amenity of dwellings;

(c) complies with the requirements of the applicable Waste Design for New Developments Guide.

3.22 Residential flat buildings with 50 or more dwellings must provide a separate communal bin storage area for the storage of household items (e.g. clothing, mattresses, polystyrene, cardboard and electronic waste) awaiting collection through Council's Supplementary Recycling Service. The minimum area required is 9 m² and the design is to comply with the requirements of the applicable Waste Design for New Developments Guide.

Residential component of mixed-use development including shop top housing

3.23 The design of the bin storage areas of mixed-use development must ensure:

(a) the residential component of mixed-use development complies with the development controls for residential flat buildings;

(b) the bin storage areas for the residential and commercial components of development are separate with restricted access to prevent unauthorised access and illegal dumping;

(c) compliance with the requirements of the applicable Waste Design for New Developments Guide.

SECTION 4–COMMERCIAL DEVELOPMENT

Development controls

All commercial development types

4.1 Development must provide bin storage and separation facilities within each tenancy and within the communal bin room.

4.2 Development must provide an appropriate and efficient waste storage system that considers:

(a) *the type of business;*

(b) *the volume of waste generated on-site;*

(c) *the number of bins required for the development and their size;*

(d) *additional recycling needs e.g. cardboard, pallets and milk crates;*

(e) *waste and recycling collection frequencies.*

4.4 Bin storage areas are to integrate with the overall design and functionality of development and are to locate within the building envelope to enable these areas to be screened from view from the public domain.

4.5 The design of the bin storage area must comply with the requirements of the applicable Waste Design for New Developments Guide.

4.6 An on-site collection point is to be nominated for development. The location of the collection point must allow collection vehicles to enter and exit the site in a forward direction and allow all vehicle movements to comply with the Australian Standard AS 2890.2. The location of the collection point must ensure waste servicing does not impact on any access points, internal roads and car parking areas.

4.7 Waste collection frequency is to be a minimum of once per week. Higher collection frequency may be required for development with larger waste generation rates or development that produce food waste. Bin storage areas are to be kept clean, hygienic and free from odours. Higher collection frequencies must not impact on neighbouring residents in relation to noise, odour and traffic.

Chapter 11 Key Development Sites

11.7 30–46 Auburn Road, Regents Park

Access

1.6 Vehicular egress and ingress on the site must be from Auburn Road and be facilitated by traffic management devices to minimise the impact upon the existing Auburn Road traffic flow and appropriately accommodate traffic flows from the site into Auburn Road. All costs associated with the provision of pedestrian protection measures and traffic management devices must be borne by the applicant.

Waste Design for New Developments – Guide C

Residential Flat Buildings

1.1 Applicable Development Type

The Waste Design for New Developments (Guide C) applies to Residential Flat Buildings (RFBs), which includes units and apartments. These developments can be separated into three distinct sizes:

- Low rise – two to four storeys;
- Medium rise – five to eight storeys; and
- High rise – nine or more storeys.

2.1 Waste Management Plan

A Waste Management Plan (WMP) is required to accompany all Development Applications and should comply with the requirements contained within this Guide and the Canterbury-Bankstown Development Control Plan 2021.

The WMP is to provide the following:

- Details of the handling of construction and demolition waste streams of the development, including the types and estimated quantities and recycling or disposal locations to be utilized;
- Details of the ongoing management of waste streams by residents, including the types and estimated quantities;
- Separate plans of the proposed development that show the location and space allocated to the waste management facilities, along with the nominated waste collection point;
- Identification of the travel path of access to the bin storage area/s by residents and collection staff;
- Identification of the travel and swept paths for on-site collection (if applicable) by an Heavy Rigid Vehicle (HRV);
- Details of ongoing management, storage and collection of waste, including responsibility for cleaning, transfer of bins between storage areas and collection points, implementation and maintenance of signage, and security of storage areas; and
- Where appropriate to the nature of the development, a summary document for residents to inform them of the building's ongoing waste management arrangements. The completed WMP, including drawings submitted by the applicant, will be used in the Council assessment of the waste management systems for the new development

3. Demolition and Construction

The WMP is to detail how this will be achieved and is to be submitted with any new DA (this may include DAs for the change-of-use of a development). The storage, handling and disposal of any demolition and construction waste must be undertaken in accordance with the requirements of the Protection of Environment Operations Act 1997 and associated regulations.

The management of waste from demolition and construction activities is to be minimised by avoidance and reduction practices, re-use on-site and the recycling of materials.

The WMP is to address demolition and construction waste and include:

- Confirmation if the development involves the removal of asbestos, quantities, the licence details of asbestos removalist and the designated disposal site licensed to accept asbestos-related waste;
- Details regarding how all other waste is to be minimised within the development and
- Expected amounts and types of materials to be reused or left over for removal from the site;
- Details regarding the types of waste and likely quantities of waste to be produced;
- A site plan showing storage areas away from public access for reusable materials and recyclables during demolition and construction, and the vehicle access to these areas;

- Designation of appropriately licensed facilities (recycling and landfill) to receive the demolition and construction waste. It is recommended the legitimacy and compliance of the facility is checked. The ABN Lookup and Environmental Protection Authority Public Register services can be used;
- Details of the nominated person responsible for retaining waste dockets from facilities and for ensuring site is clean, tidy and no litter or materials leave or blow off the site; and
- Confirmation that all waste going to landfill is not hazardous.

4. Waste Management Considerations

4.1 General Considerations

It is important that you:

- Ensure all dwellings have internal waste storage;
- Have a thorough understanding of the waste generated by your development and the number of bins to be allocated by Council and stored within the development;
- Ensure that the development can be integrated with Council's standard HRV waste service; and
- Consider what access is required to the site by collection staff and/or vehicles to facilitate the safe and efficient waste servicing of the development.

The nominated collection point must be able to be accessed by collection staff. Council or its contractors are solely to provide the waste services to all residential development types as required under the *Local Government Act 1993*.

4.2 Waste Generation Rates

The following generation rates in Table 1 will need to be used to identify the number of bins needed for the development. Identifying the number of bins and the size of the bins in Table 2 and 3 will ensure that the waste management facilities designed meet the developments ongoing waste needs. When calculating the number of bins needed, it should be noted that bin allocations are rounded up to the next whole number (for example the calculation of 4.1 bins will be rounded to 5 bins).

Table 1: Weekly Waste Generation Rates per Dwelling

General waste	Recycling	Garden organics
140L	120L	120L*

*Developments are allocated 1 bin per 10 dwellings.

4.3 Standard Waste Service

4.3.1 Collection Services

Kerbside waste collection is considered unsuitable in RFB developments due to amenity and safety issues, the number of bins requiring collection, the size of the bins and time taken to empty the bins. Council offers two waste collection services for RFBs:

- Collect and Return: collection staff enter the development to collect bins from a nominated area and return them once emptied; and
- On-site collection: collection occurs within a development site's boundary by an HRV at a nominated area.

collect and return is deemed unsuitable by Council, the development must be designed to be serviced on-site, either at ground level, basement or via a loading dock and the development will need to accommodate an HRV.

4.3.2 Bin Sizes for Residential Developments

An adequate bin storage area is to be provided within the development site to store all allocated bins. The following Tables identify the bin types, sizes and dimensions.

Table 2: Bin sizes for developments

Waste Stream		
General Waste	Recycling	Garden Organics
660L, 1,100L or hook lift bin with compactor	660L or 1,100L	240L

NOTE:

1. One size of bin for each waste stream is provided for a development.

Table 3: Standard bin dimensions

Standard bin type	Dimensions (Additional 15cm is to be provided around each bin)		
	Height	Width	Depth
240 L mobile garbage bin	1,060 mm	580 mm	730 mm
660 L bulk bin	1,250 mm	1,370 mm	850 mm
1,100 L bulk bin	1,470 mm	1,370 mm	1,245 mm
Hook lift/compactor bin (10 m ³ –30 m ³)	2.5 m	2.5 m	6 m

NOTES:

1. It is important to understand the size of bins that will be allocated by Council for your development. Check with Council if you need assistance in identifying the most appropriate bin size/s.
2. An additional 15 cm is to be provided around each bin in the design of the waste bin storage area, to ensure it can function effectively and efficiently, and to avoid damage to walls and doors from bins scraping against them.
3. Dimensions are a guide only and may differ depending on the manufacturer.

4. 3.3 Service Frequency

The service frequencies are provided to assist in calculating the required number and size of bins.

Table 4: Standard service frequencies for RFBs

	Service Frequency			
	General Waste	Recycling	Garden Organics	Bulky Waste (Per Calendar Year)
Low Rise (two to four stories)	One collection per week	One collection per fortnight	One collection per fortnight **	Developments with five or less dwellings – Two collections
Medium Rise (five to eight stories)	One collection per week*	One collection per fortnight*	One collection per fortnight **	Developments with six to 50 dwellings – four collections ***

Service Frequency				
High Rise (nine or more stories)	Two collections per week*	One collection per week	One collection per fortnight	Developments with 51 or more dwellings – six collections***

NOTES:

* Frequency of service may be increased for medium and high rise residential flat buildings, only after discussion and recommendation by Council’s waste management assessment officers.

** Alternative week to recycling service.

5. Waste Management Facilities

RFB developments are required to provide safe, equitable and convenient waste storage facilities for residents.

5.1 Internal Waste and Recycling Storage

To ensure each dwelling has the minimum infrastructure to be able to separate out, reuse and/or recycle items, the following internal waste storage and separation facilities are to be provided:

- A waste storage cupboard in the kitchen capable of holding a minimum 40 L of waste (approximately two days) and to enable a minimum 20 L of recyclable waste to be stored in a separate container and not in plastic bags;
- Suitable space in the kitchen for a 3-5 L caddy to collect food waste. This is to encourage on-site composting and reduction in waste to landfill; and
- Suitable space storage space for other recyclable items, such as light globes and batteries.

5.2 General Requirements

5.2.3 High Rise Buildings

There are two service options and layouts for this type of development.

1. Provide a waste storage cupboard/room on each floor for three days storage of waste and recycling for the number of dwellings on that floor. A service lift is required for the caretaker will move the bins to the storage area and/ or bin collection area. The caretaker should use a bin lifter to empty the waste into larger 660 L or 1,100 L bins, which are then emptied by Council.
2. Install a waste chute system for general waste leading to a central waste storage area in the basement. The chute would empty into a bulk bin on a carousel. There would be a cupboard on each floor for a recycling MGB (stores three days of recycling generated by the number of dwellings on that floor) and chute hopper. A service lift is required for the caretaker to empty the recycling bins on each floor every three days. A bin lifter is to be used to empty the recycling into bulk bins which are then emptied by Council.

Bins would be collected directly from the communal bin area by collect and return service or if deemed unsuitable by Council, the development must be designed to facilitate on-site collection with an HRV.

In all of the above layouts, if garden organic bins are provided, these would need to be presented to the kerbside for collection by a caretaker/property manager. In addition, separate bulky waste storage area/s and space for supplementary recycling storage are required.

5.3 Specific Requirements

5.3.1 Communal Bin Storage Area

A communal bin storage area must be designed so it is compatible with the overall design of the development and located so it can be accessed conveniently and will not impact on residential amenity in regard to noise, odour and visual impacts.

The bin storage area must be able to accommodate the required number of bins and the volume of waste and recycling expected to be generated between collections. The standard service for RFBs is one or two collections per week. This frequency could be increased for larger developments, only after discussion with Council's waste management assessment officers.

<i>Size and Layout:</i>
<i>The development must provide a communal bin storage area that is of sufficient size to accommodate all bins allocated for the development. For medium and high rise developments, more than one bin storage areas may be required to maximise accessibility for occupants;</i>
<i>Sufficient space must be provided to ensure adequate room is provided to manoeuvre, clean and maintain all waste and recycling bins for the development (minimum aisle space of 1.5 m and 15 cm between bins);</i>
<i>Sufficient space must be provided for any required equipment to manage waste and bins (including washing, cleaning and bin lifting);</i>
<i>Size must not be excessive, to discourage the dumping of other bulky waste in the bin storage area; and</i>
<i>The area is free from obstructions and steps, so as not to restrict the movement and servicing of the bins.</i>
<i>Location:</i>
<i>The maximum walking distance from any entrance of a residential dwelling to the storage area must not exceed 30 metres (lift travel distance not included);</i>
<i>Located on the ground floor or basement footprint. If bins are to be collected directly from the communal bin storage area by collect and return service, it must be located on the ground floor;</i>
<i>Located where its use and operation will not adversely impact the amenity of occupants in terms of appearance, noise and odour;</i>
<i>If bins are required to be moved for collection, it is done in a safe and efficient manner in accordance with Work Health and Safety legislation. A bin tug or pull may be needed;</i>
<i>The area cannot be viewed or easily accessed by the public domain;</i>
<i>Amenity for residential occupants and adjoining residential properties is protected; and Positioned to prevent theft and vandalism and restrict unauthorised access to prevent illegal dumping.</i>
<i>Design:</i>
<i>A designated room or enclosure, with a roof;</i>
<i>Must be compatible with the overall design of the development; and</i>
<i>Screened from public view.</i>
<i>Access:</i>
<i>Located so access for all intended users is safe and convenient and in accordance with AS 1428 (Set) - 2003: Design for access and mobility; and</i>
<i>Any doorways will be at least 2m wide and open outwards;</i>
<i>Construction:</i>
<i>Floors must be constructed of concrete at least 75mm thick, graded and drained to a Sydney Water approved drainage fitting;</i>
<i>The floors must be finished to a smooth, even surface;</i>
<i>The walls and floors must be constructed of solid impervious material;</i>
<i>A minimum 2.1m unobstructed room height is required in accordance with the Building Code of Australia;</i>
<i>Ceilings must be finished with a smooth faced non- absorbent material capable of being cleaned;</i>
<i>Walls, ceiling and floors must be finished in a light colour;</i>

<i>Size and Layout:</i>
<i>Is to be provided with an adequate supply of hot and cold water mixed through a centralised mixing valve with hose cock;</i>
<i>A close-fitting and self-closing door or gate operable from within the room;</i>
<i>Must be constructed to prevent the entry of birds and vermin;</i>
<i>Be provided with adequate light and ventilation. Light source must be through controlled light switches located both outside and inside the room; and</i>
<i>For developments planning a waste chute system, further specifications for bin storage areas are provided in section 5.3.8.</i>

5.3.2 Temporary Collection Area (Collect and Return)

The temporary collection area will be required to be of sufficient size to allow the temporary storage of all allocated bins for the development and will require a caretaker to transfer all allocated bins from the communal bin storage area to the temporary collection area the day before the designated collection day and return them once emptied. The bin-carting route from the communal bin storage area to the temporary collection area is to be:

- Direct and less than 30 metres;
- Minimum 2m wide solid and impervious surface;
- Non-slip, free from obstacles and steps;
- A maximum grade of 1:30 (3%);
- Wholly within property boundaries;
- Without crossing a private lot; and
- Compliant with Work, Health and Safety legislation. To reduce manual handling, bin handling equipment should be used e.g. bin tug.

The collection vehicle will stop at the nominated kerbside collection point and will collect and return bins to the temporary collection area. The health and safety of all users including caretakers and collection staff is an important consideration when selecting an appropriate location for this area.

Requirements of the temporary collection area:

- Located on the ground floor;
- Within 10m from the nominated kerbside collection point;
- Any doorways a minimum 2 m;
- Only temporarily store bins so they can be serviced;
- Be located fully within the development site;
- Be of sufficient size to accommodate all bins with additional room for manoeuvring
- (minimum aisle space of 1.5 m and 15 cm between bins); and
- Be clearly separated from car parking bays, footpaths and landscaped areas.

5.3.3 Bin-Carting Route (Collect and Return)

For the collect and return service, the bin-carting route from the communal bin storage area to the kerbside collection point, must comply with the following requirements:

- To be direct and less than 10 metre;
- Include a layback at the nominated collection point;
- Minimum 2 m wide solid and impervious;
- Does not pass through any internal walkways, doors or rooms;
- Non-slip, free from obstacles and steps;
- A maximum grade of 1:30 (3%);
- Not be within a driveway or carpark; and
- Compliant with Work, Health and Safety for collection staff.

5.3.4 On-Site Collection

All developments that are to be serviced on-site, will be required to provide safe vehicle access and designed to enable the HRV to manoeuvre and load all allocated bins. The development will be required to nominate a loading area, which is within 5 m of the bin storage area/s, located on the ground floor or basement footprint.

A temporary bin collection area will be required if the truck is not able to park within 5m of the bin storage area. The caretaker or property manager will be required to move the bins from the storage area to the temporary collection area (see section 5.3.7), ready for collection, and return them when emptied.

Requirements of the nominated loading area:

- Access requirements for an HRV are as per Australia Standard (AS) 2890.2 Parking Facilities: Off Street Commercial Vehicle Facilities;
- The collection vehicle loading area is to be nominated on the submitted plans;
- The loading area is to be within 5 metres of the bin storage or temporary holding area;
- The loading area is to be a separate parking area for the collection vehicle, which is located so as not to impede or restrict other vehicle and pedestrian movements during collection times and minimises impact on residents ; and
- Include an extra 2 m at the rear of the vehicle parking area to allow for staff safety and emptying of bins.

5.3.5 Designing for Waste Collection

Vehicle Access

The HRV must be able to safely and efficiently access the site and nominated loading area to collect all bins. The development's security measures such as gates and security doors should not prevent vehicle access to the collection point which would result in waste being unable to be collected.

When designing for an HRV to access the site and designated loading area the following factors are to be taken into consideration early in the design phase:

- The route of travel (including vehicle manoeuvring areas and ramps) for the waste collection vehicle to the collection point is to satisfy the dimensions of an HRV as per AS2890.2, and include adequate vehicle clearances for the vehicle. An extract from AS2890.2 is provided on the next page;

- An HRV must be able to enter and exit the site in a forward direction. The loading area/collection point should be located to minimise manoeuvring within the site (only one reverse movement allowed);
- The route of travel is to be adequately surfaced and of sufficient strength to support a collection vehicle at maximum capacity (approximately 30 tonnes);
- A turntable is acceptable to facilitate safe and adequate manoeuvring on-site provided it is suitable for the specifications of the HRV; and
- The designated loading area is to be located off the turntable or it is not shared by other vehicles requiring a loading dock access.

Table 5: An extract of dimensions and turning circles from the Australian Standard 2890.2 Parking Facilities Part 2: Off Street Commercial Vehicle Facilities for Heavy Rigid Vehicles.

Overall length	Overall width	Wheelbase	Design turning radius	Swept circle	Clearance height	Maximum roadway/ ramp grade	Maximum rate of change of grade
12.5 m	2.5 m	6.6 m	12.5 m	27.8 m	4.5 m	1:6.5 (15.4%)	1:16 (6.25%) in 7 m of travel

Swept paths for an HRV must be shown on submitted plans which illustrates the vehicle entering/exiting in a forward direction and access to the nominated loading area and/or bin storage area/s. Scaled plans accompanying the development application are to illustrate:

- Manoeuvring, gradients, clearance heights and turning paths for the route of travel that comply with AS 2890.2 for HRV; and
- An HRV can park safely within a designated loading area on-site whilst servicing the bins.

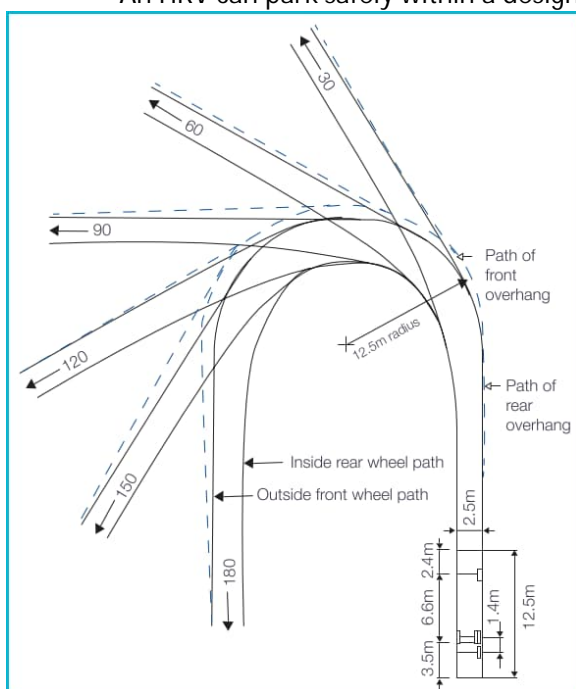


Figure 2: Turning path template - Heavy rigid vehicle

5.3.7 Temporary Collection Area (On-Site Collection)

Where developments cannot locate the communal bin storage areas within 5 m of the nominated loading area, a temporary collection area must be provided.

This area is required to be of sufficient size to allow the temporary storage of all allocated bins for the development and will require a caretaker to transfer all allocated bins from the bin storage area to the temporary collection area the day before the designated collection day and return them once emptied. The bin-carting route from the bin storage area to the temporary collection area is to be:

- Direct and less than 30 metres;
- Solid, impervious and a minimum 2 metres wide;
- Non-slip, free from obstacles and steps;
- A maximum grade of 1:30 (3%);
- Wholly within property boundaries;
- Without crossing a private lot; and
- Compliant with Work, Health and Safety legislation. To reduce manual handling, bin handling equipment should be used e.g. bin tug.

Council's collection truck will park in the nominated loading area and collect and return bins to the temporary holding area. The health and safety of all users including caretakers and collection staff is an important consideration when selecting an appropriate location for this area.

Requirements of the temporary collection area:

- Within 5 m from the nominated loading area;
- Doorways a minimum 2 m;
- Only temporarily store bins, so they can be serviced;
- Be located fully within the development site;
- Be of sufficient size to accommodate all bins with additional room for manoeuvring (minimum aisle space of 1.5 m and 15 cm between bins); and
- Be clearly separated from car parking bays, footpaths and landscaped areas.

5.3.9 Recycling Cupboards

Developments that propose the use of waste chute system must also plan for recycling cupboards on each residential floor directly on the corridor adjacent to the chute hopper. The cupboards should have an opening large enough for loose recycling to be placed into the bins behind. To prevent occupants from dumping excess rubbish, the cupboard should be locked, accessible only to the caretaker.

A caretaker will need to rotate recycling bins from the recycling cupboard to the bin storage area/s, at a minimum every three days (this is based on generation rate of number of dwellings on the floor). A bin lifting machine will be needed to empty 240 L bins into larger 660 L or 1,100 L bins for collection. Storage of bin lifting machine needs to be shown on site plans. No mechanical compaction will be used during this process.

The following requirements apply to recycling cupboards installed in developments:

General requirements:

- Must be conveniently located for residents on each residential level of the development (maximum distance of 30 m);
- Access is to be in accordance with AS 1428 (Set) - 2003: Design for access and mobility;
- Located directly adjacent to the hopper and contain only recycling bins;
- Must be of adequate size to accommodate enough recycling bins, which allows for three days of recycling generated by the number of dwellings on that floor;
- Signage is to be placed on the recycling cupboard on every residential level indicating how to use the system effectively and accepted material;
- A site caretaker will be required to rotate recycling bins from the cupboards to the bin storage area at a minimum every three days; and
- A service lift is required to transfer bins between the recycling cupboards, bin storage area and the collection point.

Construction:

- Designed to fit 240L bins facing forward;
- Designed so the doors are of sufficient width to allow the transfer/rotation of 240L bins; and
- The floor is to be constructed of a durable and impervious material with a smooth finish.

5.3.10 Bulky Waste

Council provides a collection service for bulky household waste, such as whitegoods, mattresses and household furniture. The amount of material accepted per collection is defined in Council’s Waste Service Policy.

All dwellings are to have adequate storage within the dwelling or garage to store bulky waste waiting collection.

All developments are to provide an area within the building footprint for residents to store bulky waste awaiting collection to prevent the illegal dumping of materials on the kerbside or within common areas.

The size of the bulky waste area must be appropriate to the development, see Table 7 for the minimum area required.

Table 7: Minimum Size of Bulky Waste Area

<i>Number of Dwellings</i>	<i>Minimum Area Required</i>
20 or less	4 m ²
21 to 30	5 m ²
31 to 40	6 m ²
41 to 50	7 m ²
51 to 60	8 m ²
61 to 70	9 m ²
71 to 80	10 m ²
81 to 90	11 m ²

<i>Number of Dwellings</i>	<i>Minimum Area Required</i>
<i>91 to 100</i>	<i>12 m²</i>
<i>More than 101</i>	<i>13 m² + 2 m² per 50 additional units (or part thereof) above 101 units</i>

The bulky waste storage area is to be separate to the bin storage area/s, however the design is to comply with the requirements detailed in Section 5.3.1 of this Guide. Multiple buildings will require separate areas.

Where on-site collection is required for waste and recycling, on-site collection of bulky waste is also required. Section 5.3.3 and 5.3.4 of the Guide are required to be complied with.

5.3.11 Supplementary Recycling Service

Developments with more than 50 dwellings will receive additional recycling services to increase recovery of material and to prevent the illegal dumping of materials on the kerbside or in common areas. Separate additional recycling storage area/s are to be provided for residents to store household items, such as clothing, mattresses, polystyrene, bulky cardboard and electronic waste.

The minimum area required is 9 m² and the area is to be designed to comply with the requirements detailed in Section 5.3.1 of the Guide.

The area/s must be separate to the bin storage area or room(s) and the bulky waste storage area.

The area/s must not be visible from any street frontage.

Where there are multiple buildings, separate areas must be provided.

On-site collection of additional recycling materials is required where waste and recycling bins are collected on-site. Section 5.3.3 and 5.3.4 of the Guide are required to be complied with.

5.4 Design for Ongoing Use

A site caretaker or manager will be required to:

- Maintain and clean all bin storage areas and recycling cupboards;
- Cleaning and maintenance schedules for all waste equipment;
- Maintain and clean temporary holding areas (if applicable);
- Clean and wash all bins regularly;
- Manage all bin transfers and rotations;
- Ensure waste chute system and associated waste service equipment functions effectively and in accordance with manufacturer's specifications;
- Manage bulky waste and additional recycling storage areas and arrange appropriate collections;
- Ensure the loading bay is kept clear of parked cars;
- Ensure the turntable and related devices are maintained in working order;

- Providing training to collection staff in the use of the turntable when requested;
- Manage the communal composting area;
- Arranging the prompt removal of dumped rubbish;
- Ensuring the recycling bins are free of contamination (which includes but not limited to garbage, plastic bags, clothing, polystyrene, etc);
- Ensuring there is suitable signage for each bin hopper and recycling cupboard on each floor and bin storage room. Council can assist with education signage;
- Ensuring all residents are informed and kept up to date in the use of the waste management system; and
- Checking the number of bins and reporting any damages to Council.

The site caretaker or manager is to undertake the above actions at a minimum twice a week for enough hours to enable the waste management system to operate to a satisfactory standard.

5.7 Deed of Agreement and Indemnity

Where collection staff or vehicles are required to enter private property to perform the service, Council will require an unimpeded easement for access to undertake on-site or collect and return service. The development is also required to indemnify Council and its Contractors against claims for wear and tear of access roads or other parts of the building.

A condition of consent will be imposed requiring an Indemnity Agreement to be entered into prior to the issue of the Occupation Certificate and delivery of bins.

8. Glossary of Terms

8.1 Development Types

Type	Definition	Commonly Known As
Residential Flat Building	Means a building containing three or more dwellings, but does not include an attached dwelling or multi dwelling housing <ul style="list-style-type: none"> • Low Rise – two or three storeys; • Medium Rise – four to 10 storeys; and • High Rise – more than ten storeys. 	Flats, apartments, units

8.2 Key Terms

Term	Definition
Bin-carting route	Travel route for transferring bins from bin storage area to nominated collection point.
Bulk bins	Large bins which have four swivel wheels so can be moved in any direction. Usually greater than 660 L bins.
Bulky waste	Large household items such as furniture, white goods and mattresses.
Collect and return service	Service for smaller RFB where collection staff access the bin storage area or temporary bin holding area and cart bins to the kerbside to be serviced. Bins are then returned to the bin storage area (or temporary holding area). The collection vehicle needs a safe parking spot on the kerb.
Communal bin storage area	Bin storage area(s) which stores allocated bins for the entire development and can be accessed by all residents and occupants.
HRV	Heavy Rigid Vehicle as per Australian Standard (AS) 2890.2

Term	Definition
<i>Indemnity or Positive covenant or Section 88B certificate</i>	<i>A legal agreement ensuring that a party providing services to a particular property will not be held responsible for any loss or damage to such property as a result of the routine provision of the service.</i>
<i>Internal waste storage and separation of waste, recycling and compost</i>	<i>This means the separate recycling and garbage (2x 20L) bins for the dwelling's kitchen. This is where the residents dispose / store the waste and recycling before taking it to the larger communal bins. There should also be sufficient space for a kitchen caddy to store food waste within the kitchen.</i>
<i>Layback</i>	<i>The section of kerb that has been removed and replaced in concrete to allow easier access to the kerbside. Also known as a gutter crossing.</i>
<i>Main Road</i>	<i>A high-capacity urban road that has been defined as a Classified or Regional Road.</i>
<i>Mobile garbage bins (MGBs)</i>	<i>Small bins which have two wheels so can only be moved forwards and backwards (not sideways).</i>
<i>Nominated collection point</i>	<i>The nominated point where waste and recycling are collected from by the service vehicle</i>
<i>On-site collection</i>	<i>Collection occurs by a Heavy Rigid Vehicle as per AS 2890.2 Parking Facilities Part 2: Off Street Commercial Vehicle Facilities for Heavy Rigid Vehicles within the development site's boundary in a nominated collecting area.</i>
<i>Residential Level</i>	<i>Every level on which there is a dwelling.</i>
<i>Recycling cupboard</i>	<i>The cupboard(s) on each residential level that house the necessary number of recycling bins adjacent to the waste chute hopper.</i>
<i>Route of travel</i>	<i>The travel path for the waste collection vehicle when entering the site to access the nominated collection point and leaving the site after the waste has been collected.</i>
<i>Source Separation</i>	<i>The separation, by residents, of different recyclable items into separate bins or cages.</i>
<i>Temporary bin holding area</i>	<i>Area where bins are transferred to be temporarily stored for collection. Bins are required to be transferred back to the bin storage area as soon as possible after collection occurs. This bin transfer is undertaken by a caretaker.</i>
<i>Vehicular crossing</i>	<i>The concrete vehicular crossing providing access across the Council controlled nature strip, consisting of a crossing and a layback.</i>
<i>Volume handling equipment</i>	<i>Equipment to automatically change the bin under the chute when it is full. The chute service room must be of adequate size to accommodate this equipment. Resident access to this equipment must be excluded. The bins on the volume handling equipment will not be services and are in addition to the total bin calculations on generation rates.</i>
<i>Waste chute system</i>	<i>Ventilated, vertical pipes passing through each floor of a residential flat building with access on each floor. Chutes discharge into bins at the lowest point in the waste room.</i>

Waste Design for New Developments – Guide F Commercial and Industrial Development

This section of the CBDCP is detailed below.

2.1 Waste Management Plan

A Waste Management Plan (WMP) is required to accompany all Development Applications and should comply with the requirements contained within this Guide and the Canterbury-Bankstown Development Control Plan 2021.

4.2 Waste Generation Rates

Each commercial operator is to be allocated an area in the bin storage area for their individual waste service to be stored.

All developments should consider the separate storage and collection of food waste.

4.3 Waste Collection Service

In most instances commercial and industrial land uses are required to be serviced by a private waste collection service.

To achieve best practise, commercial and industrial developments should be designed for HRV access and manoeuvring as per AS1980.2. This includes entering and existing the site in a forward direction.

5. Specific Requirements

5.1 Bin Storage Area

Size

- The size of the bin storage area must be sufficient to cater for all likely waste generation and the required bins for all waste streams. Waste generation is to be determined in accordance with Table 1.*

Location

- Equal and convenient access for all tenants is to be provided, with each tenant to have their own allocated area for bin storage;*
- Sited behind the development building line and incorporated within the development footprint;*
- In areas that will not reduce the amenity for tenants and existing users adjoining the development; and*
- Located within 10 m of the nominated collection point, to minimise bin-carting routes.*

Design

- As a minimum, the design should allow for the separate collection of general waste, recycling, paper and cardboard, food waste and pallets;*
- Bin storage areas can be a stand-alone structure for smaller commercial and industrial developments. Where a stand-alone structure is to be provided it is to be designed and integrated into the overall look of the development in regards to materials and finishes; and*
- For larger developments (particularly with a high number of individual tenancies) a bin storage area should be provided within the development footprint.*

Layout

- The layout of the bin area must prevent obstructions that impact on bin movement, maintenance and cleaning as well as any servicing requirements.*

Construction

- Floors must be constructed of concrete at least 75 mm thick and graded and drained to a Sydney Water approved drainage fitting;*

- Floors must be finished so that it is non-slip and has a smooth and even surface;
- Walls and floors must be constructed of solid impervious material;
- Ceilings must be finished with a smooth faced, non-absorbent material capable of being cleaned;
- Walls, ceilings and floors must be finished in a light colour; and
- If a room or is integrated within the building, a minimum 2.1 m unobstructed room height is required in accordance with the Building Code of Australia.

5.2 Collection Point

For commercial and industrial developments, all allocated bins are required to be presented to a nominated on-site collection point and not on the kerbside. The site is to allow an HRV to enter the site and collect all bins directly from the bin storage area, a loading dock or a separate on-site bin presentation area.

On-site collection points need to be located so they do not interfere with car parking, vehicle manoeuvring areas or pedestrian areas.

When designing for an HRV to access the site and designated loading area the following factors are to be taken into consideration early in the design phase:

- The route of travel (including vehicle manoeuvring areas and ramps) for the waste collection vehicle to the collection point is to satisfy the dimensions of an HRV as per AS2890.2, and includes adequate vehicle clearances for the vehicle. An extract from AS2890.2 is provided on the next page;
- An HRV must be able to enter and exit the site in a forward direction. The collection point should be located to minimise manoeuvring within the site (only one reverse movement allowed);
- The route of travel is to be adequately surfaced and of sufficient strength to support the waste collection vehicle at maximum capacity (approximately 30 tonnes);

Table 3: An extract of dimensions and turning circles from the Australian Standard 2890.2 Parking Facilities Part 2: Off Street Commercial Vehicle Facilities for Heavy Rigid Vehicles.

Overall length	Overall width	Wheel base	Design turning radius	Swept circle	Clearance height	Maximum roadway/ramp grade	Maximum rate of change of grade
12.5 m	2.5 m	6.6 m	12.5 m	27.8 m	4.5 m	1:6.5 (15.4%)	1:16 (6.25%) in 7 m of travel

Swept paths for an HRV must be shown on submitted plans which illustrates the vehicle entering/exiting in a forward direction and access to the nominated loading area and/or bin storage area/s. Scaled plans accompanying the development application are to illustrate:

- Manoeuvring, gradients, clearance heights and turning paths for the route of travel that comply with AS 2890.2 for HRV; and
- An HRV can park safely within a designated loading area on-site whilst servicing the bins.

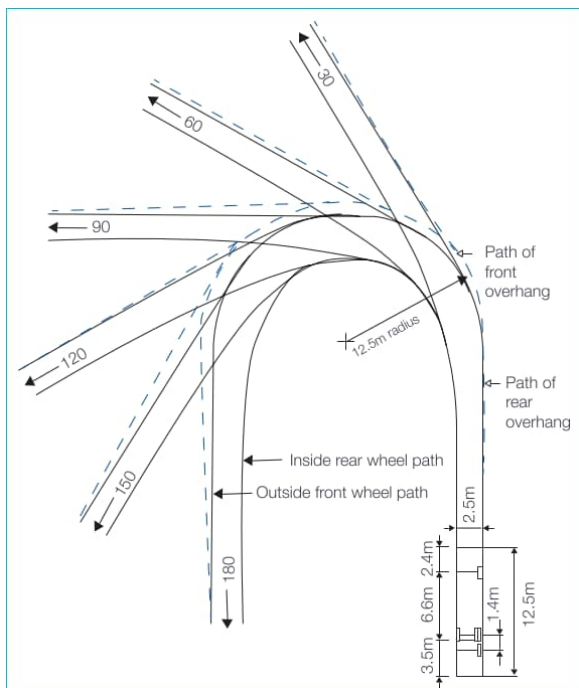


Figure 3: Turning path template - Heavy rigid vehicle

Loading area:

- A waste collection vehicle loading area is to be nominated on the submitted plans. The loading area is to be within 10 m of the bin storage area;
- Located so as not to impede or restrict other vehicle and pedestrian movements during collection times;
- Clearly separated from car parking bays, footpaths, and landscaped areas; and
- Located to minimise impact on residents within and adjoining the development site. It is not to be located near sensitive land uses or any habitable room windows.

Waste Management Guide for New Developments

The Guide¹⁶ states that A *Waste Management Plan (WMP)* is required to accompany all *Development Applications* and should comply with the requirements contained within this Guide.

The Guide classifies this development as a residential flat building. This means a building containing three or more dwellings, but does not include an attached dwelling or multi dwelling housing.¹⁷ Otherwise known as flats, apartments, units.

¹⁶ Section 2.1 Development Application Submission Requirements

¹⁷ Multi dwelling housing means three or more dwellings (whether attached or detached) on one lot of land, each with access at ground level, but does not include a residential flat building.

Section 3.2 of the Guide specifies the number of bins required for this development. Residential flat buildings must have 120 L per unit per week for garbage and 120 L per unit per week for recycling. A garden organics bin can be provided on request.

Section 3.3 states that residential developments must use Council's standard waste collection service. An adequate bin storage area must be provided within the development site to store all allocated bins. An adequate bin collection point must be provided.

Residential flat building developments are required to have bins collected directly from the bin storage area where Council can service the development through a "collect and return" service.

Standard bin sizes for residential flat buildings are 660 L or 1100 L bins for garbage and recycling. If garden organics bins are required these would be 240 L.

Council's standard bin dimensions are shown in Table 14.

Table 14 Standard bin dimensions

Bin capacity	Height	Width	Depth
240 L	1080 mm	580 mm	735 mm
660 L	1250 mm	1370 mm	850 mm
1100L	1470 mm	1370 mm	1245 mm

The Guide states that dimensions are only a guide and differ according to the manufacturer and that additional space should be allowed between bins for maneuvering.

The Guide sets out service frequencies for residential flat buildings are weekly for garbage, fortnightly for recyclables and fortnightly for garden organics if a service is provided. The Guide also states that the *frequency of service may be increased for high-density residential flat building developments after discussion and recommendation of Council's waste management assessment officers.*

The Guide states that *it is essential for bin storage areas to be located within the development site where it is safe and convenient for occupants to use.*

The bin storage area must be able to accommodate the required number of bins and volume of waste and recycling expected to be generated.

It is important to ensure the bin storage areas are located so they do not adversely impact on the streetscape, building presentation and amenity of occupants and adjoining dwellings. It is also important bin storage areas are located conveniently for all users including occupants, caretakers and collection staff.

Section 3.6 covers residential flat buildings. This section states that:

New residential flat building (RFB) developments are required to provide safe, equitable and convenient waste storage facilities. It may be suitable for residents to access a communal bin storage area within the ground floor footprint or a waste chute system may be proposed for larger developments.

Should a waste chute system be proposed it is recommended this be discussed with Council early in the design process.

Architects, designers and developers who are experienced in implementing innovative and alternate solutions for waste management systems in high-density RFB developments are encouraged to discuss these solutions with Council early in the planning process.

3.6.1 Bin-Carting Route

The standard waste service for RFB developments is Council's collect and return service. This service allows collection staff to collect all allocated bins from the bin storage area and return the bins immediately once the service is complete.

To ensure the development can access Council's service, developments are required to locate communal bin storage areas within 10 m of a layback to the nominated collection point.

Bin-Carting Routes For Residential Flat Buildings

The bin-carting route is to be identified on plans accompanying the Development Application.

Bin-carting routes are to be:

- Within 10m of a layback to the nominated collection point;*
- Direct and as short as possible;*
- A minimum 2m wide hard surface;*
- Non-slip, free from obstacles and steps; and*
- A maximum grade of 1:30.*

3.6.2 Bin Storage Area

The bin storage area must be able to accommodate the required number of bins and the volume of waste and recycling expected to be generated between collections.

A bin storage area should be provided within the ground floor footprint of the development or as a separate enclosure. It must be designed so it can be integrated into the overall design of the development and located so it can be accessed conveniently and will not impact on residential amenity in regards to noise, odour and visual impacts.

Bin storage areas may be located within the basement footprint for higher density RFB developments. By locating the bin storage area within the basement, its use and operation will rely on a caretaker to move bins to a temporary holding area at ground level for collection by Council's collect and return service.

In determining the appropriate location point for the bin storage area, consideration should be given to the following factors:

- All residents have easy, safe and convenient access to the waste and recycling service;*
- Cleaners/caretakers are able to transfer the bins to the nominated bin storage area for collection in a safe and efficient manner in accordance with Work Health and Safety legislation;*
- Location cannot be viewed or easily accessed by the public domain;*
- Location protects amenity for residential occupants and adjoining residential properties; and*

- *Location is positioned to prevent theft and vandalism and restricts unauthorised access to prevent illegal dumping.*

Bin Storage Areas for Residential Flat Buildings

Size

- *The development must provide a communal bin storage area that is of sufficient size to accommodate all bins allocated for the development. For larger developments, multiple bin storage areas may be required to maximise accessibility for occupants.*
- *Sufficient space must be provided to ensure adequate room is provided to manoeuvre, clean and maintain all waste and recycling bins for the development (approximately 15 cm between bins).*
- *Sufficient space must be provided for any required equipment to manage waste and bins (including washing and cleaning).*
- *Size must not be excessive so as to encourage the dumping of other household waste in the bin storage area.*

Location

- *Located within the ground floor footprint (preferable) or within the basement footprint of the development (for larger RFBs).*
- *Ground floor areas are to be within 10m of a layback to the nominated collection point to facilitate access to Council's collect and return service.*
- *Located where its use and operation will not adversely impact the amenity of occupants in terms of appearance, noise and odour.*

Layout

- *The area is free from obstructions so as not to restrict the movement and servicing of the bins.*
- *An aisle space of minimum 1.5 m is required to access and manoeuvre bins.*

Access

- *Located so access for all intended users is safe and convenient.*
- *Any doorways will be at least 2 m wide and any doors unobstructed by any locks and security devices.*

Construction

- *Floors must be constructed of concrete at least 75 mm thick and graded and drained to a Sydney Water approved drainage fitting.*
- *The floors must be finished to a smooth, even surface.*
- *The walls must be constructed of solid impervious material.*
- *The ceilings must be finished with a smooth faced non-absorbent material capable of being cleaned.*
- *Walls, ceiling and floors must be finished in a light colour.*
- *Is to be provided with an adequate supply of hot and cold water mixed through a centralised mixing valve with hose cock.*

- *A self-closing door at least 1.5m high openable from within the room.*
- *Must be constructed to prevent the entry of birds and vermin.*
- *Be provided with adequate light and ventilation. Light source must be through controlled light switches located both outside and inside the room.*

3.6.3 Temporary Holding Area

Where developments cannot locate communal bin storage areas within 10 m of a layback to the nominated collection point or are located within the basement footprint, a temporary holding area must be provided at ground level.

The temporary holding area will be required to be of sufficient size to allow the temporary storage of all allocated bins for the development. The holding area will only store bins so they can be serviced and must be returned to the permanent bin storage area once the service is complete.

Developments proposing a temporary holding area will require a caretaker to transfer all allocated bins from the bin storage area to the temporary holding area for servicing. Collection staff will collect and return bins to the temporary holding area.

Temporary Holding Areas for Residential Flat Buildings

General

- *Within 10 m of a layback to the nominated collection point.*
- *Doorway a minimum 2m.*
- *Only temporarily store bins so they can be serviced.*
- *Be located fully within the development site.*
- *Be located within the front setback of the development but suitably screened so it is not visible from the public domain.*
- *Be of sufficient size to accommodate all bins with additional room for manoeuvring (approximately 15cm between bins).*
- *Be clearly separated from car parking bays, footpaths and landscaped areas.*

Bin-Carting Route

- *Be located to minimise manual handling for both caretaker and collection staff. Plans are to outline when bin-handling equipment will be used (e.g. bin tugs).*
- *The bin-carting route from the bin storage area to the temporary holding area is to ensure bin transfer complies with requirements of Work Health and Safety legislation.*
- *The bin-carting route from the bin storage area to the temporary holding area is:*
 - *To be direct and as short as possible;*
 - *Wholly within property boundaries;*
 - *To be solid, concrete and non-slip;*
 - *A minimum of 2m wide;*

- *Free from obstructions and steps;*
- *To be a maximum grade of 1:30.*

3.6.4 On-Site Collection

- *For RFB developments where kerbside collection may not be operationally feasible, all allocated bins may be collected on-site.*
- *This means the waste collection vehicle will be required to enter the property and service the development within the property boundary from a designated loading area.*
- *The development will be required to nominate a loading area for the waste collection vehicle.*
- *On-site collection proposals should be discussed with Council during the early planning stages.*

On-Site Collection Requirements for Residential Flat Buildings

Loading Area

- *A waste collection vehicle loading area is to be nominated on the submitted plans. The loading area is to be within 10 m of the bin storage area.*
- *Located so as not to impede or restrict other vehicle and pedestrian movements during collection times.*
- *Clearly separated from car parking bays, footpaths, and landscaped areas.*
- *Located to minimise impact on residents within and adjoining the development site. It is not to be located near sensitive land uses or any habitable room windows.*

Bin-Carting Route

- *Ensure bin transfer complies with requirements of Work Health and Safety legislation.*
- *The bin-carting route to the loading area from the storage area:*
 - *Be direct and as short as possible;*
 - *Wholly within property boundaries;*
 - *Is to be solid, concrete and non-slip;*
 - *Is a minimum of 2 m wide;*
 - *Free from obstructions and steps;*
 - *Is to be a maximum distance of 10m to the designated truck loading area and a maximum grade of 1:30.*

3.6.5 Designing for Waste Collection Vehicle Access

The waste collection vehicle must be able to safely and efficiently access the site and nominated loading area to collect all bins. The development's security measures such as gates and security doors should not prevent vehicle access to the collection point which would result in waste being unable to be collected.

As a guide, a turning radius of 12.5 m (i.e. turning circle of 25 m diameter) kerb to kerb (27.8 m diameter wall to wall, swept circle) would accommodate most waste collection vehicles.

A manoeuvring clearance of at least 0.3 m (absolute minimum) on both sides of the theoretical swept circle path should be accommodated.

When designing for the waste collection vehicle to access the site and designated loading area the following factors are to be taken into consideration early in the design phase:

Vehicle Access Requirements For Residential Flat Buildings

- *Access to the nominated collection point is to be designed to ensure a Heavy Rigid Vehicle can safely access and manoeuvre within the site.*
- *A Heavy Rigid Vehicle must be able to enter and exit the site in a forward direction. The collection point should be located to minimise manoeuvring within the site.*
- *The route of travel (including vehicle manoeuvring areas) for the waste collection vehicle to the collection point is to satisfy the typical dimensions of a Heavy Rigid Vehicle. This also includes adequate vehicle clearances for the vehicle. Australian Standard AS2890.2 Parking Facilities: Off-Street Commercial Vehicle Facilities provides typical dimensions and turning circles.*
- *The route of travel is to be adequately surfaced and of sufficient strength to support the waste collection vehicle at maximum capacity (approximately 30 tonnes).*
- *The grades of entry and exit routes must not exceed the capabilities of the waste collection vehicle and are to comply with AS2890.2 Parking Facilities: Off-Street Commercial Vehicle Facilities for Heavy Rigid Vehicles.*
- *A turntable is acceptable to facilitate safe and adequate manoeuvring on-site provided it is suitable for the specifications of the Heavy Rigid Vehicle.*

Swept paths for Council's standard waste collection vehicle must be shown on submitted plans which illustrates the vehicle entering/exiting in a forward direction and access to the nominated loading area. Scaled plans accompanying the development application are to illustrate:

- *Manoeuvring, gradients, clearance heights and turning paths for the route of travel that comply with Australian Standard 2890.2 Parking Facilities Part 2: Off street Commercial Vehicle Facilities for Heavy Rigid Vehicles; and*
- *Council's waste collection vehicle can park safely within a designated loading area on-site whilst servicing the bins.*

3.6.6 Waste Chute Systems

RFB developments may consider providing a waste chute system. Council should be consulted for advice in the early planning stages if a chute system is being considered. If a chute system is selected, waste disposal points (hoppers) are to be provided on each residential floor with the chute terminating into bins within the bin storage area. The bin storage area should be located at the basement level and positioned directly under the chute system.

It is strongly recommended to consult early with the chute manufacturer regarding space requirements and specifications to avoid additional costs and modifications at construction stage.

Recycling Cupboards on Each Floor

Developments that propose the use of a waste chute system must also plan for recycling cupboards on each residential floor, directly on the corridor adjacent to the chute hopper. The cupboards should have a slot cut out large enough for loose recycling to be placed into the bins behind. The cupboard should be locked, accessible only to the caretaker. A caretaker will need to rotate recycling bins from the recycling cupboard to the bin storage area on a regular basis appropriate for the number of dwellings per floor.

The number of recycling bins provided in the cupboard will be determined by the number of units accessing the system per residential floor. This should be discussed with Council in the early planning stages.

The maximum travel distance from each dwelling to the cupboard is 50 m.

The cupboard is to be designed so it is accessible for persons with a disability. The DA will additionally need to demonstrate compliance with Australian Standard 1428 Design for access and mobility.

The caretaker is responsible for rotating recycling bins from recycling cupboards and using equipment in the bin storage area, such as a bin lifting machine, to empty 240 L bins into larger 1100 L bins for Council to collect on service day. No mechanical compaction will be used during this process.

Waste Chute Systems for Residential Flat Buildings

General Requirements

The waste chute will only be used to transfer garbage and not recycling.

- There will be no mechanical compaction of waste at the base of the chute.*
- Waste chute disposal points (hoppers) are to be provided on each residential level of the development. Waste disposal points must be located on the corridor of each floor directly adjacent to the recycling cupboard.*
- The chute is to be designed to minimise noise and fire risk.*
- The chute is to terminate in the bin storage area and discharge directly into a bulk bin.*
- Signage is to be placed on the chute hopper and recycling cupboard on every residential level indicating how to use the system effectively.*

Bin Storage Area

- Must be located directly under where the chute terminates and allow a space large enough for the 1100 L bin to fit under the chute base.*
- Must be large enough to fit the allocated number of bins with additional room for manoeuvring bins.*
- Where volume-handling equipment is required (such as bin lifting equipment), the bin storage area must be of adequate size to accommodate all required equipment and operate it.*
- Resident access to the volume handling equipment will be restricted.*

Construction

- Chute systems are to be designed so they can be constructed to satisfy manufacturer's requirements and can ensure required 1100 L bins fit at the base of the system.*

- *Must be designed and constructed so it can function effectively (gravity fed) and aligns as it passes through each level of the development.*
- *Designed in accordance with the requirements of the Building Code of Australia including fire rating and ventilation.*
- *Must be constructed and installed to prevent the transmission of noise and vibration to the structure of the development during its use and operation.*
- *Must be constructed to alleviate any odour.*

Recycling Cupboard

- *Must be conveniently located for residents on each residential level of the development.*
- *Located directly adjacent to the hopper to contain recycling bins.*
- *Must be of adequate size to accommodate required number of recycling bins as recommended by Council.*
- *A site caretaker will be required to rotate recycling bins from the cupboards to the bin storage area on a regular basis appropriate for the number of dwellings per floor.*

Construction Of Recycling Cupboard

- *The cupboard is to be designed so the doors are of sufficient width to allow the transfer/rotation of 240L bins.*
- *The cupboard floor is to be constructed of a durable and impervious material with a smooth finish.*

3.6.7 Design for Ongoing Use

Council recommends an active caretaker be employed for RFB developments to ensure effective and efficient ongoing waste management. A site caretaker or manager will be required to:

- *Maintain and clean all bin storage areas and recycling cupboards;*
- *Maintain and clean temporary holding areas (if applicable);*
 - *Clean and wash all bins;*
 - *Manage all bin transfers and rotations;*
 - *Ensure waste chute system and associated waste service equipment functions effectively and in accordance with manufacturer's specifications.*

3.6.8 Bulky Waste Storage Area

Council provides a kerbside collection service for bulky waste. It is important to provide an area within the building footprint for residents to store bulky waste awaiting collection to prevent the illegal dumping of materials on the kerbside. RFB developments including shop top housing must provide an area that is a minimum 4 m², for the storage of bulky household waste awaiting collection (whitegoods, mattresses, furniture etc.), and provide screening so this area cannot be viewed or easily accessed by the public domain. Where there are multiple buildings, a separate 4 m² area for each building must be provided.

Section 4.2 covers requirements for mixed use developments

- *Separate bin storage areas for residential and commercial components of the development are to be provided.*
- *The residential component of the development is to comply with the relevant requirements for the development type (i.e. multi dwelling housing and/or residential flat building) covered by this Guide.*
- *The commercial component of the development is to comply with the relevant requirements for commercial development covered by this Guide.*
- *Access to residential bin storage areas by commercial tenancies is to be restricted.*
- *Each commercial operator is allocated an area in the bin storage area for their individual waste service to be stored.*

Section 5 Covers Waste Management Considerations For Commercial And Industrial Developments

Section 5.2 states that *Each commercial operator is allocated an area in the bin storage area for their individual waste service to be stored.*

Section 5.3 states that *Commercial and industrial land uses are required to be serviced by a private waste collection service.*

Section 5.5 states that *For commercial and industrial developments, a bin storage area must be provided for the development that can accommodate all required bins and is sufficient to store all generated waste (and all waste streams) between collections.*

Size

- *The size of the bin storage area must be sufficient to cater for all likely waste generation and the required bins for all waste streams. Waste generation is to be determined in accordance with Appendix 7.5.*

Location

Bin storage areas are to be located so that:

- *Equal and convenient access for all occupants is to be provided;*
- *Sited behind the development building line and incorporated within the development footprint;*
- *In areas that will not reduce the amenity for occupants and existing users adjoining the development.*
- *Convenient access to the collection vehicle loading area to minimise bin-carting routes.*

Design

- *Bin storage areas can be a stand-alone structure for smaller commercial and industrial developments. Where a stand-alone structure is to be provided it is to be designed and integrated into the overall development in regards to materials and finishes.*

Layout

- *The layout of the bin room must prevent obstructions that impact on bin movement, maintenance and cleaning as well as any servicing requirements.*

Construction

Bin storage areas are to be designed so they can be constructed to the following requirements:

- *Floors must be constructed of concrete at least 75 mm thick and graded and drained to a Sydney Water approved drainage fitting;*
- *Floors must be finished in a smooth even surface;*
- *Walls must be constructed of solid impervious material;*
- *Ceilings must be finished with a smooth faced, non-absorbent material capable of being cleaned;*
- *Walls, ceilings and floors must be finished in a light colour;*
- *The room must be provided with an adequate supply of hot and cold water mixed through a centralised mixing valve with hose cock;*
- *Doors must at least 2 m wide and be close fitting and self-closing and able to be opened from within the room*
- *The room must be constructed to prevent the entry of vermin and birds;*
- *The room must have adequate light and ventilation; and*
- *Lighting must be controlled using switches located both inside and outside the room.*

Section 5.6 states that For commercial and industrial developments, all allocated bins are required to be presented to a nominated on-site collection point.

All developments will be required to nominate an on-site collection point where a waste collection vehicle enters the site and collects all bins. The collection point can be directly from the bin storage area or a separate bin presentation area. On-site collection points need to be located so they do not interfere with car parking and vehicle manoeuvring areas.

Smaller commercial businesses may opt for individual 240 L bins that should be presented kerbside at the front or rear of the business in consultation with the requirements of the contractor performing the service.

On-Site Collection Requirements For Commercial And Industrial Developments

- *Waste collections must be serviced on-site by a private waste and recycling contractor at ground level.*
- *Access to the nominated collection point for the development is to be designed to ensure a Heavy Rigid Vehicle can safely access and manoeuvre within the site. Typical dimensions (and turning circles) for a Heavy Rigid Vehicle are provided within AS 2890.2 Parking Facilities: Off-Street Commercial Vehicle Facilities.*
- *A Heavy Rigid Vehicle must be able to enter and exit the site in a forward direction. The collection point should be located to minimise manoeuvring within the site.*
- *The route of travel (including vehicle manoeuvring areas) for the waste collection vehicle to the collection point is to satisfy the typical dimensions of Heavy Rigid Vehicle. This also includes adequate vertical clearance for the vehicle. Australian Standard AS2890.2 Parking Facilities: Off-Street Commercial Vehicle Facilities provides typical dimensions and turning circles.*
- *The route of travel is to be adequately surfaced and of sufficient strength to support the waste collection vehicle.*

- *The grades of entry and exit routes must not exceed the capabilities of the waste collection vehicle and are to comply with AS2890.2 Parking Facilities: Off-Street Commercial Vehicle Facilities for heavy rigid vehicles.*

Food Premises Including Food Retailers and Restaurants

- *Individual tenancies are to be provided with appropriate space to store bins and containers that can store up to two days of estimated generated waste.*
- *A bunded and graded storage area for liquid waste is to be provided so it can be drained to a grease trap to satisfy Sydney Water requirements.*
- *Additional space in the waste room to accommodate reusable items like pallets and crates.*

APPENDIX B

Swept paths

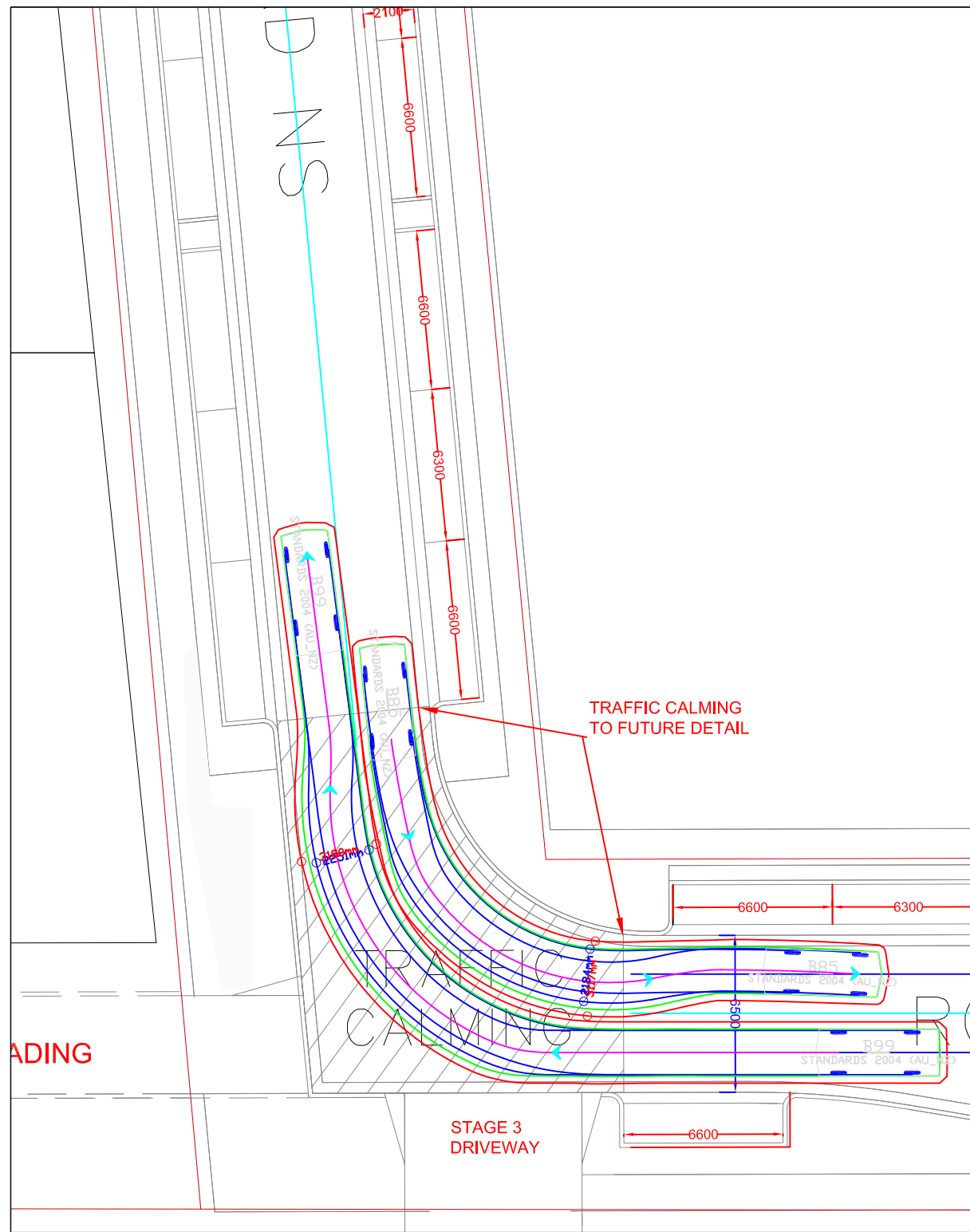


FIGURE 1-B99 LHT EASTBOUND AND B99 RHT NORTHBOUND WITHIN RW2

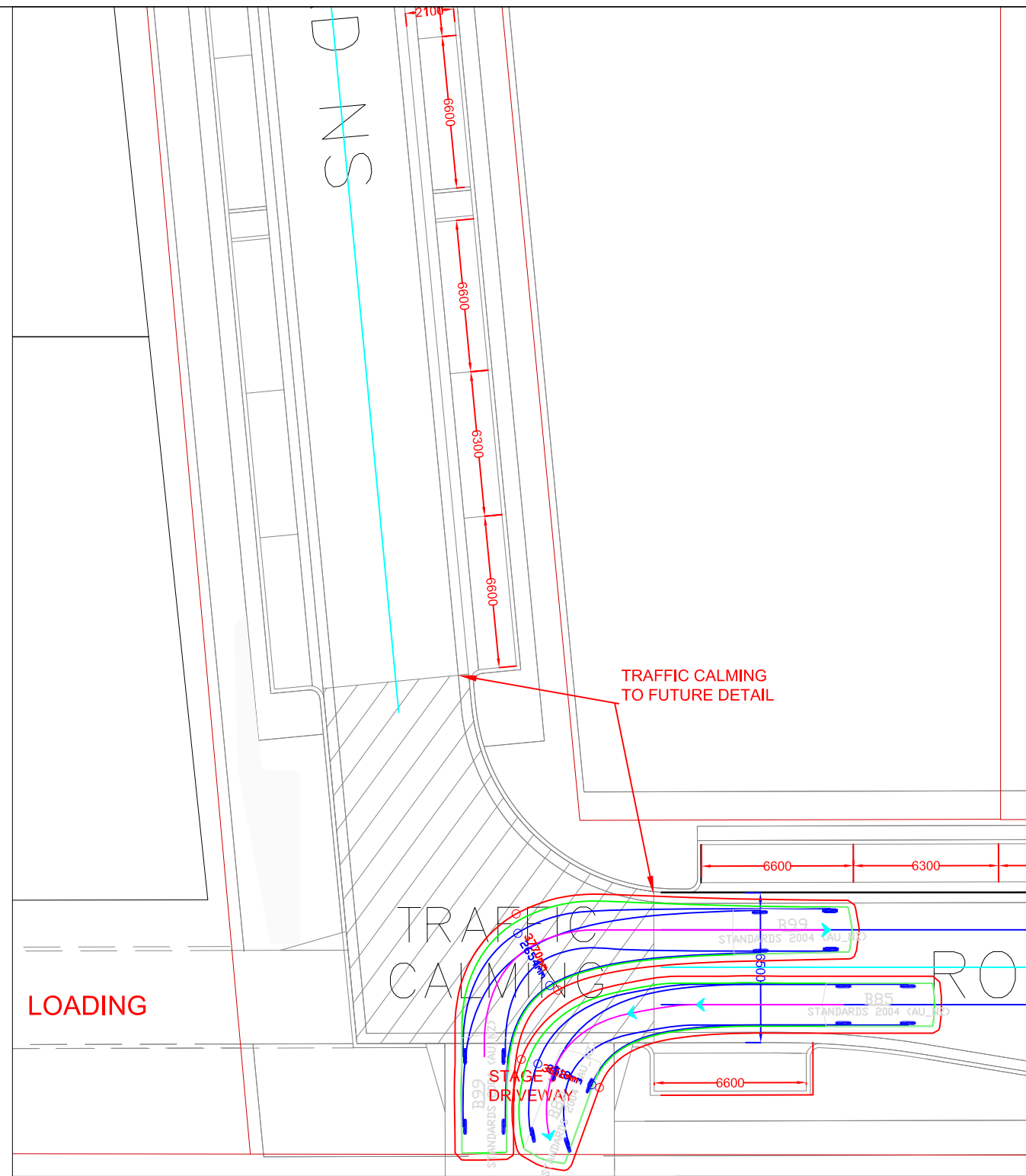
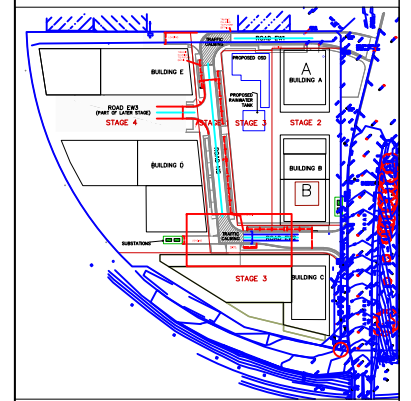
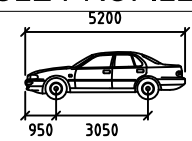


FIGURE 2-B99 RHT RW2 EASTBOUND AND B85 LHT INTO BUILDING C

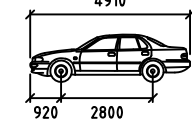


KEY DIAGRAM
SCALE 1:2000

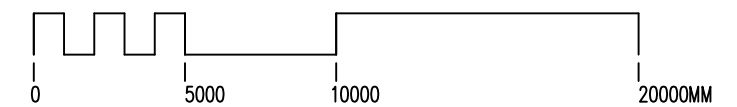
VEHICLE PROFILES



B99
Width : 1940 mm
Track : 1840 mm
Lock to Lock Time : 6.0
Steering Angle : 33.9



B85
Width : 1870 mm
Track : 1770 mm
Lock to Lock Time : 6.0
Steering Angle : 34.1



STAGE 1

No.	Date	Issue Notes

SURVEY BY: GEOMETRA CONSULTING
LAND SURVEYORS DEVELOPMENT CONSULTANTS
20/1-5 JACOBS STREET BANKSTOWN NSW 2200
PHONE: (02) 9708 5719 EMAIL: admin@geometra.com.au

DATUM: A.H.D

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Suite 15 Level 1 phone: (02) 9436 0086
265-271 Pennant Hills Road email: lyle@lylemarshall.com.au
Thornleigh NSW 2120 web: www.lylemarshall.com.au



Client
30 AUBURN ROAD PTY LTD

30-46 AUBURN ROAD REGENTS PARK STAGE 1
GENERAL LAYOUT PLAN STAGE 1
SWEEP PATH ANALYSIS

SCALE	PASSED	DATE FIRST ISSUED
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DESIGN	Sheet No. 2	Drawing No. 1160-6-25
DRAWN EM	of 13	
CHECK CHK		

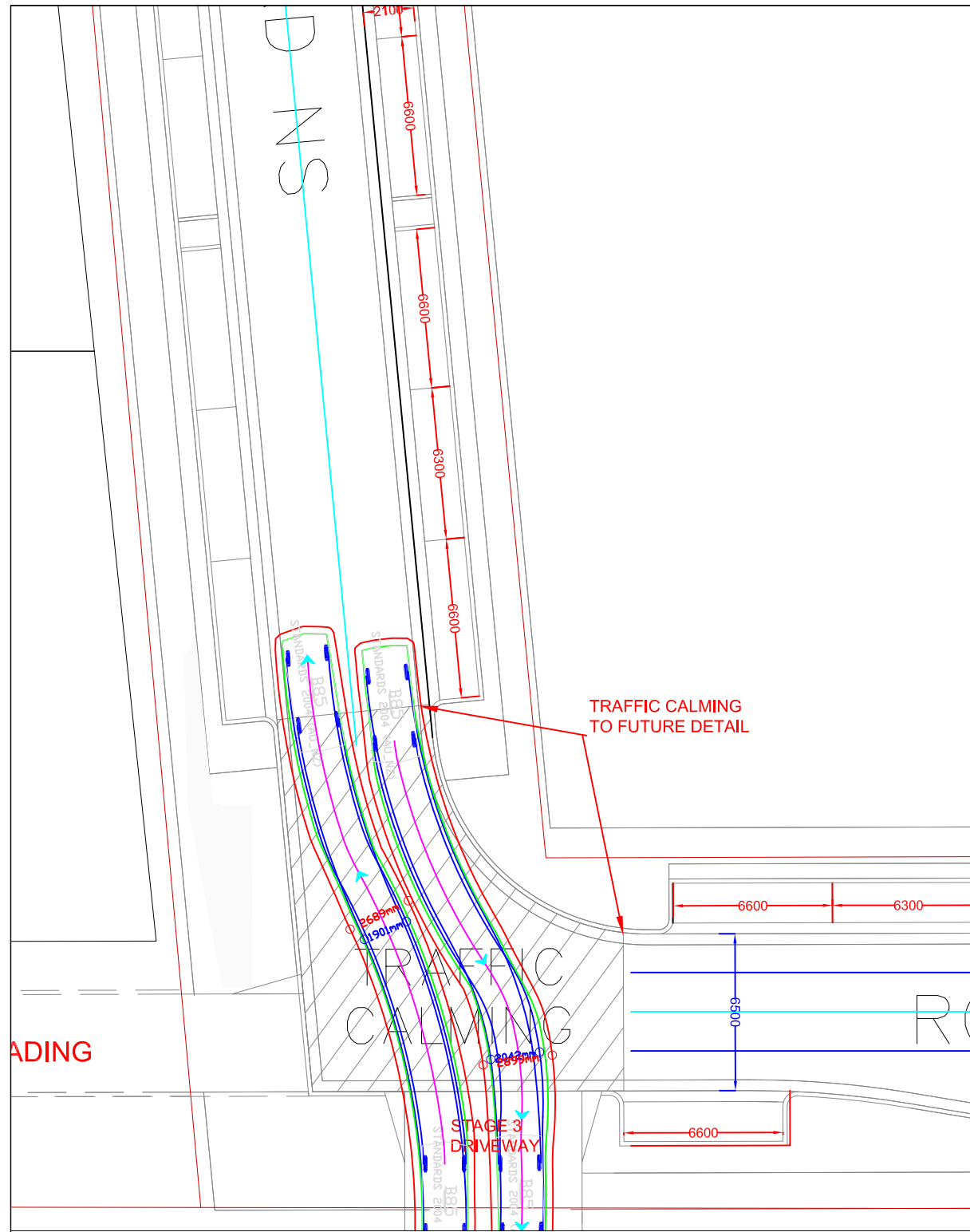


FIGURE 3-B85 NORTHBOUND
EXIT B99 ENTRY SOUTHBOUND
TO BUILDING C DRIVEWAY

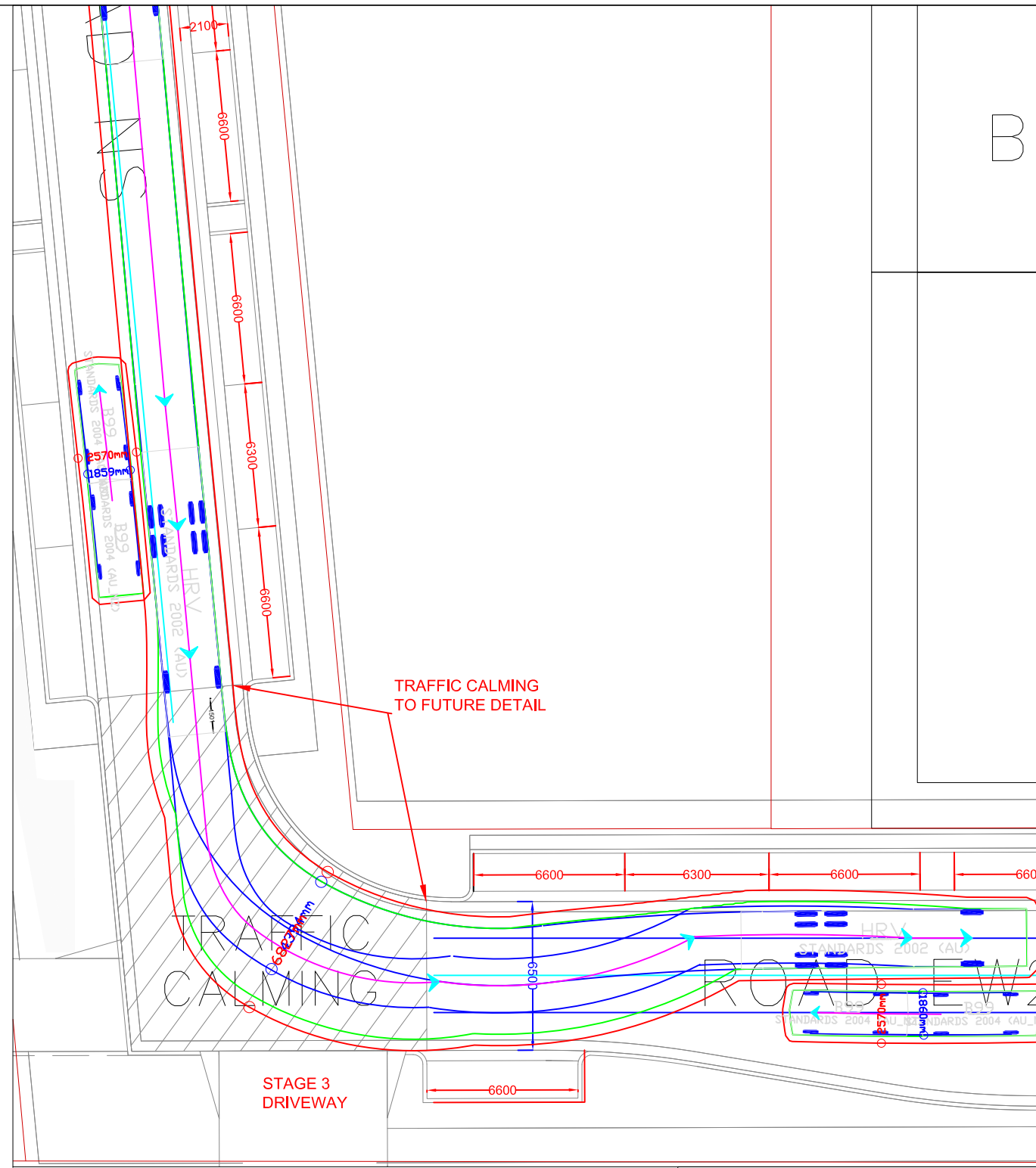
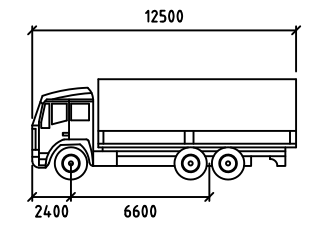


FIGURE 4-HRV LHT IN RW2 AND
B99 RHT IN RW2 NORTHBOUND

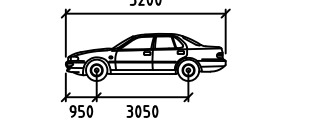


KEY DIAGRAM
SCALE 1:2000

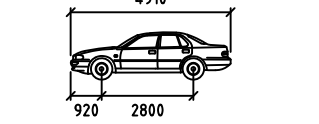
VEHICLE PROFILES



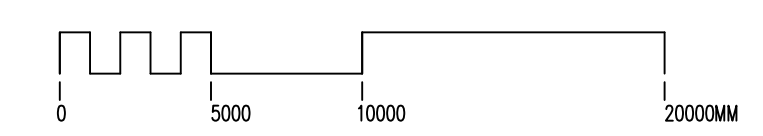
HRV
mm
Width : 2500
Track : 2500
Lock to Lock Time : 6.0
Steering Angle : 35.2



B99
mm
Width : 1940
Track : 1840
Lock to Lock Time : 6.0
Steering Angle : 33.9



B85
mm
Width : 1870
Track : 1770
Lock to Lock Time : 6.0
Steering Angle : 34.1



STAGE 1

No.	Date	Issue Notes

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LAND SURVEYORS DEVELOPMENT CONSULTANTS
20/1-5 JACOBS STREET BANKSTOWN NSW 2200
PHONE: (02) 9708 5719 EMAIL: admin@geometra.com.au

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Thornleigh NSW 2120 web: www.lylemarshall.com.au

MEMBER
The Association of Consulting Engineers Australia

Client: **30 AUBURN ROAD PTY LTD**
30-46 AUBURN ROAD REGENTS PARK STAGE 1
GENERAL LAYOUT PLAN STAGE 1
SWEEP PATH ANALYSIS

SCALE	PASSED	DATE FIRST ISSUED
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DESIGN	EM	Sheet No. 3
DRAWN	CHK	of 13
CHECK	CHK	Drawing No. 1160-6-25

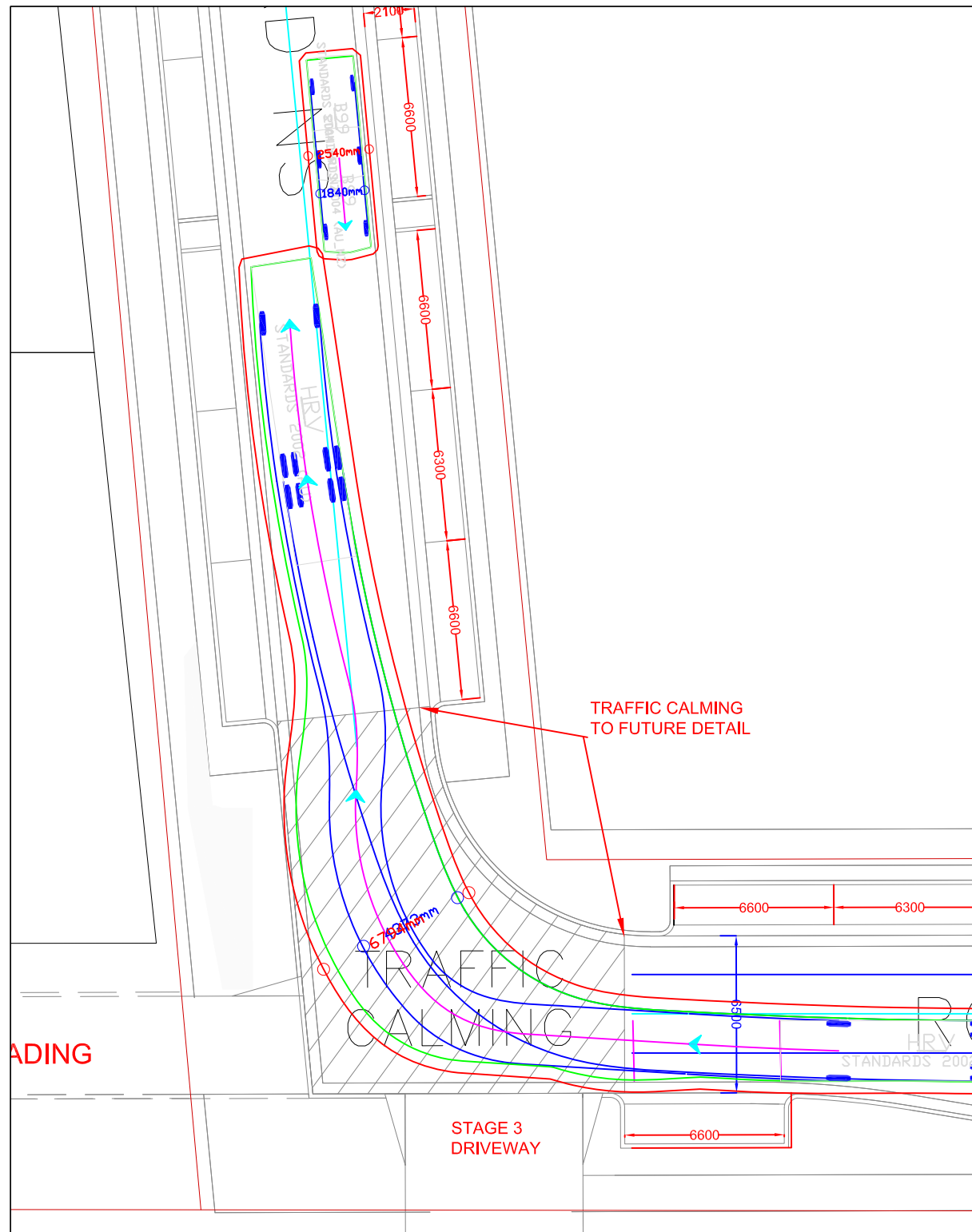


FIGURE 5-B99 SOUTH BOUND
RW2 AND HRV RHT RW2
NORTHBOUND

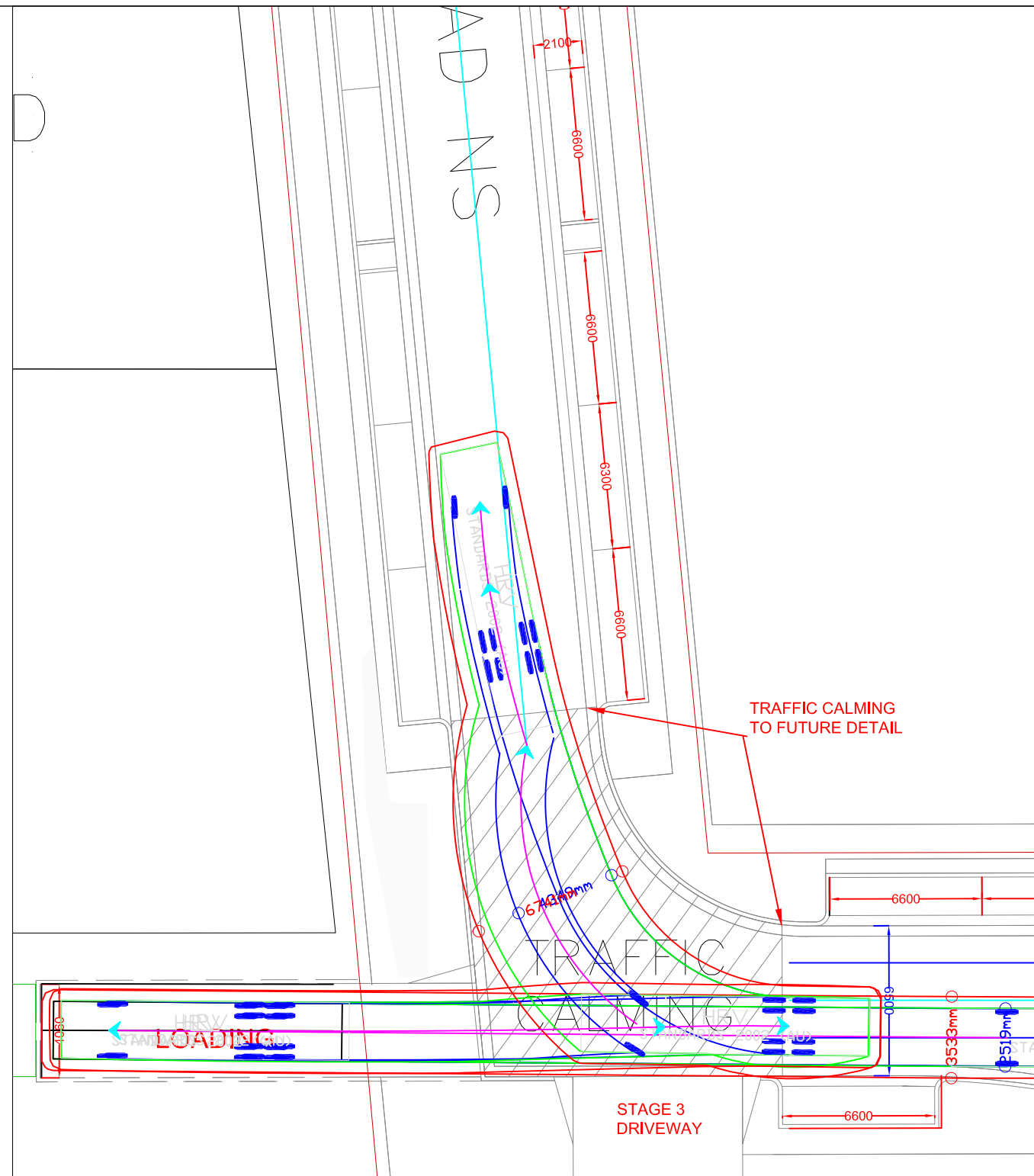
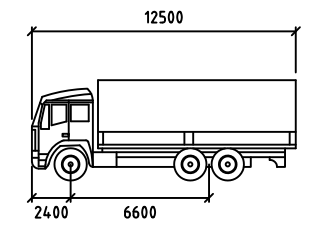


FIGURE 5AB-HRV WESTBOUND
FORWARDS INTO DOCK CD AND
REVERSE EXIT AND
NORTHBOUND INTO RW2

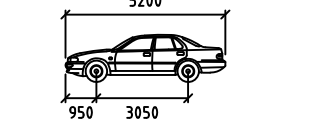


KEY DIAGRAM
SCALE 1:2000

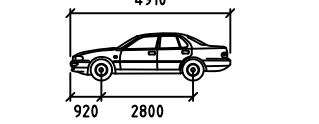
VEHICLE PROFILES



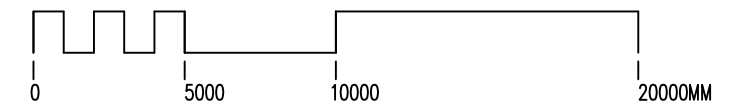
HRV
mm
Width : 2500
Track : 2500
Lock to Lock Time : 6.0
Steering Angle : 35.2



B99
mm
Width : 1940
Track : 1840
Lock to Lock Time : 6.0
Steering Angle : 33.9



B85
mm
Width : 1870
Track : 1770
Lock to Lock Time : 6.0
Steering Angle : 34.1



STAGE 1

No.	Date	Issue Notes	SURVEY BY: GEOMETRA CONSULTING LAND SURVEYORS DEVELOPMENT CONSULTANTS 20/1-5 JACOBS STREET BANKSTOWN NSW 2200 PHONE: (02) 9708 5719 EMAIL: admin@geometra.com.au		Lyle Marshall & Partners Pty Ltd consulting engineers, transport and environmental planners & architects Nominated Architect: ERICA MARSHALL-EVANS : NO. 6513 Suite 15 Level 1 phone: (02) 9436 0086 265-271 Pennant Hills Road email: lyle@lylemarshall.com.au Thornleigh NSW 2120 web: www.lylemarshall.com.au	Client 30 AUBURN ROAD PTY LTD 30-46 AUBURN ROAD REGENTS PARK STAGE 1 GENERAL LAYOUT PLAN STAGE 1 SWEEP PATH ANALYSIS	SCALE	PASSED	DATE FIRST ISSUED
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			DATUM: A.H.D.	COPYRIGHT THIS DRAWING IS THE PROPERTY OF LYLE MARSHALL AND PARTNERS P/L AND MAY ONLY BE USED FOR THE PURPOSE FOR WHICH IT WAS COMMISSIONED & IN ACCORDANCE WITH THE TERMS OF ENGAGEMENT FOR THAT COMMISSION. UNAUTHORISED USE OF THIS DRAWING IS PROHIBITED.		DESIGN	EM	Sheet No. 4	Drawing No. 1160-6-25
						DRAWN	CHK	of 13	

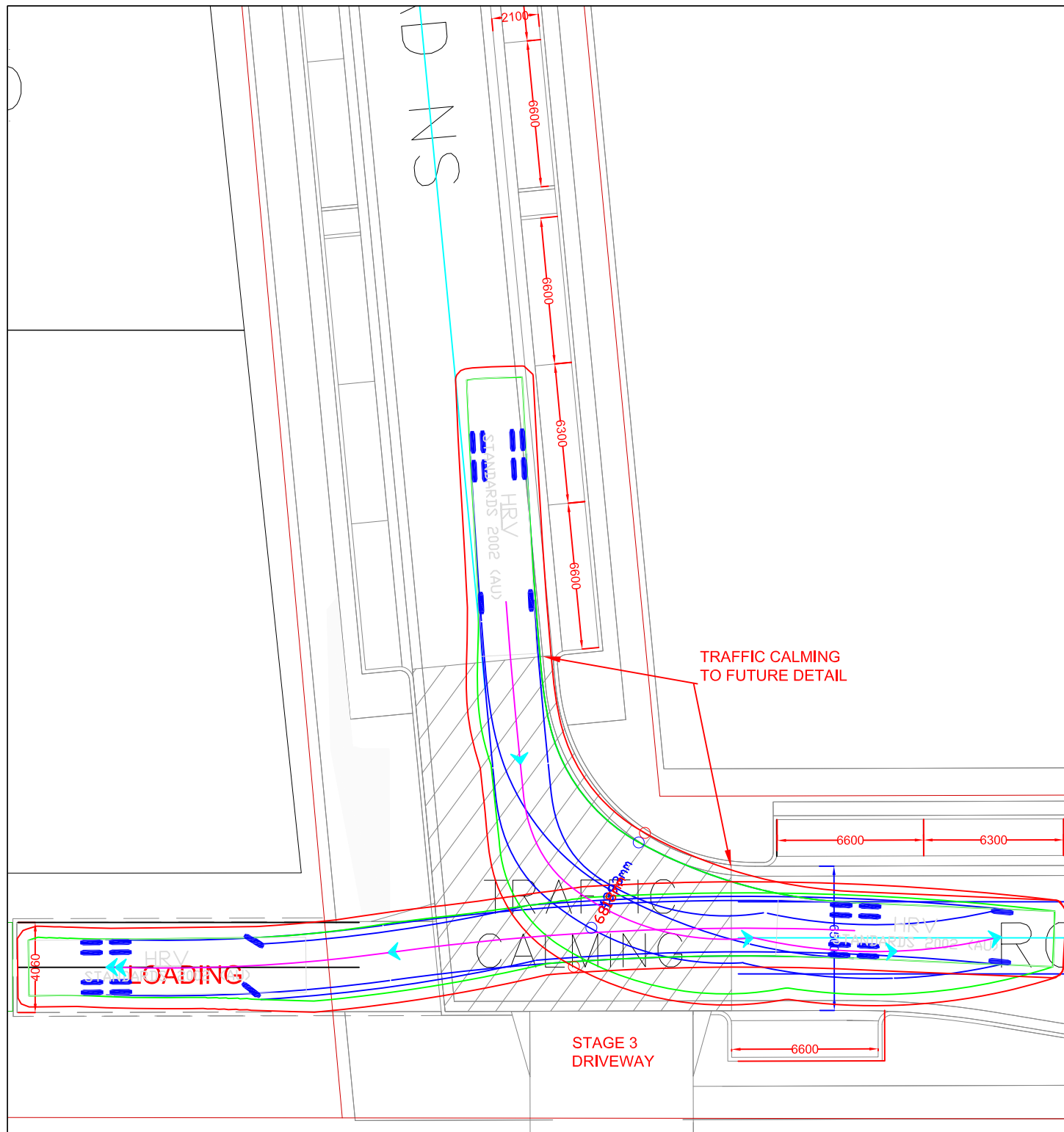


FIGURE 6A HRV LHT REVERSE ENTRY INTO DOCK CD

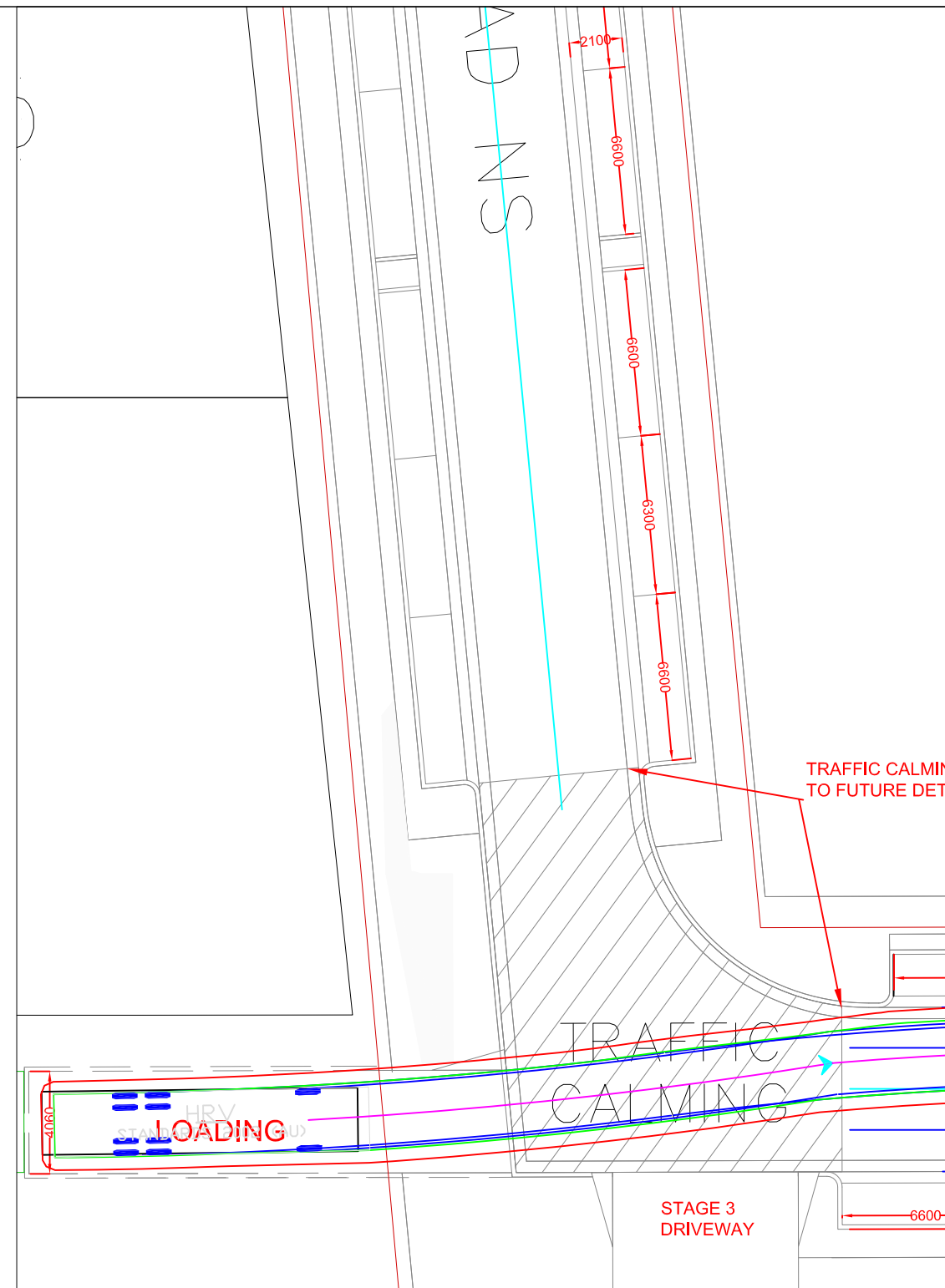
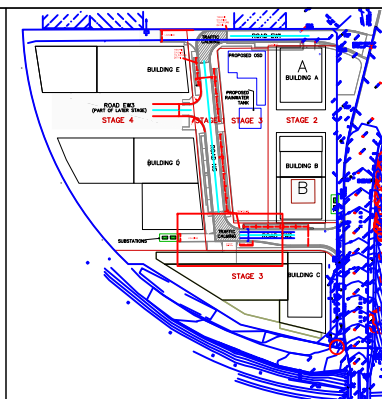
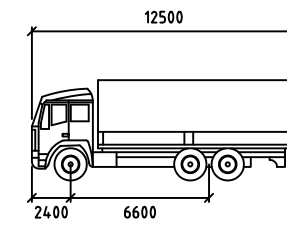


FIGURE 6B HRV EXIT STRAIGHT EASTBOUND

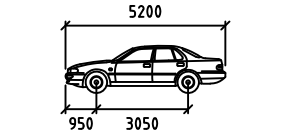


KEY DIAGRAM
SCALE 1:2000

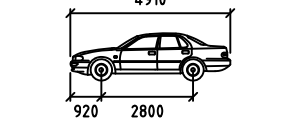
VEHICLE PROFILES



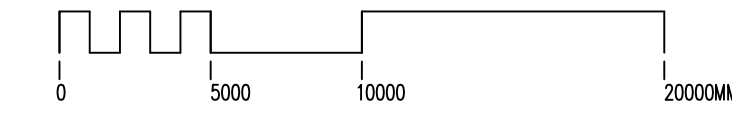
HRV
mm
Width : 2500
Track : 2500
Lock to Lock Time : 6.0
Steering Angle : 35.2



B99
mm
Width : 1940
Track : 1840
Lock to Lock Time : 6.0
Steering Angle : 33.9



B85
mm
Width : 1870
Track : 1770
Lock to Lock Time : 6.0
Steering Angle : 34.1



STAGE 1

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			1:250(A3)	EME			10-11-2025		
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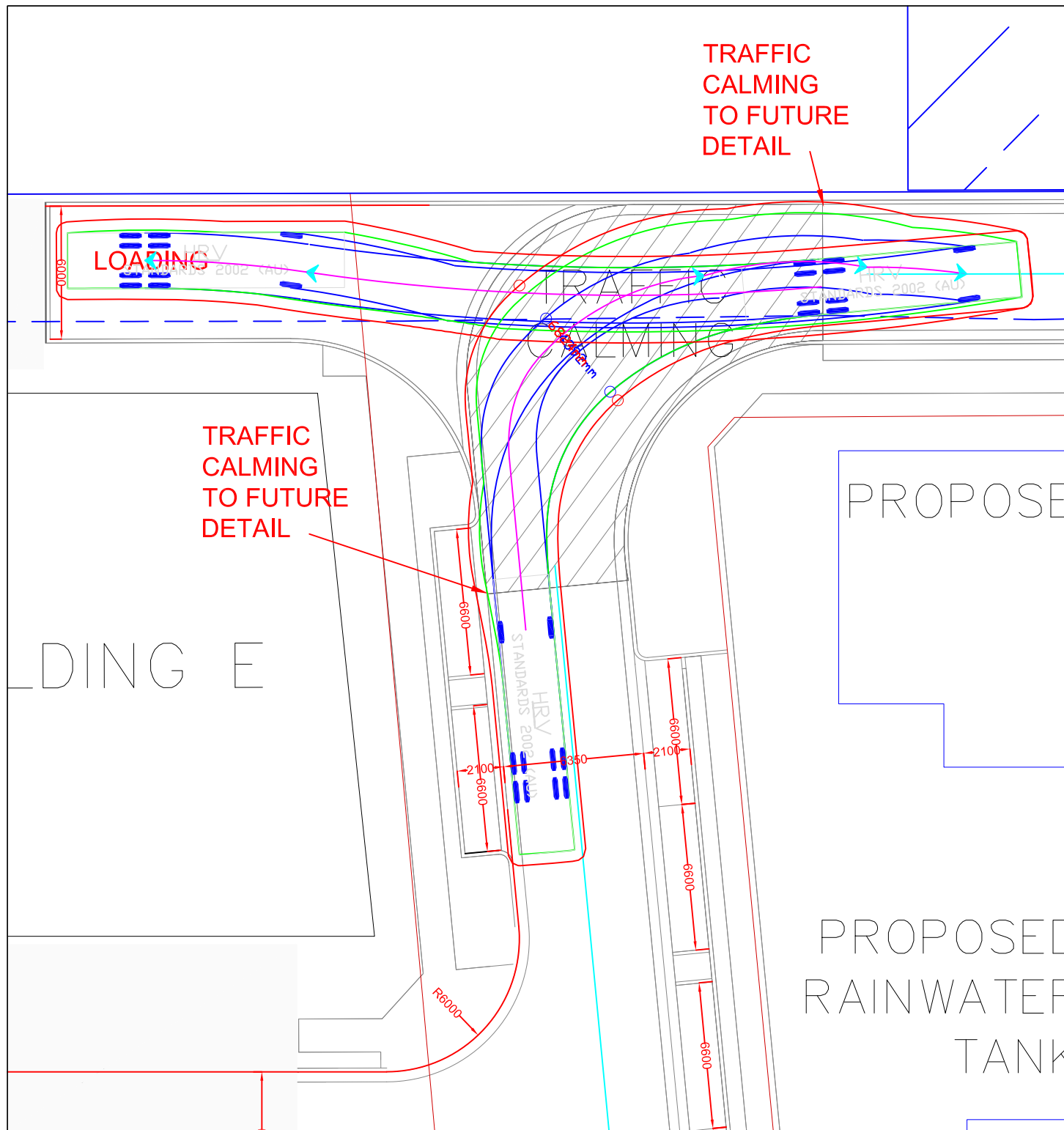


FIGURE 7A HRV RHT INTO RW2 REVERSE ENTRY INTO DOCK E

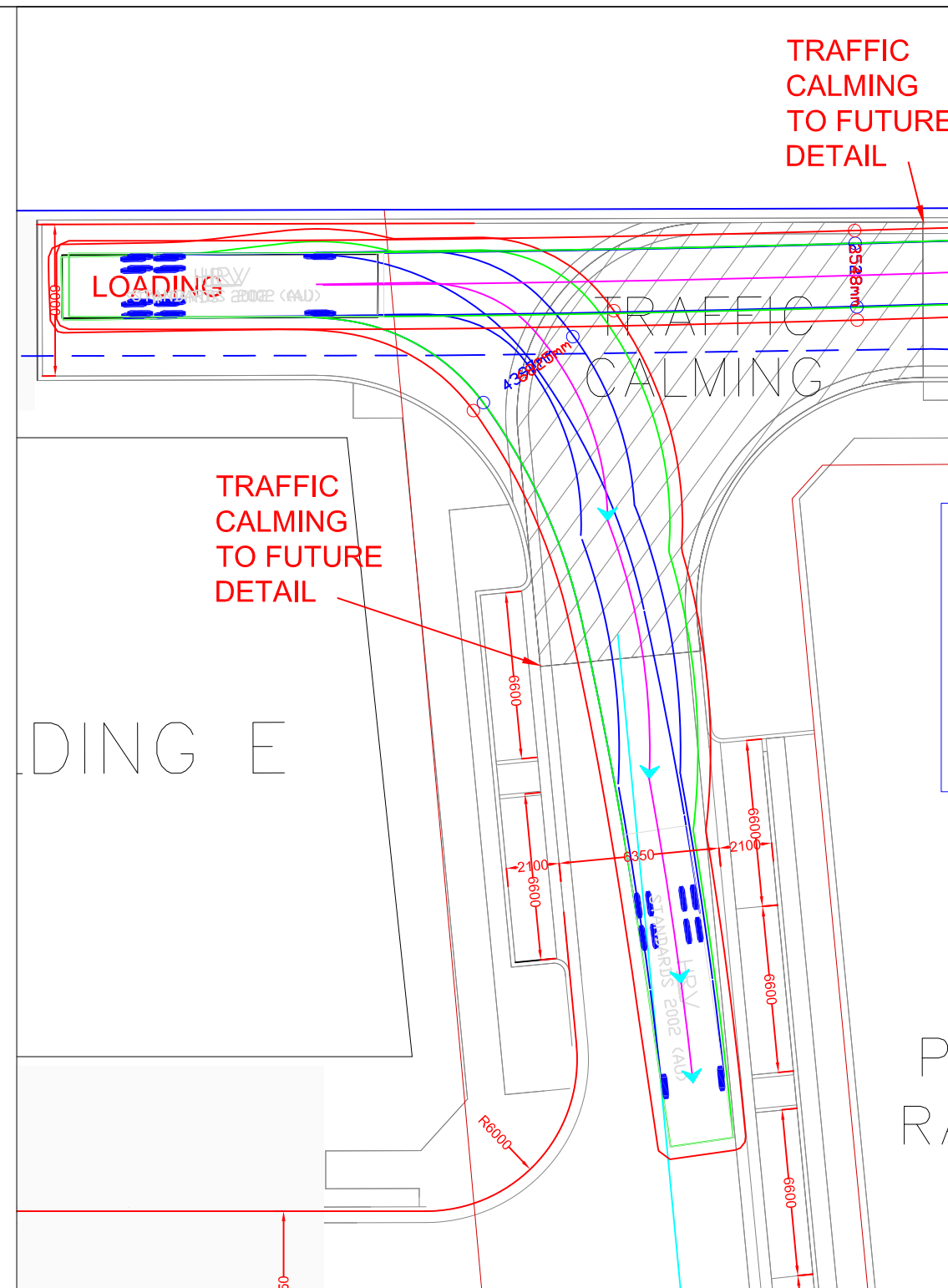
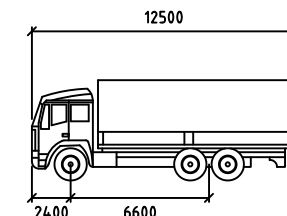


FIGURE 7B HRV RHT EXIT TO RW2 SOUTHBOUND AND EXIT FORWARDS STRAIGHT EASTBOUND FROM DOCK E

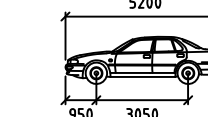


KEY DIAGRAM SCALE 1:2000

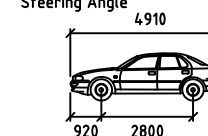
VEHICLE PROFILES



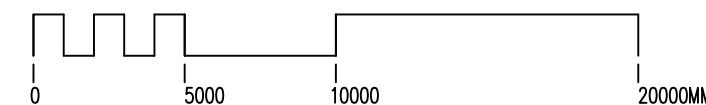
HRV
 Width : 2500 mm
 Track : 2500 mm
 Lock to Lock Time : 6.0
 Steering Angle : 35.2



B99
 Width : 1940 mm
 Track : 1840 mm
 Lock to Lock Time : 6.0
 Steering Angle : 33.9



B85
 Width : 1870 mm
 Track : 1770 mm
 Lock to Lock Time : 6.0
 Steering Angle : 34.1



STAGE 1

No.	Date	Issue Notes	SURVEY BY: GEOMETRA CONSULTING LAND SURVEYORS DEVELOPMENT CONSULTANTS 20/1-5 JACOBS STREET BANKSTOWN NSW 2200 PHONE: (02) 9708 5719 EMAIL: admin@geometra.com.au		Lyle Marshall & Partners Pty Ltd consulting engineers, transport and environmental planners & architects NOMINATED ARCHITECT: ERICA MARSHALL-EVANS : NO. 6513 Suite 15 Level 1 phone: (02) 9436 0086 265-271 Pennant Hills Road email: lyle@lylemarshall.com.au Thornleigh NSW 2120 web: www.lylemarshall.com.au	Client 30 AUBURN ROAD PTY LTD 30-46 AUBURN ROAD REGENTS PARK STAGE 1 GENERAL LAYOUT PLAN STAGE 1 SWEEP PATH ANALYSIS	SCALE	PASSED	DATE FIRST ISSUED
			1:250(A3)	EME			10-11-2025		
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						DRAWN	EM	of 13	
						CHECK	CHK		

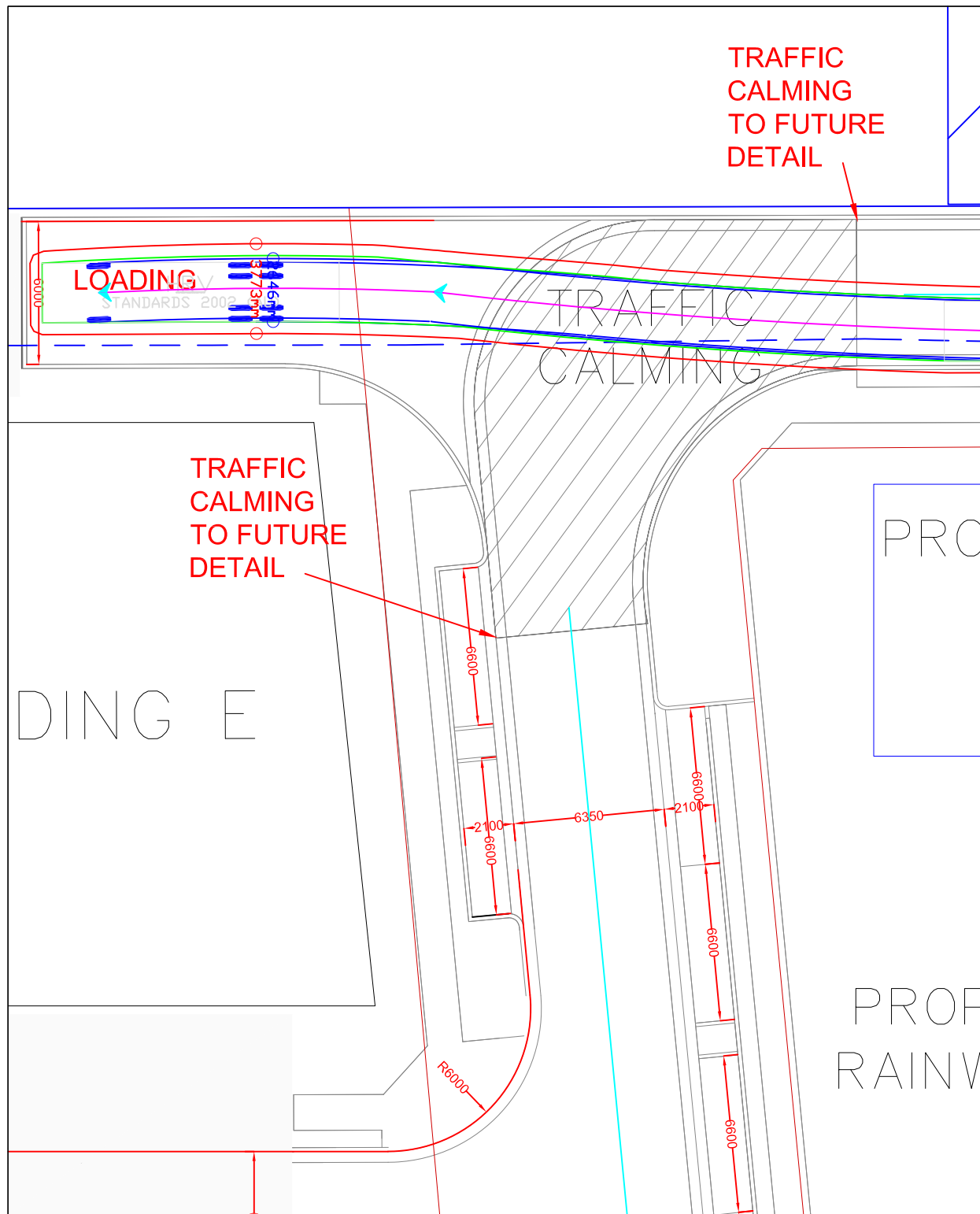


FIGURE 8A HRV FORWARDS STRAIGHT WESTBOUND INTO DOCK E

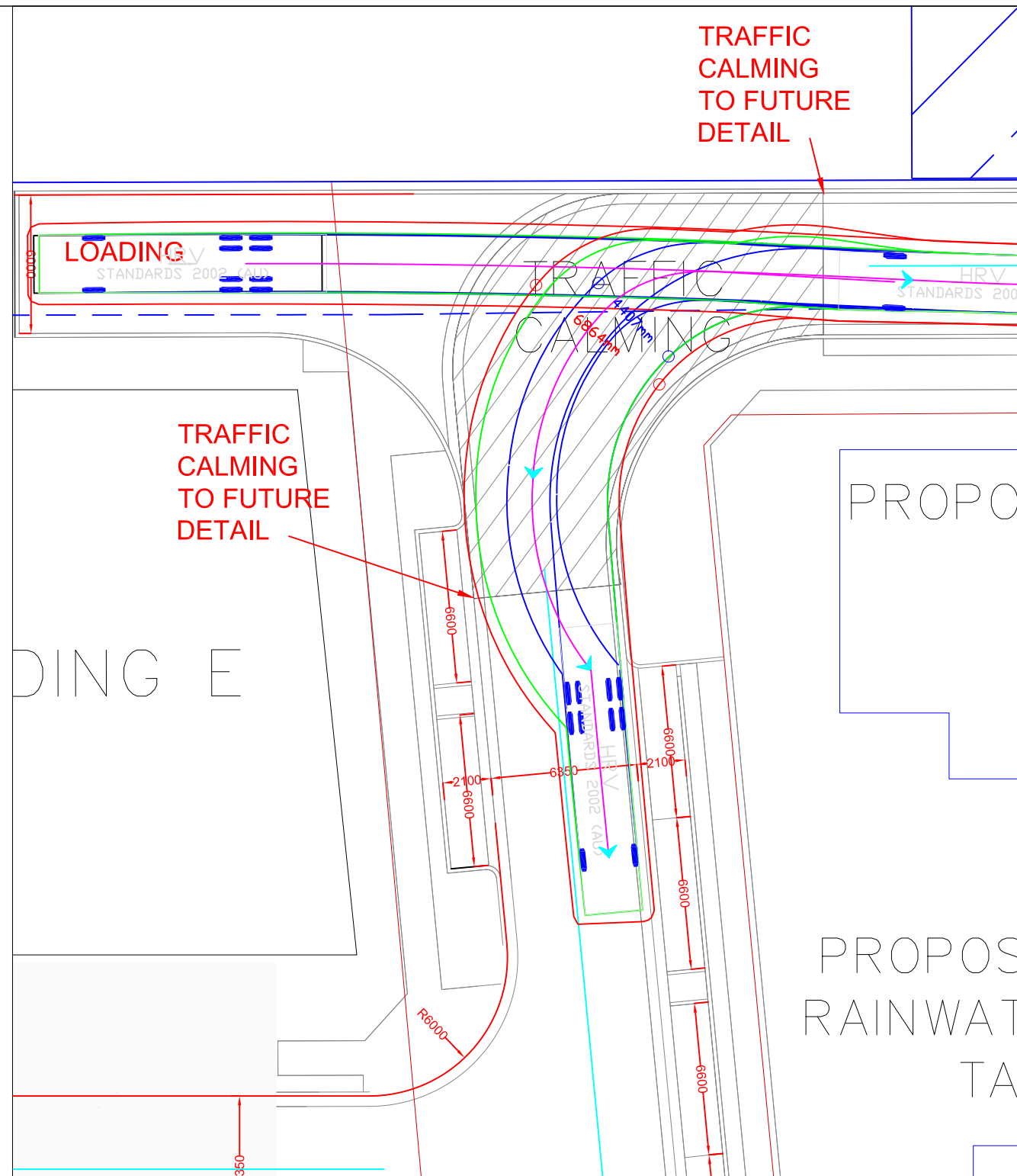
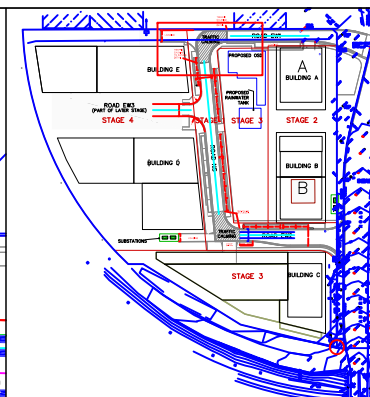
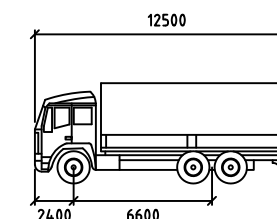


FIGURE 8B HRV REVERSE AND EXIT LHT SOUTHBOUND IN RW2



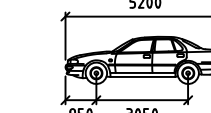
KEY DIAGRAM SCALE 1:2000

VEHICLE PROFILES



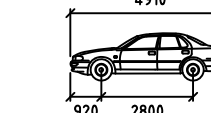
HRV

- Width : 12500 mm
- Track : 6600 mm
- Lock to Lock Time : 6.0
- Steering Angle : 35.2



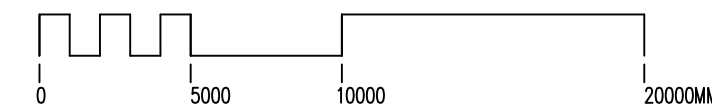
B99

- Width : 5200 mm
- Track : 3050 mm
- Lock to Lock Time : 6.0
- Steering Angle : 33.9



B85

- Width : 4910 mm
- Track : 2800 mm
- Lock to Lock Time : 6.0
- Steering Angle : 34.1



STAGE 1

No.	Date	Issue Notes	SURVEY BY: GEOMETRA CONSULTING LAND SURVEYORS DEVELOPMENT CONSULTANTS 20/1-5 JACOBS STREET BANKSTOWN NSW 2200 PHONE: (02) 9708 5719 EMAIL: admin@geometra.com.au		 Lyle Marshall & Partners Pty Ltd consulting engineers, transport and environmental planners & architects <small>NOMINATED ARCHITECT: ERICA MARSHALL-EVANS : NO. 6513</small> Suite 15 Level 1 phone: (02) 9436 0086 265-271 Pennant Hills Road email: lyle@lylemarshall.com.au Thornleigh NSW 2120 web: www.lylemarshall.com.au	 Client 30 AUBURN ROAD PTY LTD 30-46 AUBURN ROAD REGENTS PARK STAGE 1 GENERAL LAYOUT PLAN STAGE 1 SWEPT PATH ANALYSIS	SCALE	PASSED	DATE FIRST ISSUED	DESIGN	Sheet No.	Drawing No.
			1:250(A3)	EME			10-11-2025	DRAWN	EM			
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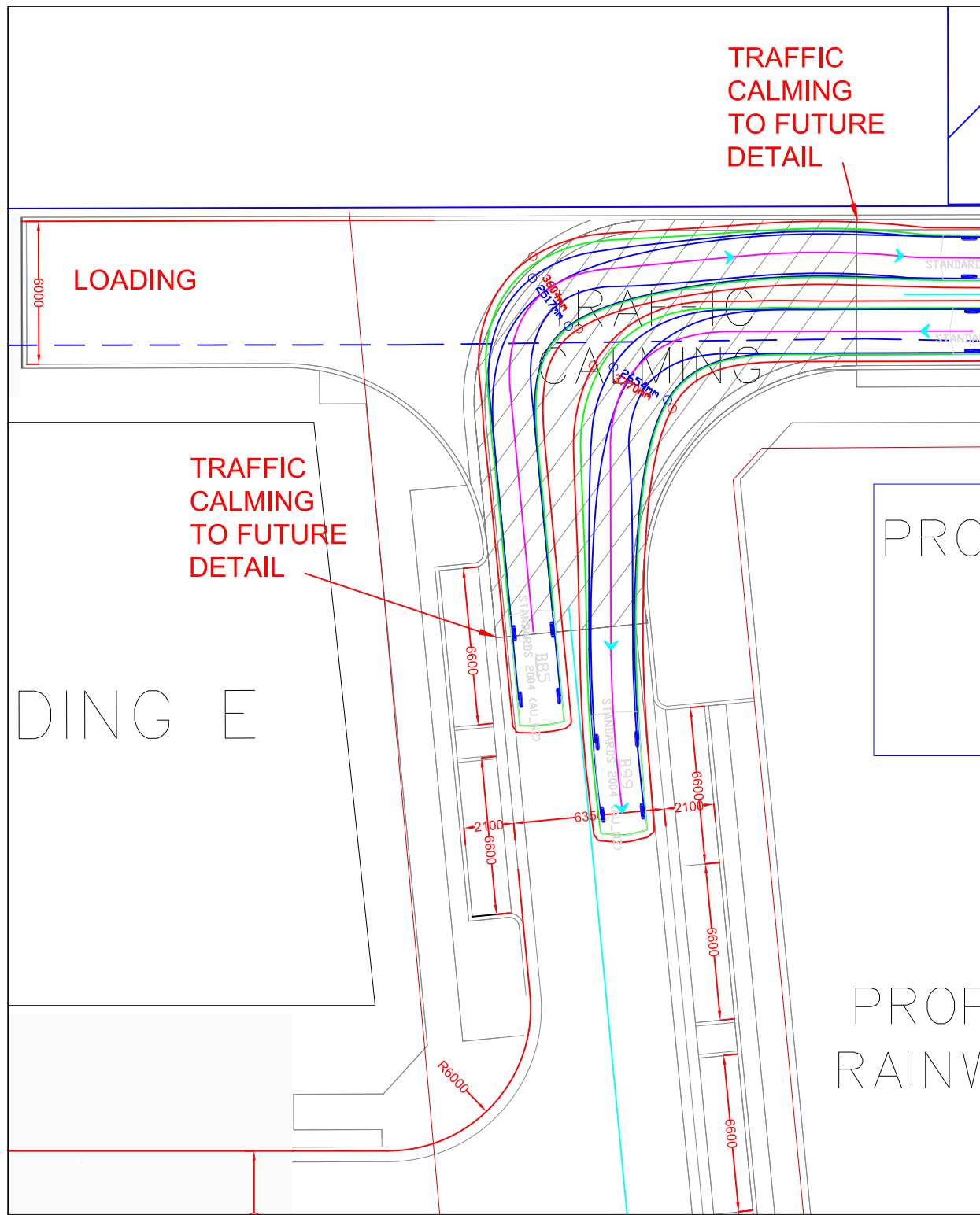


FIGURE 9 B85 RHT AND B99 LHT IN RW2

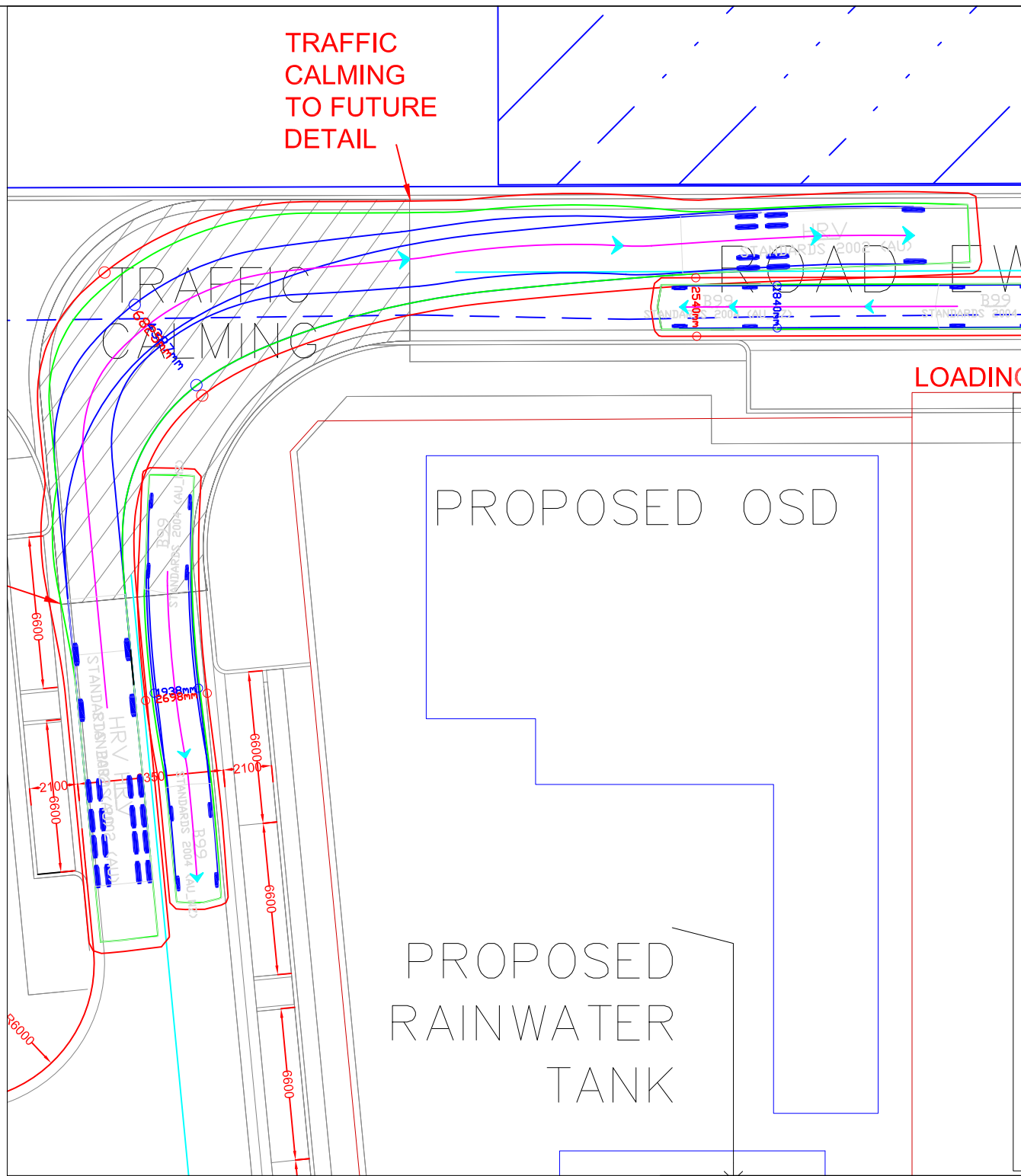
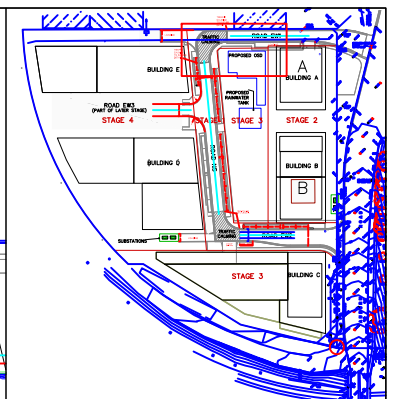
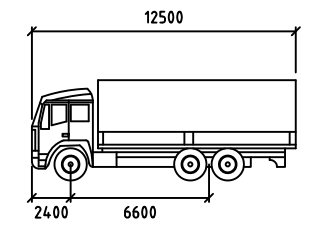


FIGURE 10 HRV RHT AND B99 LHT IN RW2

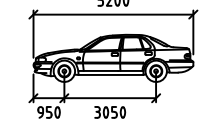


KEY DIAGRAM
SCALE 1:2000

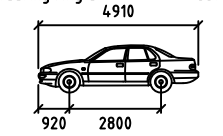
VEHICLE PROFILES



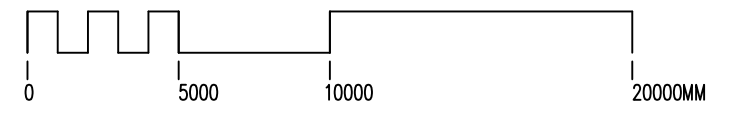
HRV
Width : 2500 mm
Track : 2500 mm
Lock to Lock Time : 6.0
Steering Angle : 35.2



B99
Width : 1940 mm
Track : 1840 mm
Lock to Lock Time : 6.0
Steering Angle : 33.9



B85
Width : 1870 mm
Track : 1770 mm
Lock to Lock Time : 6.0
Steering Angle : 34.1



STAGE 1

No.	Date	Issue Notes

SURVEY BY:	GEOMETRA CONSULTING LAND SURVEYORS DEVELOPMENT CONSULTANTS 20/1-5 JACOBS STREET BANKSTOWN NSW 2200 PHONE: (02) 9708 5719 EMAIL: admin@geometra.com.au
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 consulting engineers, transport and environmental planners & architects
 Nominated Architect: ERICA MARSHALL-EVANS : NO. 6513
 Suite 15 Level 1 phone: (02) 9436 0086
 265-271 Pennant Hills Road email: lyle@lylemarshall.com.au
 Thornleigh NSW 2120 web: www.lylemarshall.com.au



Client:	30 AUBURN ROAD PTY LTD
Project:	30-46 AUBURN ROAD REGENTS PARK STAGE 1
Design:	GENERAL LAYOUT PLAN STAGE 1
Analysis:	SWEPT PATH ANALYSIS

SCALE	PASSED	DATE FIRST ISSUED
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DRAWN	8	1160-6-25
CHECK	of 13	

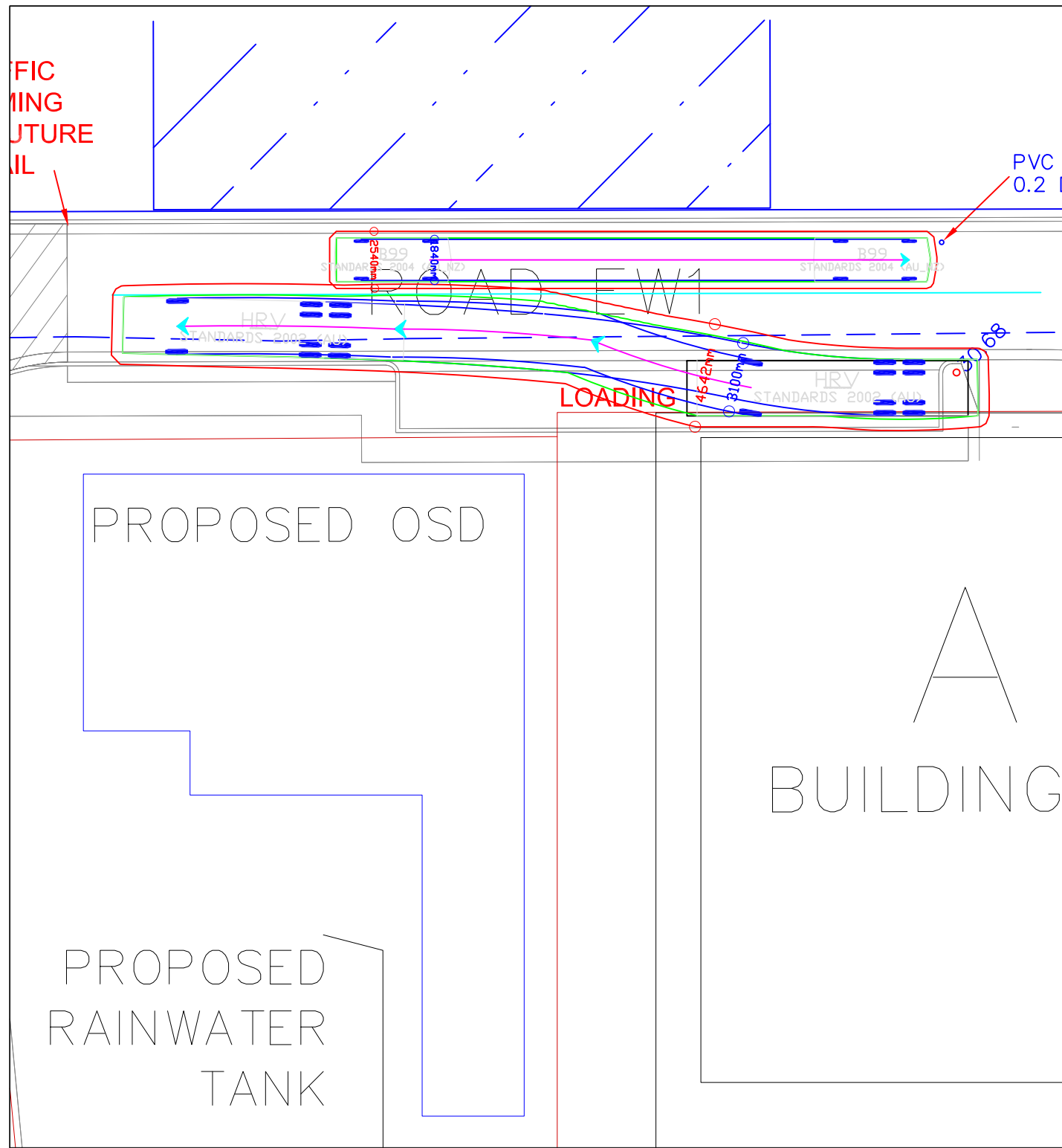


FIGURE 12B HRV EXITING LOADING DOCK B AND B99 VEHICLE EASTBOUND

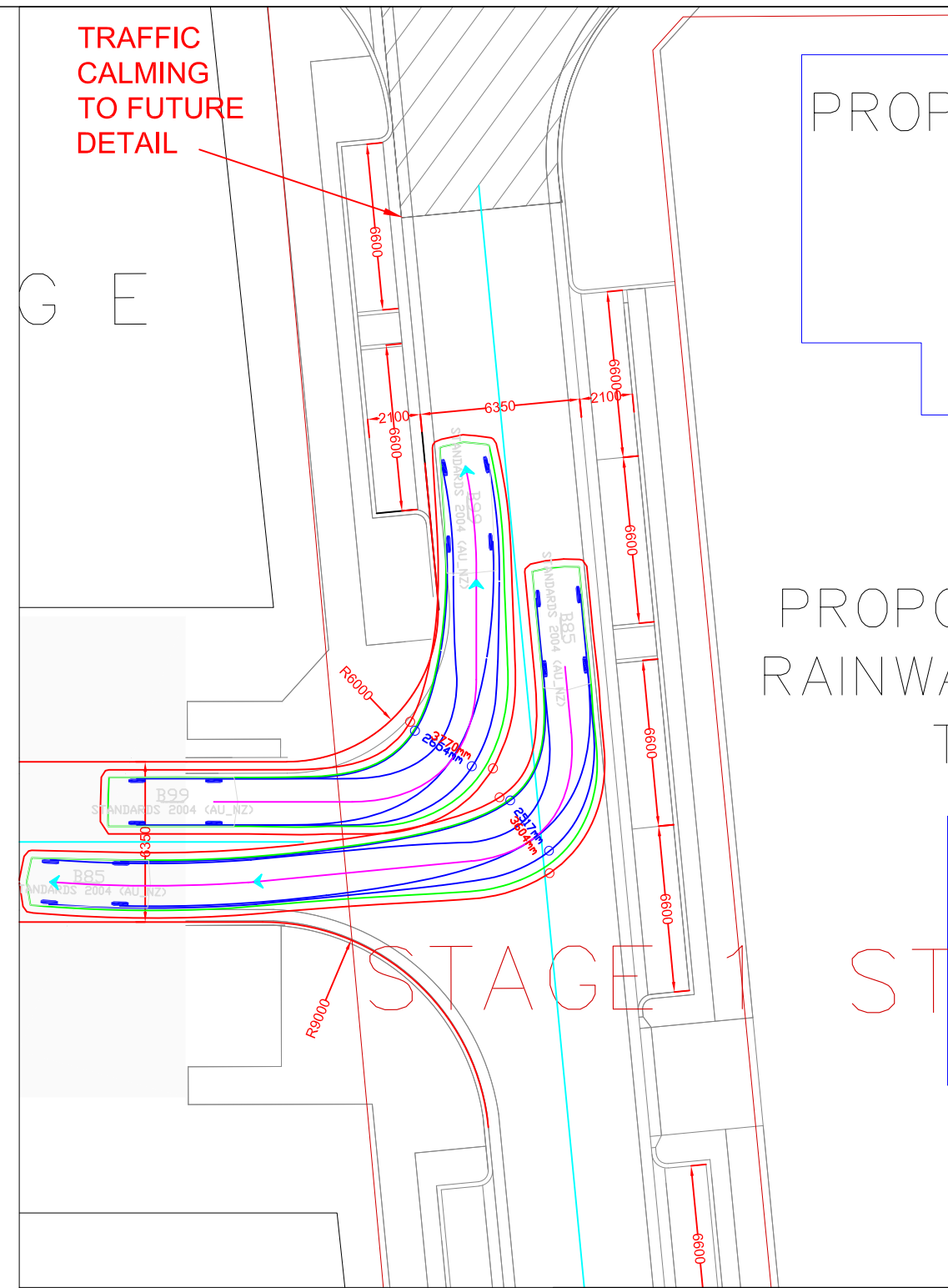
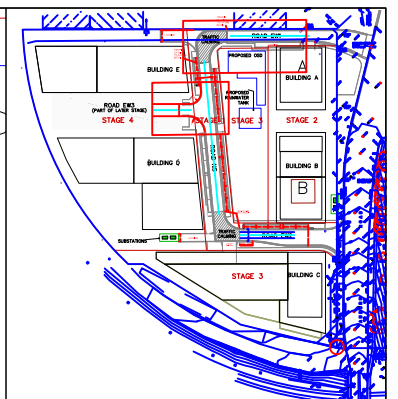
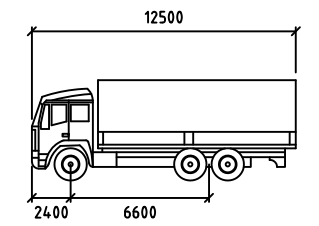


FIGURE 13 B99 LHT EXIT FROM RW3 TO RW2 AND B85 RHT FROM RW2 TO RW3



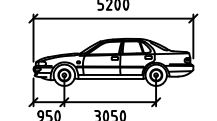
KEY DIAGRAM SCALE 1:2000

VEHICLE PROFILES



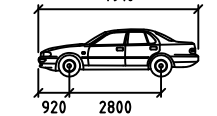
HRV

- Width : 2500 mm
- Track : 2500 mm
- Lock to Lock Time : 6.0
- Steering Angle : 35.2



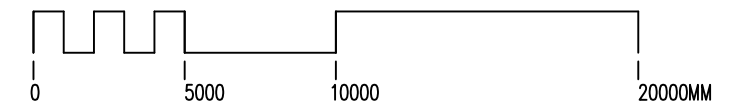
B99

- Width : 1940 mm
- Track : 1840 mm
- Lock to Lock Time : 6.0
- Steering Angle : 33.9



B85

- Width : 1870 mm
- Track : 1770 mm
- Lock to Lock Time : 6.0
- Steering Angle : 34.1



STAGE 1

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						1:250(A3)	EME	10-11-2025	
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						DRAWN	EM	10	1160-6-25
						CHECK	CHK	of 13	

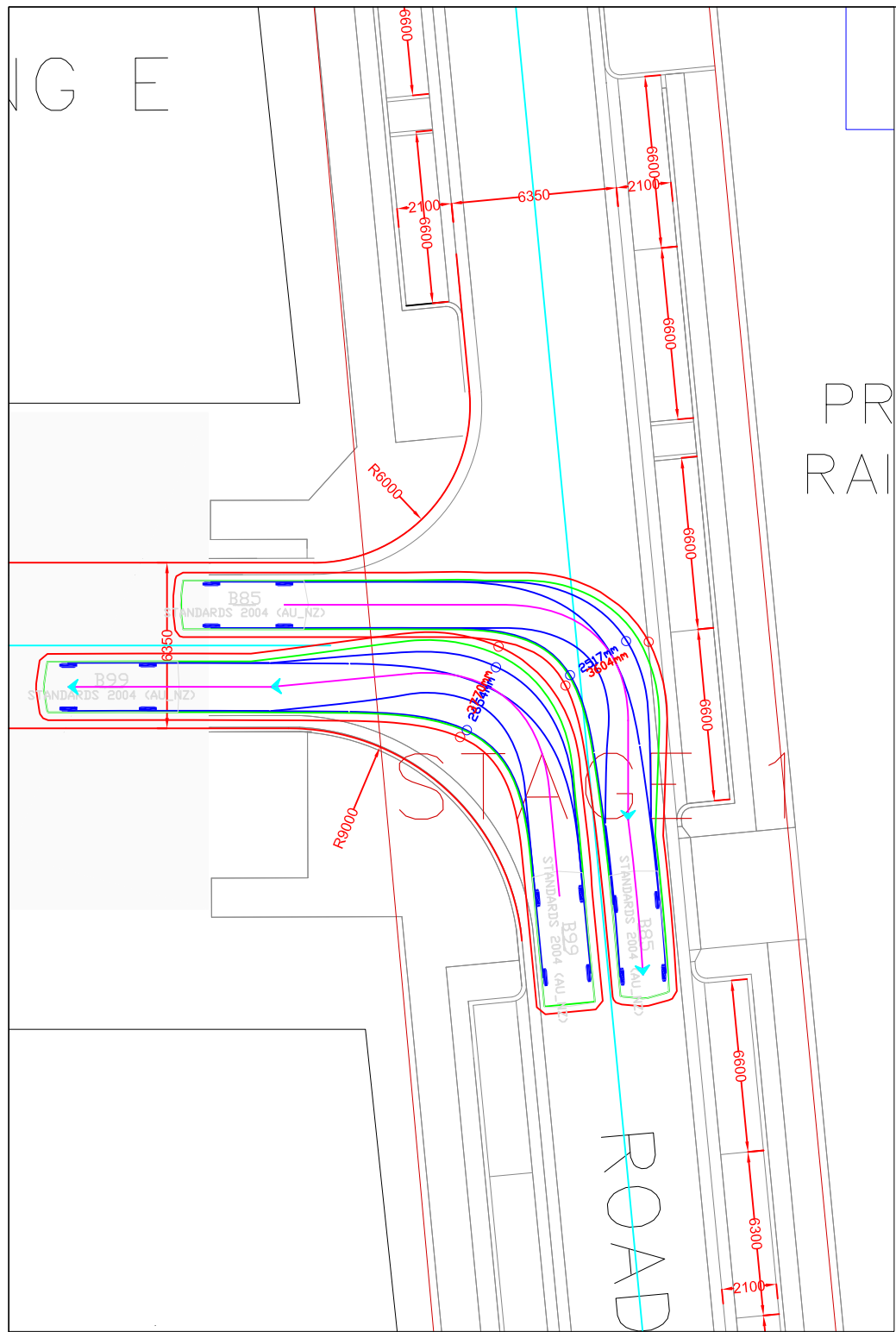


FIGURE 14 B99 LHT FROM RW2 TO RW3 AND B85 RHT FROM RW3 TO RW2

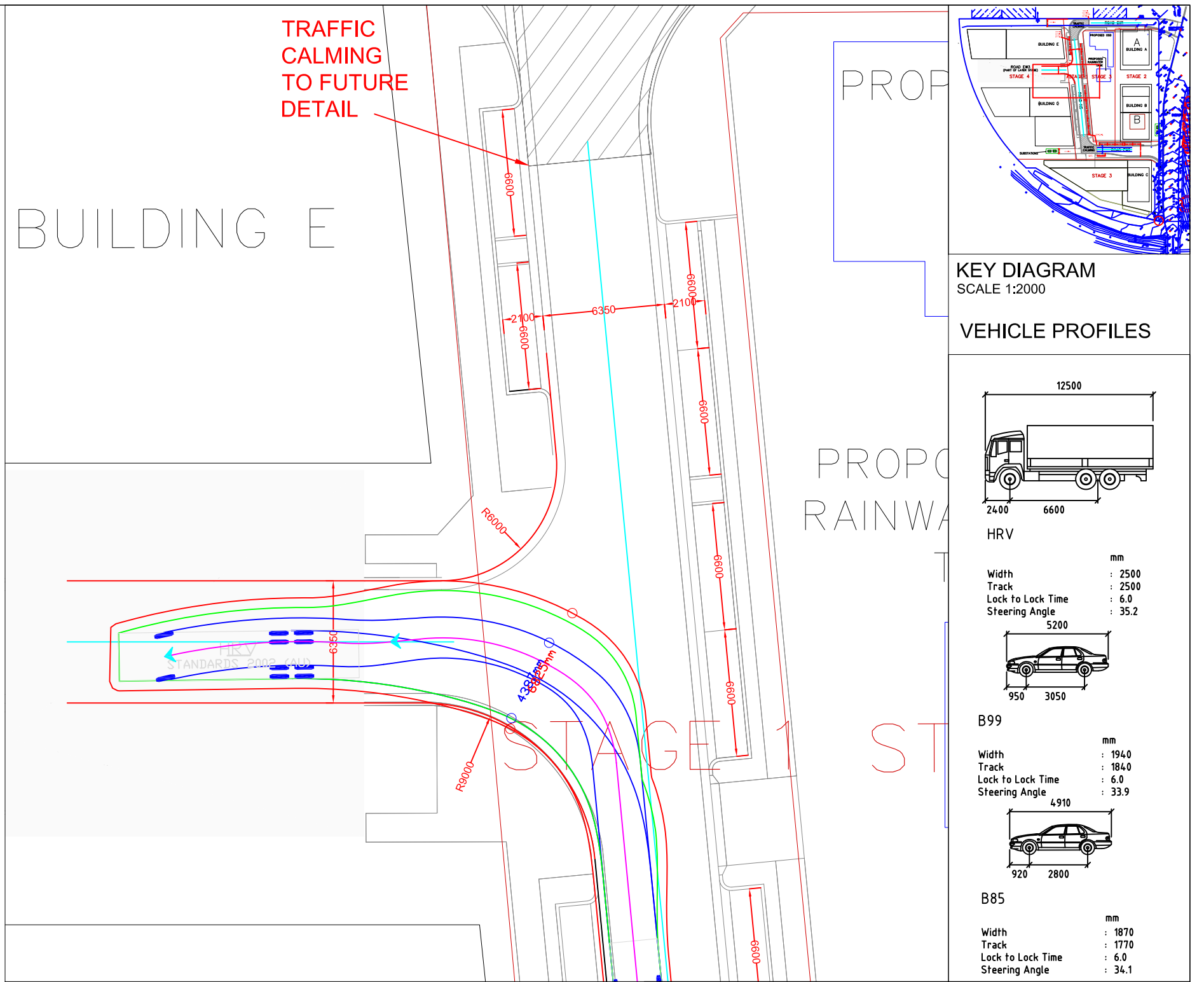
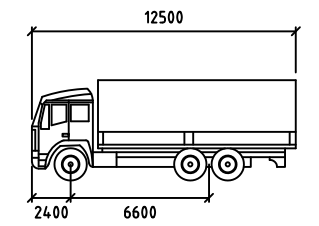


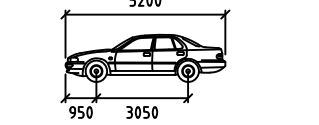
FIGURE 15A HRV LHT FROM RW2 TO RW3

KEY DIAGRAM
SCALE 1:2000

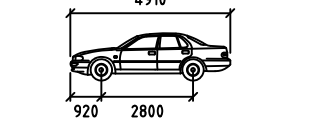
VEHICLE PROFILES



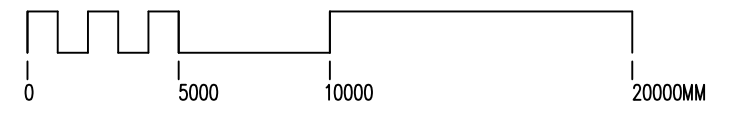
HRV
Width : 2500 mm
Track : 2500 mm
Lock to Lock Time : 6.0
Steering Angle : 35.2



B99
Width : 1940 mm
Track : 1840 mm
Lock to Lock Time : 6.0
Steering Angle : 33.9



B85
Width : 1870 mm
Track : 1770 mm
Lock to Lock Time : 6.0
Steering Angle : 34.1



STAGE 1

No.	Date	Issue Notes

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LAND SURVEYORS DEVELOPMENT CONSULTANTS
20/1-5 JACOBS STREET BANKSTOWN NSW 2200
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DATUM: A.H.D

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consulting engineers, transport and environmental planners & architects
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HERBERT
The Association of Consulting Engineers Australia

Client: **30 AUBURN ROAD PTY LTD**

30-46 AUBURN ROAD REGENTS PARK STAGE 1
GENERAL LAYOUT PLAN STAGE 1
SWEEP PATH ANALYSIS

SCALE	PASSED	DATE FIRST ISSUED
1:250(A3)	EME	10-11-2025
DESIGN	Sheet No. 11	Drawing No. 1160-6-25
DRAWN EM	of 13	
CHECK CHK		

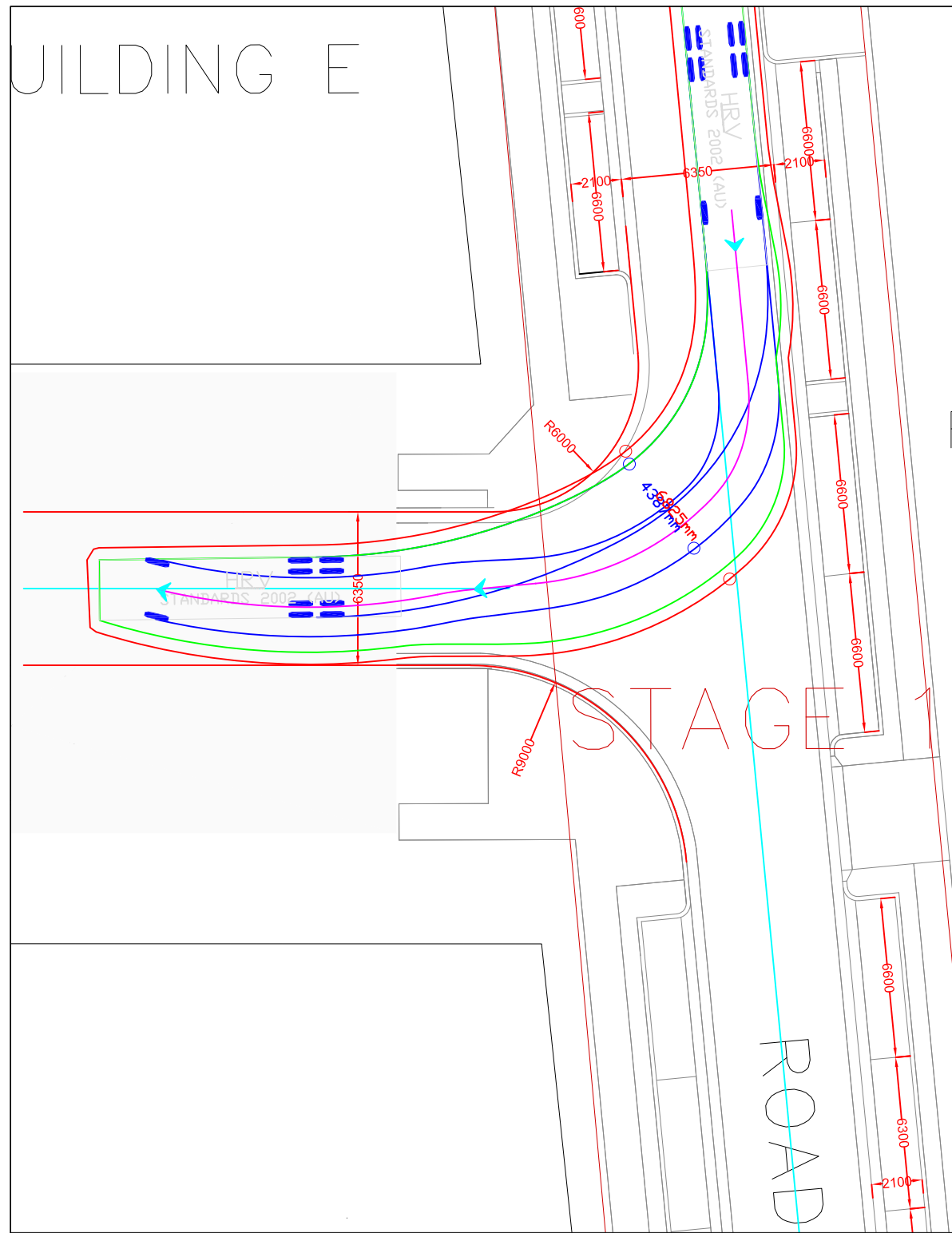


FIGURE 15B HRV RHT FROM RW2 TO RW3

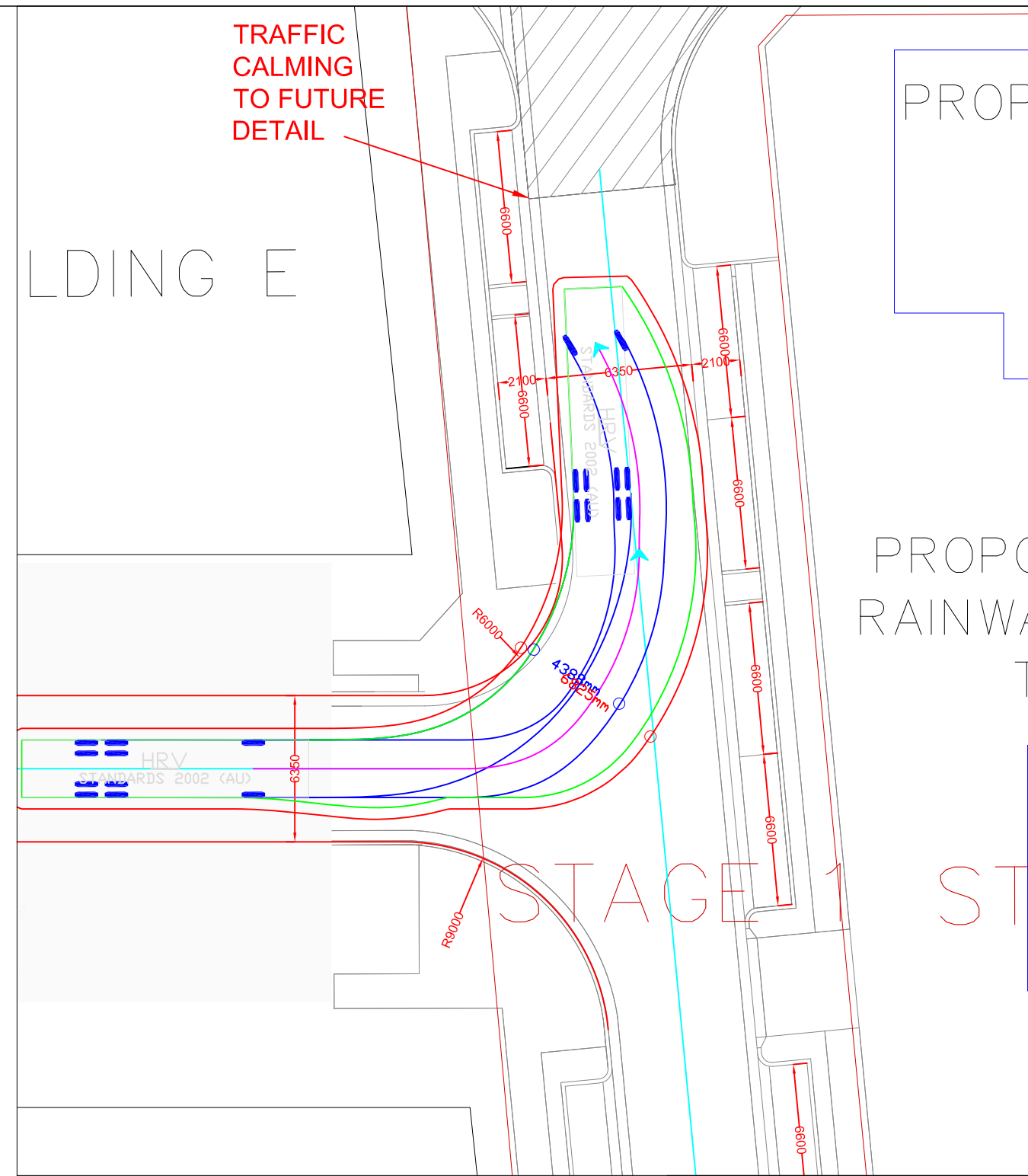
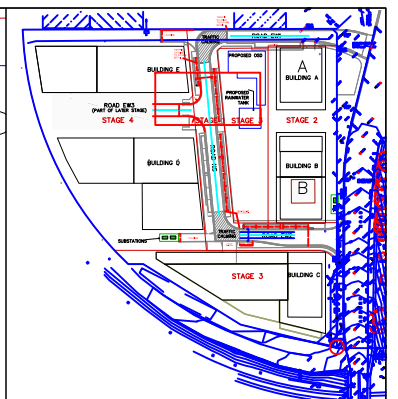
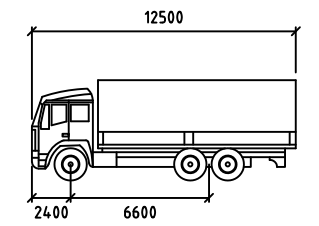


FIGURE 16A HRV LHT FROM RW3 TO RW2 NORTHBOUND

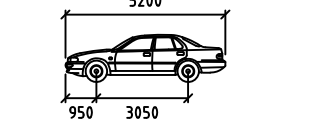


KEY DIAGRAM
SCALE 1:2000

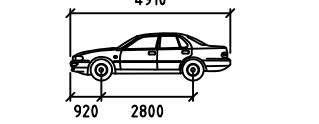
VEHICLE PROFILES



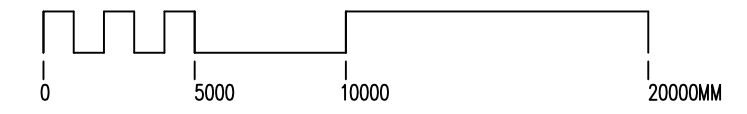
HRV
Width : 2500 mm
Track : 2500 mm
Lock to Lock Time : 6.0
Steering Angle : 35.2



B99
Width : 1940 mm
Track : 1840 mm
Lock to Lock Time : 6.0
Steering Angle : 33.9



B85
Width : 1870 mm
Track : 1770 mm
Lock to Lock Time : 6.0
Steering Angle : 34.1



STAGE 1

No.	Date	Issue Notes	SURVEY BY: GEOMETRA CONSULTING LAND SURVEYORS DEVELOPMENT CONSULTANTS 20/1-5 JACOBS STREET BANKSTOWN NSW 2200 PHONE: (02) 9708 5719 EMAIL: admin@geometra.com.au	 Lyle Marshall & Partners Pty Ltd consulting engineers, transport and environmental planners & architects <small>NOMINATED ARCHITECT: ERICA MARSHALL-EVANS : NO. 6513</small> Suite 15 Level 1 phone: (02) 9436 0086 265-271 Pennant Hills Road email: lyle@lylemarshall.com.au Thornleigh NSW 2120 web: www.lylemarshall.com.au	  <small>The Association of Consulting Engineers Australia</small>	Client: 30 AUBURN ROAD PTY LTD 30-46 AUBURN ROAD REGENTS PARK STAGE 1 GENERAL LAYOUT PLAN STAGE 1 SWEEP PATH ANALYSIS	SCALE	PASSED	DATE FIRST ISSUED
							1:250(A3)	EME	10-11-2025
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						12 of 13	1160-6-25		

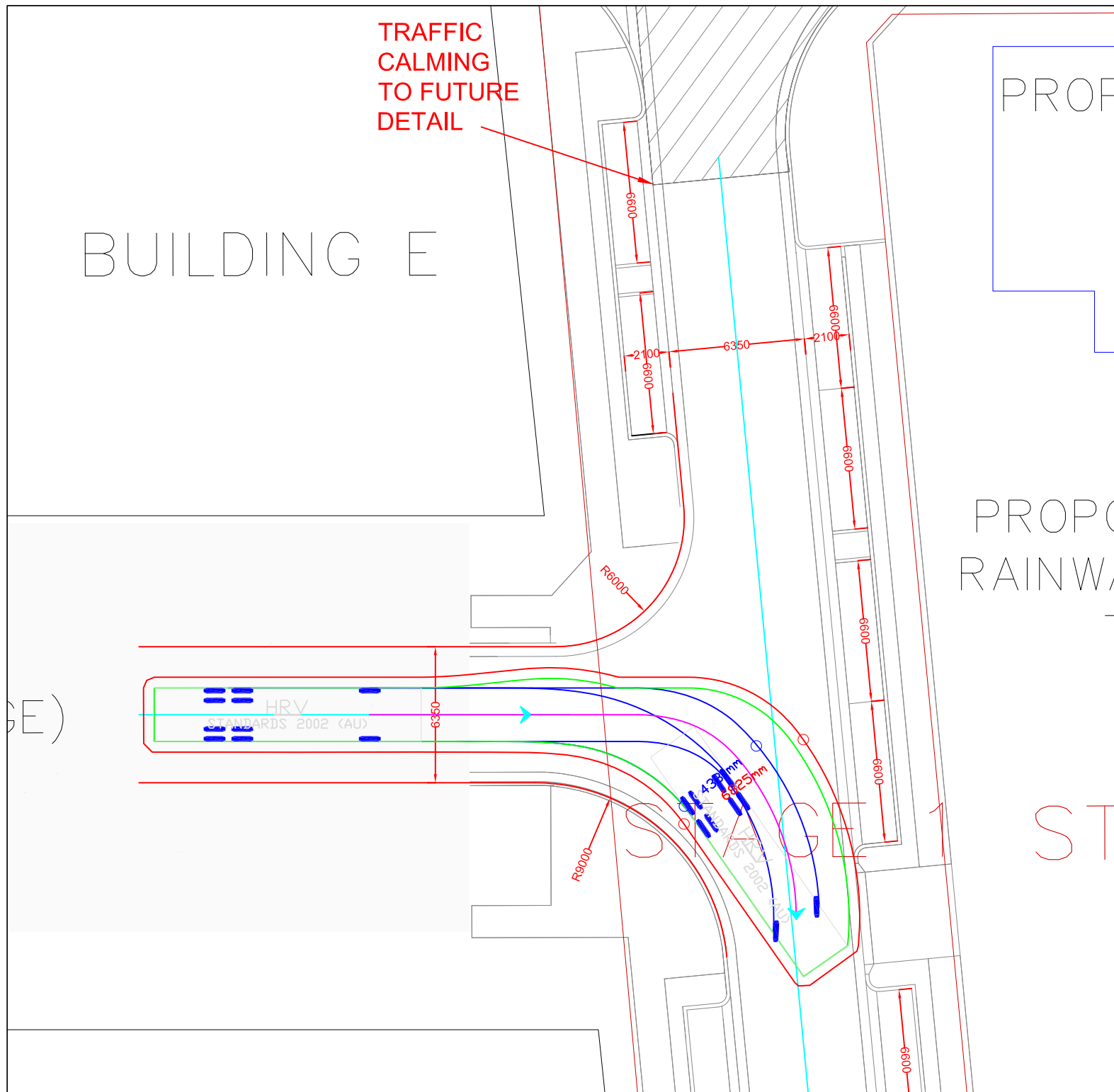
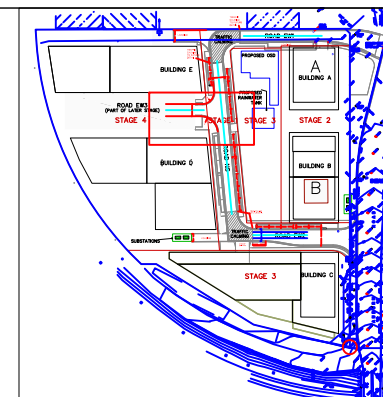
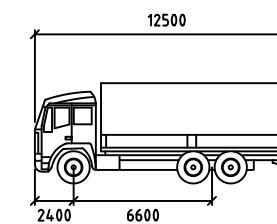


FIGURE 16B HRV RHT FROM RW3 TO RW2 SOUTHBOUND



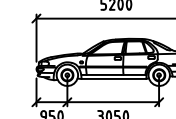
KEY DIAGRAM
SCALE 1:2000

VEHICLE PROFILES



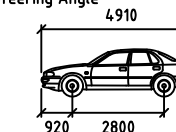
HRV

- Width : 2500 mm
- Track : 2500
- Lock to Lock Time : 6.0
- Steering Angle : 35.2



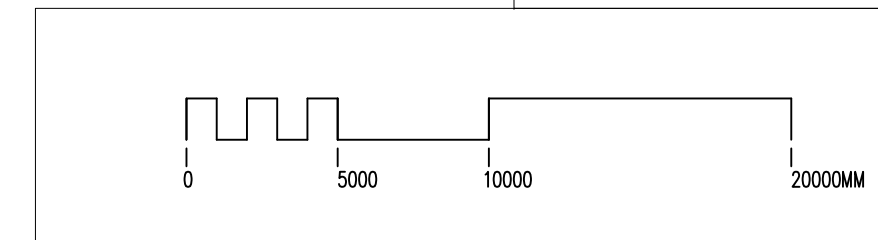
B99

- Width : 1940 mm
- Track : 1840
- Lock to Lock Time : 6.0
- Steering Angle : 33.9



B85

- Width : 1870 mm
- Track : 1770
- Lock to Lock Time : 6.0
- Steering Angle : 34.1



STAGE 1

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			30-46 AUBURN ROAD REGENTS PARK STAGE 1				1:250(A3)	EME	10-11-2025		
GENERAL LAYOUT PLAN STAGE 1 SWEEP PATH ANALYSIS							DESIGN	Sheet No. 13	Drawing No. 1160-6-25		
							DRAWN	EM	of 13		
							CHECK	CHK			

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