gtk consulting
traffic management
and car parking solutions

Traffic and Car Parking Assessment

Proposed Bottle Recycling Facility

137 Coreen Avenue, Penrith

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1 INTRODUCTION

gtk consulting pty ltd has been engaged by Saint Vincent de Paul Society NSW to prepare a traffic and car parking assessment report to accompany a development application to Penrith City Council. The proposal is to establish a bottle recycling facility within an existing factory/warehouse building (Area 3) at 137 Coreen Street, Penrith (refer **Figure 1**) and install two (2) automatic bottle sorting machines (singulators). All access to the proposed development will be via an existing driveway on Coreen Avenue.

This application will require referral to Roads and Maritime Services (RMS) as the proposal is a traffic generating development identified in Clause 104 and Schedule 3 of *State Environmental Planning Policy (Infrastructure) 2007*. It should be noted, however, that access via the existing driveway on Coreen Avenue does not require concurrence from RMS under the *Roads Act*, as this road is a non-classified regional arterial road (RR 7289) under the care and control of Penrith City Council.

This report will:

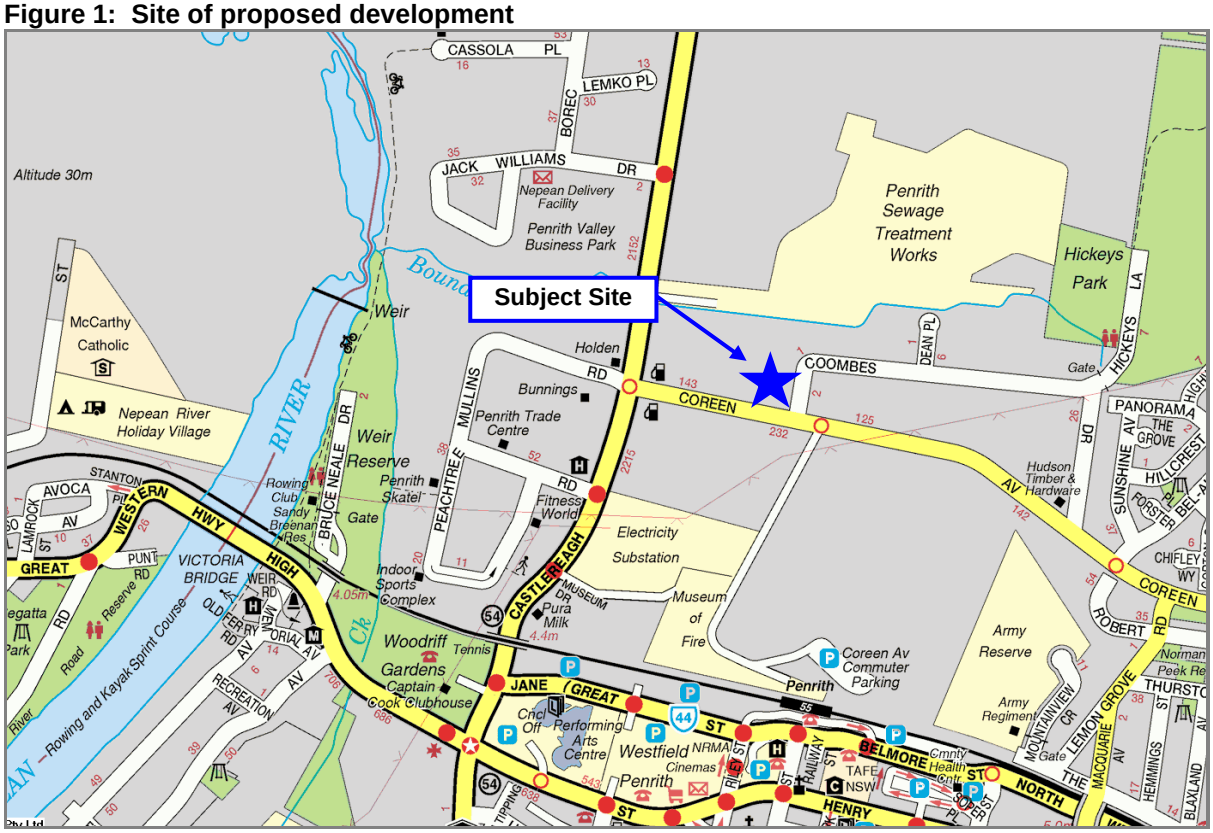
- Describe the site and surrounding land use.
- Describe the road network serving the site.
- Describe the proposed development.
- Assess the proposed car parking.
- Assess the potential traffic implications of the development.
- Assess the adequacy of the proposed vehicle access and internal circulation arrangements.

The assessment was undertaken by Garry Kennedy, Director gtk consulting pty ltd. Garry has extensive (44 years) experience in Traffic Engineering, Road Safety and Car Parking. Garry chaired a Local Traffic Committee for seventeen years at a major metropolitan Council. In 2006 Garry established gtk consulting and since that time has undertaken many traffic and car parking assessments and studies for Local and State Government Agencies and private developers.

Garry provides expert evidence in the NSW Land and Environment Court, Local Magistrates Court and District Court. Garry's court experience covers a wide range of traffic activities, such as, the suitability of development proposals, heavy vehicle prosecutions, parking offences and many other offences under the *Local Government Act* and the *Roads Act*.

This assessment has been prepared using information provided by G E Hunt Architect, Ark Express Architects, Patterson Property Consulting and site assessment by the author.

Figure 1: Site of proposed development



Source: UBD Australian City Streets v7.0 (licensed to gtk consulting)

2 THE SITE AND SURROUNDING LAND USE

The site (**Figure 2**), located 270 metres east of the intersection with Castlereagh Road, is zoned IN1 General Industrial under the *Penrith Local Environmental Plan 2010*. It is situated within an industrial complex comprising five adjoining units. Currently, Beaumont Tiles operates from the southernmost unit (Area 1) and the remaining four units are vacant. The property immediately west of the site is occupied by a Tradelink Plumbing Centre and the property to the north, by a concrete batching plant (Western Concrete).

Areas further to the east and west are industrial with some ancillary retail and office activities. A vacant historic homestead and gardens is located on the southern side of Coreen Avenue opposite the site. There are no vehicle access points on the southern side of Coreen Avenue for some distance either side of the driveway to the proposed recycling facility.

Figure 2: Aerial view of site

Source: NSW Land and Property Information 2018

3 THE EXISTING ROAD NETWORK

The road network servicing the site comprises:

- *Castlereagh Road* – a State Arterial Road (MR 155) under the care, control and responsibility of Roads and Maritime Services. It provides a significant transport corridor from areas to the north and south, e.g. Cranebrook, Richmond, Penrith CBD and M4 Motorway.
- *Parker Street/Richmond Road* – a State Arterial Road (MR 154) under the care, control and responsibility of Roads and Maritime Services. It provides a significant transport corridor from areas to the north and south, e.g. Cranebrook, Windsor, the M4 Motorway and Campbelltown.
- *Coreen Avenue* – an unclassified regional road (RR 7289) under the care, control and responsibility of Penrith City Council and links Castlereagh Road to Parker Street/Richmond Road.

The physical features of the streets surrounding the site are described in **Table 1**:

Table 1: Description of streets serving the site

Street Name	Street Configuration
Castlereagh Road	Divided 4 lane/two-way.
Parker Street/Richmond Road	Divided two lane/two-way in front of site.
Coreen Avenue	Undivided two lane/two-way.

Source: gtk consulting 2018

4 THE PROPOSAL

The proposed development is to use an existing warehouse unit, located at Area 3, 137 Coreen Avenue, Penrith as a bottle recycling facility. The legal description of the site is Lot 301 in DP 860777. The proposed development involves:

- The use of the two (2) existing roller doors as entry and exit for vehicles to unload and load.
- The fit out of the unit as an automated depot including the installation of two (2) singulators, a 1.8m high mesh safety fence and three (3) x 30m^3 skip bins.
- The provision of five (5) on-site car parking spaces, comprising three (3) employee spaces and two (2) visitor spaces (including 1 space for persons with a disability). The two visitor spaces will be provided as part of the development and three staff spaces will be located in the existing main car park on site.
- The proposed facility will operate 8.00am to 3.30pm Monday to Friday and 8.00am to 4.00pm Saturday.
- A total of five (5) staff will operate the site, including four team members and a supervisor/manager.

Plans of the proposal have been prepared by ArkExpress (**Appendix 1**)

5 CAR PARKING

5.1 COUNCIL'S PARKING CODE

Penrith City Council's Development Control Plan 2014 'C10 Transport Access and Parking' specifies a range of car parking rates for various land uses. However, recycling facilities are not included in Council's schedule of car parking requirements.

5.2 PARKING PROVISION

The proposed recycling facility has a large area requirement for the activities undertaken, however, the number of staff (5) required to service the facility is low. Persons depositing containers at the facility will remain in their vehicles until they drive to the singulator. The car parking rates considered appropriate for the proposed development are set out in **Table 2** and these are used to calculate the parking requirements for the proposal.

Table 2: Car parking requirements

Car parking type	Car Parking Rate	Number	Spaces Required
Employee	0.5 spaces/employee	5 employees	**2.5 spaces**
Visitor			**1.0 space**
		TOTAL	**4 parking spaces**

Source: gtk consulting 2018

The proposed development will provide 5 on-site car parking spaces, comprising:

- 3 employee spaces; and,
- 2 visitor spaces, including 1 space for persons with a disability.

Two (2) visitor parking spaces (including a space for persons with a disability) will be located adjacent to the south-western side of the building. Three (3) employee spaces will be located in the main car park fronting Coombes Drive, i.e. spaces numbered 19, 20 & 21.

It should be noted that the 2 spaces adjacent to the south-western side of the building are new spaces in addition to those provided for the overall site.

5.3 PARKING DESIGN DIMENSIONS

The access road within the site is a minimum of 6.53 metres in width for two-way traffic. Car parking spaces for employees are a minimum 2.4 metres wide and 5.4 metres long and, having regard to the wide traffic aisle at this location (6.95 metres), spaces for visitors are also 2.4 metres wide and 5.4 metres long. In addition, the parking space for persons with a disability is 2.4 metres wide and 5.4 metres long and has a shared area 2.4 metres wide and 5.4 metres long. These dimensions comply with the requirements of AS 2890.1:2004, AS 2890.6:2009 and RMS *Guide to Traffic Generating Developments*.

6 TRAFFIC GENERATION

The Roads and Maritime Services (RMS) provide average traffic generation rates for a range of different land uses in their publication *Guide to Traffic Generating Developments*. The rates are based on extensive surveys undertaken throughout the Sydney Metropolitan Area. As the proposed activity (i.e. bottle recycling facility using automated sorting machines) is relatively new, only a few of these facilities currently operate in NSW. In such cases it is usual to undertake a survey of a similar site to determine traffic generated by the activity. Unfortunately, only two similar sites currently operate within the Sydney Region, both of which are located within large industrial complexes. Approaches to undertake surveys on the private property at these locations have been unsuccessful.

6.1 TRAFFIC GENERATED BY PUBLIC DELIVERIES TO THE SITE

Saint Vincent de Paul Society NSW has obtained information from a site manager at an automated collection depot located at Blacktown. This site operates one singulator and on average services between 30 - 40 transactions (deliveries by the public) per day with Thursday, Friday & Saturday the busiest days. The manager advises that peak transaction time is usually within the first hour of opening.

Information obtained from the Blacktown facility, relevant to determining traffic generation for the Penrith proposal, includes:

- Hours of operation — 9.00am to 3.00pm Monday – Friday
8.00am to 12.00pm Saturday
- Average number of transactions (deliveries) — 30 – 40 per day
- Peak hour — 9am -10am Monday to Friday

An accepted approach to estimating peak hour vehicle trips is to use 10% of the daily traffic volume. Therefore, 10% of the maximum 40 daily deliveries equates to 4 peak hour deliveries or 8 peak hour vehicle trips (phvt)[1] for the existing Blacktown site.

[1] Each delivery involves 1 trip in and 1 trip out.

Applying the Blacktown data to this proposal, the maximum vehicle trips generated by the dual singulator establishment at Penrith is, therefore:

8 phvt x 2 = **16 phvt** (8 in and 8 out)

Note: Staff trips not included as they access site outside public admission times.

6.2 HEAVY VEHICLES VOLUMES

Sorted containers (bottles) will be transferred to 3 x 30m^3 skip bins. When full, these bins will be transported to facilities at Penrith and Eastern Creek for processing. It is estimated that the recycling facility will receive approximately 200,000 containers per week and the storage capacity of the skip bins on site is 90,000 containers (i.e. 90m^3 @ 1,000 containers per cubic metre).

The skip bins, therefore, will be removed and replaced approximately twice per week (i.e. 4 trips per day). To avoid any potential conflict with public passenger vehicles these truck movements will occur before and/or after the times the facility is open to the public.

6.3 TOTAL TRAFFIC GENERATION

It should be noted that the traffic volumes estimated in **Sections 6.1** and **6.2** are most likely less than that generated by the previous occupant of the site (Boral retail and trade sales).

The traffic volumes generated by the proposed development, therefore:

- Will have minimal impact on existing traffic flows, intersection capacities or neighbourhood amenity.
- Will be readily able to enter and leave the site without delay.
- Will not present any unsatisfactory traffic safety or capacity issues on the surrounding road network.

7 ACCESS AND INTERNAL CIRCULATION

7.1 ACCESS

Vehicular access to the proposed development is via an existing driveway on Coreen Avenue (refer **Photo 1**). The minimum requirement in assessing the safety of the existing driveway is the need to provide sufficient sight distance for drivers to observe a possible conflict with other vehicles and allow for sufficient time to take evasive action should it be required.

An accepted approach to calculating the provision of safe and efficient access to and from a development is to ensure that there is sufficient sight distance to enable non-priority traffic (i.e. traffic turning into and out of the site) to carry out their turning movements without unduly interfering with mainstream traffic flow.

AS 2890.1:2004 *Parking facilities – Off-street car parking* sets out the sight distance requirements for access driveways.

The existing access driveway is located on a straight and level section of Coreen Avenue, providing excellent sight distance.

The speed zone is 60 km/h and sight distance from the location of the access driveway is set out in **Table 3**:

Table 3: Sight distance requirements

Source	Sight Distance Required	Sight Distance Available
AS2890.1:2004 (5 sec gap)	83 metres (north)	>100 metres
	83 metres (south)	>100 metres

Source: AS 2890.1: 2004 and gtk consulting 2018

The sight distance in both directions from the existing driveway on Coreen Avenue, therefore, exceeds the requirement of AS 2890.1:2004 (refer **Photos 2** & **3**).

Photo 1: Existing driveway on Coreen Av

Source: gtk consulting 2018

Photo 2: Looking east along Coreen Av from existing driveway

Source: gtk consulting 2018

Photo 3: Looking west along Coreen Av from existing driveway

Source: gtk consulting 2018

7.2 INTERNAL CIRCULATION

Within the development, the access road has a minimum width of 6.53 metres for two-way traffic flow. The entrance door into the building is 6.9 metres wide and the exit door is 4.0 metres wide. The internal layout and circulation has been checked using the Autoturn Swept Path program with a B99 vehicle and a B99 vehicle towing a box trailer (**Figures 3** and **4**).

The circulation, manoeuvring and unloading arrangements comply with the requirements of AS 2890.1:2004, AS 2890.2- 2002 and the RMS *Guide to Traffic Generating Developments*.

7.3 POTENTIAL FOR QUEUEING

The access into the building will be controlled by traffic signal or boom gate. An information sign next to the signal/boom gate will inform drivers to wait for the green signal or boom to raise before entering. The signal or boom will be operated by staff who can determine when a singulator is clear to take another vehicle.

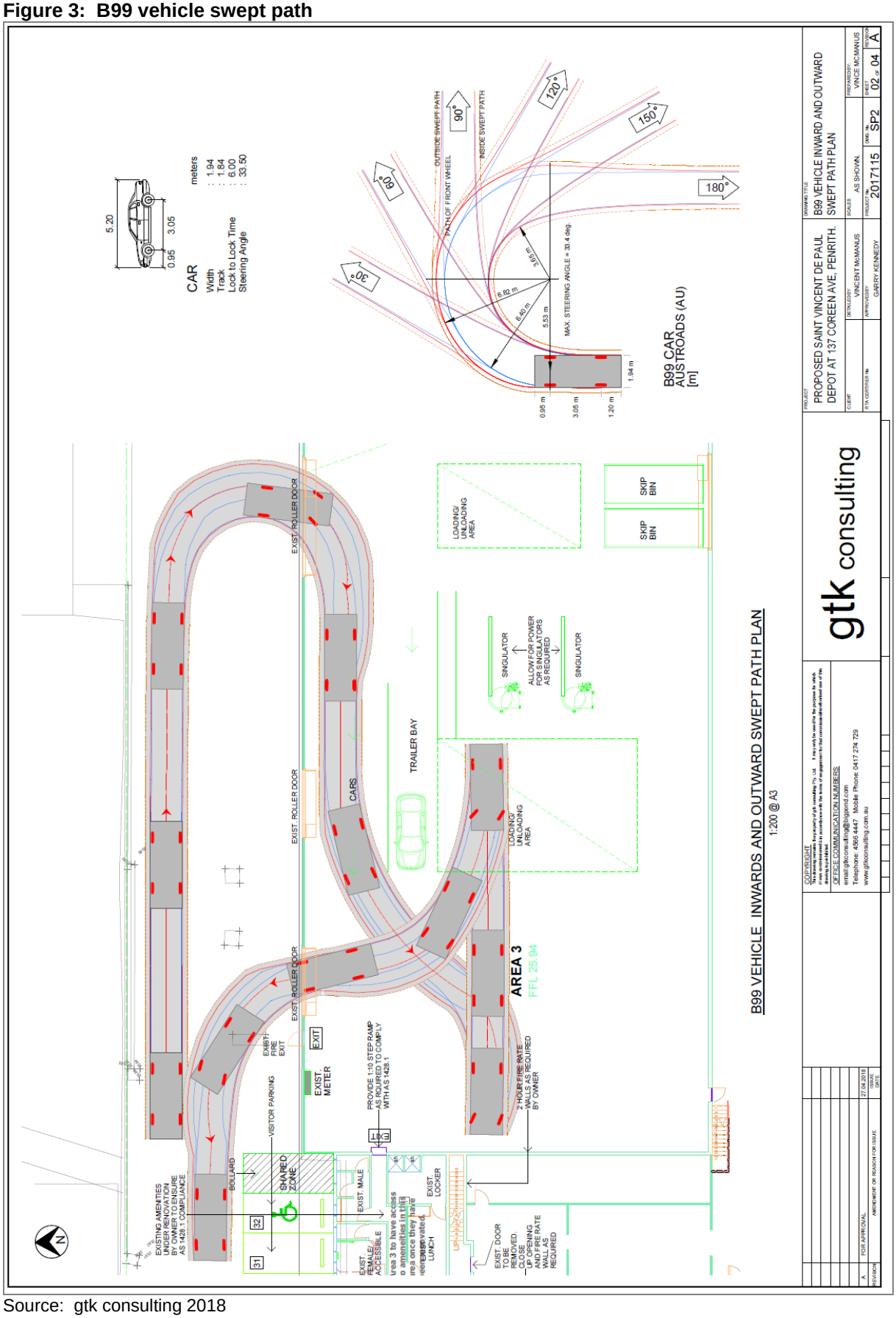
It takes approximately 10 – 15 minutes for a vehicle to deposit containers and collect payment. The capacity for two singulators is therefore, approximately 8 – 12 vehicle deliveries per hour. As detailed in **Section 6.1**, the potential traffic generated by the proposed two singulators is 8 deliveries per peak hour. Within the site the unloading area in front of the singulators is 12.0 metres wide and capable of providing four (4) 3.0 metre wide spaces. In addition, an area on the western side of the singulators provides two parallel vehicle and box trailer spaces. Theoretically, there should be no queuing of vehicles waiting to enter the building, however, if this does occur there are 27 metres of queueing area available for waiting vehicles, i.e. 3 vehicles with box trailers or 5 single vehicles.

7.4 HEAVY VEHICLES

As discussed in **Section 6.2**, there will be an average of 6 heavy vehicles (10 metre long skip bin trucks) accessing the site per week to remove full skip bins and return empty bins. These vehicles will access the site before and/or after the times the facility is open to the public.

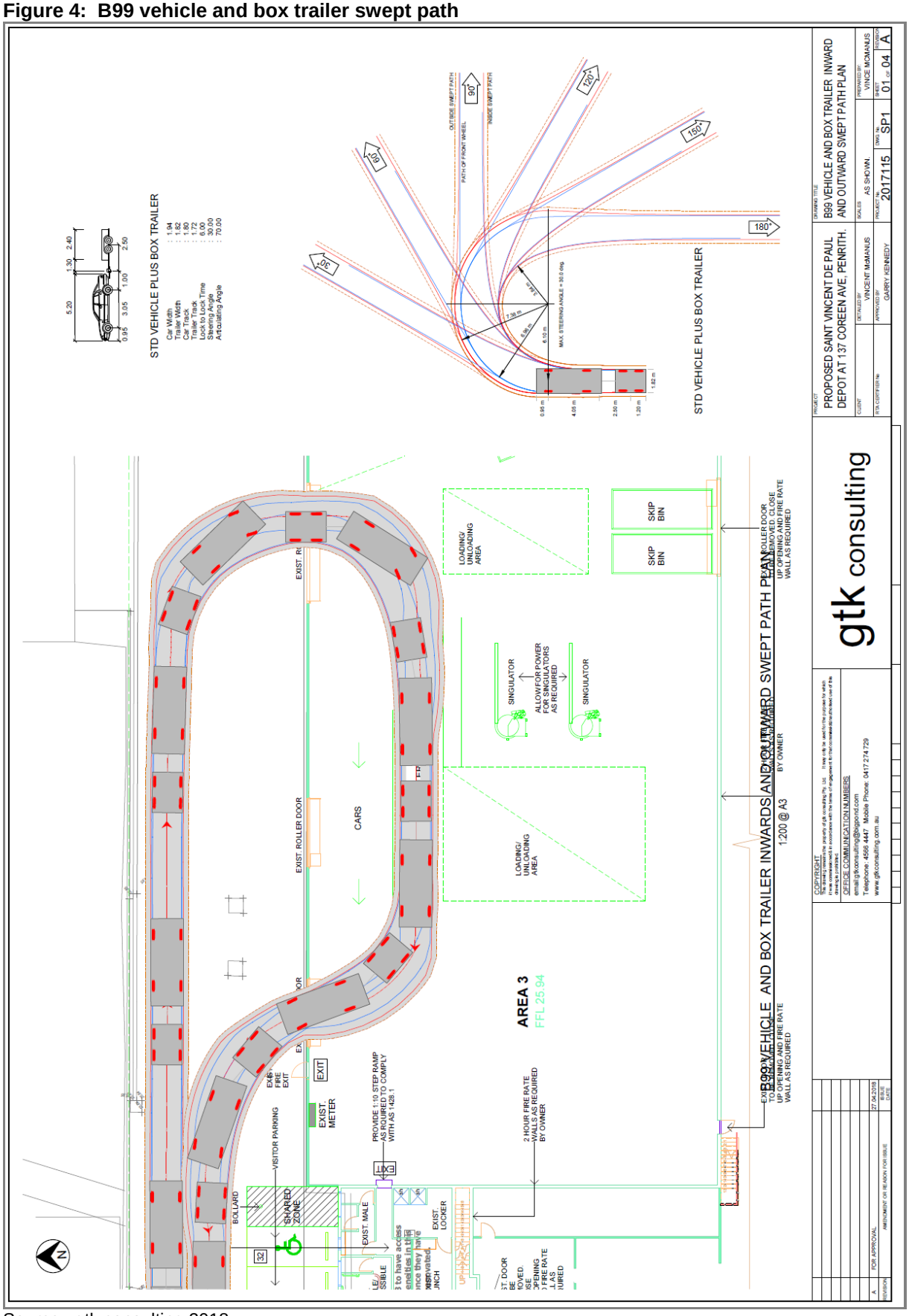
The door into the building for heavy vehicles is 6.9 metres wide and the internal layout and manoeuvring area has been checked using the Autoturn Swept Path program with a Scania custom vehicle template (**Figures 5** and **6**). The access, manoeuvring and unloading arrangements comply with the requirements of AS 2890.2-2002 and the RMS *Guide to Traffic Generating Developments*.

Figure 3: B99 vehicle swept path



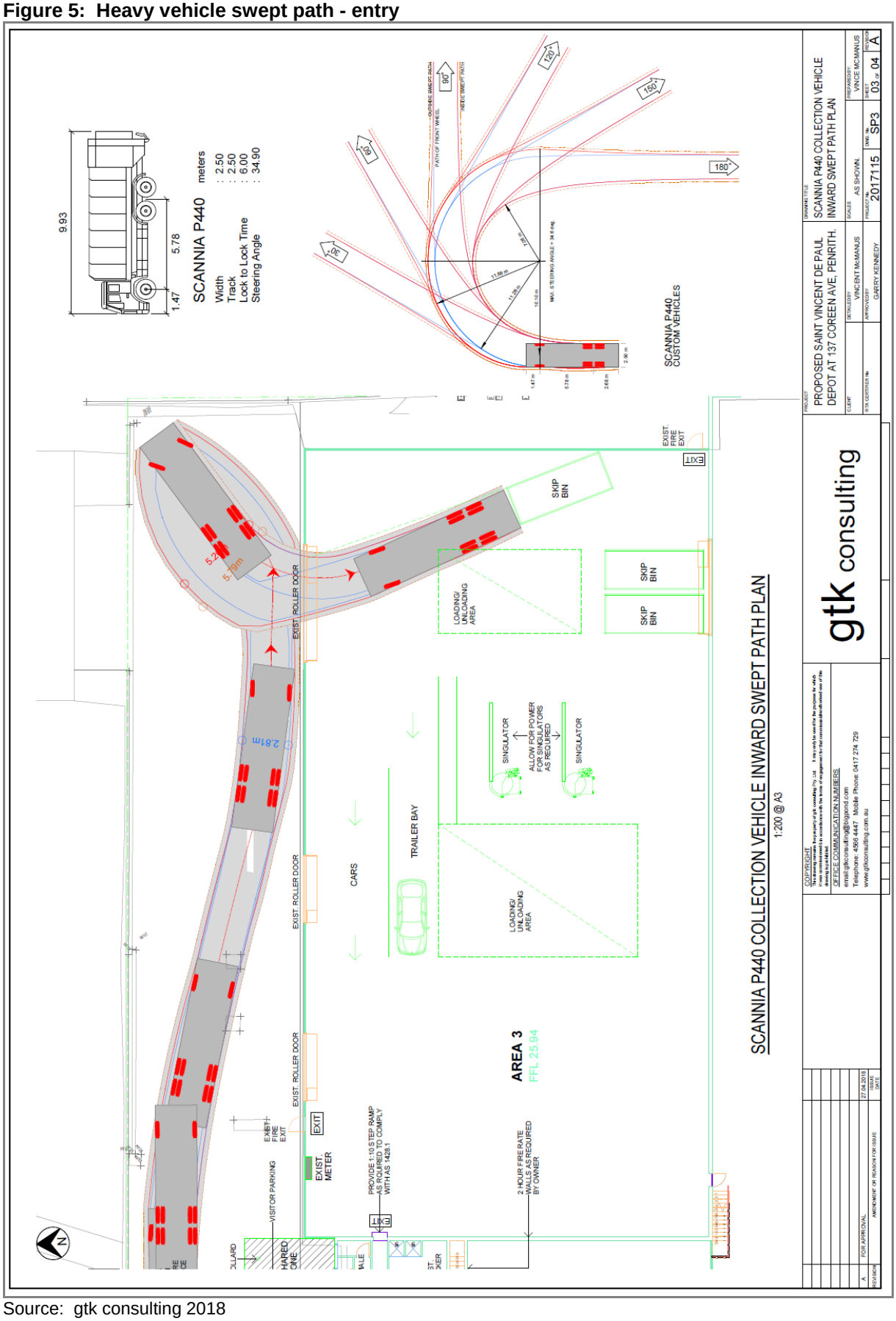
Source: gtk consulting 2018

Figure 4: B99 vehicle and box trailer swept path



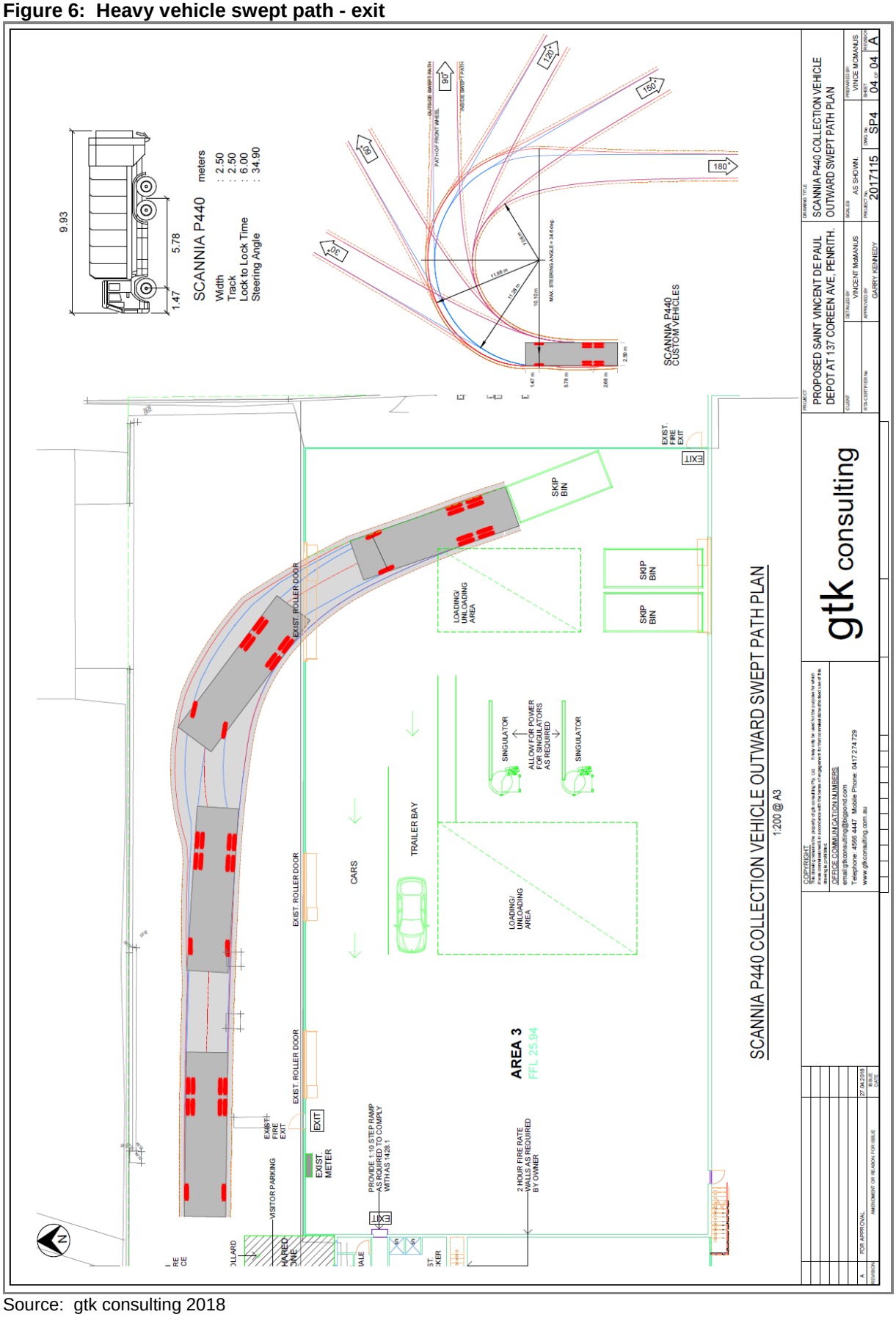
Source: gtk consulting 2018

Figure 5: Heavy vehicle swept path - entry



Source: gtk consulting 2018

Figure 6: Heavy vehicle swept path - exit



Source: gtk consulting 2018

8 CONCLUSION

The proposed bottle recycling facility to be established within the existing warehouse building (Area 3) at 137 Coreen Avenue, Penrith has been assessed to determine the likely traffic impacts and compliance with the relevant Australian Standards, RMS *Guide to Traffic Generating Developments* and Penrith City Council's *Development Control Plan 2014*.

Assessment of the proposal indicates that:

- The number of staff required to service the proposed facility is low (5 staff only). The proposed on-site car parking provision is considered adequate for the proposed development in accordance with the intentions of *Penrith City Council's Development Control Plan 2014*.
- The proposed internal layout meets the requirements of AS 2890.1:2004, AS 2890.2-2002 and RMS *Guide to Traffic Generating Developments*.
- The traffic generated by the proposed development will not present any unsatisfactory traffic safety or capacity issues on the existing road network.
- The sight distance for vehicles entering and exiting Coreen Avenue from the existing driveway meets the requirements of AS 2890.1:2004.

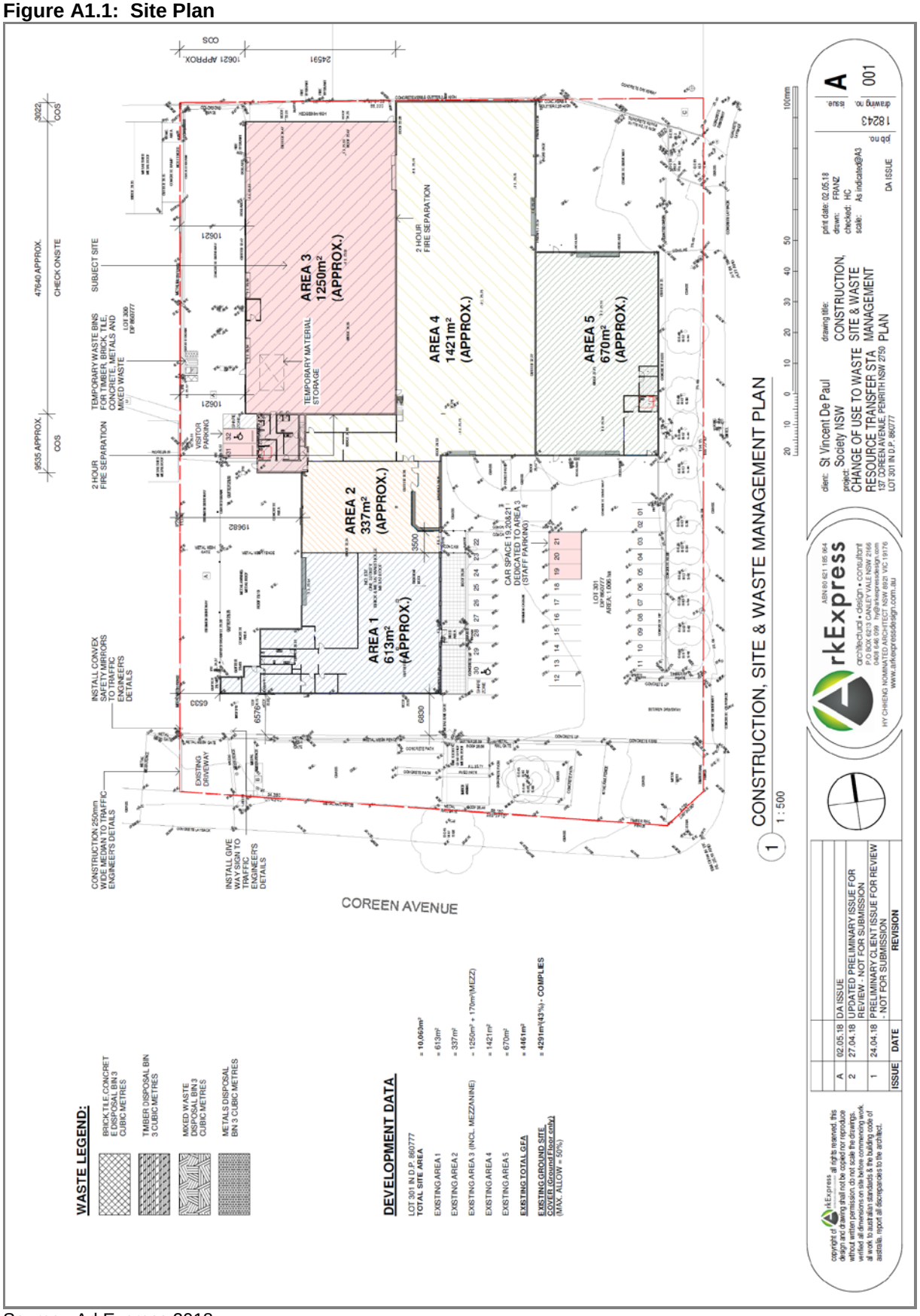
This assessment concludes that the traffic, road safety and car parking elements of the proposed recycling facility are in accordance with the relevant standards and guidelines for such developments and is worthy of approval.

Garry Kennedy

Director

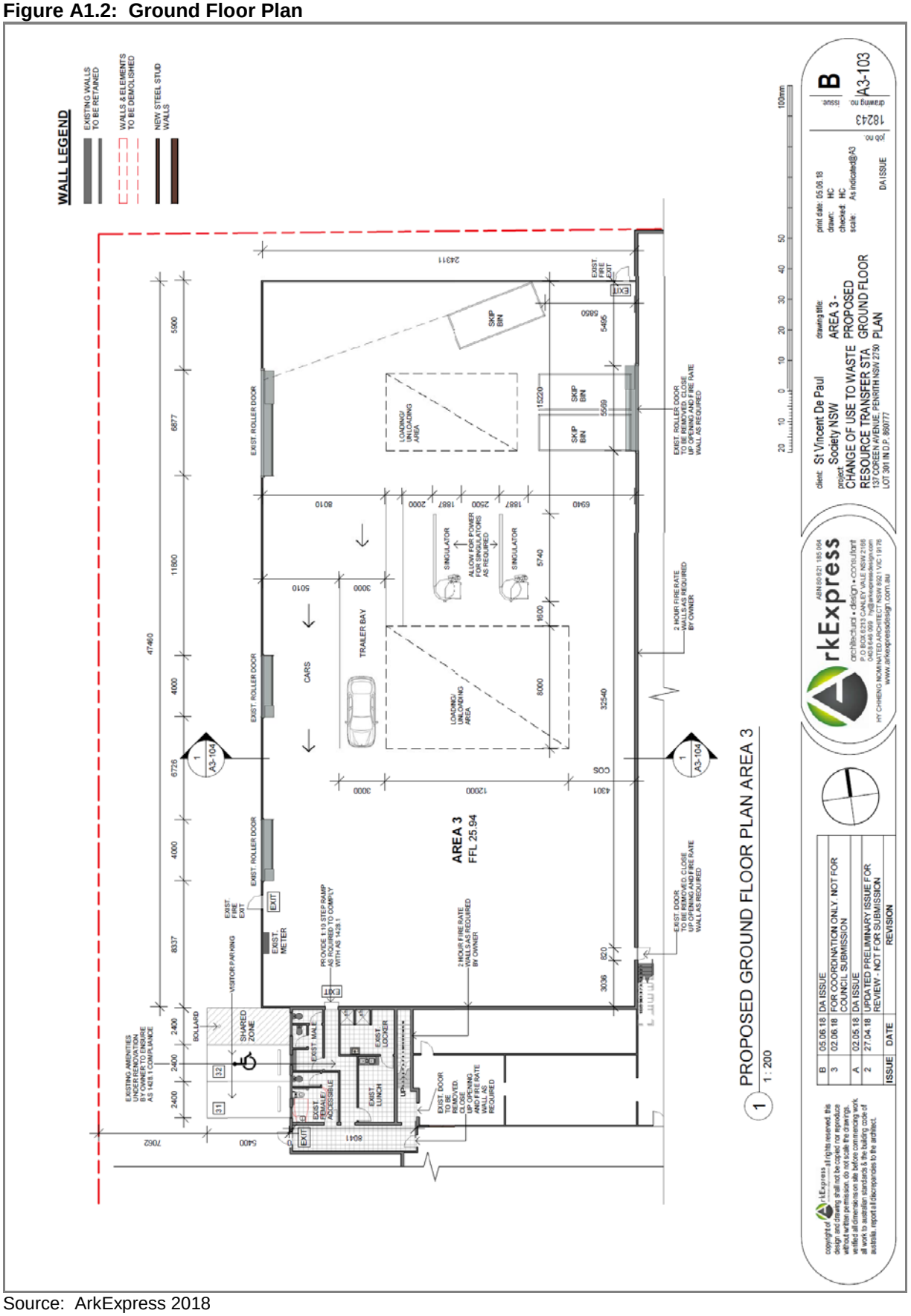
APPENDIX 1 ARCHITECTURAL PLANS

Figure A1.1: Site Plan



Source: ArkExpress 2018

Figure A1.2: Ground Floor Plan



Source: ArkExpress 2018