ACOUSTICS AND AIR

QUEANBEYAN TRANSFER STATION

NOISE IMPACT ASSESSMENT

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PREPARED FOR

TODOROSKI AIR SCIENCES
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GLOSSARY OF ACOUSTIC TERMS

Most environments are affected by environmental noise which continuously varies, largely as a result of road traffic. To describe the overall noise environment, a number of noise descriptors have been developed and these involve statistical and other analysis of the varying noise over sampling periods, typically taken as 15 minutes. These descriptors, which are demonstrated in the graph below, are here defined.

Maximum Noise Level (L_{Amax}) – The maximum noise level over a sample period is the maximum level, measured on fast response, during the sample period.

L_{A1} – The L_{A1} level is the noise level which is exceeded for 1% of the sample period. During the sample period, the noise level is below the L_{A1} level for 99% of the time.

L_{A10} – The L_{A10} level is the noise level which is exceeded for 10% of the sample period. During the sample period, the noise level is below the L_{A10} level for 90% of the time. The L_{A10} is a common noise descriptor for environmental noise and road traffic noise.

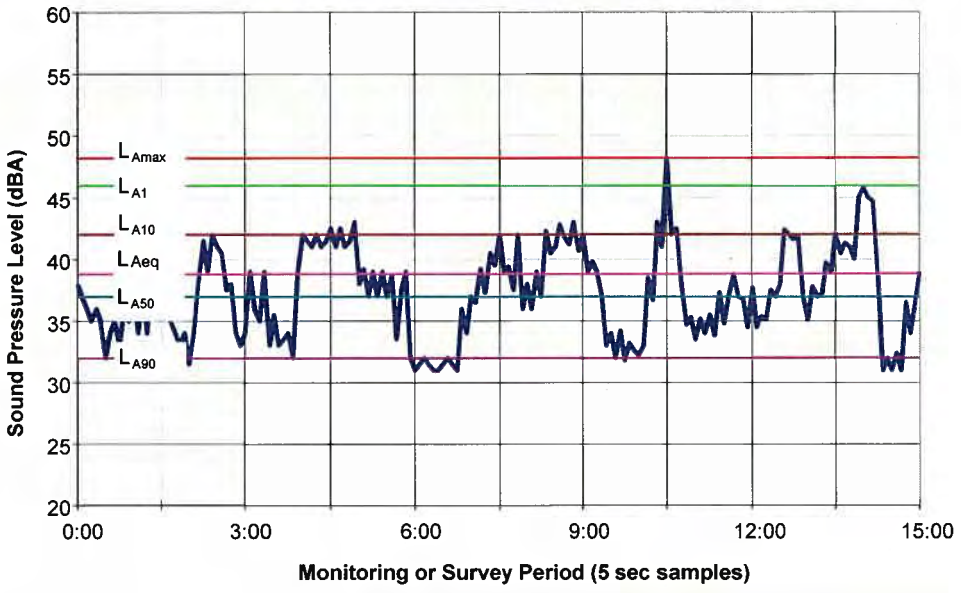
L_{A90} – The L_{A90} level is the noise level which is exceeded for 90% of the sample period. During the sample period, the noise level is below the L_{A90} level for 10% of the time. This measure is commonly referred to as the background noise level.

L_{Aeq} – The equivalent continuous sound level (L_{Aeq}) is the energy average of the varying noise over the sample period and is equivalent to the level of a constant noise which contains the same energy as the varying noise environment. This measure is also a common measure of environmental noise and road traffic noise.

ABL – The Assessment Background Level is the single figure background level representing each assessment period (daytime, evening and night time) for each day. It is determined by calculating the 10th percentile (lowest 10th percent) background level (L_{A90}) for each period.

RBL – The Rating Background Level for each period is the median value of the ABL values for the period over all of the days measured. There is therefore an RBL value for each period – daytime, evening and night time.

Typical Graph of Sound Pressure Level vs Time



1 INTRODUCTION

It is proposed to establish a Resource Recovery facility on a parcel of land at 184 Gilmore Road, Queanbeyan West.

Wilkinson Murray (WM) has been commissioned by Todoroski Air Sciences on behalf of Wild Environment and SITA Australia (SITA) to conduct a Noise Impact Assessment (NIA) for the proposed development. The assessment has been undertaken in accordance with the Director General's Requirements (DGR), pursuant to Section 78A (8) of the Environmental Planning and Assessment Act 1979.

The NIA has been conducted in general accordance with the following NSW Government guidelines and policies:

- NSW Industrial Noise Policy (EPA, 2000);
- NSW Road Noise Policy (DECCW, 2011); and,
- Interim Construction Noise Guideline (DECC, 2009).

2 PROJECT SETTING

2.1 Site Location

The proposed site is located on industrial land adjacent to Canberra Avenue. The subject land is Lots 348, 349 and 350 DP 8456; Lot 2 DP 1000911; and Lot 1 DP 1169293. The site is bounded by the NSW/ACT border to the west, Canberra Avenue to the north, John Bull Street to the east and the Queanbeyan West race track to the south.

The site location is shown in Figure 2-1.

Figure 2-1 Site Location

2.2 Surrounding Land Uses and Sensitive Receivers

The land use immediately surrounding the proposed site is industrial. The nearest residential receivers to the development have been identified and are presented in Table 2-1 and Figure 2-2.

Table 2-1 Sensitive Receivers

Receiver	Address	Distance (m)
R1	15 John Bull Street, Queanbeyan West	230
R2	31 Stuart Street, Crestwood	315
R3	54 Lorn Road, Crestwood	210
I1	1 Kealman Road, Queanbeyan West	35

Figure 2-2 Sensitive Receivers

Receivers R1 through R3 are located on land zoned specifically for residential use. A residential dwelling has been identified at 1 Kealman Road (I1), and is on land zoned for industrial use.

3 PROJECT DESCRIPTION

SITA's existing resource recovery facility at Hume, ACT is to be relocated to this new site at Queanbeyan West in June 2015. The facility accepts cardboard and temporarily stores batteries and handles the secure destruction of paper. It is also used for the storage and repair of heavy vehicles and machinery, small paint bay for bin repairs, storage of small and large bins (used for various festivals around NSW and ACT) and the storage of fluorescent tubes. A bailer and conveyor equipment is used to process approximately 3,600 tonnes per year of cardboard that that is bailed at the site.

In addition to these existing services, SITA has proposed to expand their operations to also include the recovery of a range of waste sources. The following additional waste streams would be targeted by SITA:

- General Solid Waste (putrescible and non-putrescible);
- Paper, cardboard and plastics recyclables (source separated and co-mingled);
- K110 Grease Trap Waste (liquid waste); and
- J120 Waste oil/hydrocarbons mixtures/emulsions in water (liquid waste).

To cater for the additional waste streams, a new transfer station would be constructed and operated on the eastern portion of the site. It is proposed that up to 95,000 tonnes/year of material would be accepted at the site. Waste material would be processed and sorted into separate streams with putrescible waste transferred from the site within 24 hours to a Veolia operated site at Woodlawn for processing.

An indicative site layout drawing is presented in Figure 3-1.

Delivery trucks and vehicles travelling to the area dedicated to grease trap waste, hydrocarbon/water emulsions, paper and cardboard bailing, fluorescent tubes and bin storage, would enter the site via Gilmore Road. This area is within the existing building on the site.

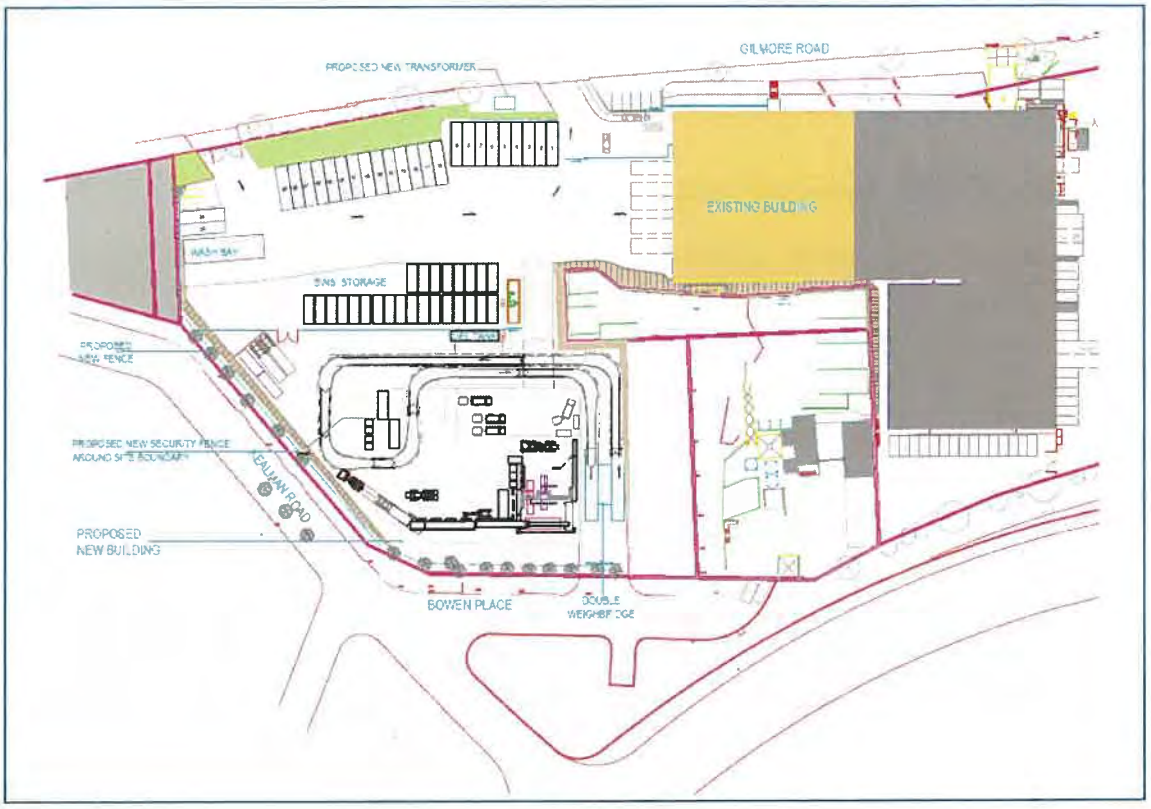
Delivery trucks entering the proposed new waste transfer station would enter the site from Bowen Place. Materials would be unloaded from the trucks within the building and sorted and processed into separate designated storage areas within the building. The materials will then be hauled off-site.

3.1 Operating Hours

The proposed site operations are 24 hours per day, seven days per week. This will allow services to be offered in peak waste collection times and minimise congestion and travel time associated with operations during peak hours. Sufficient storage will be incorporated to enable off-peak deliveries to and from the facility.

A key consideration for the extended operating hours is ensuring noise is appropriately managed. Site activities will be considered against applicable noise criteria for the day (7:00am – 6:00pm), evening (6:00pm – 10:00pm) and night time (10:00pm – 7:00am) periods. If required, site operations will be adapted throughout these time periods to ensure noise limits are met.

Figure 3-1 Site Plan



4 EXISTING NOISE ENVIRONMENT

To establish existing noise levels in the area surrounding the development, unattended noise monitoring was conducted between 27 June and 3 July 2014. The noise monitoring was conducted at 15 John Bull Street, Queanbeyan West, as shown in Figure 4-1.

Figure 4-1 Noise Monitoring Location

The noise monitoring equipment used for these measurements consisted of an environmental noise logger set to A-weighted, fast response. This equipment is capable of remotely monitoring and storing noise level descriptors for later detailed analysis. The equipment calibration was checked before and after the survey and no significant drift was noted.

From the background noise levels (L_{A90}) the Rating Background Levels (RBLs) were determined using the methodology recommended in the NSW *Industrial Noise Policy*.

The existing ambient noise levels are presented in Table 4-1. Daily plots of the noise logger data are presented in Appendix A.

Table 4-1 Existing Ambient Noise Levels

Time Period	Noise Levels (dBA)	
	L_{Aeq}	RBL
Day (7:00am – 6:00pm)	60	47
Evening (6:00pm – 10:00pm)	54	42
Night (10:00pm – 7:00am)	52	32

5 NOISE & VIBRATION CRITERIA

5.1 Operational Noise Criteria

The NSW *Industrial Noise Policy* (INP) provides the framework for establishing noise criteria and assessing impacts from sources of industrial noise. This policy seeks to promote environmental well-being through preventing and minimising noise.

There are two noise criteria which should be satisfied under the INP. The first being the "intrusiveness" criterion which assesses the likelihood of noise being intrusive above the ambient noise level. The second noise criterion, known as the "amenity" criterion, ensures the total industrial noise from all sources in the area does not rise above a maximum acceptable level.

The INP stipulates that intrusiveness and amenity criteria are determined for the daytime (7:00am 6:00pm), evening (6:00pm 10:00pm) and night time (10:00pm 7:00am) periods, as relevant. The determined criteria apply at the most affected point on or within the receiver property boundary.

5.1.1 INP Intrusiveness Criteria

The intrusiveness criterion requires that the L_{Aeq} noise level from the source being assessed, when measured over 15 minutes, should not exceed the Rating Background Noise Level (RBL) by more than 5 dBA.

The intrusiveness criterion applies for residential receivers only, and does not apply to dwellings located on land zoned for industrial use.

Based on the established background noise levels, as per Section 4, Table 5-1 summarises the intrusiveness noise criteria which apply to the identified receivers.

Table 5-1 Project-Specific Intrusiveness Criteria

Receiver	$L_{Aeq,15min}$ Intrusiveness Criterion (dBA)		
	Day (7am–6pm)	Evening (6pm–10pm)	Night Time (10pm–7am)
R1, R2 & R3	47+5 = 52	42+5 = 47	32+5 = 37

5.1.2 INP Amenity Criteria

The amenity criterion sets a limit on the total noise level from *all industrial noise sources* affecting a receiver. Different criteria apply for different types of receiver (e.g. residence, school classroom); different areas (e.g. rural, suburban); and different time periods, namely daytime (7:00am-6:00pm), evening (6:00pm-10:00pm) and night time (10:00pm-7:00am).

The noise level to be compared with the amenity criterion is the L_{Aeq} noise level, measured over the relevant day, evening or night time period, due to all industrial noise sources, but excluding non-industrial sources such as off-site transportation, i.e. on public roads.

Where a new noise source is proposed in an area with negligible existing industrial noise, the amenity criterion for that source may be taken as being equal to the overall amenity criterion. However, if there is significant existing industrial noise, the amenity criterion for any new source

must be set at a lower value. If existing industrial noise already exceeds the relevant amenity criterion, noise from any new source must be set well below the overall criterion to ensure that any increase in noise levels is negligible. Methods for determining a source-specific amenity criterion where there is existing industrial noise are set out in the INP.

Table 5-2 shows the amenity criteria for various receiver types, and times of day.

Table 5-2 INP Amenity Criteria

Type of Receiver	Indicative Noise Amenity Area	Time of Day[1]	Recommended $L_{Aeq, period}$ Noise Level,(dBA)	
			Acceptable	Recommended Maximum
Residence	Rural	Day	50	55
		Evening	45	50
		Night	40	45
	Suburban	Day	55	60
		Evening	45	50
		Night	40	45
	Urban	Day	60	65
		Evening	50	55
		Night	45	50
Place of Worship – internal	All	When in use	40	45
Passive recreation area (e.g. National park)	All	When in use	50	55
Active recreation area (e.g. playground, golf course)	All	When in use	55	60
Commercial premises	All	When in use	65	70
Industrial premises	All	When in use	70	75

Note: (1) EPA (2000) considers daytime (7:00am-6:00pm); evening (6:00pm-10:00pm); night time (10:00pm-7:00am).

In accordance with Section 2.2.1 of the INP, the "urban" amenity criteria are applicable to residential receivers R1, R2 and R3.

Section 2.2.1 of the INP recommends that isolated residences within industrial zones, such as I1, are treated as industrial receivers and that the "industrial" amenity criterion should be applied.

During site visits in 2014, it was noted that the existing ambient noise environment in the vicinity of R1, R2 and R3 exhibited significant levels of traffic noise from Canberra Avenue, however did not exhibit significant levels of industrial noise. Therefore, no correction to the INP amenity criteria to account for existing levels of industrial noise at these receiver locations is warranted.

During the 2014 site visits, Wilkinson Murray was not aware that a dwelling was located at 1 Kealman Road (I1); and therefore, the existing levels of industrial noise at this receiver location are unknown. Accordingly, the project specific amenity criterion for I1 has been set at 10 dB below the acceptable level in Table 5-2 of 70 dBA.

The project specific INP amenity criteria for the receivers investigated in this assessment are presented in Table 5-3.

Table 5-3 Project Specific Amenity Criteria

Receiver	$L_{Aeq,period}$ Amenity Criterion (dBA)		
	Day (7am–6pm)	**Evening (6pm–10pm)**	**Night Time (10pm–7am)**
R1, R2 & R3	60	50	45
I1	60	60	60

5.1.3 Project-Specific Noise Levels

Table 5-3 summarises the determined Project-specific noise levels, with the controlling criteria shown in bold font. It is noted that the evening intrusiveness criterion for residential receivers R1, R2 and R3 is 2 dB above the corresponding amenity criterion. For an industrial facility of this type, $L_{Aeq, 15min}$ noise levels are typically at least 3 – 5 dBA higher than $L_{Aeq, period}$ noise levels. Therefore, the evening $L_{Aeq, 15min}$ criterion of 47 dBA is more stringent than the evening $L_{Aeq, period}$ criterion of 45 dBA.

Table 5-4 Project-Specific Noise Levels

Receiver	Intrusiveness Criterion ($L_{Aeq,15min}$ dBA)			Amenity Criterion ($L_{Aeq,Period}$ dBA)		
	Day	Evening	Night	Day	Evening	Night
R1, R2 & R3	**52**	47	**37**	55	**45**	40
I1	n/a	n/a	n/a	**60**	**60**	**60**

As the site is proposed to operate on a continual 24/7 basis, the focus of the operational noise assessment will be night time operations. Accordingly, the night time intrusiveness noise level of 37 dBA ($L_{Aeq, 15min}$) is the primary noise goal for R1, R2 and R3; and the industrial amenity noise level of 60 dBA ($L_{Aeq, period}$) is the noise goal for I1.

5.2 Sleep Disturbance

Noise sources that operate over short durations at night have the potential to cause sleep disturbance despite complying with criteria based upon L_{Aeq} and L_{A10} noise descriptors. For this reason, the EPA's Application Notes state:

> *"Research on sleep disturbance is reviewed in the NSW Road Noise Policy. This review concluded that the range of results is sufficiently diverse that it was not reasonable to issue new noise criteria for sleep disturbance.*
>
> *From the research, the EPA recognised that the current sleep disturbance criterion of an $L_{A1,\ 1min}$ not exceeding the $L_{A90,\ 15min}$ by more than 15 dB(A) is not ideal. Nevertheless, as there is insufficient evidence to determine what should replace it, the EPA will continue to use it as a guide to identify the likelihood of sleep disturbance. This means that where the criterion is met, sleep disturbance is not likely, but where it is not met, a more detailed analysis is required."*

The L_{Amax} noise descriptor is considered equivalent to the $L_{A1,\ 1min}$ noise descriptor. Sleep disturbance criteria are applied only to residential receivers.

Based on the measured night time RBLs, sleep disturbance screening criteria have been established and are summarised in Table 5-5.

Table 5-5 Project-Specific Sleep Disturbance Screening Criteria

Receiver	Time Period	RBL	Sleep Disturbance Screening Criteria, L_{Amax} (dBA)
R1, R2 & R3	Night (10:00pm – 7:00am)	32	47

Additionally the NSW Road Noise Policy states that from the research on sleep disturbance to date it can be concluded that:

- Maximum internal noise levels below 50-55dBA are unlikely to cause awakening reactions; and,
- One or two noise events per night, with maximum internal noise levels of 65-70dBA, are not likely to affect health and wellbeing significantly.

Assuming that the typical noise reduction through a bedroom facade with normally open windows is 10dBA, then an external noise level of 60-65dBA is unlikely to cause sleep disturbance. As such it should be noted that the Project-specific sleep disturbance criterion is considerably lower than 60-65dBA.

5.3 Traffic Noise Criteria

The *NSW Road Noise Policy* (RNP) provides guidance on assessing road traffic noise impacts from traffic generating developments. The RNP road traffic noise assessment criteria for residential land uses are presented in Table 5-6.

In addition to the criteria in Table 5-6, the RNP advises that in cases where existing levels of road traffic noise exceed the applicable criteria, and that a development has the potential to increase road traffic noise levels; an increase of up to 2 dBA represents a minor impact that is considered barely perceptible to the average person.

Table 5-6 Road Traffic Noise Criteria

Road Category	Type of project/land use	Assessment Criteria - dBA	
		Day (7am – 10pm)	Night (10pm – 7am)
Freeway/ arterial/ sub-arterial roads	Existing residences affected by noise from **new** freeway/arterial/sub-arterial road corridors	$L_{Aeq,\ 15\ hour}$ 55 (external)	$L_{Aeq,\ 9\ hour}$ 50 (external)
	Existing residences affected by noise from **redevelopment** of existing freeway/arterial/sub-arterial roads	$L_{Aeq,\ 15\ hour}$ 60 (external)	$L_{Aeq,\ 9\ hour}$ 55 (external)
	Existing residences affected by **additional traffic** on existing freeway/arterial/sub-arterial roads generated by land use developments		
Local roads	Existing residences affected by noise from **new** local road corridors	$L_{Aeq,\ 1\ hour}$ 55 (external)	$L_{Aeq,\ 1\ hour}$ 50 (external)
	Existing residences affected by noise from **redevelopment** of existing local roads		
	Existing residences affected by **additional traffic** on existing local roads generated by land use developments		

Note: Land use developers must meet internal noise goals in the Infrastructure SEPP (Department of Planning NSW 2007) for sensitive developments near busy roads.

Only residents adjacent to Canberra Avenue have the potential to be impacted by noise from traffic generated by the proposed development. Canberra Avenue is classified as an 'arterial' road by the RNP.

5.4 Construction Noise Criteria

The NSW EPA's *Interim Construction Noise Guidelines (ICNG)* recommends noise management levels (NML) to reduce the likelihood of noise impacts arising from construction activities. The ICNG NML for residential receivers are shown in Table 5-7.

Table 5-7 ICNG Noise Management Levels for Residential Receivers

Time of Day	Management Level $L_{Aeq,15min}$	How to Apply
Recommended Standard Hours: Monday to Friday 7am to 6pm Saturday 8am to 1pm No work on Sundays or Public Holidays	Noise affected RBL + 10 dBA	The noise affected level represents the point above which there may be some community reaction to noise. • Where the predicted or measured $L_{Aeq,15min}$ is greater than the noise affected level, the proponent should apply all feasible and reasonable work practices to meet the noise affected level. • The proponent should also inform all potentially impacted residents of the nature of works to be carried out, the expected noise levels and duration, as well as contact details.
	Highly noise affected 75 dBA	The highly noise affected level represents the point above which there may be strong community reaction to noise. • Where noise is above this level, the relevant authority (consent, determining or regulatory) may require respite periods by restricting the hours that the very noisy activities can occur, taking into account: • times identified by the community when they are less sensitive to noise (such as before and after school for works near schools, or mid-morning or mid-afternoon for works near residences; • if the community is prepared to accept a longer period of construction in exchange for restrictions on construction times.
Outside recommended standard hours	Noise affected RBL + 5 dB	• A strong justification would typically be required for works outside the recommended standard hours. • The proponent should apply all feasible and reasonable work practices to meet the noise affected level. • Where all feasible and reasonable practices have been applied and noise is more than 5dB(A) above the noise affected level, the proponent should negotiate with the community. • For guidance on negotiating agreements see section 7.2.2.

In addition to specifying external construction noise goals for residential receivers, the ICNG recommends external NML for commercial and industrial premises as presented in Table 5-8

Table 5-8 Construction NML for Non-Residential Receivers

Receiver Type	NML $L_{Aeq,\ 15min}$
Industrial	75 dBA
Commercial	70 dBA

It is expected that all construction activities will be conducted within standard construction hours. Based on the RBLs in Table 4-1, the construction noise management levels for this project are presented in Table 5-9.

Table 5-9 Project Specific Construction NML

Receiver	Acceptable $L_{Aeq,\ 15min}$ Noise Level (Standard daytime construction hours)
R1, R2 & R3	57
I1	75

6 ASSESSMENT OF IMPACTS

6.1 Noise Modelling Methodology and Assumptions

To predict the potential noise impacts from the operation and construction of the project an acoustic model, implementing the ISO 9613 algorithms, has been prepared using the CadnaA environmental noise modelling software. Factors addressed in the noise model are:

- Noise source levels and locations;
- Shielding from ground topography and nearby structures;
- Noise attenuation due to geometric spreading;
- Ground absorption; and,
- Atmospheric absorption.

6.2 Operational Noise Impacts

The following section identifies equipment and activities, associated with the operation of the development, which are likely to generate significant noise emissions and presents the predicted noise levels at nearby receivers.

A conservative approach has been taken to assess operational noise impacts, whereby the worst case $L_{Aeq,\ 15min}$ noise levels have been predicted, and compared to both the $L_{Aeq,\ 15min}$ and $L_{Aeq,\ period}$ criteria.

6.2.1 Sources of Operational Noise

The most significant sources of operational noise from the site are vehicle movements within the site boundary and material handling activities within the transfer station building.

Approximately 30 trucks would visit the transfer station per day, totalling 60 total movements. These would generally occur during off-peak periods to reduce travel time and avoid congestion. Therefore, it is anticipated that at most four truck deliveries would occur in a given 15 minute period. Additionally, it has been assumed that another truck movement is occurring on the western side of the site, associated with other site activities.

Approximately 24 car parking spaces are located along the western site boundary, which have been approved as part of the initial development application to Queanbeyan City Council (DA#337-2014). As part of this application, it is proposed to remove these approved car spaces, and place them under the transfer station in a basement car park (64 parking spaces) It has been assumed that the worst case 15 minute car-park activities would involve 12 vehicle movements.

Within the transfer station building; trucks and other material handling machinery will generate a significant amount of noise. Based on previous experience of similar sites, the activities within the transfer station building are expected to produce an internal sound pressure level (SPL) of approximately 85 dBA. Taking into account the proposed dimensions of the transfer station building and its steel construction, the assumed internal noise level of 85 dBA has been used to calculate the amount of sound power which is transmitted through the walls and roof of the building.

6.2.2 Predicted Operational Noise Levels at Nearby Receivers

Sources of operational noise as described above were included in the computer noise model to predict noise levels at nearby receivers.

The predicted operational noise levels at nearby residential receivers are presented in Table 6-1.

Table 6-1 Predicted $L_{Aeq, 15min}$ Operational Noise Levels at Nearby Receivers.

Receiver	Predicted Level ($L_{Aeq, 15min}$)	Criterion (Night)	Exceedance
R1	37	37	0
R2	34	37	0
R3	37	37	0
I1	46	60	0

Review of Table 6-1 indicates that the predicted worst case operational $L_{Aeq, 15min}$ noise levels comply with the night time intrusiveness criterion at residential receivers R1, R2 and R3; and also comply with the amenity criterion at industrial receiver I1.

6.3 Sleep Disturbance Impacts

6.3.1 Transient Noise Sources

The most significant short duration, high intensity noise events associated with the operation of the facility are pneumatic truck brakes. When truck brakes are applied and released, compressed air is vented and results in significant L_{Amax} noise levels. Truck will apply their brakes when they stop at the weighbridge at the northern side of the transfer station building, and when they stop at the automatic entry doors at the southern side of the transfer station building.

The typical L_{Amax} sound power level of truck brakes is 115 dBA.

6.3.2 Predicted Maximum Noise Levels at Nearby Receivers

Transient noise sources as described above were included in the computer noise model to predict maximum noise levels at nearby receivers.

The predicted maximum operational noise levels at nearby residential receivers are presented in Table 6-2.

Table 6-2 Predicted L_{Amax} Operational Noise Levels at Nearby Receivers

Receiver	Predicted Level (L_{Amax})	Screening Criterion (Night)	Exceedance	RNP Criterion (Night)	Complies (Yes/No)
R1	43	47	0	60-65	Yes
R2	41		0		Yes
R3	48		1 dBA		Yes
I1	55	n/a	n/a	n/a	n/a

Review of Table 6-2 indicates that predicted maximum noise levels comply with the established sleep disturbance criterion at receivers R1 and R2, and exceed the criterion by 1 dBA at R3. A 1 dBA is considered negligible and is not perceptible to human hearing.

6.4 Traffic Noise Impacts

6.4.1 Traffic Generated by Proposed Development

Approximately 60 truck movements associated with the transfer station are expected per day, generally during off-peak periods to reduce travel time and avoid congestion. On weekends, around 10 truck movements are expected each day. In addition to truck movements, approximately 24 car movements are expected daily.

6.4.2 Predicted Increases in Traffic Noise Levels

The existing Annual Average Daily Traffic (AADT) volume on Canberra Avenue exceeds 30,000 vehicles. At residences in the vicinity of development which are adjacent to Canberra Avenue, existing traffic noise levels are expected to be in excess of 60 dBA ($L_{Aeq,15hour}$) and 55 dBA ($L_{Aeq,9hour}$) during the day time (7:00am – 10:00pm) and night time (10:00pm – 7:00am) respectively.

Assuming the worst case scenario where all truck movements generated by the development occurred during the night time period, the predicted increase in traffic noise levels at the most affected receivers (R2 & R3) would be less than 0.1 dBA. Such an increase is not perceptible to human hearing and therefore, no mitigation is warranted.

6.5 Construction Noise Impacts

The proposed facility will involve the development of a new transfer building, and associated infrastructure. The most noise intensive construction activities identified are those associated with establishing new pavement and hardstand areas and the construction of the new transfer building.

6.5.1 Typical Construction Plant

With consideration to the identified work's phases and activities, the construction plant and sound power levels set out in have been assumed for the purpose of assessment. In each case, it has been assumed that all plant would operate simultaneously and continuously, which is considered to be conservatively representative of the typical worst case conditions.

Table 6-3 Indicative Sound Power Levels – Construction Equipment

Activity	Equipment	Quantity	Sound Power Level per Item ($L_{Aeq, 15min}$)	Sound Power Level per Activity ($L_{Aeq, 15min}$)
Pavement and Hardstand Construction	Backhoes or small excavators	1	108	115
	Static and vibratory rollers	1	108	
	20 tonne tip / trucks (road)	4	105	
	Delivery trucks	2	105	
	Concrete agitators	1	105	
Construction of Building Slab	Concrete agitator trucks	2	108	117
	Concrete pumping equipment	1	108	
	Air compressor	1	100	
	Concrete vibrators	1	103	
	Concrete saws	1	114	
Construction of Transfer Terminal	Mobile cranes	1	106	112
	Air compressor	1	100	
	Welder	1	105	
	Delivery trucks and low loaders	2	105	

6.5.2 Predicted Construction Noise Levels at Nearby Receivers

The noise levels generated by the indicative construction activities listed above have been predicted at each of the identified receiver locations, conservatively assuming a worst case scenario whereby all sources would operate continuously and simultaneously for a full 15 minute period.

Noise emissions would vary as construction progresses. The upper predicted $L_{Aeq,15min}$ construction noise levels are provided in Table 6-4 with those exceeding the noise affected management level shown in bold font. As the modelled scenarios would be unlikely to occur often, the noise levels at receivers would typically be lower than identified.

Table 6-4 Predicted $L_{Aeq, 15min}$ Construction Noise Levels at Nearby Receivers

Receiver	Construction Stage			Noise Affected Management Level ($L_{Aeq, 15min}$)
	Pavement and Hardstand Construction	Construction of Building Slab	Construction of Transfer Terminal	
R1	48	50	45	57
R2	47	49	44	57
R3	50	52	47	57
I1	57	59	54	75

Review of Table 6-4 indicates that predicted construction noise levels comply with the established noise management levels at all receivers.

7 CONCLUSION

The establishment of a Resource Recovery Facility has been proposed on a parcel of land at 184 Gilmore Road, Queanbeyan West.

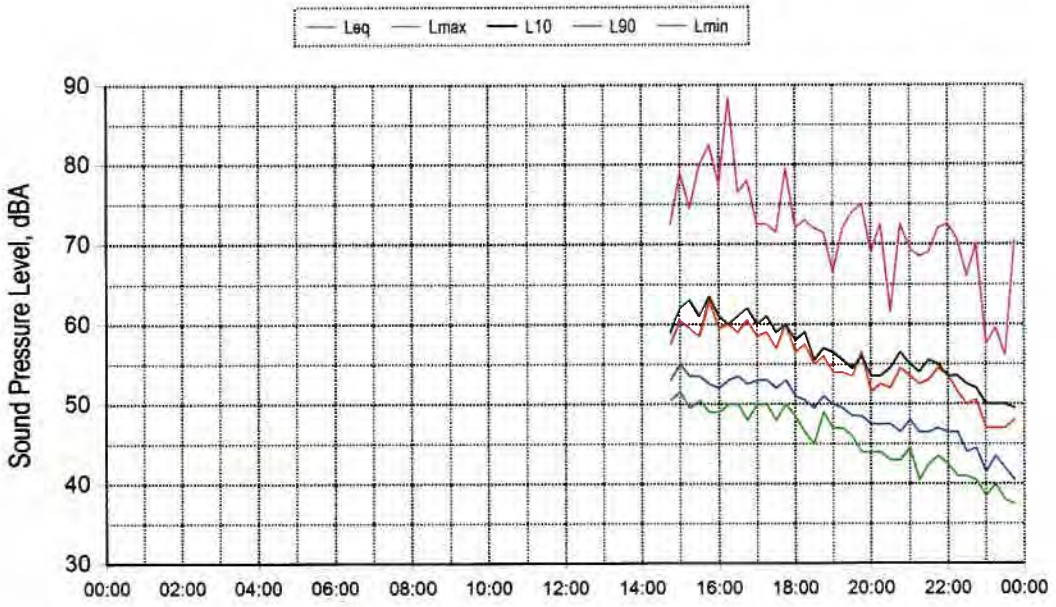
Wilkinson Murray (WM) has conducted a Noise Impact Assessment (NIA) for the proposed development in accordance with the Director General's Requirements (DGR) and relevant NSW EPA guidelines.

The predicted operational, traffic and construction noise impacts from the proposed development comply with all relevant criteria.

APPENDIX A

NOISE MEASUREMENT RESULTS

Friday 27 June 2014



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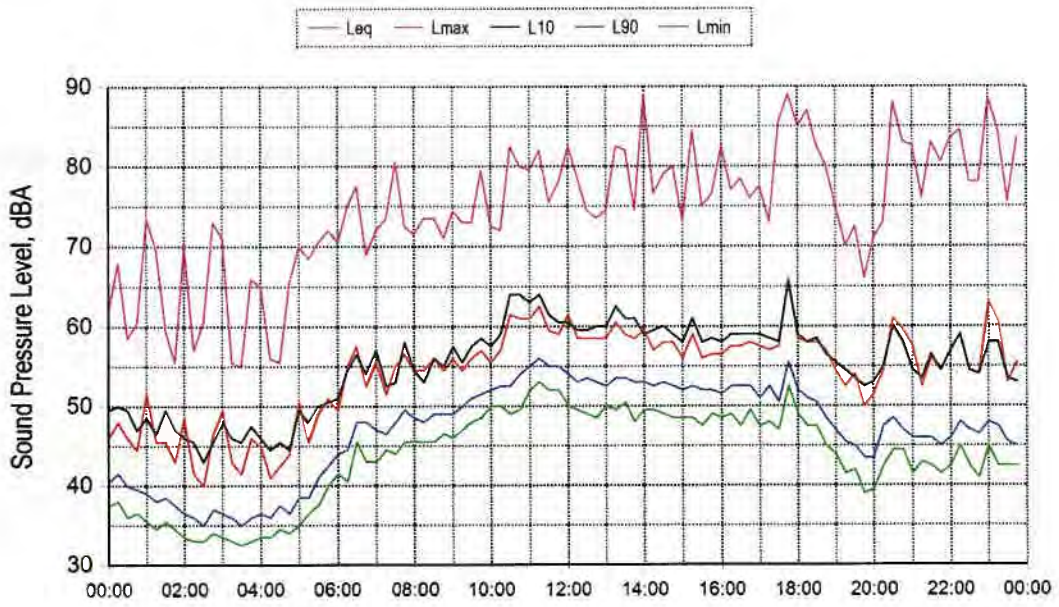

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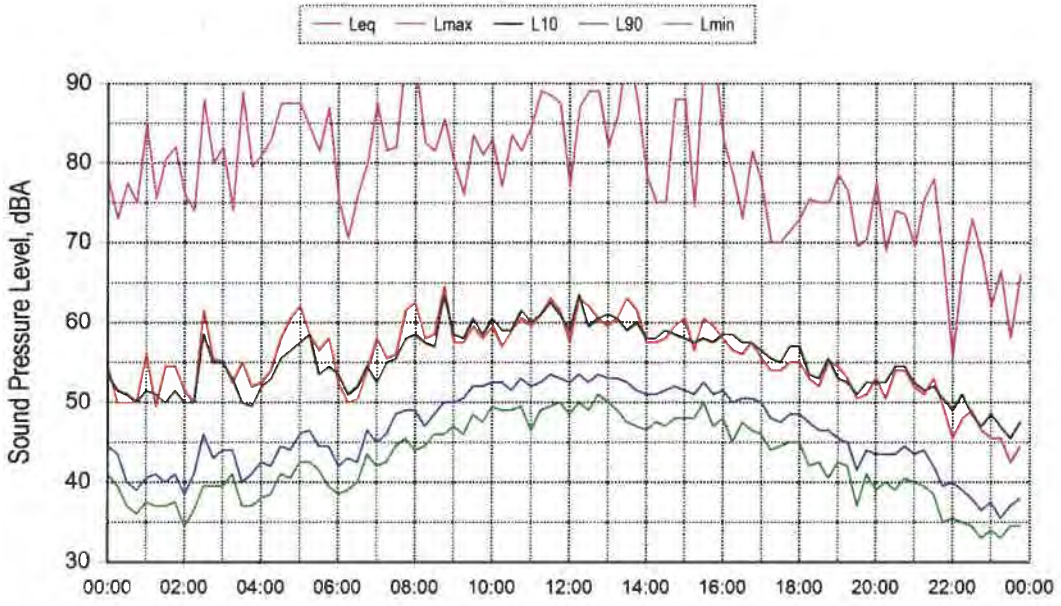

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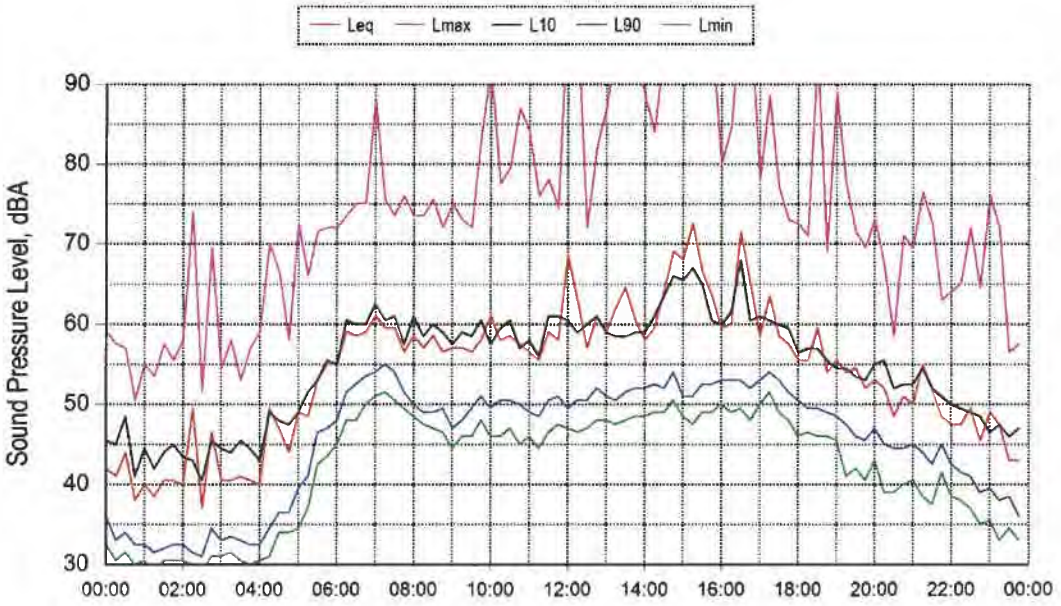

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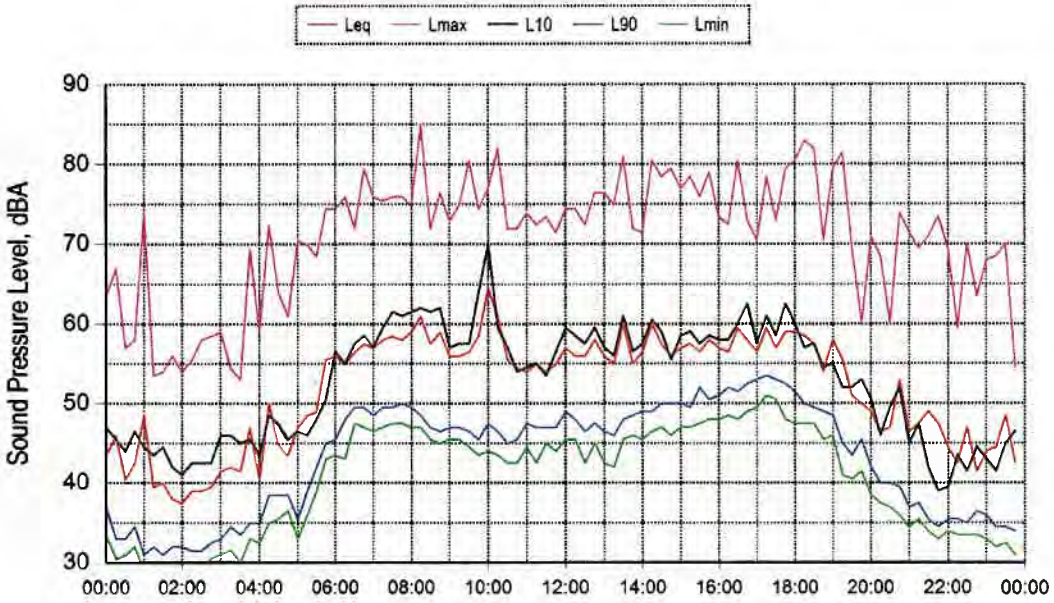

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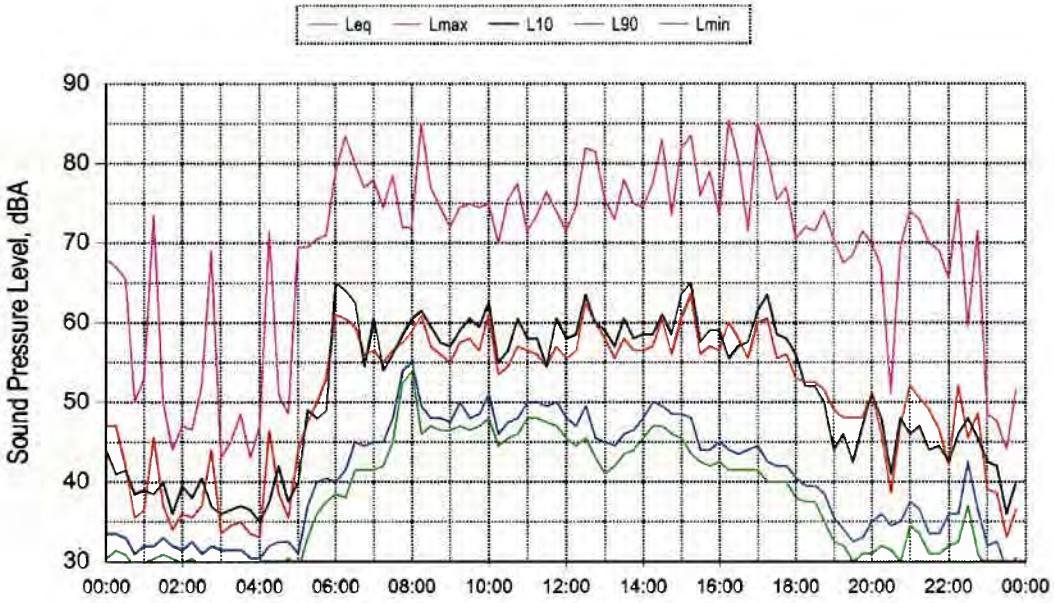

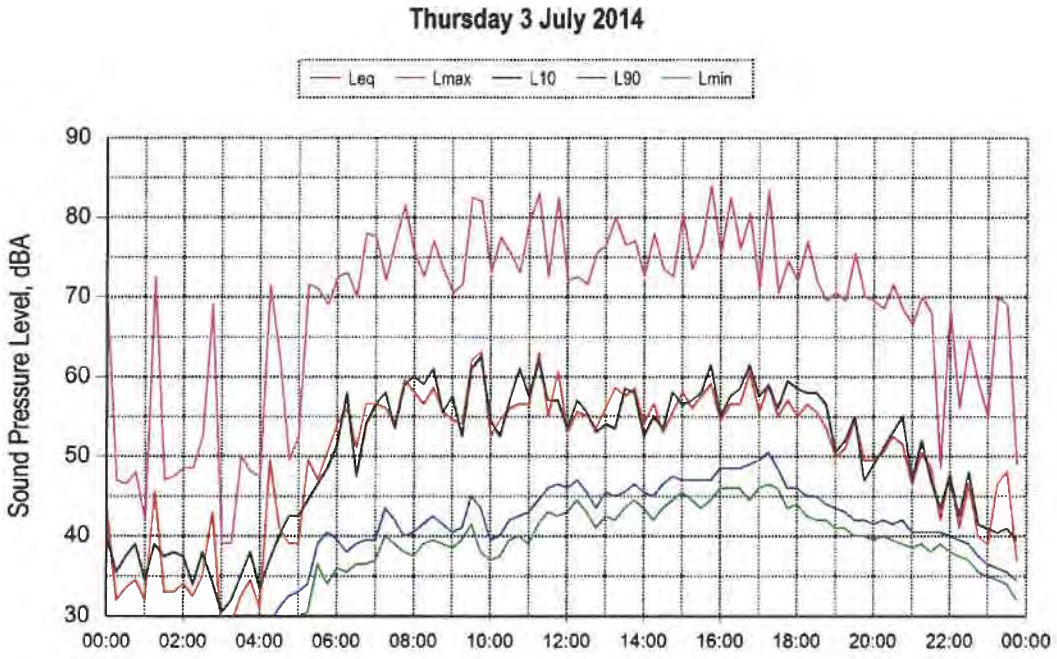
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Aus Wide Traffic Engineers Pty Ltd
32/4 Young St, Neutral Bay, NSW 2089
T 02 8004 0460 E info@auswidetraffic.com.au
ABN 18 162 361 042

Introduction

In November 2013 AusWide Traffic Engineers prepared a Traffic Impact Assessment (TIA) for the proposed SITA (now referred to as SUEZ) resource recovery facility located at Unit 3, 184 Gilmore Road, Queanbeyan West.

The subject site includes 1,923sqm of tenancy area (including office and amenities) and a 5,728sqm hardstand yard area. In addition the site includes a warehouse with offices and amenities. Outside the warehouse, a hardstand area is provided and B-double access has been allocated through entry and exit driveways.

The location of the subject site is displayed below in Figure 1.

Figure 1 – Development Subject Site

The subject site has previously been used for industrial purposes (storage and transport) by Allied Pickfords. Analysis in the TIA indicated that the Allied Pickfords facility generated approximately 17 peak hour vehicle trips.

The site is now currently utilised by SUEZ as a truck maintenance and waste transfer station (Phase 1 of the development).

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Phase 1 involved the transfer of the existing assets and operations from Hume. This included the offices, truck parking, mechanical workshop, steel and plastic bin storage, paper shredding and bailing, fluorescent tube storage and battery storage. Phase 1 also consisted of the installation of a bailer and conveyor equipment for the addition of approximately 250 tonnes per month of cardboard that are currently being bailed at the site.

The Development Application (DA) for Phase 1 of the development was approved by Queanbeyan City Council in January 2015 and it is currently in operation. SUEZ are proposing to expand their operation at the subject site to include the recovery of reusable materials from a range of waste resources and customers (Phase 2 of the development).

Phase 2 is proposed to consist of the construction of a transfer station for up to 95,000 tonnes/year of additional waste streams. In particular:

- General Solid Waste (putrescible and non-putrescible): up to 70,000 tonnes/year,
- Paper, cardboard and plastics recyclables (source separated and co-mingled): up to 12,000 tonnes/year;
- J120 Waste oil/hydrocarbons mixtures/emulsions in water (liquid waste); and
- K110 Grease trap waste.

The storage of fuel is also proposed at the site.

Putrescible waste would be transferred from the site within 24 hours to a an approved processing facility or licensed landfill in Sydney.

It is proposed to construct a building to the rear of the property, fronting Bowen Place, to accommodate the Phase 2 facilities.

It is noted that an Environmental Impact Assessment (EIS) has been undertaken for both stages of the development which identifies some of the key components of its operation, including the volumes of service vehicles trips that are expected to be generated at the subject site.

The development will operate 24 hours per day, 7 days per week.

On the 2nd November 2015 Queanbeyan City Council issued a request for additional information with respect to the proposed development. The document included a series of queries issued by the Roads and Maritime Services (RMS), as detailed below:

RMS notes that this development will increase the number of movements at the junction of Canberra Avenue and Kealman Road and the impact on this junction requires consideration. Concern is raised that this junction may not have the capacity to safely cater for this development particularly with the capacity of the right turn lane on Canberra Avenue and the delays for the right turn movement from Kealman Road onto Canberra Avenue.

The RMS requires additional information as detailed below:

Heavy vehicle traffic generation rates need to be justified. RMS does not consider it acceptable or reasonable to use pro rata methodology to distribute total movements into hourly movements.

Staff movements need to be considered.

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Intersection analysis using SIDRA needs to be carried out, based on traffic counts for existing AM and PM peaks. This base model needs to be calibrated using on site observations of queue lengths and delay. The future development scenario needs to consider movements associated with the already approved component of this development site. It needs to consider both heavy vehicle and staff movements.

Depending on the results of the analysis, the developer needs to identify an appropriate intersection treatment.

This letter has been written in response to these comments.

Current Road Network

Canberra Avenue is a divided four lane road and is the main route between Canberra and Queanbeyan. Canberra Avenue is classified as an arterial road and has a speed limit in this section of 60 kilometres per hour. The road corridor is generally 40 metres wide with verges varying generally between four metres and 10 metres in width. In some places, such as in the areas adjacent to the Lanyon Drive roundabout, the verge opens out substantially to more than 30 metres in width. In accordance with its operation as an arterial road, Canberra Avenue experiences high volumes of traffic.

Kealman Road is a local road that connects Gilmore Road with Canberra Avenue. This road comprises of a wide undivided carriageway. There is a posted speed limit of 50 km/hr along this road.

Gilmore Road is a local collector road which runs in a north-south direction parallel to Canberra Avenue (to the west of Canberra Avenue) providing access to the industrial precincts in the area. Gilmore Road comprises one traffic lane in each direction divided by a double barrier median line. Unrestricted on-street parking is permitted along either side of the carriageway. Gilmore Road includes a 50 km/hr posted speed limit.

Both Gilmore Road and Kealman Road provide access to a large number of industrial developments.

It is understood that the service vehicle trips and staff trips associated with Stage 1 of the development currently access the subject site via Gilmore Road and thus many use the signalised intersection of Gilmore Road and Canberra Avenue to access/egress the subject site in preference to the Canberra Avenue and Kealman intersection.

The service vehicle activity associated with Stage 2 of the development will access the subject site via Bowen Place and thus will be expected to utilise the intersection of Canberra Avenue and Kealman Road.

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Proposed Development

Information received by the Client and contained in the development EIS indicates that proposed development will employ an additional 40 full time staff when operating at full capacity. It is noted that 30 staff associated with the operation of Stage 1 are currently employed on site and an additional 10 staff will be associated with Stage 2 of the development.

Of these 40 staff approximately 20 are drivers, who will typically arrive at the site early (5:00am-6:00am), and leave mid-afternoon (2:00pm – 3:00pm).

The remainder are administrative and management staff, who will more closely follow office hours. These trips are expected to be inbound during morning peak periods and outbound during afternoon peak periods.

Currently Stage 1 of the subject site generates approximately 30 service vehicle trips per day (15 inbound and 15 outbound). Stage 2 of the development is expected to generate the same volume of service vehicle trips, so upon completion the overall development will typically generate 60 service vehicle trips per day (30 inbound and 30 outbound). On weekends, up to 15 truck movements per day are expected, with some minor additional vehicle movements associated with retail component of the facility.

As per the current operation of SUEZ facilities, service vehicles arrivals and departures for the development would be scheduled, as far as possible, to occur at off-peak periods. In fact waste collection activities require that road use is as far removed as possible from peak traffic times. As described previously site operations would be 24 hours per day, seven days per week. This allows services to be offered in peak waste collection times and minimise congestion and travel time associated with operations during peak hours.

Clearly, as per current arrangements, it is in SUEZ economic best interest to ensure their waste collection activities occur as quickly and efficiently as possible and avoid congested road networks.

Accordingly in order to be conservative it has been assumed that during peak periods of road network operation there would be a maximum of 2 inbound and 2 outbound service vehicle movements at the subject site.

Therefore the overall peak hour trip generation characteristics of the proposed development is expected to consist of 20 staff members and 2 service vehicles, which is negligible and only marginally greater than the Allied Pickfords peak hour operation that previously occurred onsite.

Further as stated previously the majority of employee activity and half the service vehicle activity associated with the operations on the subject site (Stage 1) are currently in operation. Thus the additional vehicle activity associated with Stage 2 i.e. new vehicle trips, will be of even less significance

In accordance with Canberra Avenue's operation as an arterial road (and its high volume of traffic activity) and the large volume of industrial developments that are accessed via Kealman Road/Gilmore Road, the trips generated by the proposed development will represent a tiny proportion of the vehicles that traverse the Canberra Avenue/Kealman Road intersection, particularly during peak periods of road network activity.

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Additionally vehicle activity associated with the development is expected to be split between the intersections of Canberra Avenue/Gilmore Road and Canberra Avenue/Kealman Road.

Therefore SIDRA analysis for the intersection of Canberra Avenue and Kealman Road is not considered warranted.

However to further minimise the potential traffic impacts of the proposed development, service vehicles will continue to be scheduled where possible to arrive/depart the proposed development during periods of non-peak hour operation of the adjoining road network.

Regards,

Mark Lucas

Mark Lucas

Senior Consultant

Auswide Traffic Engineers

Jacinta Tonner

From: Andrew Wild <andrew.wild@wildenvironment.com.au>
Sent: Monday, 30 November 2015 11:23 AM
To: Jacinta Tonner
Cc: jason.stewart@suez-env.com.au; Rebecca Smith
Subject: TRIM: DA 2015/338: Response to EPA and RMS Submissions
Attachments: WE-184 Gilmore Rd (Queanbeyan West)-TechNote-R1-0.pdf; 13246-R Ltr 291115 NH.pdf; 13246 Report VerB Final.pdf

HP TRIM Record Number: C15184830

Dear Jacinta,

In response to the agency comments, and in preparation for tomorrow morning, please find attached:

- AusWide Traffic Consulting response to RMS comments

- Wilkinson Murray Response to EPA Noise comments. We have also attached a revised Noise Impact Assessment from WM, following this review.

Jason Stewart, ACT and Central West Regional Manager, SUEZ, and I will attend. We will provide handouts with a brief overview of the DA and EIS, and response to comments. Please let us know if we've forgotten anything!

We look to meeting you tomorrow, thx andrew

--

Andrew Wild | Principal Consultant | Wild Environment
☎ 0438 246 344 | ✉ andrew.wild@wildenvironment.com.au
Box 66, Annandale NSW 2038 Australia

WILKINSON MURRAY

29 November 2015

WM Project Number: 13246-R
Our Ref: 13246-R Ltr 291115 NH

Andrew Wild
Wild Environment
PO Box 66
ANNANDALE NSW 2038

Dear Andrew

Re: DA 338-2015 - Responses to Submissions (Noise)

Thank you for providing us with Queanbeyan City Council's request for additional information regarding the Noise Impact Assessment (NIA) for this Development Application.

We have reviewed Council's requests for additional information, and our responses are presented in Table 1.

In addition to providing the responses in Table 1, we have also prepared an updated NIA (Wilkinson Murray Report No. 13246 Version B, dated November 2015). A number of submissions, particularly regarding sensitive receivers and assessment of sleep disturbance, warranted the provision of an updated NIA.

I trust this information is sufficient. Please contact us if you have any further queries.

Yours faithfully
WILKINSON MURRAY

Nic Hall
Manager (Newcastle)

Table 1 Responses to Submissions

Submission	Response	References
The Noise Impact Assessment (NIA) identifies the nearest residential receiver locations to the project in Table 2.1 as R1, R2 and R3, whilst Table 5.3 indicates 6 receiver locations. Further, EPA noted in its review of documentation regarding a proposal to treat medical waste at the same site, the information identified two additional residential dwellings located within the industrial estate on Kendall Avenue and Bayldon Road that do not appear to have been considered in this NIA. **The EPA requests the NIA be revised to clarify the exact number and location of "sensitive receiver locations" and demonstrate the Project will not result in noise impacts at these locations**	The reference to 6 residential receivers in Table 5.3 (NIA, Version A) is a typographical error. No sensitive receivers have been identified in the industrial estate on either Kendall Avenue or Bayldon Avenue. However, it is understood that a dwelling is located at 1 Kealman Road, approximately 35 metres from the boundary of the project site. The updated NIA (Version B, dated 27 November 2015) identifies the most sensitive receivers in the vicinity of the project site, establishes noise criteria at each receiver location in accordance with relevant NSW Government guidelines, and demonstrates that the project is unlikely to result in noise impacts at the most sensitive receivers.	NIA – Chapters 2, 5 & 6
The EPA noted during its review of the NIA an inconsistency with the proposed daytime Project Specific Noise Level which is proposed at either 57 dBA using the 'Intrusiveness Criterion' in Table 5.3 or in Table 5.1 is proposed as 52 dBA (RBL of 47dBA plus 5dBA). Further Table 5.1 identifies 3 receiver locations, whilst Table 5.3 indicates 6 receiver locations. **The EPA seeks clarity as to the correct daytime PSNL value – which appears to be 52 dBA ie. confirm if the daytime Intrusiveness Criterion of 57 in Table 5-3, or the daytime RBL of 47 in Table 4-1 is correct. Also, the correct number of sensitive receivers should be clarified in table 5-1 and 5-3, ie. 3 or 6 sensitive receivers?**	The daytime intrusiveness criterion in Table 5.1 (NIA, Version A) is incorrect. The correct daytime PSNL for residential receivers is 52 dBA.	NIA – Chapter 5
As the facility is proposed to operate 24 hours, and the night time background noise levels are low, the EPA has some concerns about the potential for sleep disturbance at surrounding residential receiver which are located approximately 200-300 metres from the facility. The last paragraph on page 9 of the NIA incorrectly concludes from statements in the NSW Road Noise Policy that "an external noise level	The updated NIA (Version B, dated 27 November 2015) presents results from an updated noise model. The update model incorporates the following important changes with respect to the assessment of potential sleep disturbance impacts: • refined topography (sourced from NSW Land and Property	NIA – Chapter 6.3

of 60-65dBA is unlikely to cause sleep disturbance". The correct conclusion would be that "an external noise level of 60-65dBA is unlikely to awaken people from sleep".

Maximum noise levels 7dB above the sleep disturbance screening criteria are predicted at R3. EPA's Application Note on Sleep Disturbance which can be found at EPA's website at this link: http://www.epa.nsw.gov.au/noise/applicnotesindustnoise.htm requires a more detailed analysis in these situations. The NIA includes qualitative speculation in this regard but no supporting quantitative data from either unattended or attended monitoring.

There is no analysis of potential feasible and reasonable measures that could be implemented to mitigate predicted noise impacts. A 2.5m barrier is assumed along the southern site boundary but there is no commitment to construct the barrier. There is no consideration of a barrier along the northern boundary, which is most relevant to the predicted maximum level 7dB over the sleep disturbance screening criterion at receiver R3.

3 **The Proponent should either provide a quantitative, detailed analysis of sleep disturbance in accordance with the cited guidance in the INP Sleep Disturbance Application Note, or commitments to feasible and reasonable noise mitigation measures that will be implemented to reduce noise levels to within the criteria.**

Information);

- removal of the 2.5 metre barrier;
- shielding from nearby building structures; and,
- reduced L_{Amax} sound power level of 115 dBA to represent typical truck brakes in lieu of 122 dBA (previously used, and more representative of large trailer brakes).

Predicted L_{Amax} noise levels at nearby residential receivers based on the updated model indicate compliance with the established sleep disturbance screening criterion. A 1 dBA exceedance of the screening criterion is predicted at R3, which is considered negligible.

The results of the sleep disturbance assessment indicate that the establishment of a 2.5 metre barrier is not warranted.

It should be noted that existing maximum noise levels at residential receivers (R1, R2 & R3) due to heavy vehicles on Canberra Avenue are predicted to be in the range of 50 – 60 dBA. The AADT volume along Canberra Avenue is approximately 30,000 vehicles. It is estimated that the night time (10:00pm – 7:00am) traffic volume would account for approximately 10 per cent of the AADT, and that heavy vehicles would account for approximately 10 per cent of all traffic on Canberra Avenue. Therefore, it is estimated that the existing maximum noise levels of 50 – 60 dBA would occur up to 300 times per night. Accordingly, the maximum noise events associated with the project are considered unlikely to significantly change typical maximum noise levels during the night.

The EPA notes the NIA does not indicate limiting the noise from vehicles reversing at the facility. There is no mention of movement alarms ("reversing beepers") on road registered vehicles or dedicated site plant and equipment, alternatives that might be implemented or site layout to minimise or eliminate the need for reversing on site to mitigate off-site noise impacts.

4 **The EPA seeks clarification that vehicles will be fitted with noise restricting devices to avoid off-site impacts, particularly during the evening and night periods. The EPA recommends**

The site is designed such that trucks accessing the site will have no cause to reverse when they are outside the transfer building. The client advises that there is a strong preference for tonal reversing alarms to be fitted to road registered vehicles for safety reasons. Therefore requiring trucks to be fitted with broadband reversing alarms is not considered feasible or reasonable.

Fitting broadband reversing alarms to all mobile plant which is to remain on the site is considered good practice and is recommended.

the Proponent use broadband rather than tonal, movement alarms (reversing beepers) or non-audible (such as reversing cameras or proximity alarms) to avoid off-site impacts.		
It is unclear to the EPA if the NIA has taken into consideration the noise walls that have been installed along Canberra Avenue near the Project site.	Wilkinson Murray notes that noise barriers have been installed along Canberra Avenue, in the vicinity of the project site. Review of available aerial imagery indicates that the extent of the barriers is not sufficient to provide shielding between the project site and receivers R2 and R3. Accordingly, the barriers have not been included in the noise modelling.	n/a

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5 February 2016

Ms Jacinta Tonner
Town Planning Team Leader
Queanbeyan City Council
GPO Box 90, 257 Crawford Street
Queanbeyan NSW 2620

Dear Ms Tonner

Additional Information Request for proposed Waste or Resource Management Facility at 172-192 Gilmore Road / Bowen Place, Queanbeyan West
DA 338/2015

Following the formal removal of the retail public component of the proposed Waste or Resource Management Facility (letter dated 4 January, 2016), a letter was received by Queanbeyan City Council requesting further information for the development application DA338-2015. The purpose of this letter is to provide the additional information for consideration for the ongoing assessment of our application. The table below sets out the information requested and Suez Environnement's response.

TABLE 1: Additional Information Request and Response

No	Information Request	Response
1	A suitably scaled site plan that clearly indicates the lots and part lots subject to the application, the distinction between the concrete batching plant site and the proposed development site and delineation of proposed excavation works as distinct from previously approved excavation works.	Refer to Attachment 1
2	An annotated diagram for the operation of the Resource Recovery Hall.	Refer to Attachment 2
3	A flow diagram that shows the Waste Recycling process from beginning to end.	Refer to Attachment 3
4	An annotated diagram of the stormwater drainage concept plan and options to dispose of stormwater including connection to Council's stormwater system in the event that the concrete batching plant does not require water or ceases operations.	Refer to Attachment 4
5	Details of wastewater disposal and collection including the wash down area in the Resource Recovery Hall.	A water management system will be incorporated into the site. This includes the collection of water from process areas, and the wash down area. Water will then be appropriately treated, prior to being transferred to the large water storage tanks. Water will then be collected by dedicated water tank trucks and sent to the concrete batch plant next door. Should the concrete batch plant not accept the water, any water will be diverted to the Council's stormwater system, in accordance with a trade waste agreement to be obtained.

Wild Environment
PO Box 66,
Annandale NSW 2038

No	Information Request	Response
		Note that the washbay was approved as part of DA337-2015 in January 2015.
6	How the proposed trade waste discharge will be managed and plans for its treatment and reuse within the facility.	Trade waste is to be managed in accordance with a trade waste agreement to be entered into with Council. This will be completed during the construction certificate stage. A water management system is proposed, and a general outline of that system was provided in the EIS. However, a detailed sketch and process has not yet been determined. Suez is committed to meeting Council trade waste requirements.
7	Discussion of traffic movements and management between the concrete batching plant and proposed development on Bowen Place and the intersection with Kealman Road before and after the development.	Any water tankers to enter the site to collect water for the concrete batch plant will occur at dedicated times only. This will ensure that traffic movements are appropriately coordinated, to minimise safety or traffic impacts. In terms of the interaction between traffic movements from dedicated concrete trucks and waste trucks on Bowen Place, it is expected that minimal disruption will occur. The traffic assessment has indicated that approximately 2 truck movements per hour are expected as part of the operation of the facility. This would be a minimal disruption or increase in the traffic using the intersection with Kealman Road.
8	The vehicle sweep path analysis within and outside the subject site including Bowen Place and the intersection with Kealman Road.	Refer to Attachment 5
9	Details of how the existing building interrelates to the proposed development.	Approval was received for the use of the existing building that fronts Gilmore Road for the collection, sorting and baling of paper and cardboard, use of a paint bay and the maintenance of trucks and bins. Staff also occupy the building for administration and the management of the operation of the site. The proposed development, relating to the sections of the site that front Bowen Place would be for the increase in waste collection and sorting. Both parts of the site would be managed and operated from the staff within the existing building.
10	Details, if any, of changes within the existing building as approved.	An application to modify a consent (as per s96 of the *EP&A Act)* is currently with Queanbeyan City Council to consider some changes to the existing building. This includes the movement of some of the internal walls. Changes to the external appearance of the building is not anticipated. This application does not form part of the DA338/2015.

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If you have any further questions or clarifications, please do not hesitate to contact me via email (andrew@wildenvironment.com.au) or via telephone (0438 246 344).

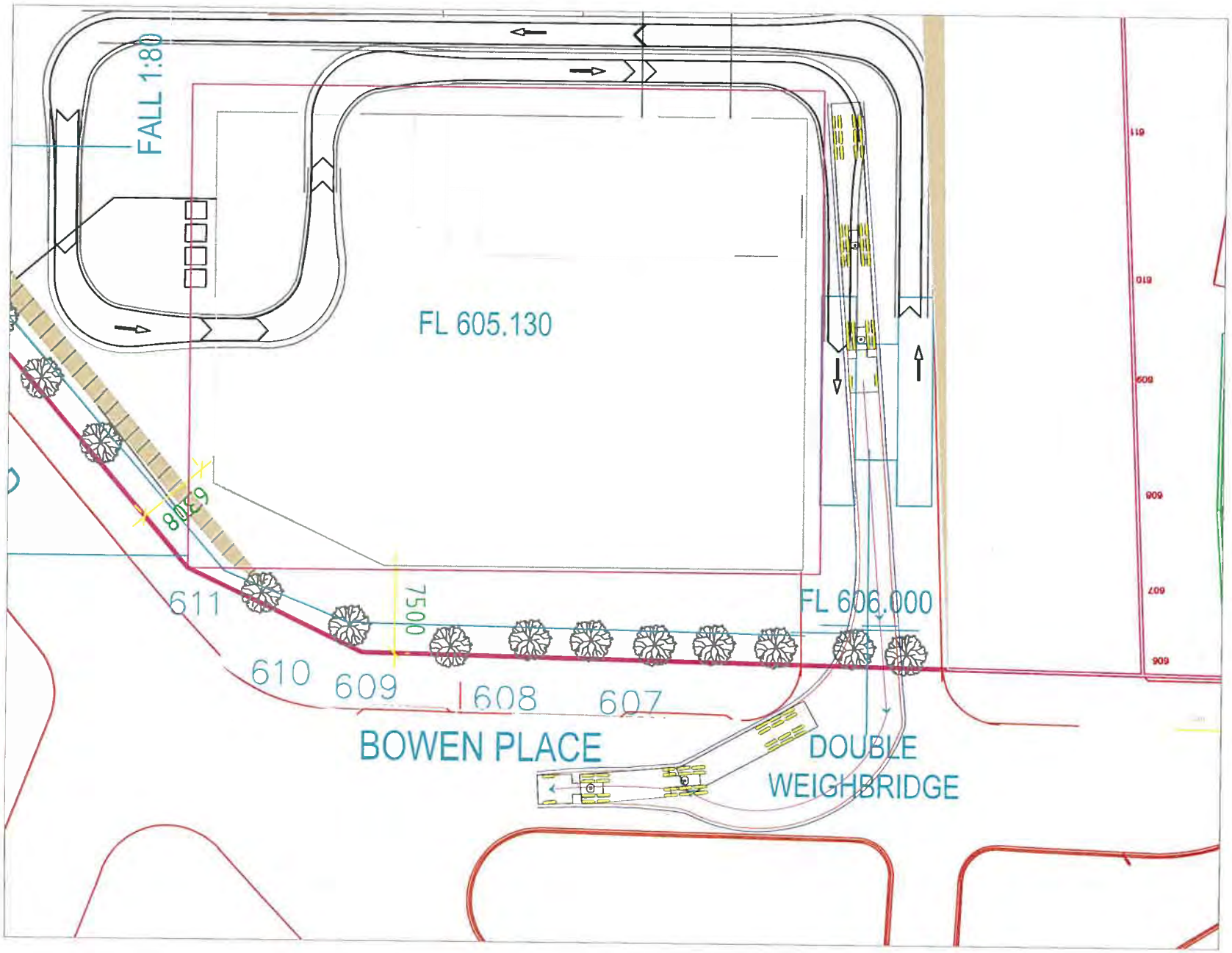
Yours sincerely

Andrew Wild
Principal / Director
Wild Environment

Wild Environment
PO Box 66,
Annandale NSW 2038

Attachment 1: Site Plan showing Lot Details

Wild Environment
PO Box 66,
Annandale NSW 2038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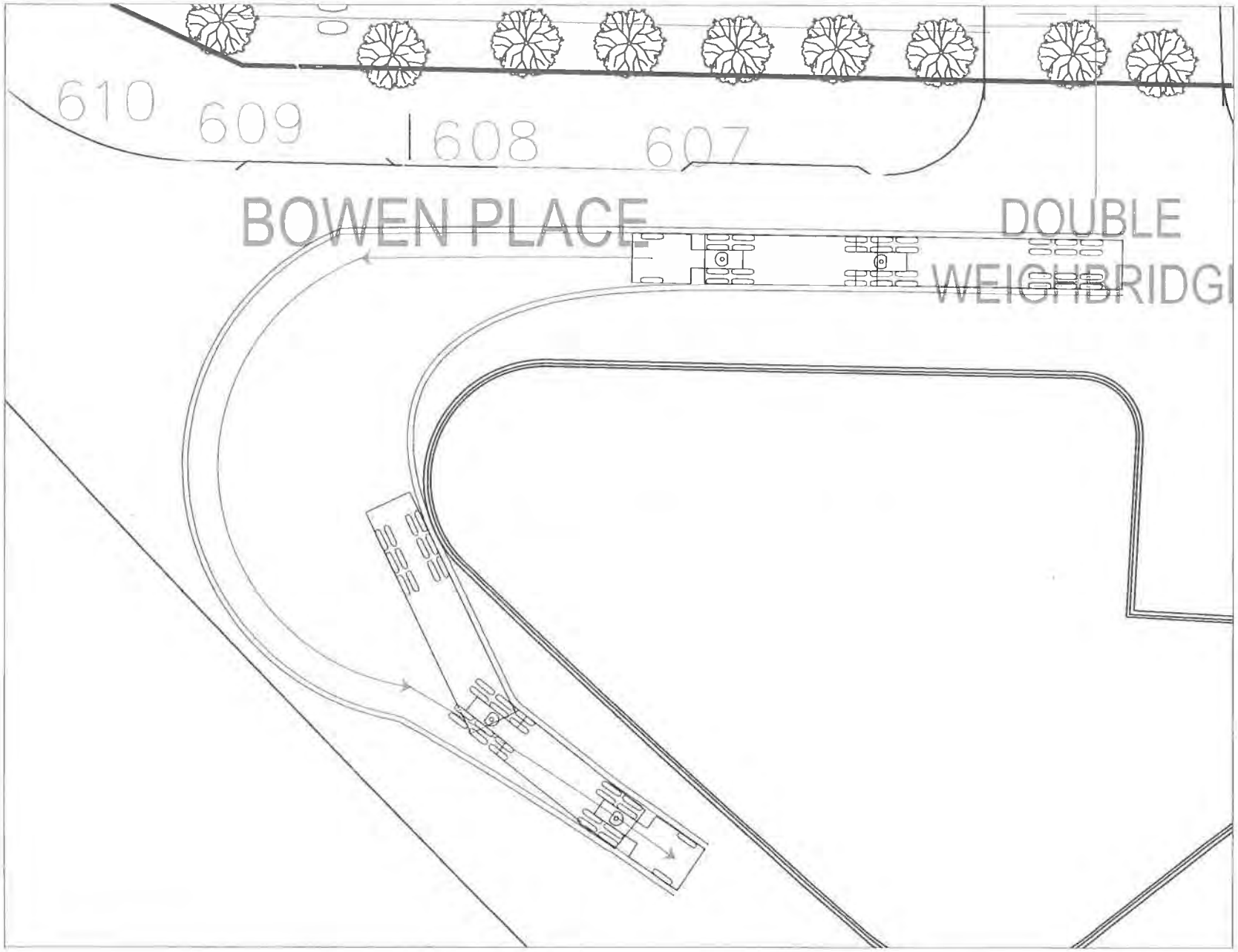
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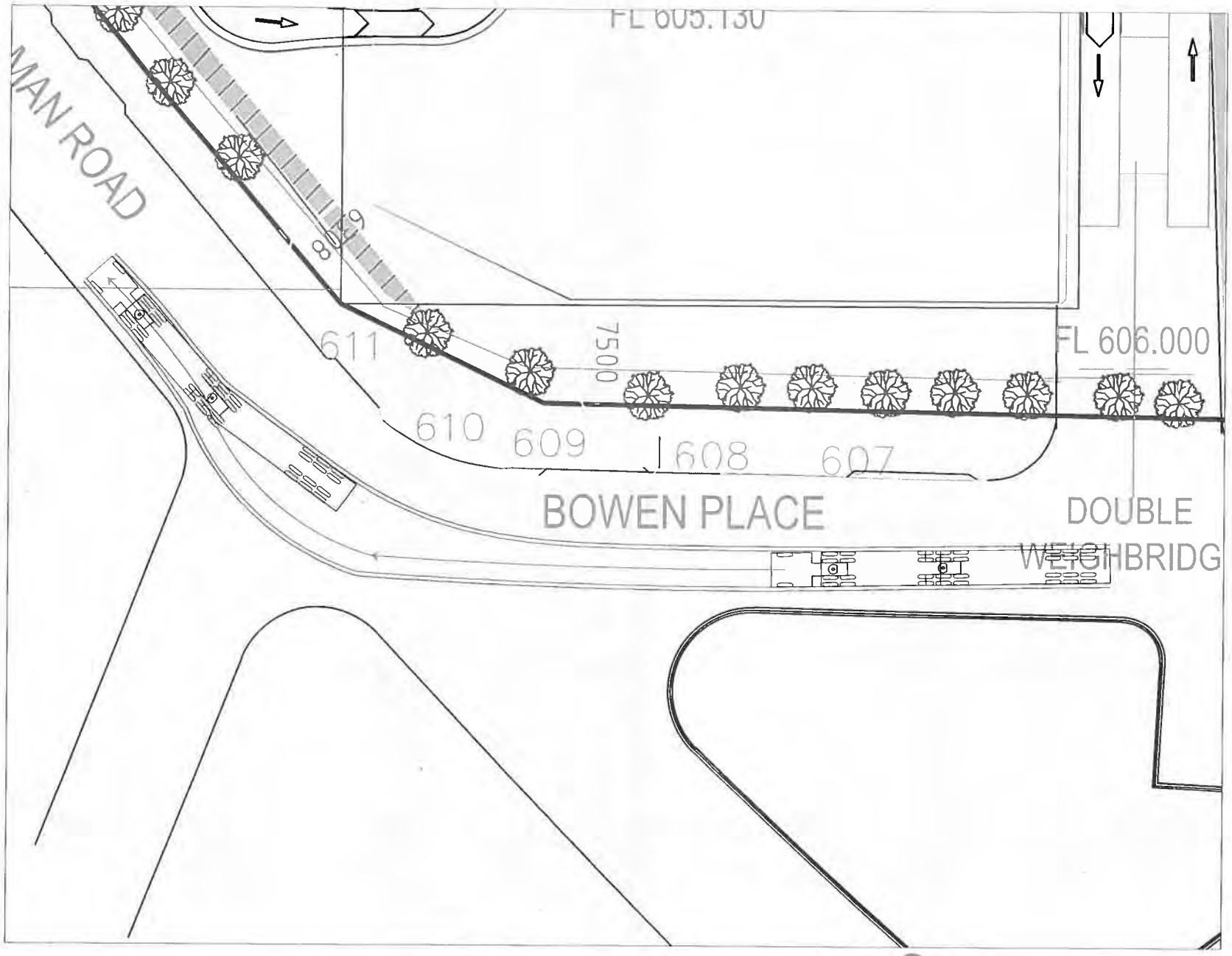
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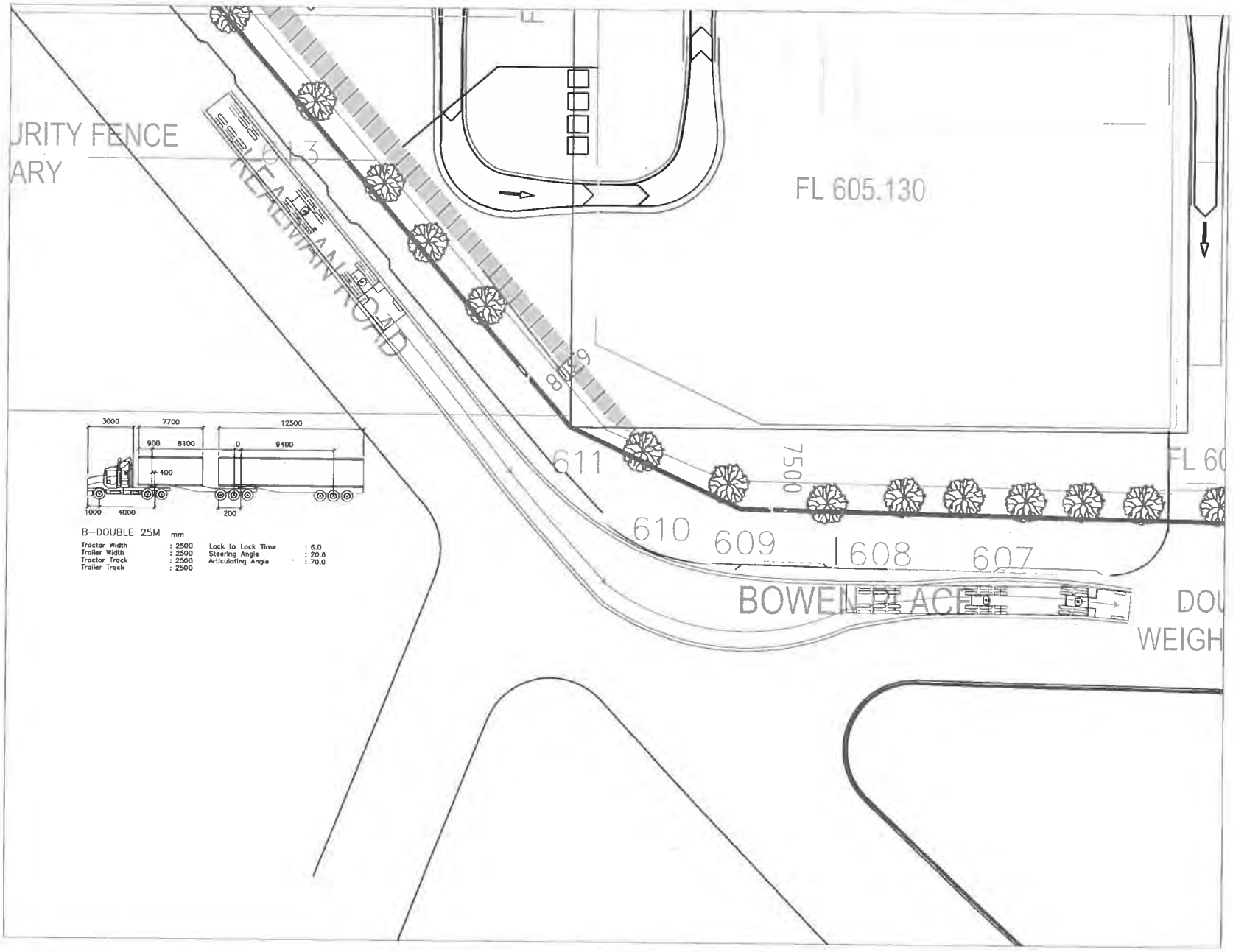
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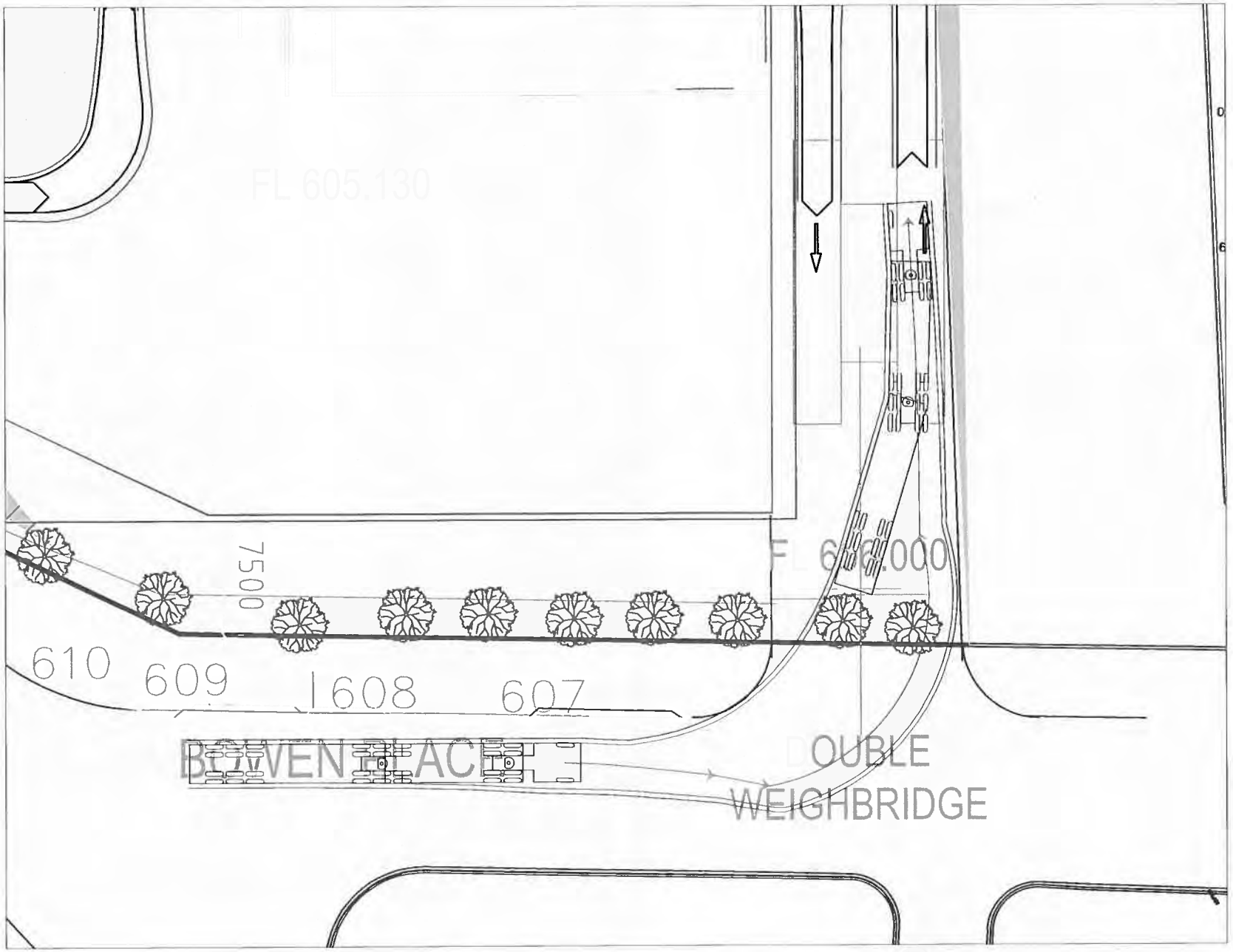
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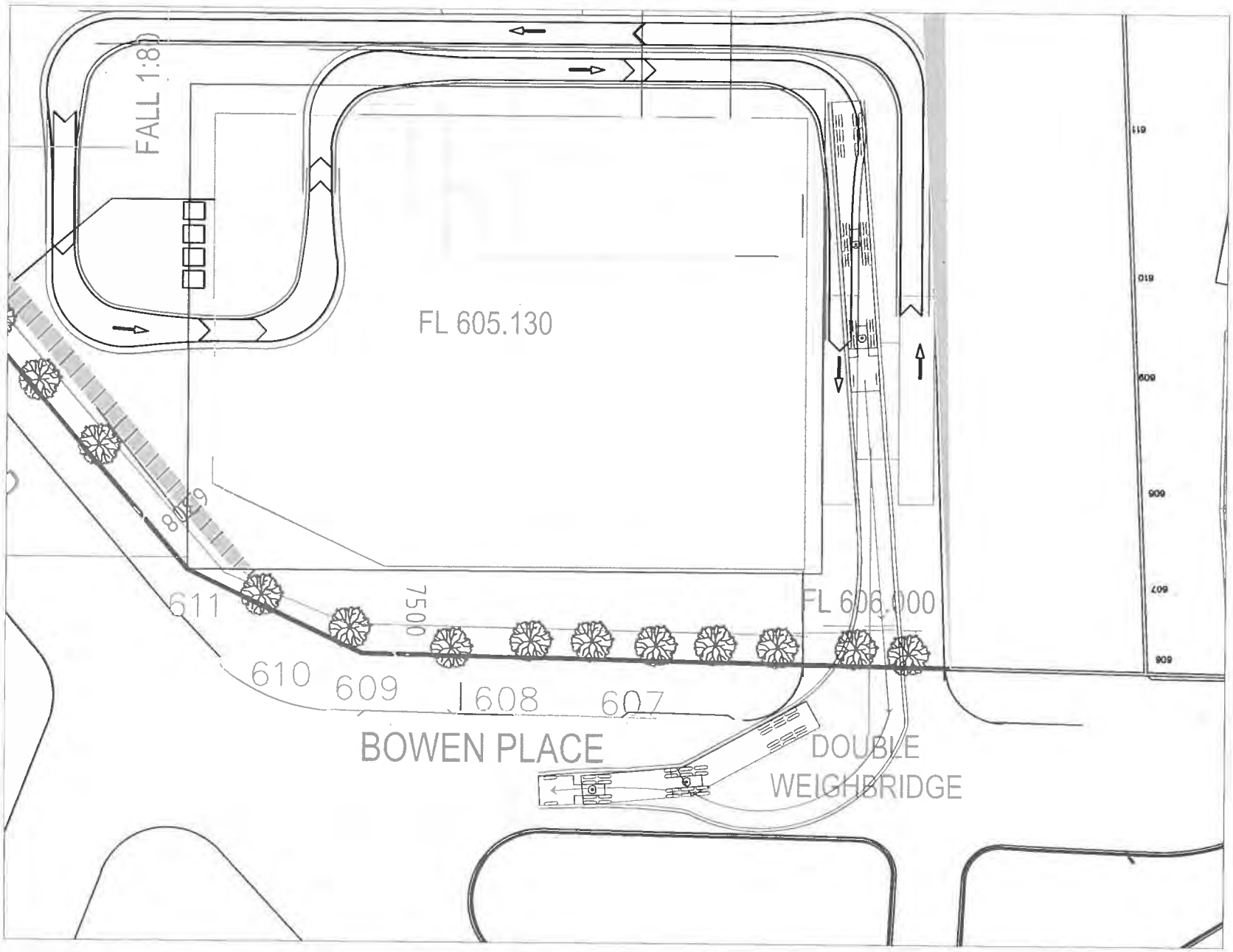
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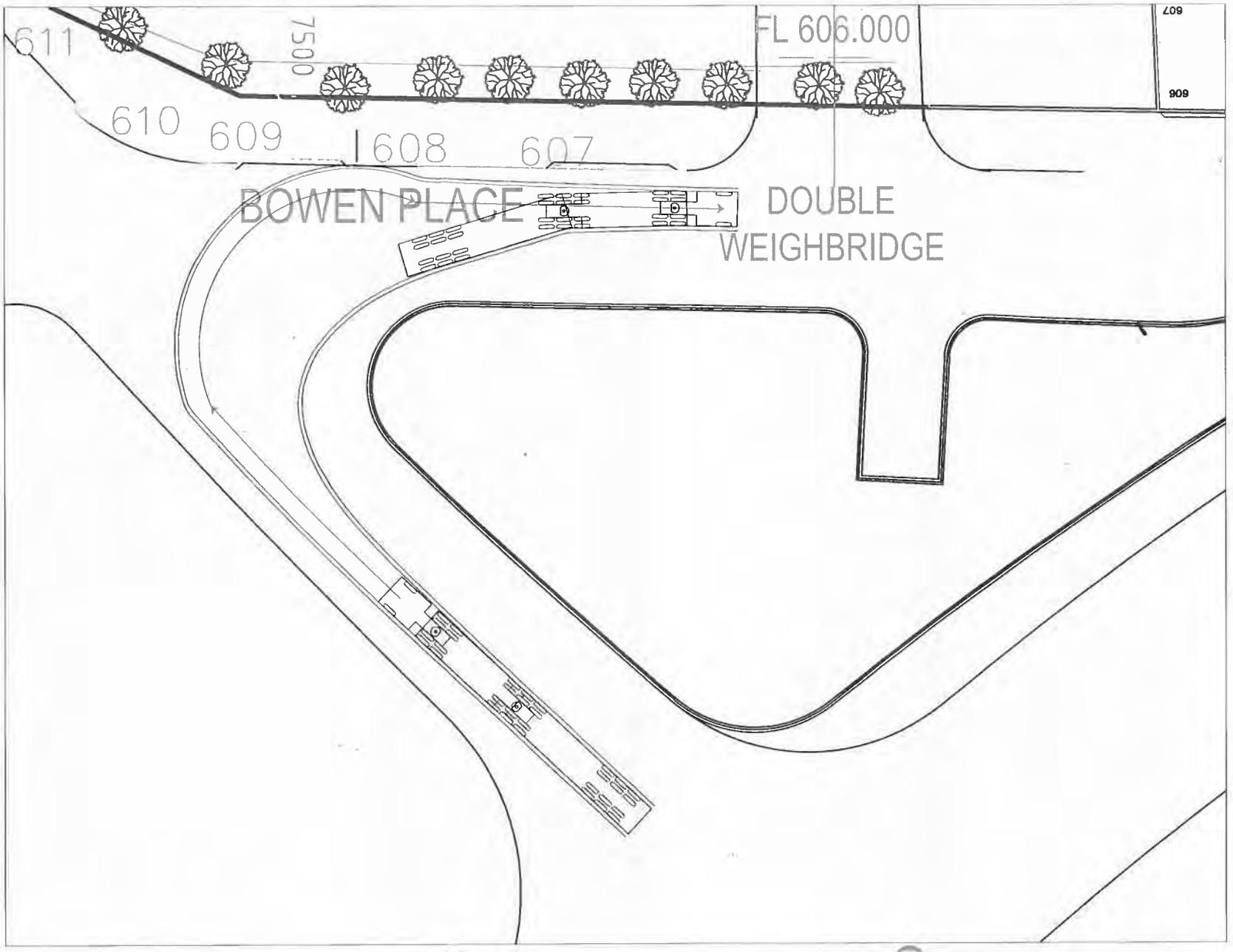
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BOWEN PLACE
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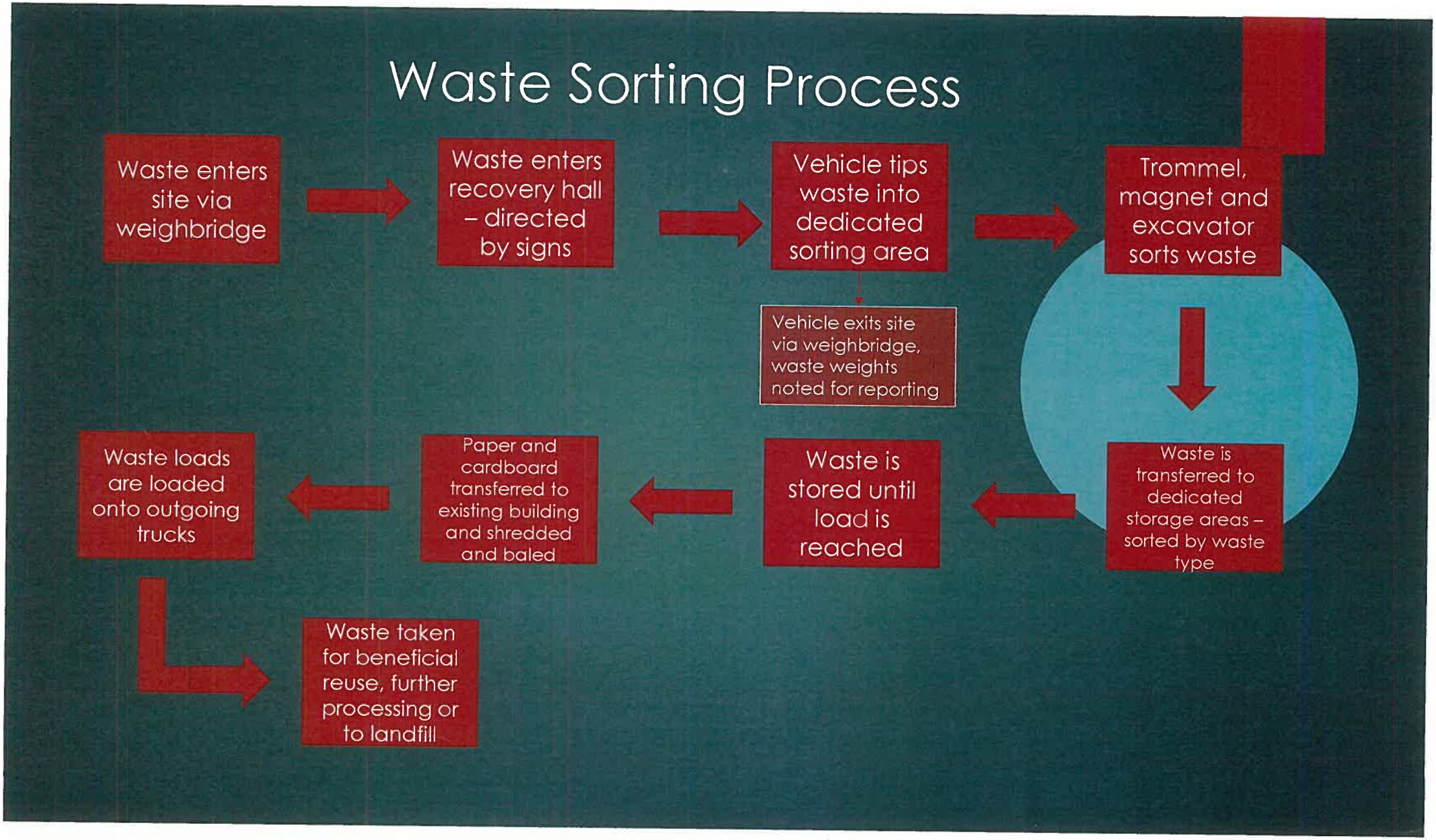
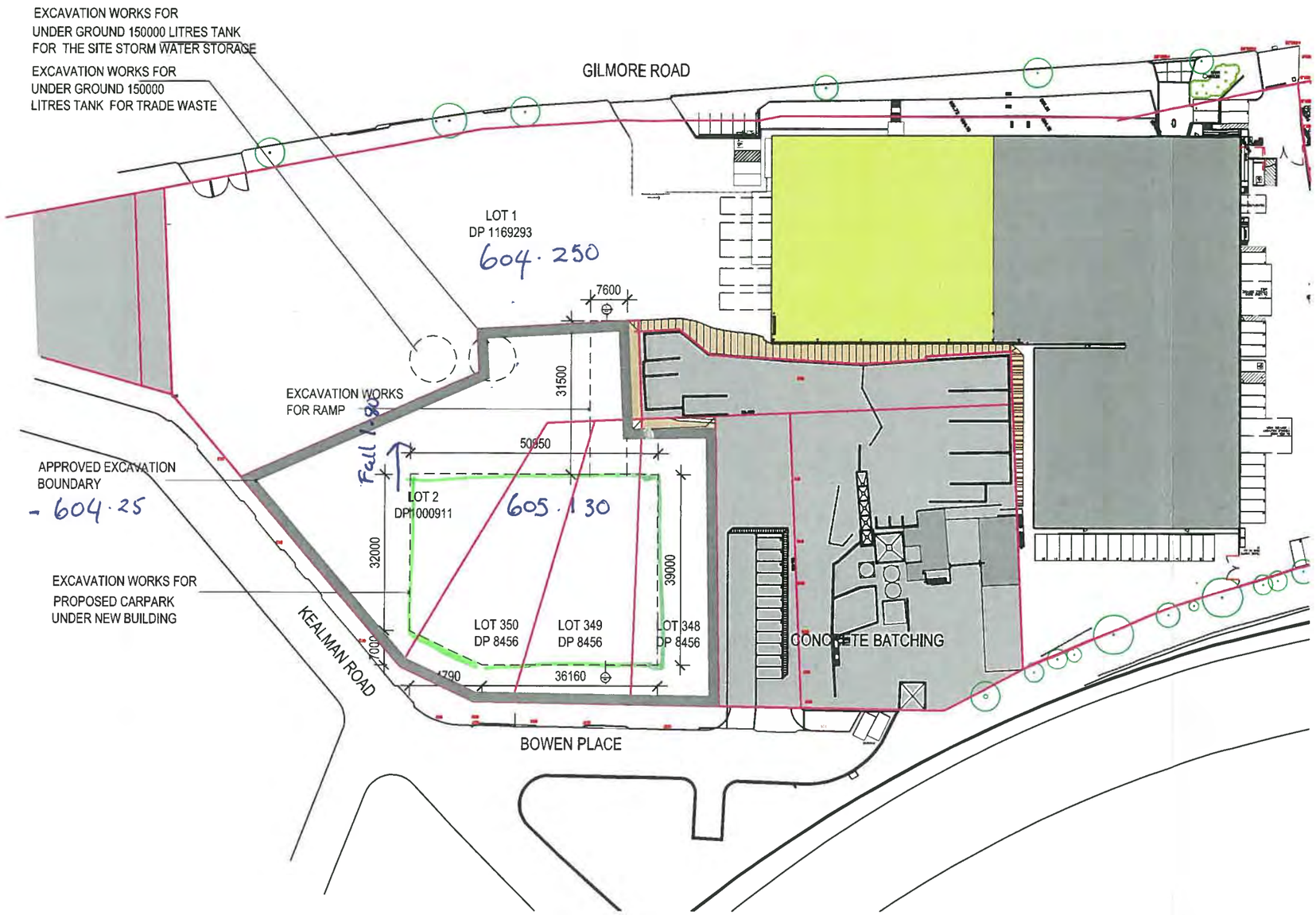
WEIGHBRIDGE


Waste Sorting Process
Waste enters site via weighbridge
Waste enters recovery hall – directed by signs
Vehicle tips waste into dedicated sorting area
Vehicle exits site via weighbridge, waste weights noted for reporting
Trommel, magnet and excavator sorts waste
Waste is transferred to dedicated storage areas – sorted by waste type
Waste is stored until load is reached
Paper and cardboard transferred to existing building and shredded and baled
Waste loads are loaded onto outgoing trucks
Waste taken for beneficial reuse, further processing or to landfill



SITE PLAN
SCALE NTS

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REV _- DD/MM/YY __

CONSULTANT

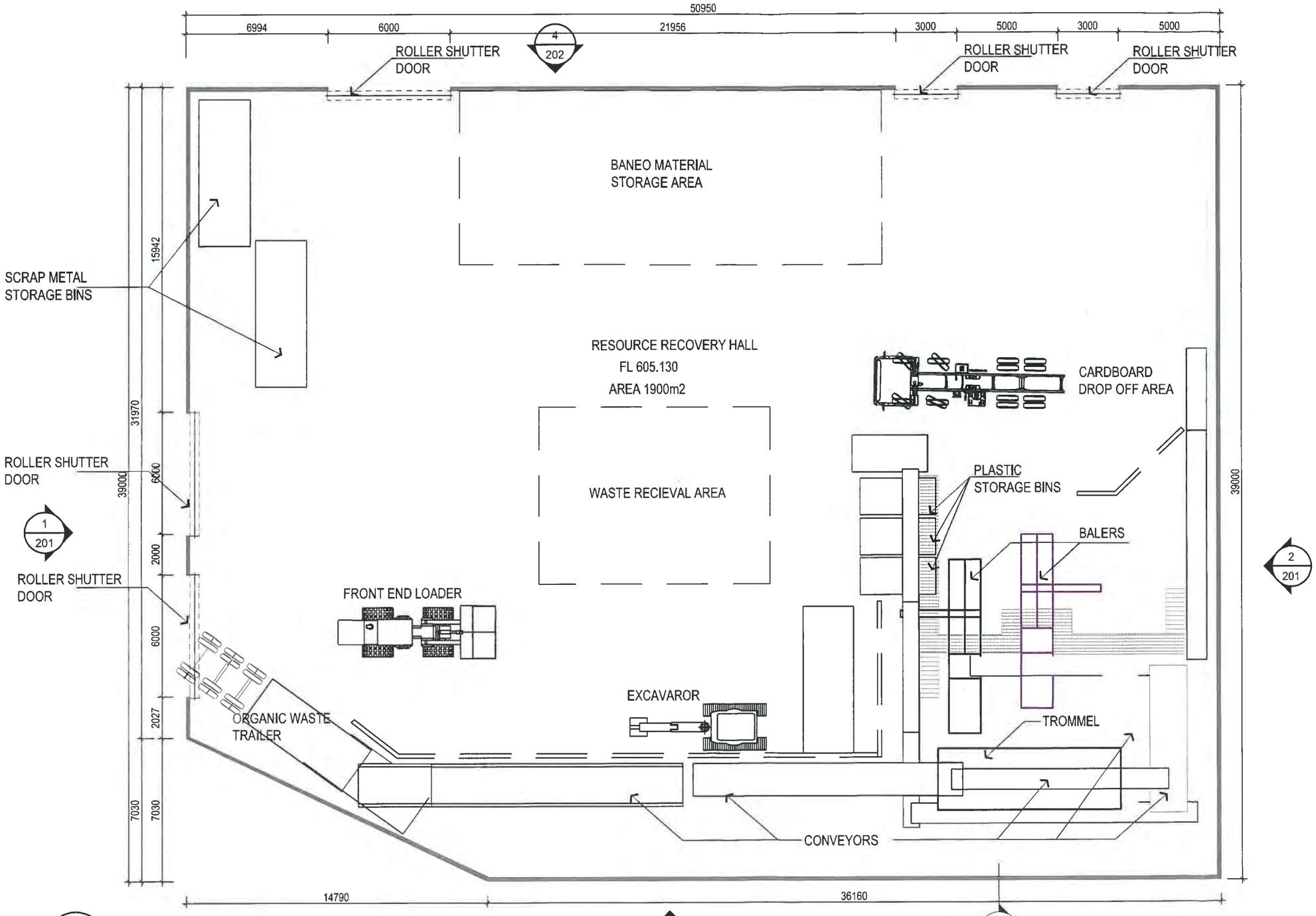
PROJECT
SITA ENVIRONMENTAL
184 GILMORE ROAD
QUEANBEYAN

CLIENT
SITA ENVIRONMENTAL

TITLE
RESOURCE RECOVERY FACILITY
SITE PLAN- EXCAVATION

DRAWING NO. 1404/DA/002
REV. 0
DATE APRIL 2014
SCALE AS SHOWN @ A3
CHECKED EB 05-01-15
VERIFIED CL 05-01-15

ISO 9001 BUREAU VERITAS Certification



GROUND FLOOR PLAN

1:200

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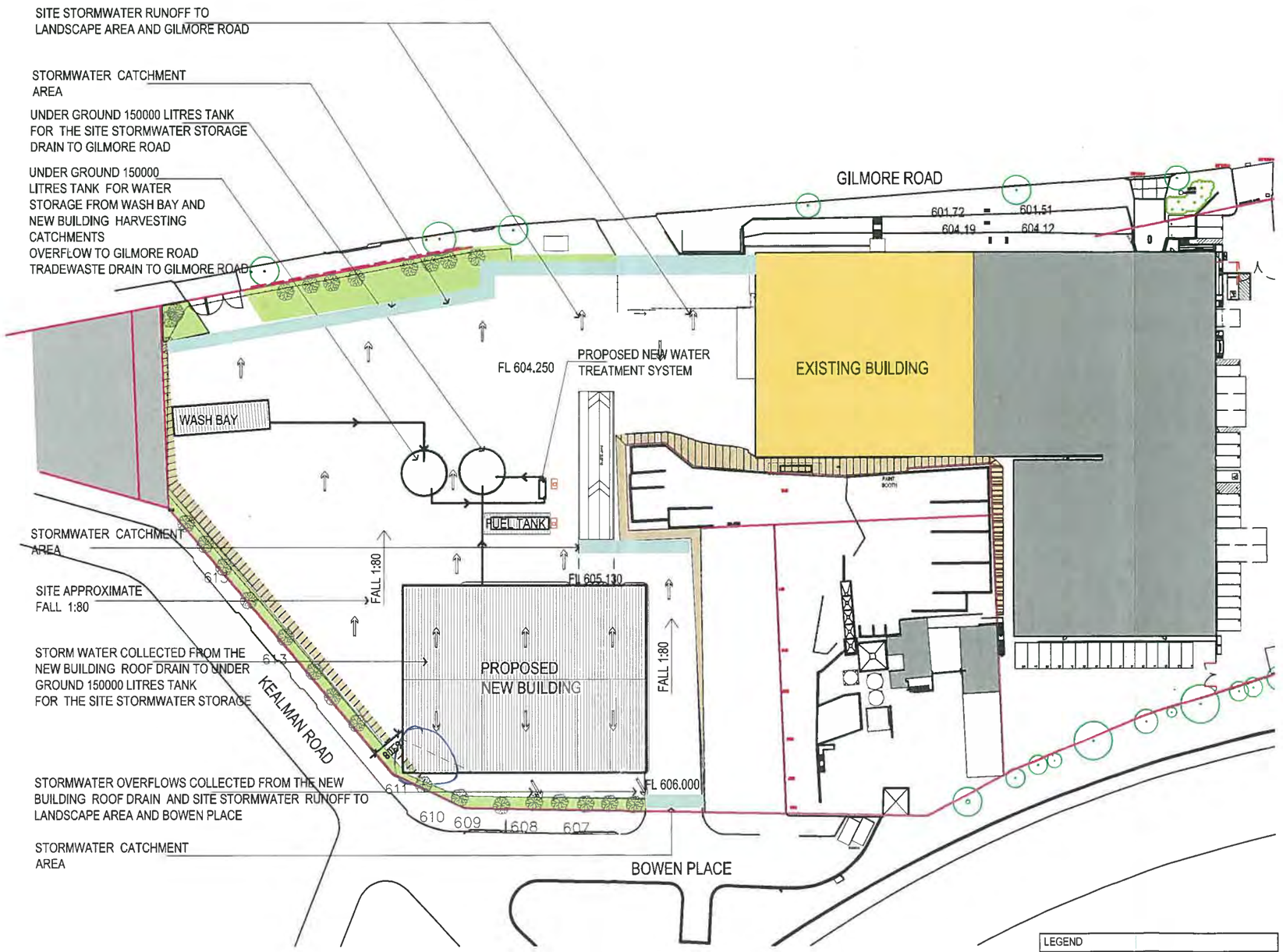

SITE STORMWATER DRANAGE PLAN

SCALE NTS

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CONSULTANT

PROJECT
SITA ENVIRONMENTAL
184 GILMORE ROAD
QUEANBEYAN

CLIENT
SITA ENVIRONMENTAL

TITLE
RESOURCE RECOVERY FACILITY
STORMWATER DRAINAGE CONCEP PLAN

DRAWING NO. 1404/DA/003
REV 0
DATE APRIL 2014
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VERIFIED CL 05-01-15

ISO 9001 BUREAU VERITAS Certification

WILKINSON MURRAY

8 February 2016

WM Project Number: 13246-R
Our Ref: 13246-R Ltr 080216 NH

Andrew Wild
Wild Environment
PO Box 66
ANNANDALE NSW 2038

Dear Andrew

Re: DA 338-2015 - Additional Information Request (Noise)

Thank you for providing us with NSW EPA's request for additional information regarding the Noise Impact Assessment (NIA) for this Development Application.

EPA notes that a school is located at 67 Lorn Road, and requires assessment in accordance with the *NSW Industrial Noise Policy* (INP). This letter presents an assessment of operational noise levels at the school due to the proposed development. The modelling assumptions and assessment methodology are consistent with those presented in the most recent version of the NIA (Report No. 13246 Version B, dated November 2015) unless noted otherwise.

The school is located at 67 Lorn Road, Queanbeyan, and is shown as S1 in Figure 1. The INP recommends an acceptable internal L_{Aeq} noise level of 35 dBA for school classrooms, during the busiest one hour period when the room is in use. The noise model used in the NIA predicts external noise levels, and therefore, for the purposes of assessment, it is useful to convert the acceptable internal noise level to an external noise criteria. The attenuation of noise through a partially open window is approximately 10 dBA. Accordingly, an external L_{Aeq} noise criteria of 45 dBA has been adopted for the school.

The modelling methodology in the NIA was focused on calculating worst case $L_{Aeq, 15min}$ noise levels at nearby residential receivers. $L_{Aeq, 1hour}$ noise levels at sensitive receivers due to the development are expected to be 1-2 dBA lower than $L_{Aeq, 15min}$ noise levels. However, no correction has been applied to account for this.

The predicted worst case external noise level at the school due to the operation of the facility is 42 dBA. Therefore, operational noise levels at the school are predicted to comply with the established criterion.

I trust this information is sufficient. Please contact us if you have any further queries.

Yours faithfully
WILKINSON MURRAY

Nic Hall Manager (Newcastle)

Figure 1 Sensitive Receivers

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4 January 2016

Ms Jacinta Tonner
Town Planning Team Leader
Queanbeyan City Council
GPO Box 90, 257 Crawford Street
Queanbeyan NSW 2620

Dear Ms Tonner

Removal of Retail Component of Waste Acceptance at 184 Gilmore Road / Bowen Place, Queanbeyan West DA 338/2015

Following a recent meeting with Queanbeyan City Council and subsequent review, Suez Environnement (SUEZ) has reviewed the scope of the proposed Resource Recovery Facility at 184 Gilmore Road, including the proposed changes to the part of the property that faces Bowen Place, Queanbeyan West.

This component involved acceptance of general solid waste from public (retail) customers, entering the property with domestic waste, in trailers or similar. The purpose of this letter, on behalf of SUEZ, is to formally withdraw this component of the proposal. This letter also sets out the sections of the Environmental Impact Statement (EIS) submitted to Council in September 2015 which will be withdrawn from consideration.

The following table outlines the sections of the EIS to be withdrawn from consideration.

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PO Box 66,
Annandale NSW 2038

ıin the EIS to be withdrawn

Statement	Clarification
Limited amounts of vehicle movements, including trailers may occur during the week to facilitate the retail component of the proposal. Generally these vehicles would use the facility on weekends and would only consist of dry waste loads.	The residential commercial component has been removed from the proposal. However, regular commercial customers who have a contract with SUEZ for collection of commercial waste, can however make an appointment to drop off waste. As stated, this would be by appointment only to avoid any traffic congestion or queuing on Bowen Place.
Limited amounts of vehicle movements, including trailers may occur during the week to facilitate the retail component of the proposal. Generally these vehicles would use the facility on weekends and would only consist of dry waste loads.	The residential commercial component has been removed from the proposal. However, regular commercial customers who have a contract with SUEZ for collection of commercial waste, can however make an appointment to drop off waste. As stated, this would be by appointment only to avoid any traffic congestion or queuing on Bowen Place.
Limited amounts of vehicle movements, including trailers may occur during the week to facilitate the retail component of the proposal. Generally, these vehicles would use the facility on weekends to avoid peak congestion times.	As noted above, the retail component of the proposal has been withdrawn. Any smaller car/trailer loads entering the facility will be by appointment only, and will consist of SUEZ's existing commercial customers. Residential trailer loads will not be accepted. The vehicles will be by appointment only, which will avoid any traffic congestion or queuing on Bowen Place.
Any smaller vehicles (including those with trailers) entering the site for the retail component of the proposal would be directed to the correct area for disposal through the use of site signage. During the tipping process, they would be under constant supervision, and the use of CCTV would be in place. In addition, a concrete wall is proposed between the retail area and the main recycling operations to maintain the safe use of the site.	Any smaller car/trailer loads entering the property from existing commercial customers would be via appointment only. These vehicles would continue to be directed to the area for disposal through the use of site signage. During the tipping process, they would be under constant supervision, and the use of CCTV would be in place. In addition, the concrete wall would be constructed between the tipping are and the main recycling operations to maintain the safe use of the site.

Statement	Clarification
The waste recovery hall has been designed to enable trucks and cars with trailers...	The design of the recovery hall has not been amended. It has been designed to enable trucks and cars with trailers, which will facilitate access to the site via appropriately licensed waste vehicles and those smaller cars/trailers owned by existing commercial customers that enter the site (via appointment only).
Cars with trailers will be directed to a separate area for loading out. This will ensure retail customers are protected from the larger truck movements and sorting equipment.	As noted above, the retail component of the proposal has been withdrawn. However, the separate area for loading out for cars with trailers/smaller vehicles is to remain as part of the layout of the building. This area would be used by existing commercial customers who, by appointment only, have additional waste that is to be disposed/transferred.
Limited amounts of small vehicle movements, including trailers may occur during the week to facilitate the retail component of the proposal. Generally, these vehicles would use the facility on weekends to avoid peak congestion times.	As noted above, the retail component of the proposal has been withdrawn. However, from time-to-time, existing commercial customers may have small amounts of additional waste to be disposed/transferred. These vehicles movements would be via appointment only, and would avoid peak congestion times. Queuing on Bowen Place would not be permitted.
Limited amounts of small vehicle movements, including trailers may occur during the week to facilitate the retail component of the proposal. Generally, these vehicles would use the facility on weekends to avoid peak congestion times	As noted above, the retail component of the proposal has been withdrawn. However, from time-to-time, existing commercial customers may have small amounts of additional waste to be disposed/transferred. These vehicles movements would be via appointment only, and would avoid peak congestion times. Queuing on Bowen Place would not be permitted.
Waste would be transported to and from the facility via front-lift trucks, packer loads, rear lift trucks and cars with trailers.	As noted above, should and waste loads be received via cars with trailers, they will be by existing commercial customers by appointment only. The retail component has been withdrawn from the proposal.
All trucks and cars would enter the site via Bowen Place and travel to the weighbridge located at the front of the new	As noted above, the retail component sourced from the public has been removed from the proposal. Any cars

Statement	Clarification
building. Tip trucks, cars with trailers and skips delivering waste to the waste hall would travel...	entering the site would be from staff or visitors who have made prior arrangement with SUEZ. Any cars with trailers or additional small vehicles would be existing commercial customers who have additional waste to dispose/transfer. They would enter the site as described in the EIS but would only enter the site in accordance with an appointment time to avoid congestion or queuing on Bowen Place.
Limited amounts of small vehicle movements, including trailers may occur during the week to facilitate the retail component of the proposal. Generally, these vehicles would use the facility on weekends to avoid peak congestion times	As noted above, the retail component of the proposal has been withdrawn. However, from time-to-time, existing commercial customers may have small amounts of additional waste to be disposed/transferred. These vehicles movements would be via appointment only, and would avoid peak congestion times. Queuing on Bowen Place would not be permitted.
Limited amounts of small vehicle movements, including trailers may occur during the week to facilitate the retail component of the proposal. Generally, these vehicles would use the facility on weekends to avoid peak congestion times. Where too many retail customers are presented to the site at the one time, they would be turned away to prevent off site queuing.	As noted above, the retail component of the proposal has been withdrawn. However, from time-to-time, existing commercial customers may have small amounts of additional waste to be disposed/transferred. These vehicles movements would be via appointment only, and would avoid peak congestion times. Queuing on Bowen Place would not be permitted.
Separated tipping area for retail customers. Retail customers are to be directed through the use of site signage and dedicated personnel.	As noted above, the retail component of the proposal has been withdrawn. However, from time-to-time, existing commercial customers may have small amounts of additional waste to be disposed/transferred. They will continue to be directed through the use of site signage and dedicated personnel.
Separated tipping area for retail customers. Retail customers are to be directed through the use of site signage and dedicated personnel.	As noted above, the retail component of the proposal has been withdrawn. However, from time-to-time, existing commercial customers may have small amounts of additional waste to be disposed/transferred. They will continue to be directed through the use of site signage and dedicated personnel.

The table above sets out the withdrawal of the retail component of the proposal, as assessed in the EIS. The references to the retail component are formally withdrawn. As noted in the table, from time-to-time, existing commercial customers may have waste loads additional to their agreed pick-up schedule. These customers may contact SUEZ for an appointment to deliver the additional waste to the proposed facility fronting Bowen Place. Through the use of an appointment system, congestion and queuing on Bowen Place and the surrounding streets will be avoided. As such, impacts to existing traffic users are not anticipated.

The anticipated impacts for the original proposal were outlined in detail within the EIS, as well as the specialist studies provided as appendices to the original EIS. Additional studies were also completed in November/December, 2015 at Council's request for more information. To provide detailed information regarding the original proposal vs the new proposal, with the removal of the retail component, a table has been provided below:

TABLE 2: Original Proposal vs New Proposal with the Removal of the Retail Component

	Original Proposal	New Proposal with Removal of Retail
The number of anticipated vehicle movements per hour	The retail component of the proposal was anticipated to include only a minor amount of vehicle movements proposed in the original documentation, with the focus of the site commercial and industrial customers. It was expected that up to 40 small vehicle (cars/trailer) loads per day for the retail component. This would equate to approximately 3 vehicle movements per hour, between 7am to 6pm. The majority of this was expected to occur on weekends, however this was conservatively assumed that cars would enter the site 7 days per week.	With the retail component removed (i.e. the public being able to drop off unwanted waste), any waste being delivered to site would be via commercial agreement with SUEZ. The truck movements would be the same as those outlined within the original EIS, i.e. 60 movements per day on week days, and 15 movements per day on weekends. With any additional waste entering the site from commercial customers, outside of their normal pick up times, they would be by appointment only. This means that they would have a certain window of time of which they could deliver their waste, otherwise they would be turned away from the site. This is expected to result in very few car/trailer loads visiting the site and is anticipated to be approximately 6 car trips per day, and would be outside peak traffic times. The majority of the waste would enter via the commercial arrangement of dedicated waste vehicle pick up at the commercial premises. It is not expected that these types of loads would enter the site on a daily basis. This would equate to 2 car trips (in and out) per hour, over a three hour window.
Hours of operation of the retail component	The original EIS did not specify the hours of the retail component of the proposal. It was expected that the majority of public drop offs would occur on weekends, with a small amount entering the site during office hours (7am to 6pm).	As noted above, any commercial customers who have additional waste loads outside of their agreed pick-up schedule would arrange an appointment to drop off a car/trailer load of waste to the site. A three hour window of 11am-2pm is proposed for the drop off of these waste loads. By arranging an appointment to drop off the waste, this would avoid queuing or cars/trailer deliveries avoiding peak traffic congestion times. It is not expected that these types of loads would enter the site on a daily basis.
Volume of waste (ingoing and	The total amount of waste (ingoing and outgoing, for beneficial reuse or to	The total waste proposed will remain 95,000 tonnes per annum.

	Original Proposal	New Proposal with Removal of Retail
outgoing)	landfill) as part of the proposal was 95,000 tonnes per annum.	

The impacts outlined within the EIS have also been reviewed in light of the removal of the retail component of the proposal. These are discussed below.

- **Planning Approvals Framework:** The removal of the retail component would not change the planning approvals pathway or the conclusions within the EIS. Therefore, consistent with the EIS.
- **Land Use and Environmental Setting:** The removal of the retail component would not change the existing land use or environmental setting as outlined in the EIS. Therefore, consistent with the EIS.
- **Air Quality (Dust and Odour):** The removal of the retail component would not change the assessed impacts relating to dust and odour. Therefore, consistent with the EIS.
- **Noise and Vibration:** The removal of the retail component would not change the assessed impacts relating to noise and vibration. It may reduce traffic related noise impacts. Therefore, consistent with the EIS.
- **Water Quality:** The removal of the retail component would not change the assessed impacts relating to water quality. Therefore, consistent with the EIS.
- **Waste, Energy and Resources:** The removal of the retail component would not change the assessed impacts relating to waste, energy and resources. The assessed incoming waste types and volumes is not proposed to be reduced. Therefore, consistent with the EIS.
- **Economic and Financial:** The removal of the retail component would not change the assessed impacts relating to the economic and financial viability of the proposal and SUEZ's operations. Therefore, consistent with the EIS.
- **Hazards and Risks:** The removal of the retail component would not change the assessed impacts relating to hazards and risks. Therefore, consistent with the EIS.
- **Traffic, Access and Parking:** The removal of the retail component would not change the assessed impacts relating to traffic, access and parking. It may reduce the anticipated impacts due to the reduction in smaller vehicles visiting the site. The use of appointment times for commercial customers would also reduce the likelihood of queuing of vehicles or congestion on Bowen Place. Therefore, consistent with the EIS.
- **Biodiversity:** The removal of the retail component would not change the assessed impacts relating to biodiversity. Therefore, consistent with the EIS.
- **Heritage:** The removal of the retail component would not change the assessed impacts relating to heritage. Therefore, consistent with the EIS.
- **Visual Amenity, Social and Community:** The removal of the retail component would not change the assessed impacts relating to visual amenity, social and the local community. It may reduce the anticipated impacts due to the reduction in smaller vehicles visiting the site. The use of appointment times for commercial customers would also reduce the visual amenity on the neighbourhood through the removal of the potential for queuing of vehicles or congestion on Bowen Place. Therefore, consistent with the EIS.
- **Greenhouse gas emissions:** The removal of the retail component would not change the assessed impacts relating to greenhouse gas emissions. Therefore, consistent with the EIS.
- **Public Health and Safety:** The removal of the retail component would not change the assessed impacts relating to public health and safety. Therefore, consistent with the EIS.

- **Cumulative Impacts:** The removal of the retail component would not change the assessed impacts relating to cumulative impacts. Therefore, consistent with the EIS.

It is not anticipated that the proposed mitigation measures would be amended with the removal of the retail component. However, as outlined in the table above, the mitigation measure for 'Public Health and Safety': *Separated tipping area for retail customers. Retail customers are to be directed through the use of site signage and dedicated personnel* is withdrawn from the EIS.

It is concluded that the removal of the retail component of the proposal is consistent with the anticipated impacts of the EIS. As such, an additional EIS is not proposed.

In addition to the removal of the retail component of the proposal, SUEZ, at Council's request, have commissioned a sweep path analysis of vehicle movements on Bowen Place, internal roads and within the MRF shed. This analysis will be provided to Council in the near future (please note that preliminary analysis carried out for the EIS indicates that the proposal has adequate turn circles, and is practical and safe for the delivery of waste loads in large vehicles).

If you have any further questions or clarifications, please do not hesitate to contact me via email (andrew@wildenvironment.com.au) or via telephone (0438 246 344).

Yours sincerely

Andrew Wild
Principal / Director
Wild Environment

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5 February 2016

Ms Jacinta Tonner
Town Planning Team Leader
Queanbeyan City Council
GPO Box 90, 257 Crawford Street
Queanbeyan NSW 2620

Dear Ms Tonner

Additional Information Request for proposed Waste or Resource Management Facility at 172-192 Gilmore Road / Bowen Place, Queanbeyan West
DA 338/2015

Following the formal removal of the retail public component of the proposed Waste or Resource Management Facility (letter dated 4 January, 2016), a letter was received by Queanbeyan City Council requesting further information for the development application DA338-2015. The purpose of this letter is to provide the additional information for consideration for the ongoing assessment of our application. The table below sets out the information requested and Suez Environnement's response.

TABLE 1: Additional Information Request and Response

No	Information Request	Response
1	A suitably scaled site plan that clearly indicates the lots and part lots subject to the application, the distinction between the concrete batching plant site and the proposed development site and delineation of proposed excavation works as distinct from previously approved excavation works.	Refer to Attachment 1
2	An annotated diagram for the operation of the Resource Recovery Hall.	Refer to Attachment 2
3	A flow diagram that shows the Waste Recycling process from beginning to end.	Refer to Attachment 3
4	An annotated diagram of the stormwater drainage concept plan and options to dispose of stormwater including connection to Council's stormwater system in the event that the concrete batching plant does not require water or ceases operations.	Refer to Attachment 4
5	Details of wastewater disposal and collection including the wash down area in the Resource Recovery Hall.	A water management system will be incorporated into the site. This includes the collection of water from process areas, and the wash down area. Water will then be appropriately treated, prior to being transferred to the large water storage tanks. Water will then be collected by dedicated water tank trucks and sent to the concrete batch plant next door. Should the concrete batch plant not accept the water, any water will be diverted to the Council's stormwater system, in accordance with a trade waste agreement to be obtained.

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PO Box 66,
Annandale NSW 2038

No	Information Request	Response
		Note that the washbay was approved as part of DA337-2015 in January 2015.
6	How the proposed trade waste discharge will be managed and plans for its treatment and reuse within the facility.	Trade waste is to be managed in accordance with a trade waste agreement to be entered into with Council. This will be completed during the construction certificate stage. A water management system is proposed, and a general outline of that system was provided in the EIS. However, a detailed sketch and process has not yet been determined. Suez is committed to meeting Council trade waste requirements.
7	Discussion of traffic movements and management between the concrete batching plant and proposed development on Bowen Place and the intersection with Kealman Road before and after the development.	Any water tankers to enter the site to collect water for the concrete batch plant will occur at dedicated times only. This will ensure that traffic movements are appropriately coordinated, to minimise safety or traffic impacts. In terms of the interaction between traffic movements from dedicated concrete trucks and waste trucks on Bowen Place, it is expected that minimal disruption will occur. The traffic assessment has indicated that approximately 2 truck movements per hour are expected as part of the operation of the facility. This would be a minimal disruption or increase in the traffic using the intersection with Kealman Road.
8	The vehicle sweep path analysis within and outside the subject site including Bowen Place and the intersection with Kealman Road.	Refer to Attachment 5
9	Details of how the existing building interrelates to the proposed development.	Approval was received for the use of the existing building that fronts Gilmore Road for the collection, sorting and baling of paper and cardboard, use of a paint bay and the maintenance of trucks and bins. Staff also occupy the building for administration and the management of the operation of the site. The proposed development, relating to the sections of the site that front Bowen Place would be for the increase in waste collection and sorting. Both parts of the site would be managed and operated from the staff within the existing building.
10	Details, if any, of changes within the existing building as approved.	An application to modify a consent (as per s96 of the *EP&A Act)* is currently with Queanbeyan City Council to consider some changes to the existing building. This includes the movement of some of the internal walls. Changes to the external appearance of the building is not anticipated. This application does not form part of the DA338/2015.

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If you have any further questions or clarifications, please do not hesitate to contact me via email (andrew@wildenvironment.com.au) or via telephone (0438 246 344).

Yours sincerely

Andrew Wild
Principal / Director
Wild Environment

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PO Box 66,
Annandale NSW 2038

Attachment 1: Site Plan showing Lot Details

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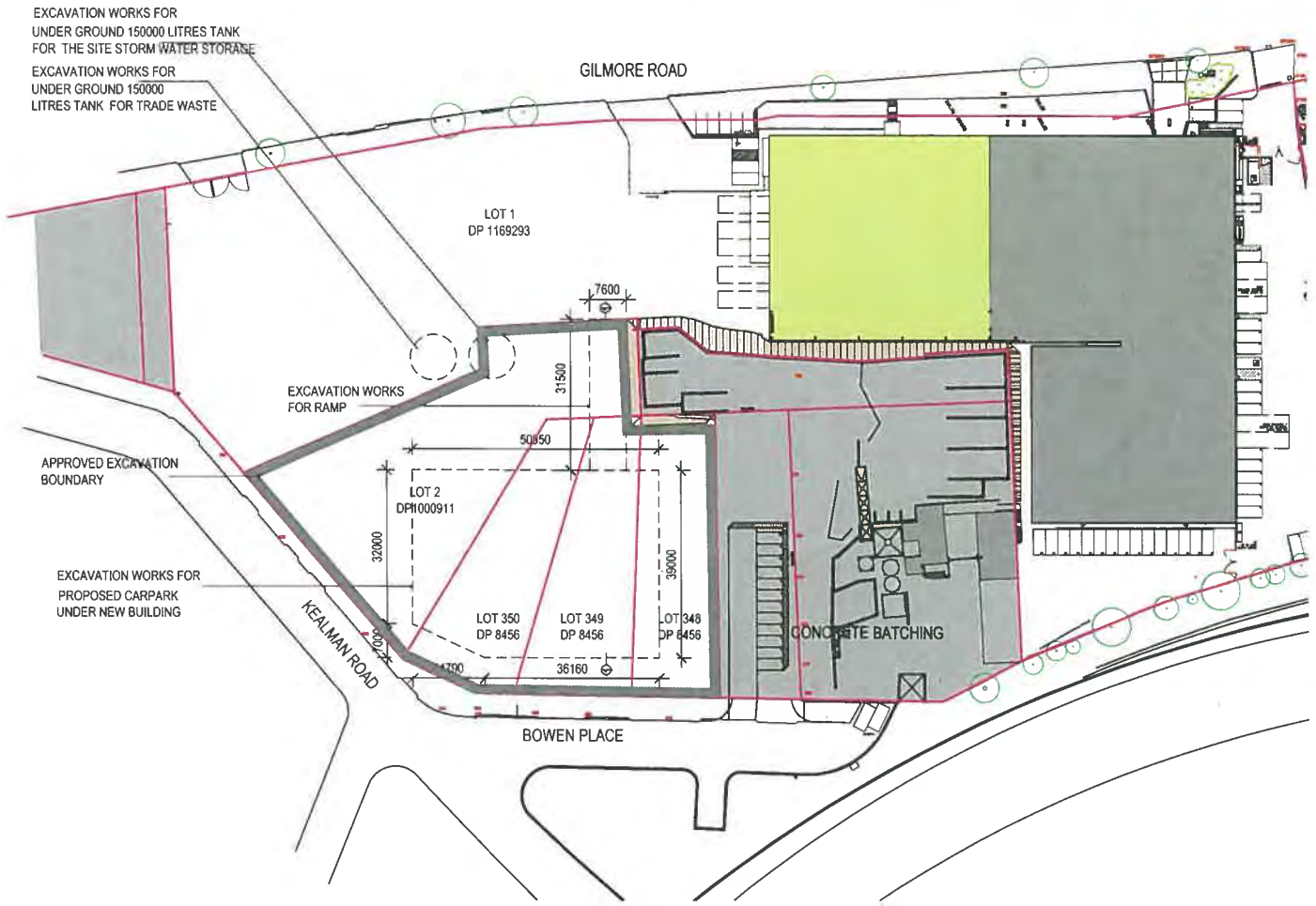
PO Box 66,
Annandale NSW 2038



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QUEANBEYAN

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TITLE
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SITE PLAN- EXCAVATION

NO AMENDMENT SHALL BE MADE TO THIS DOCUMENT EXCEPT BY AC&A ARCHITECTS PTY LTD NO RESPONSIBILITY WILL BE FULLY FOR DOCUMENTS AMENDED WITHOUT THE AUTHORITY OF AC&A ARCHITECTS PTY LTD VERIFY ALL DIMENSIONS ON SITE BEFORE COMMENCING CONSTRUCTION

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Attachment 2: Annotated Diagram for the Operation of the Resource Recovery Hall

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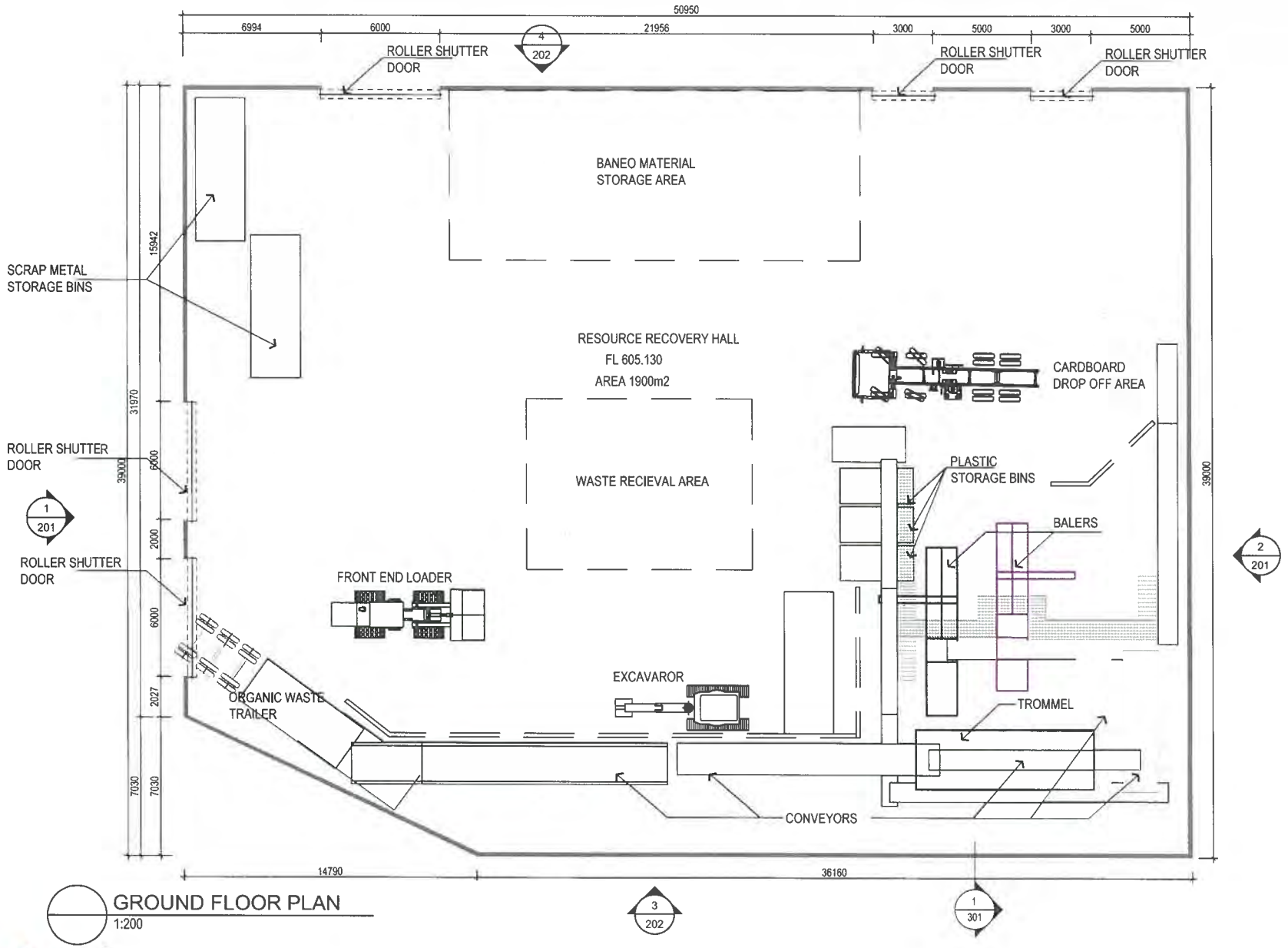
Annandale NSW 2038



GROUND FLOOR PLAN
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Attachment 3: Flow Diagram of the Waste Process

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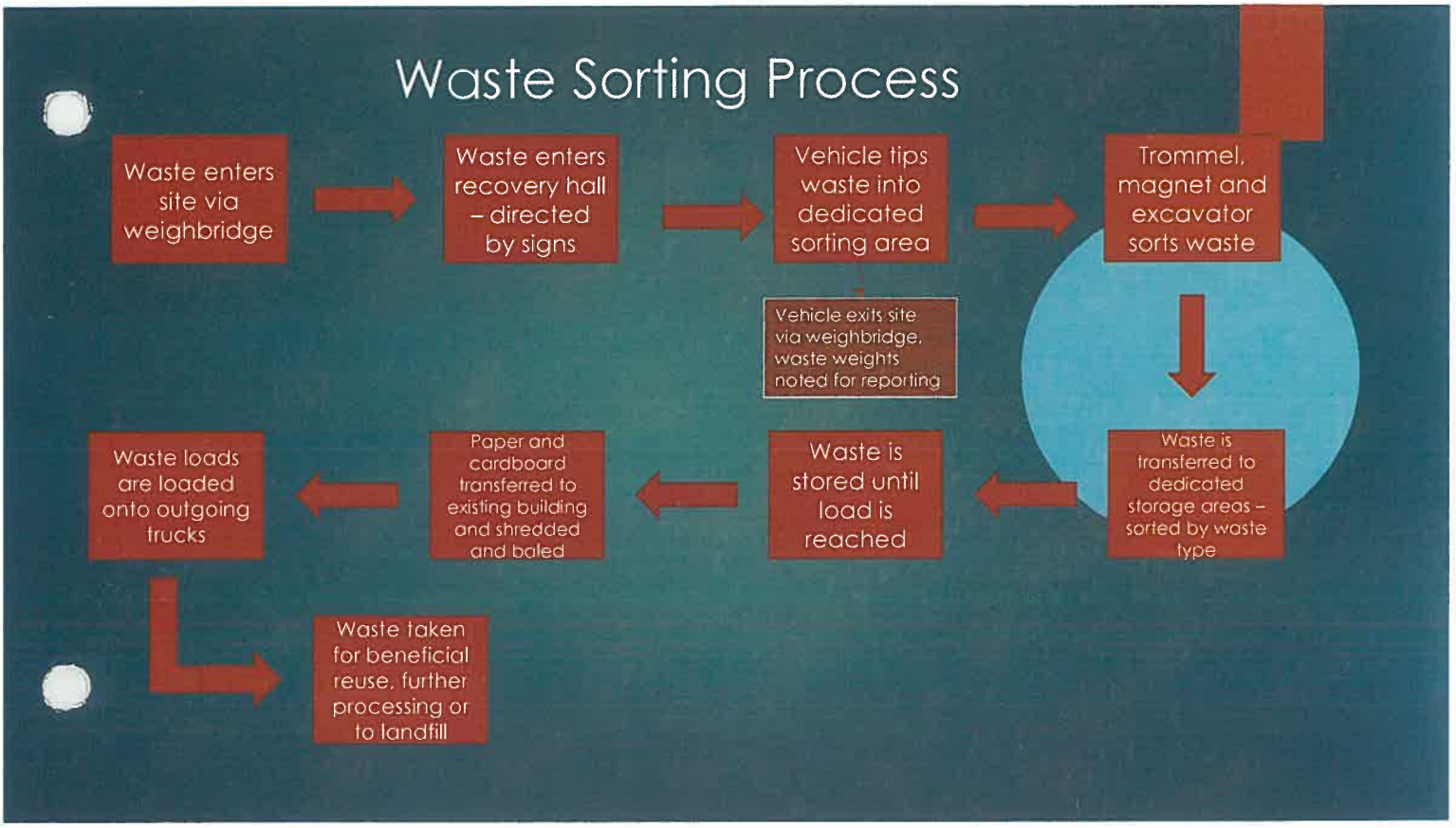
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Waste taken for beneficial reuse, further processing or to landfill

Attachment 4: Annotated Diagram of Stormwater Drainage Concept Plan

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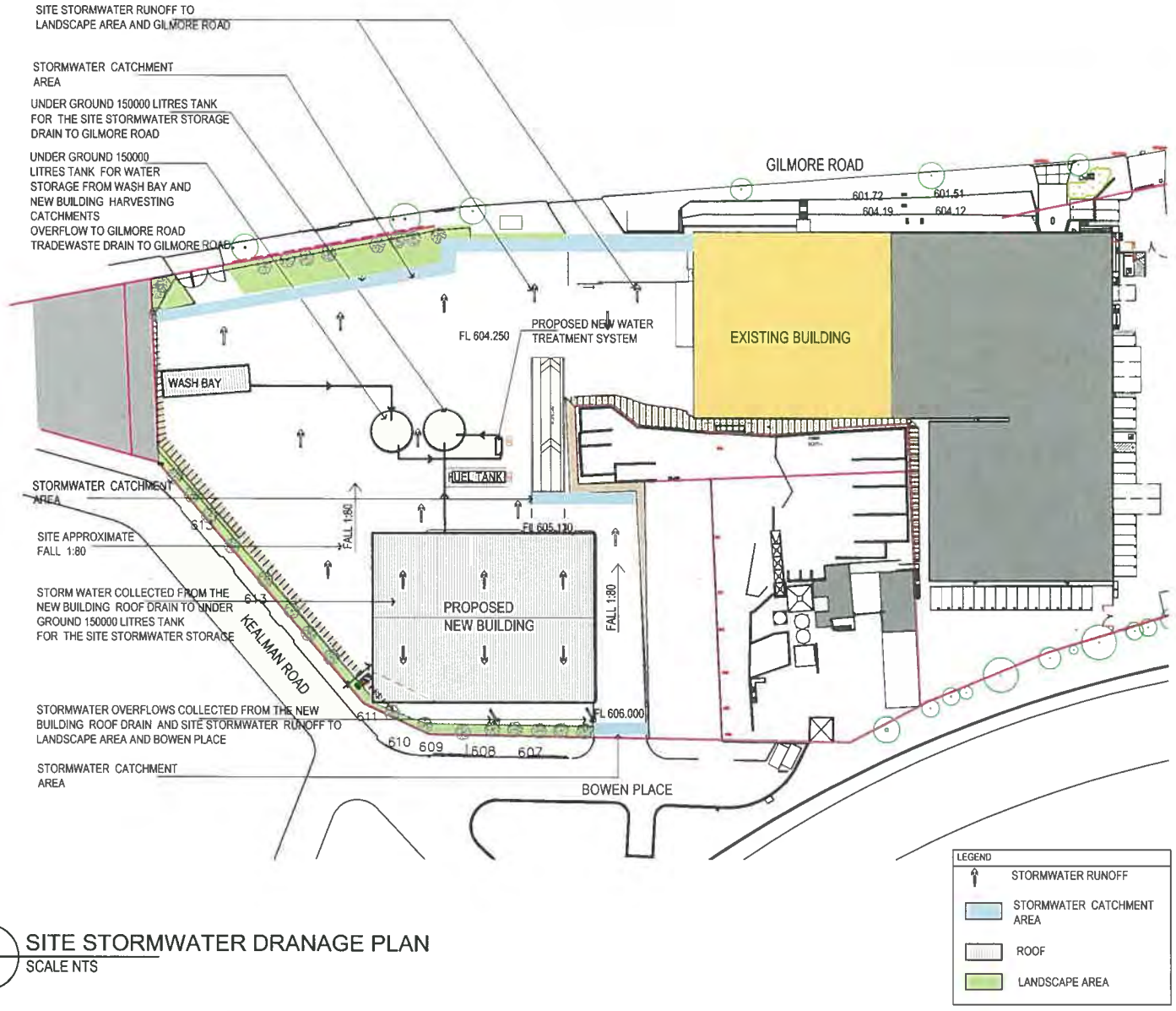

SITE STORMWATER DRANAGE PLAN

SCALE NTS

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REV - DD/MM/YY —

CONSULTANT

PROJECT
SITA ENVIRONMENTAL
184 GILMORE ROAD
QUEANBEYAN

CLIENT
SITA ENVIRONMENTAL

TITLE
RESOURCE RECOVERY FACILITY
STORMWATER DRAINAGE CONCEP PLAN

DRAWING NO 1404/DA/003
REV. 0
DATE APRIL 2014
SCALE AS SHOWN @ A3
CHECKED EB 05-01-15
VERIFIED CL 05-01-15

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Attachment 5: Vehicle Sweep Path Analysis

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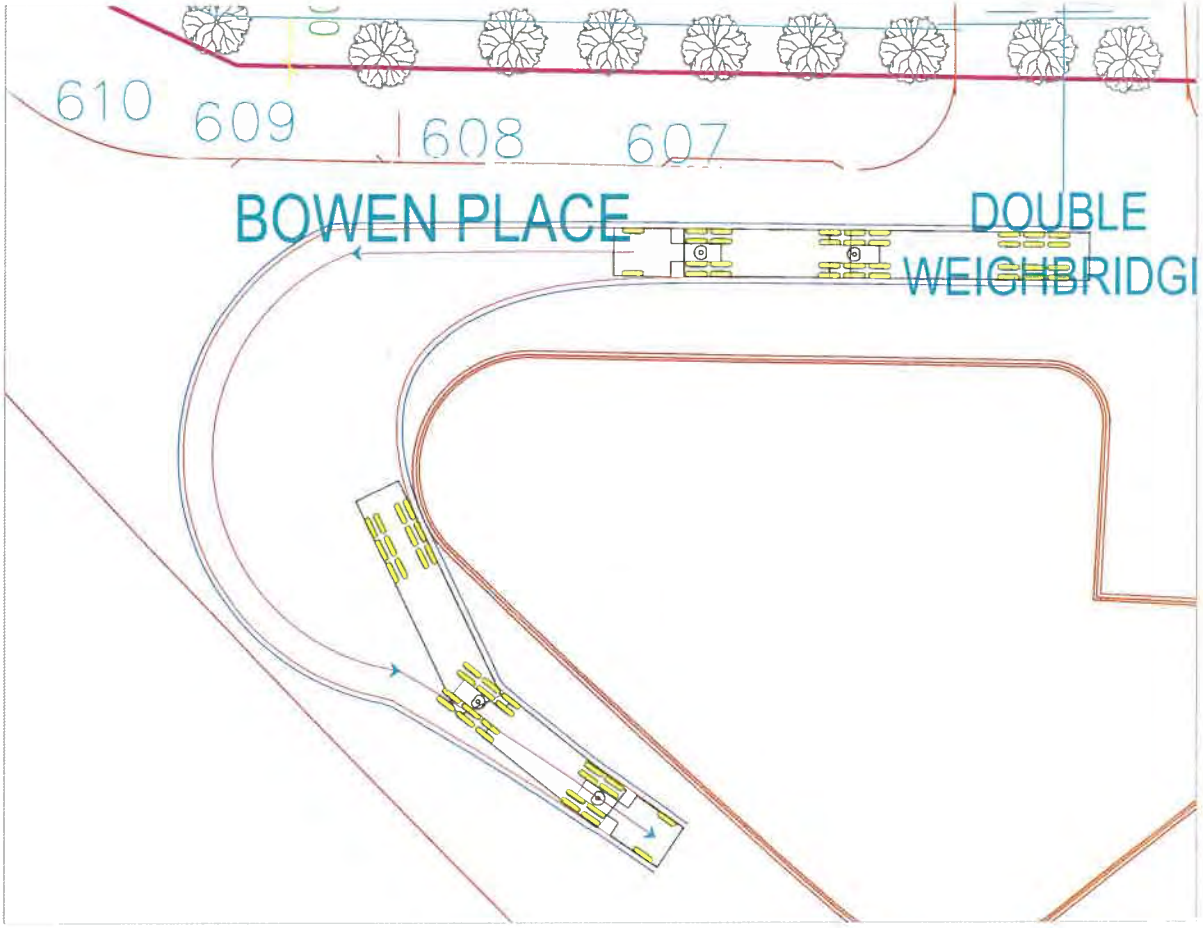
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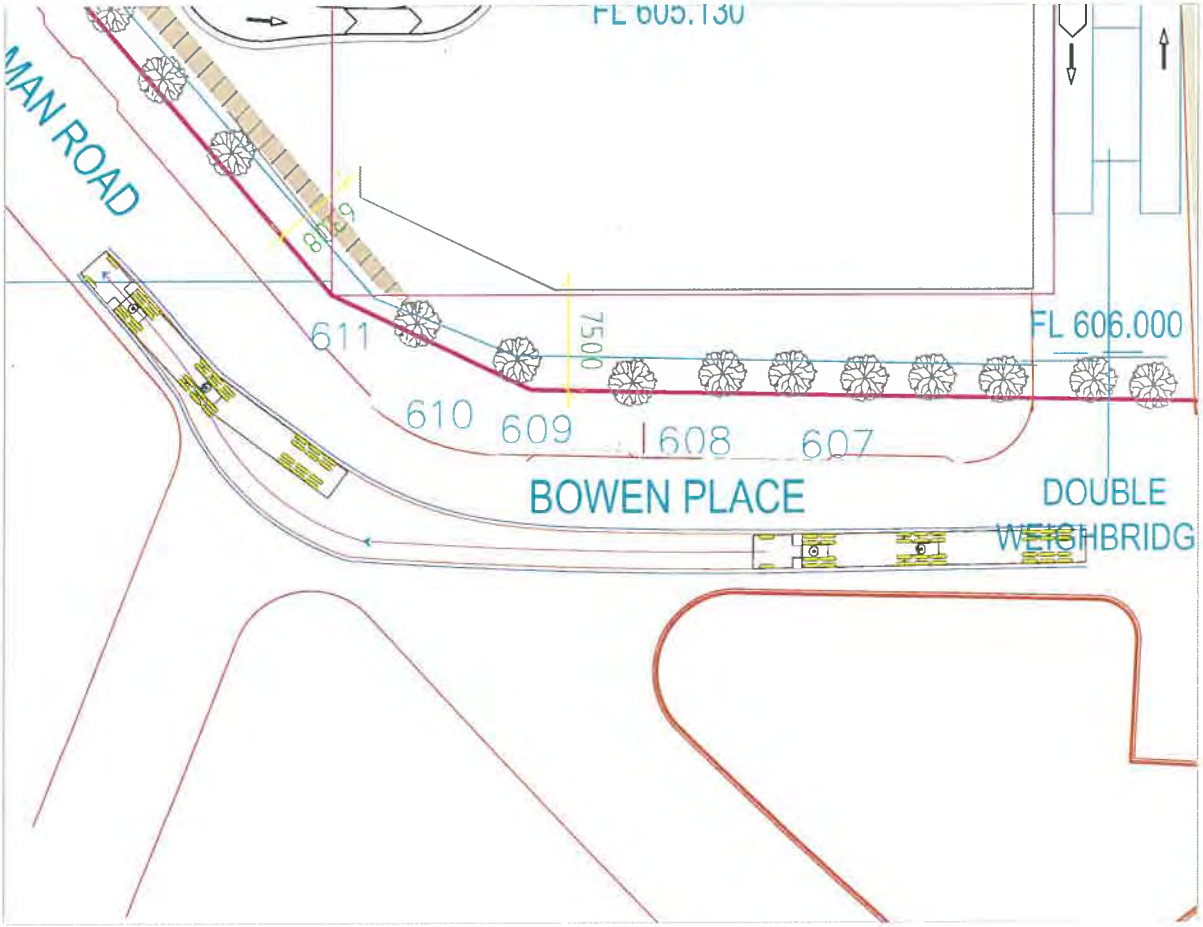
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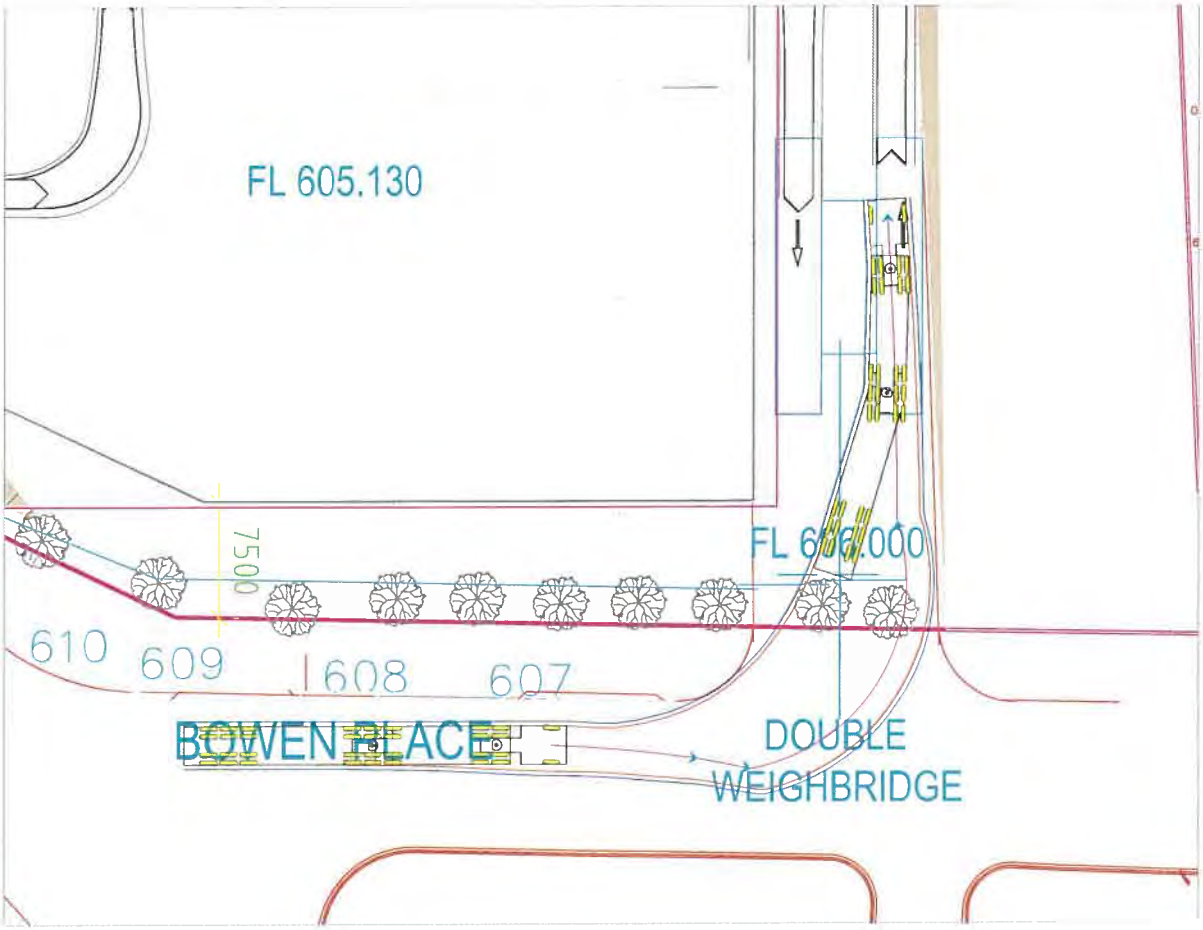
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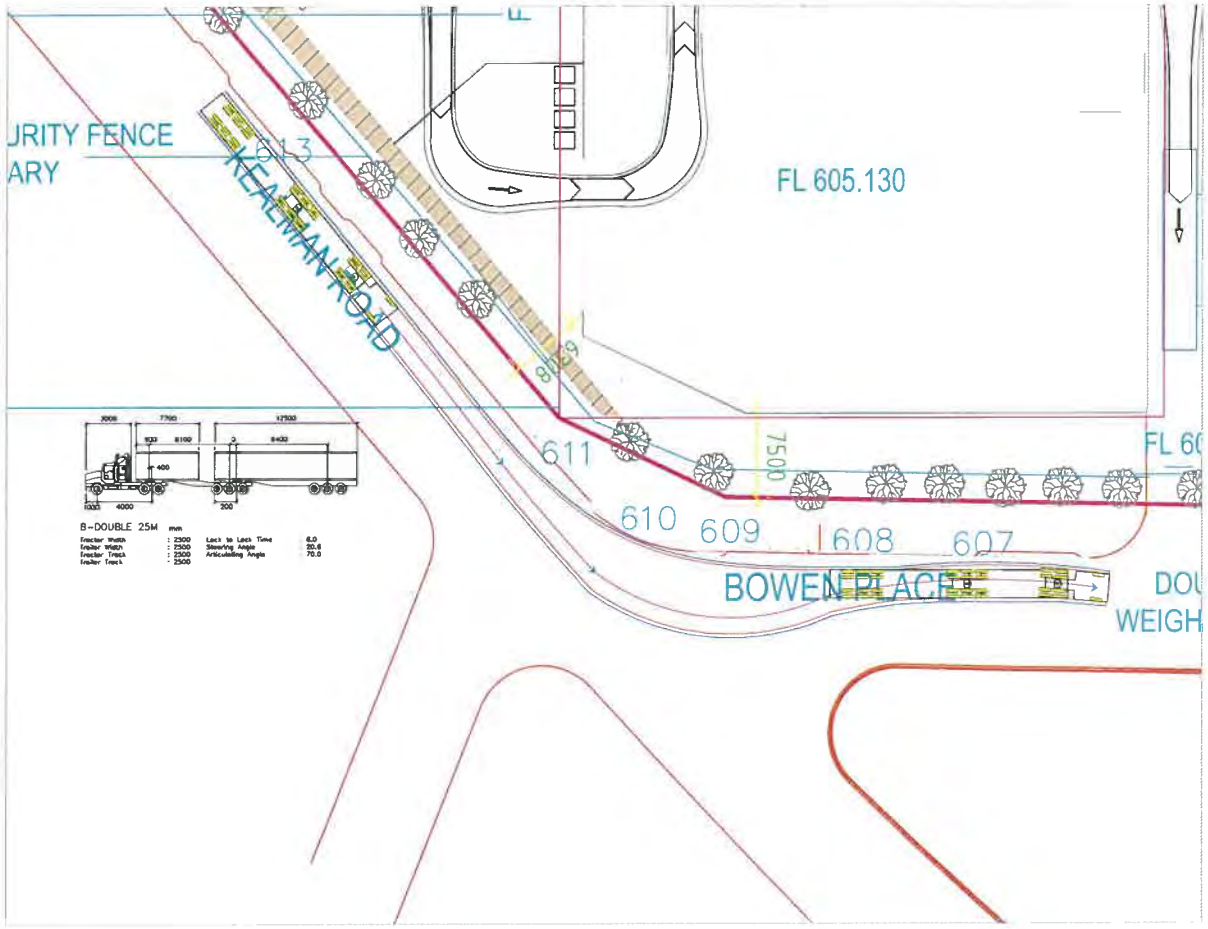
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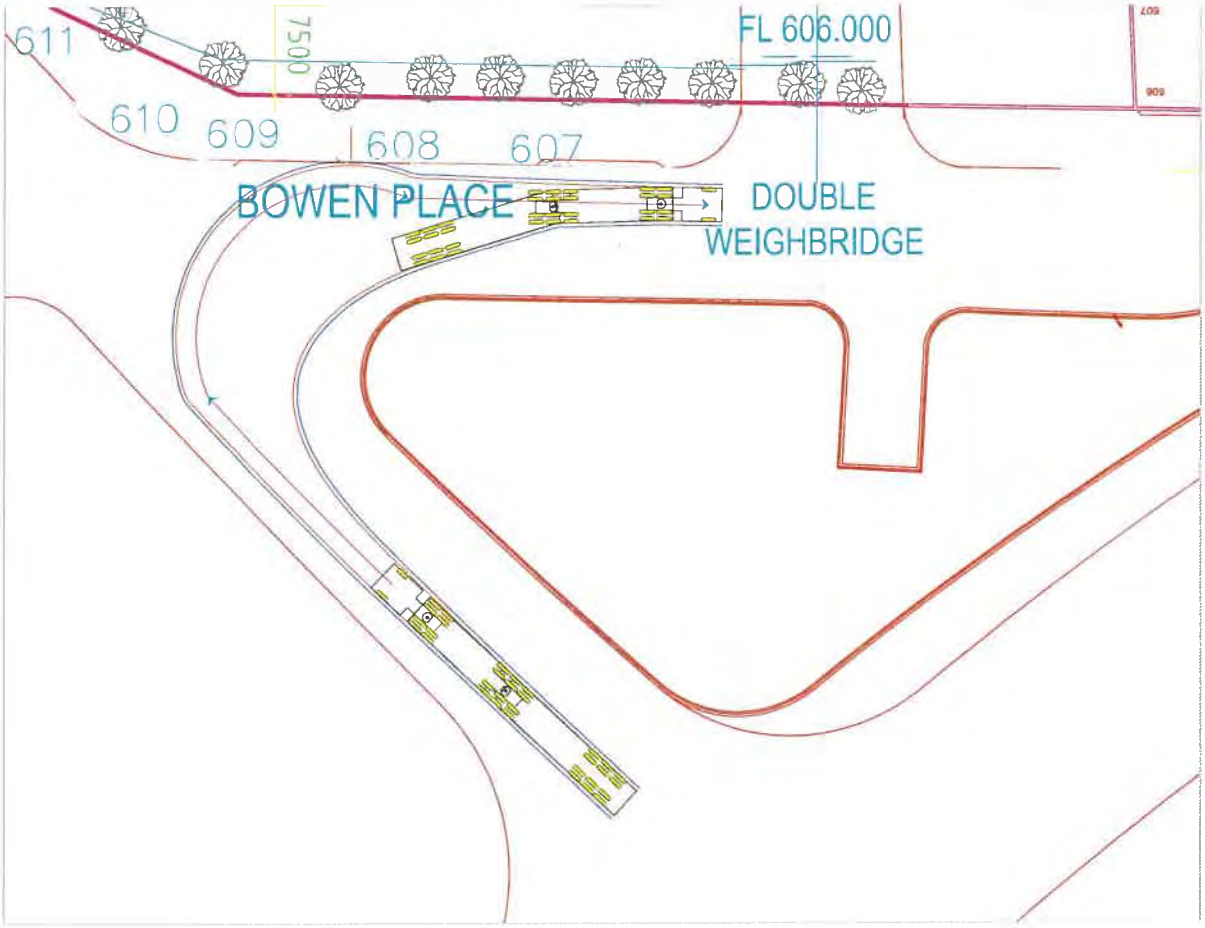
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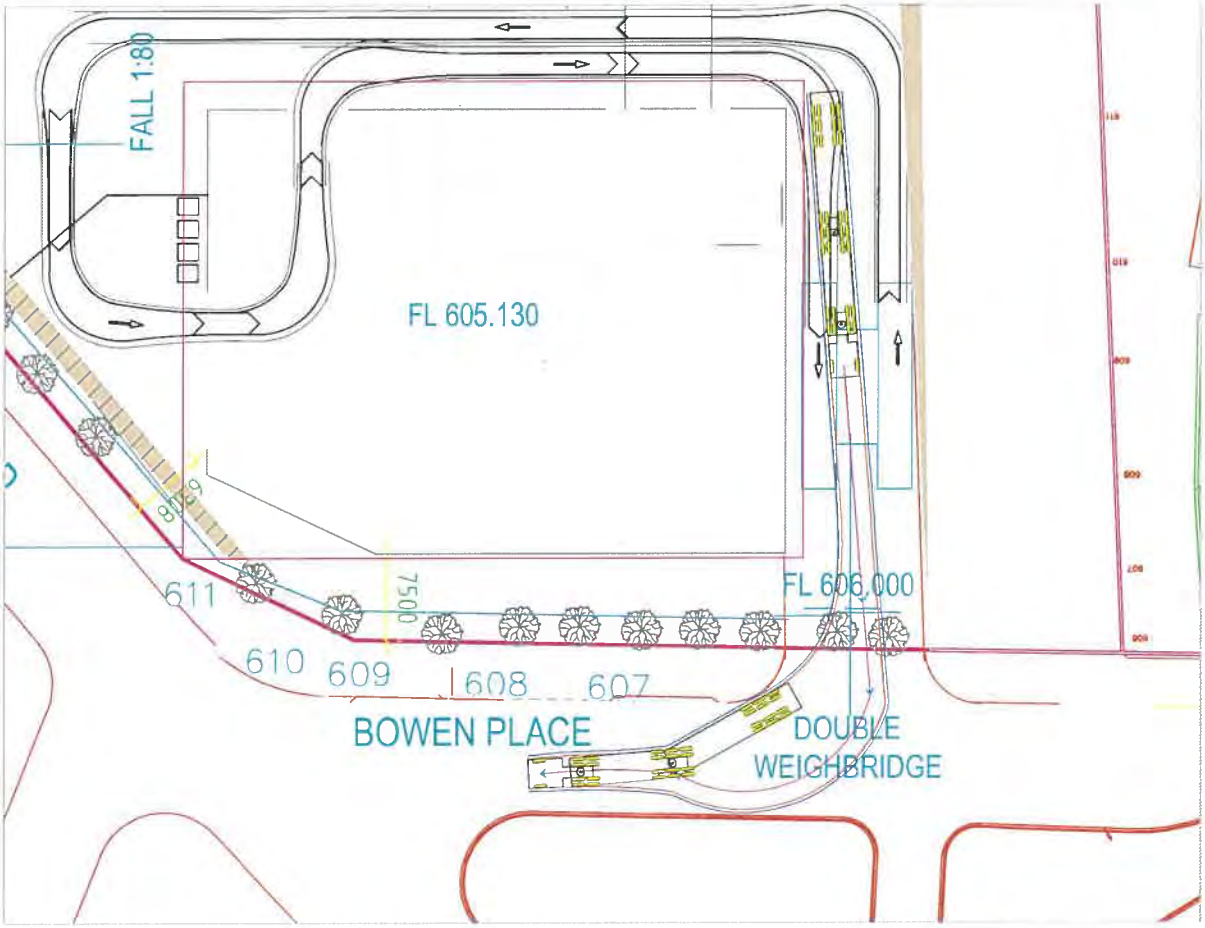
WEIGHBRIDGE


FALL 1:80
FL 605.130
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BOWEN PLACE
DOUBLE
WEIGHBRIDGE

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environmental planning and management solutions

2 March 2016

Ms Jacinta Tonner
Town Planning Team Leader
Queanbeyan City Council
GPO Box 90, 257 Crawford Street
Queanbeyan NSW 2620

Dear Ms Tonner

Additional Information Request for proposed Waste or Resource Management Facility at 172-192 Gilmore Road / Bowen Place, Queanbeyan West
DA 338/2015

Following the formal removal of the retail public component of the proposed Waste or Resource Management Facility and the request for additional information (letter dated 4 January, 2016), an additional information request letter was received from Queanbeyan City Council (letter dated 4 February, 2016) requesting further information for the development application DA338-2015. The purpose of this letter is to provide the additional information for consideration for the ongoing assessment of our application. The table below sets out the information requested and Suez' response.

Site plans have been further developed for the site (refer attached), which provide more information for Council with respect to items 1-5.

TABLE 1: Additional Information Request and Response

No	Information Request	Response
1	Exits provided from the basement carpark area within the resource recovery hall must comply with the requirements of *National Construction Code (NCC) Volume 1, Part D1 – Provision for escape*. The roller doors servicing the resource recovery hall are not suitable exits as per the requirements of the NCC.	Noted: the concept design presented in the DA allows for escape exits. During the detailed design and construction certificate stage, exits will be provided within the resource recovery hall that comply with the requirements of the NCC.
2	An accessible carpark space is to be provided in the proposed basement carpark area.	Noted; the concept design presented in the DA allows for accessible carpark spaces. During the detailed design and construction certificate stage, it will be noted that an accessible carpark space will be provided within the basement carpark.
3	A lift or ramp capable of providing access for people with disabilities is to be provided from the accessible carpark space in the basement to the resource recovery hall.	Noted (refer attached Plan-Basement). During the detailed design and construction certificate stage, a lift/ramp providing access for people with disabilities will be provided from the accessible carpark space to the resource recovery hall.
4	Access for people with disabilities is to be provided from the property boundary to the principle entrance to the resource recovery hall.	Noted. During the detailed design and construction certificate stage, access for people with disabilities will be provided from the property boundary to the principle entrance to the resource recovery hall.
5	An accessible unisex sanitary facility and 1 male and 1 female sanitary facilities are to be provided in the resource recovery hall.	Noted (refer attached Plan – Ground Floor). During the detailed design and construction certificate stage, an accessible unisex sanitary facility and 1 male and 1 female sanitary facility

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PO Box 66,
Annandale NSW 2038

No	Information Request	Response
		will be provided in the resource recovery hall.
6	Revise the Noise Impact Assessment (NIA) to clarify the exact number and location of 'sensitive receiver locations' and demonstrate the proposal will not result in noise impacts at these located.	Please refer to the revised NIA (revision B), previously sent to QCC.
7	The revised NIA must account for a school at 67 Lorn Road and demonstrate the classrooms can meet the recommended acceptable level of 35dB(A) with a maximum limit of 40dB(A) during the noisiest 1 hour period when the room is in use.	Please refer to the attached letter from Wilkisnon Murray (13246).
8	Provide evidence of the existing traffic movements for Stage 1 to justify the assumptions and prediction of the impact Stage 2 will have on the road network. A SIDRA analysis may still be required.	Council have provided the details of the RMS Regional Land Use Planning Unit in Wollongong. Our Traffic and access specialists, Auswide Consulting, are in the process of consulting RMS. As requested by Council, all email and other correspondence will be copied to Council.

If you have any further questions or clarifications, please do not hesitate to contact me via email (andrew.wild@wildenvironment.com.au) or via telephone (0438 246 344).

Yours sincerely

Andrew Wild
Principal / Director
Wild Environment

WILKINSON MURRAY

8 February 2016

WM Project Number: 13246-R
Our Ref: 13246-R Ltr 080216 NH

Andrew Wild
Wild Environment
PO Box 66
ANNANDALE NSW 2038

Dear Andrew

Re: DA 338-2015 - Additional Information Request (Noise)

Thank you for providing us with NSW EPA's request for additional information regarding the Noise Impact Assessment (NIA) for this Development Application.

EPA notes that a school is located at 67 Lorn Road, and requires assessment in accordance with the *NSW Industrial Noise Policy* (INP). This letter presents an assessment of operational noise levels at the school due to the proposed development. The modelling assumptions and assessment methodology are consistent with those presented in the most recent version of the NIA (Report No. 13246 Version B, dated November 2015) unless noted otherwise.

The school is located at 67 Lorn Road, Queanbeyan, and is shown as S1 in Figure 1. The INP recommends an acceptable internal L_{Aeq} noise level of 35 dBA for school classrooms, during the busiest one hour period when the room is in use. The noise model used in the NIA predicts external noise levels, and therefore, for the purposes of assessment, it is useful to convert the acceptable internal noise level to an external noise criteria. The attenuation of noise through a partially open window is approximately 10 dBA. Accordingly, an external L_{Aeq} noise criteria of 45 dBA has been adopted for the school.

The modelling methodology in the NIA was focused on calculating worst case $L_{Aeq,\ 15min}$ noise levels at nearby residential receivers. $L_{Aeq,\ 1hour}$ noise levels at sensitive receivers due to the development are expected to be 1-2 dBA lower than $L_{Aeq,\ 15min}$ noise levels. However, no correction has been applied to account for this.

The predicted worst case external noise level at the school due to the operation of the facility is 42 dBA. Therefore, operational noise levels at the school are predicted to comply with the established criterion.

I trust this information is sufficient. Please contact us if you have any further queries.

Yours faithfully
WILKINSON MURRAY

Nic Hall Manager (Newcastle)

Figure 1 Sensitive Receivers

LOCATION PLAN
SCALE NTS

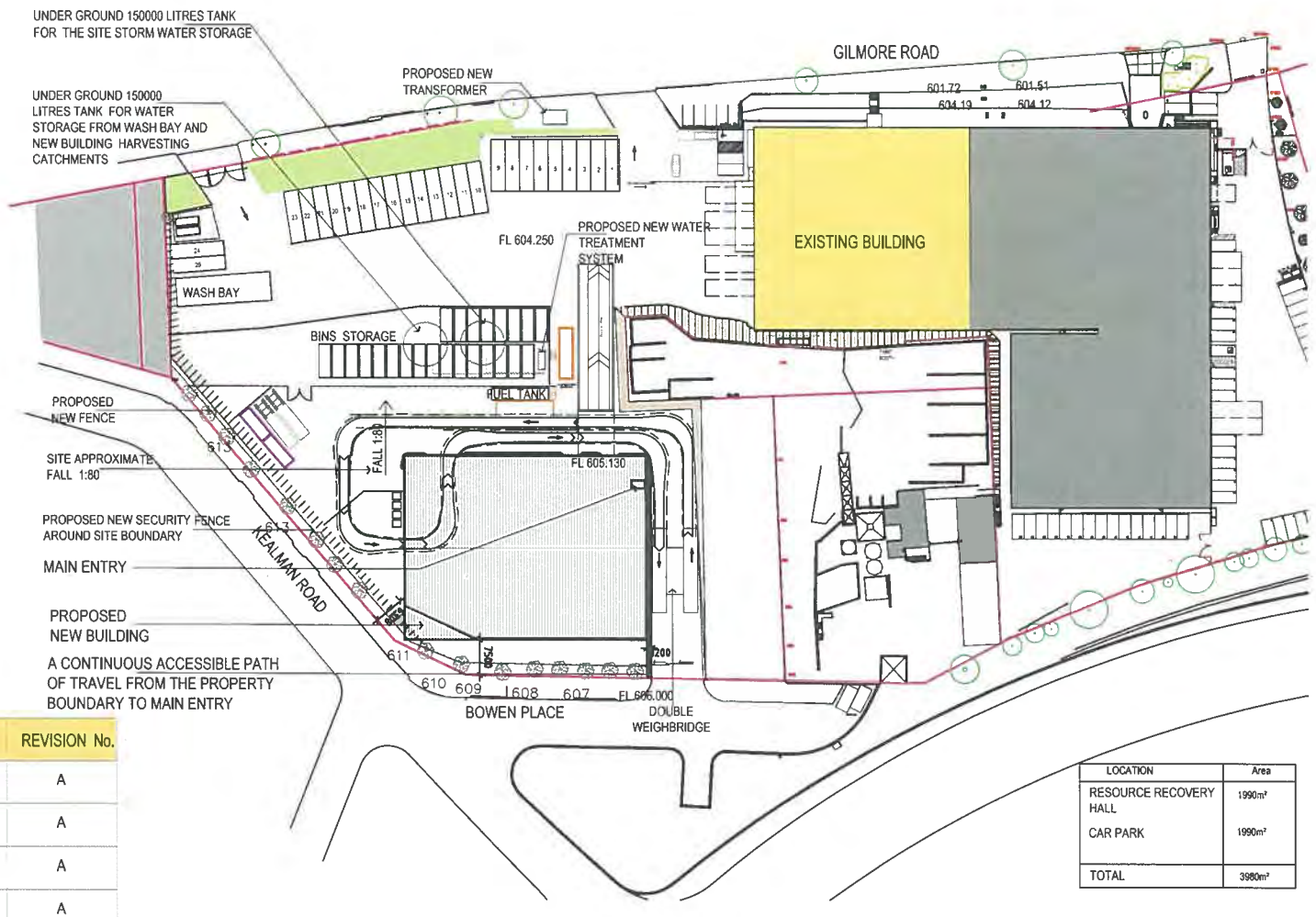
GENERAL NOTES:

1. All site water run off / leachate that has come into contact with maintenance, waste storage areas,washdown or refuelling areas would be captured and treated prior to discharge- for details wild environment (SEE)

2.Fire detection and prevention system would be installed to meet the Building Code of Australia (BCA)and SITA policy requirements. This would include hydrants, hose reels, fire extinguishers, sprays and detectors. The site would be staffed at all times during operation and all staff would be trained in fire detection and fire-fighting.

DRAWINGS LIST

DRAWING No.	DRAWING DESCRIPTION	DRAWING SCALE	REVISION No.
1404/DA/001	LOCATION AND SITE PLAN	NTS	A
1404/DA/101	GROUND and FIRST FLOOR DEMOLITION PLAN	1:200	A
1404/DA/102	BASEMENT PLAN	1:200	A
1404/DA/201	ELEVATIONS	1:200	A
1404/DA/202	ELEVATIONS	1:200	A
1404/DA/301	SECTION	1:200	A



LOCATION	Area
RESOURCE RECOVERY HALL	1990m²
CAR PARK	1990m²
TOTAL	3980m²

SITE PLAN
SCALE NTS

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REV _ A- 08/09/2015 — ISSUED FOR DA
REV _ B- 15/02/2016 — A CONTINUOUS ACCESSIBLE PATH OF TRAVEL FROM THE PROPERTY BOUNDARY TO MAIN ENTRY ADDED, NOTES ADDED

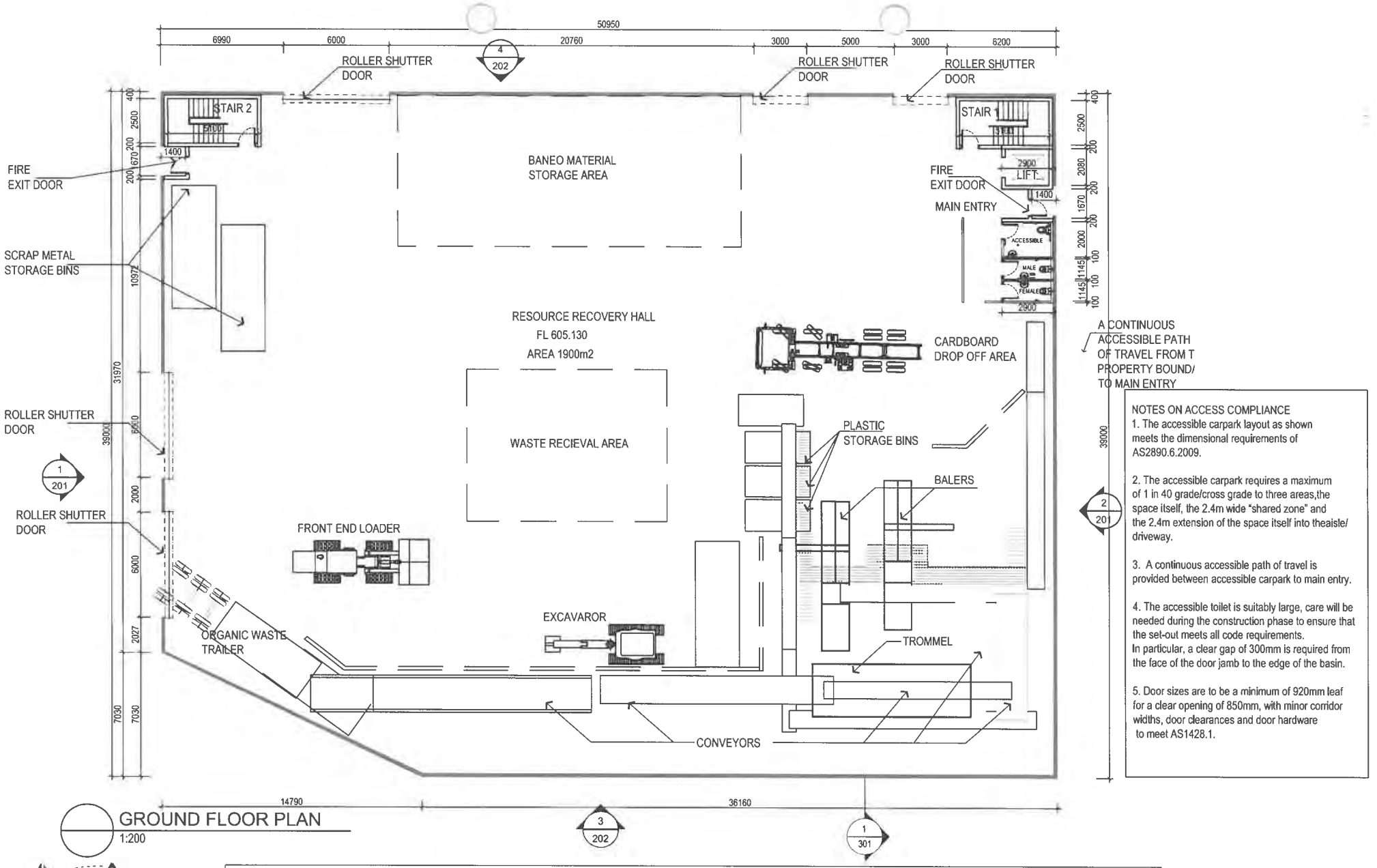
CONSULTANT

PROJECT
SITA ENVIRONMENTAL
184 GILMORE ROAD
QUEANBEYAN

CLIENT
SITA ENVIRONMENTAL

TITLE
RESOURCE RECOVERY FACILITY
LOCATION PLAN AND SITE PLAN

DRAWING NO 1404/DA/001
REV B
DATE APRIL 2014
SCALE AS SHOWN @ A3
CHECKED EB 16-02-16
VERIFIED CL 16-02-16



GROUND FLOOR PLAN
1:200

NOTES ON ACCESS COMPLIANCE

1. The accessible carpark layout as shown meets the dimensional requirements of AS2890.6.2009.

2. The accessible carpark requires a maximum of 1 in 40 grade/cross grade to three areas,the space itself, the 2.4m wide "shared zone" and the 2.4m extension of the space itself into theaisle/ driveway.

3. A continuous accessible path of travel is provided between accessible carpark to main entry.

4. The accessible toilet is suitably large, care will be needed during the construction phase to ensure that the set-out meets all code requirements.
In particular, a clear gap of 300mm is required from the face of the door jamb to the edge of the basin.

5. Door sizes are to be a minimum of 920mm leaf for a clear opening of 850mm, with minor corridor widths, door clearances and door hardware to meet AS1428.1.

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REV _ A- 08/09/2015 — ISSUED FOR DA
REV _ B- 05/02/2016 — PLAN AMENDED, NOTES ADDED
REV _ C 16/02/2016 — FIRE ESCAPE STAIRS, ACCESSIBLE TOILET AND LIFT, AMBULANT FEMALE AND MALE ADDED. A CONTINUOUS ACCESSIBLE PATH OF TRAVEL FROM THE PROPERTY BOUNDARY TO MAIN ENTRY ADDED, NOTES ADDED

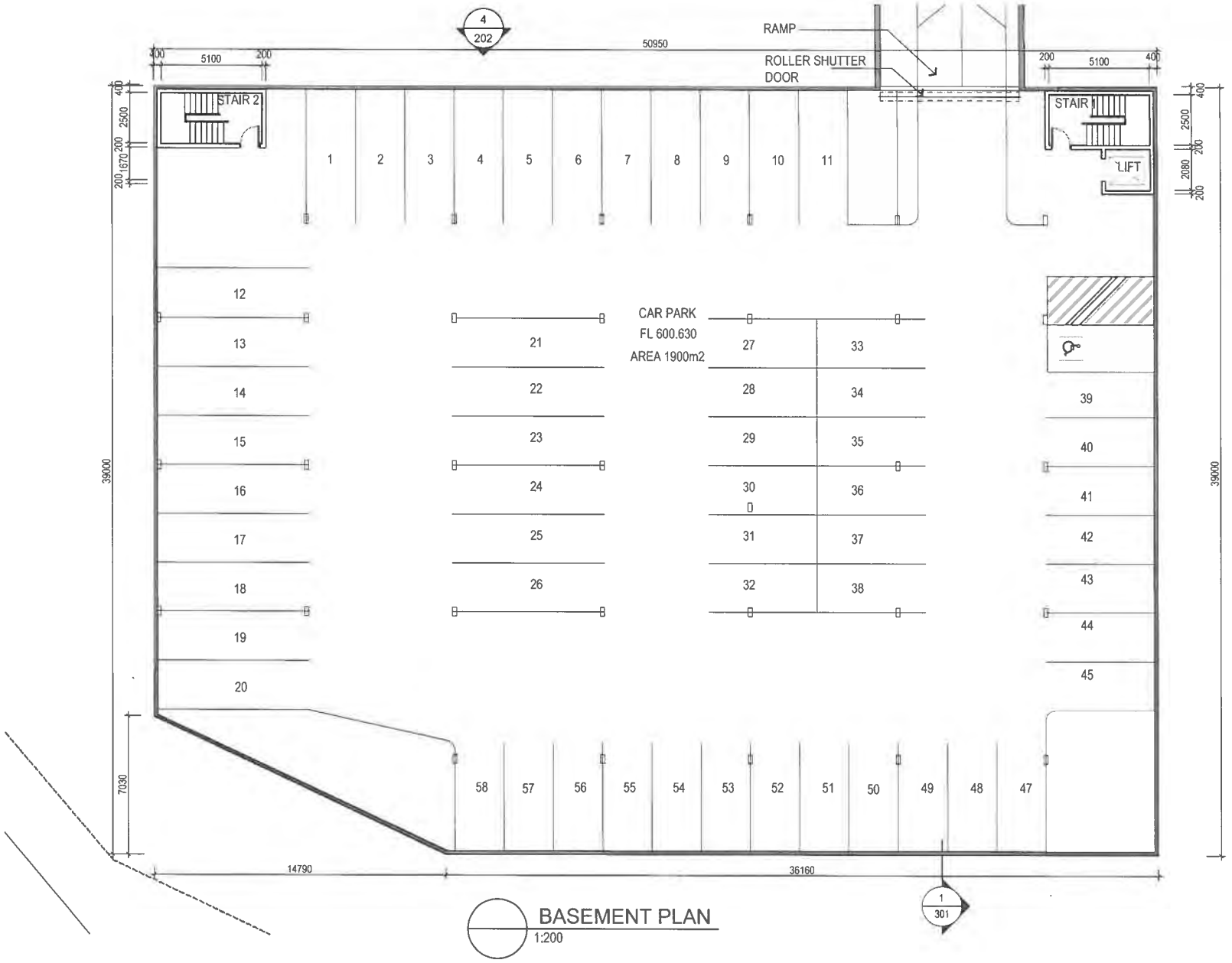
CONSULTANT

PROJECT
SITA ENVIRONMENTAL
184 GILMORE ROAD
QUEANBEYAN
C

CLIENT
SITA ENVIRONMENTAL

TITLE
RESOURCE RECOVERY FACILITY
GROUND FLOOR PLAN

DRAWING NO. 1404/DA/101
REV C
DATE APRIL 2014
SCALE AS SHOWN @ A3
CHECKED EB 16-02-16
VERIFIED CL 16-02-16



BASEMENT PLAN
1:200

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REV _ A- 08/09/2015 ___ ISSUED FOR DA

REV _ B 16/02/2016 ___ FIRE ESCAPE STAIRS, ACCESSIBLE CARPARK AND ACCESSIBLE LIFT ADDED.

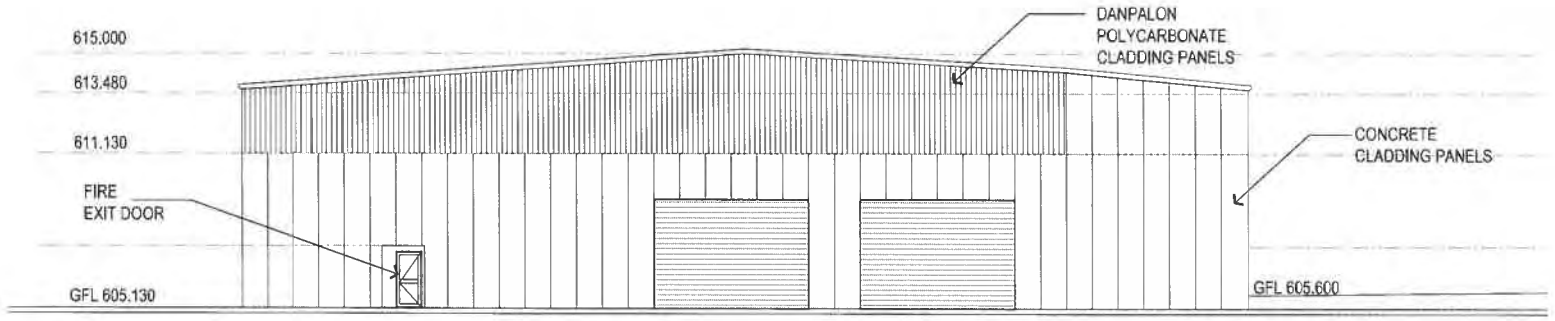
CONSULTANT

PROJECT
SITA ENVIRONMENTAL
184 GILMORE ROAD
QUEANBEYAN

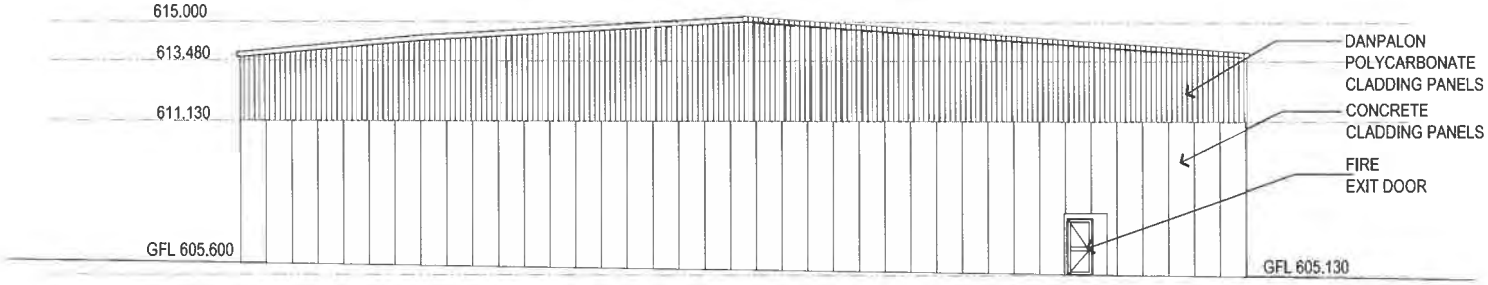
CLIENT
SITA ENVIRONMENTAL

TITLE
RESOURCE RECOVERY FACILITY
BASEMENT PLAN

DRAWING NO. 1404/DA/102
REV B
DATE APRIL 2014
SCALE AS SHOWN @ A3
CHECKED EB 16-02-16
VERIFIED CL 16-02-16



ELEVATION 1
SCALE 1:200



ELEVATION 2
SCALE 1:200

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REV _ A- 08/09/2015 ___ ISSUED FOR DA
REV _ B- 15/02/2016 ___ FIRE EXIT DOORS ADDED, NOTES ADDED.

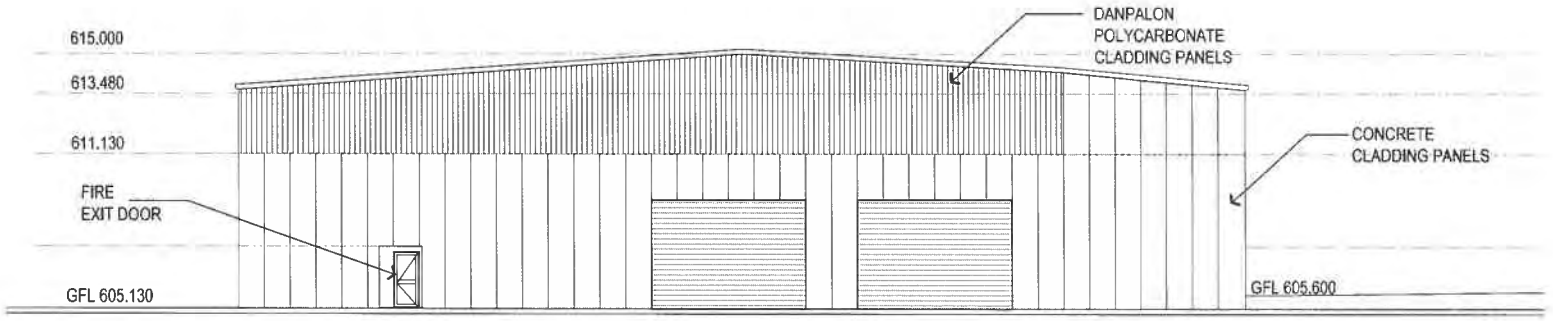
CONSULTANT

PROJECT
SITA ENVIRONMENTAL
184 GILMORE ROAD
QUEANBEYAN

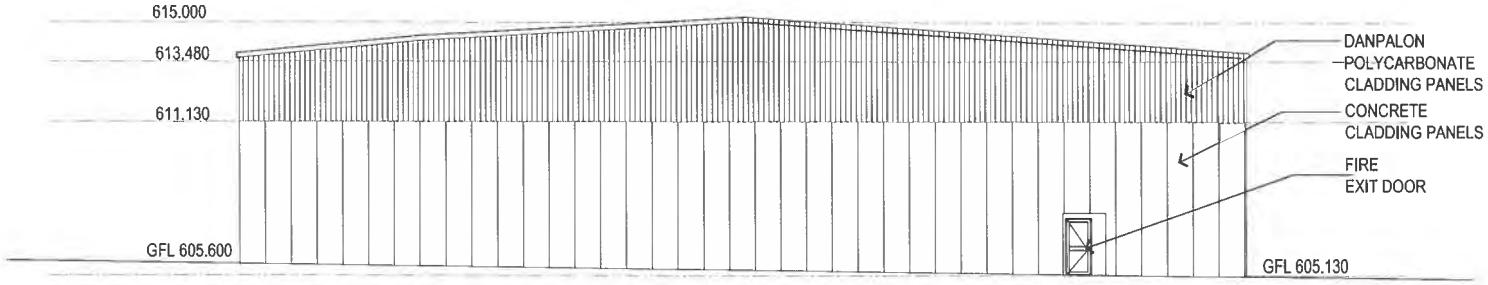
CLIENT
SITA ENVIRONMENTAL

TITLE
RESOURCE RECOVERY FACILITY
ELEVATIONS

DRAWING NO. 1404/DA/201
REV. B
DATE APRIL 2014
SCALE AS SHOWN @ A3
CHECKED EB 16-02-16
VERIFIED CL 16-02-16



ELEVATION 1
SCALE 1:200



ELEVATION 2
SCALE 1:200

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REV _A- 08/09/2015 — ISSUED FOR DA
REV _B- 15/02/2016 — FIRE EXIT DOORS ADDED. NOTES ADDED.

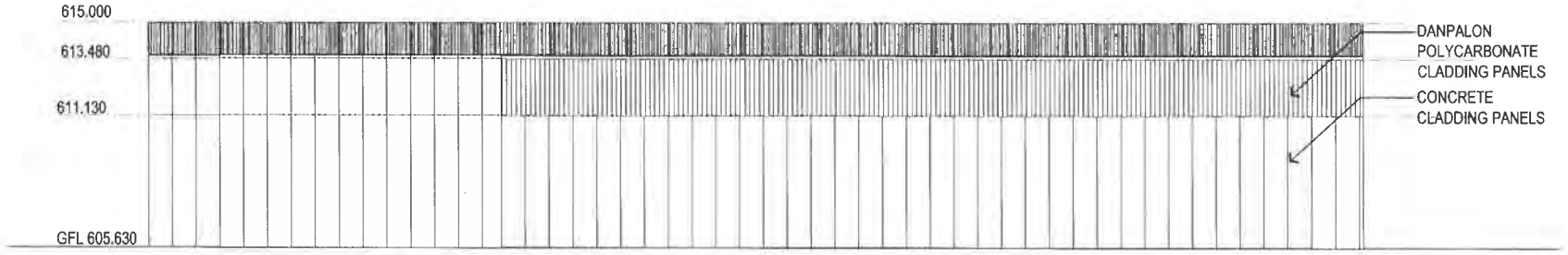
CONSULTANT

PROJECT
SITA ENVIRONMENTAL
184 GILMORE ROAD
QUEANBEYAN

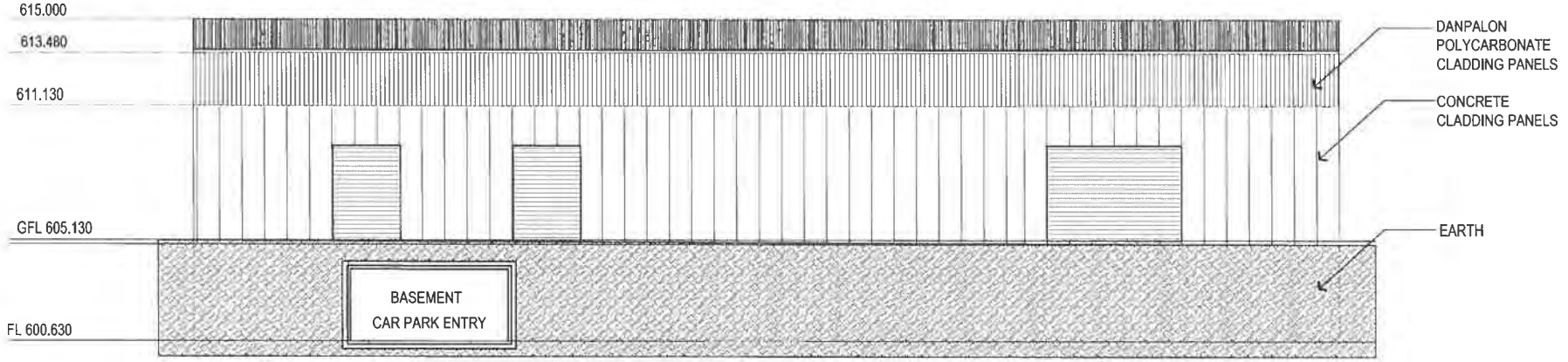
CLIENT
SITA ENVIRONMENTAL

TITLE
RESOURCE RECOVERY FACILITY
ELEVATIONS

DRAWING NO. 1404/DA/201
REV. B
DATE APRIL 2014
SCALE AS SHOWN @ A3
CHECKED EB 16-02-16
VERIFIED CL 16-02-16



ELEVATION 3
SCALE 1:200



ELEVATION 4
SCALE 1:200

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REV _ A- 08/09/2015 __ ISSUED FOR DA
REV _ B- 15/02/2016 __ ELEVATION AMENDED

CONSULTANT

PROJECT
SITA ENVIRONMENTAL
184 GILMORE ROAD
QUEANBEYAN

CLIENT
SITA ENVIRONMENTAL

TITLE
RESOURCE RECOVERY FACILITY
ELEVATIONS

DRAWING NO 1404/DA/202
REV B
DATE APRIL 2014
SCALE AS SHOWN @ A3
CHECKED EB 16-02-16
VERIFIED CL 16-02-16

Jacinta Tonner

From: Andrew Wild <andrew.wild@wildenvironment.com.au>
Sent: Tuesday, 12 September 2017 10:00 AM
To: Jacinta Tonner
Cc: Dirk Jol; Natasha Abbott; Stewart, Jason; Crowe, Sean
Subject: DA 2015/338: Response to Noise, Traffic & RMS Submissions
Attachments: 13070211B_QueanbeyanRRF_Response_170908.pdf; 13246 Ltr 070917 NH 170908.PDF

Dear Jacinta,

Please find attached responses to the three letter queries from 22 August 2017 for DA 2015/338:

Noise: Wilson Murray have reviewed the Independent Peer Review by SLR and prepared the attached response. It has concluded that the our basis and conclusions of our previous assessment are valid, and that no changes are required. Further, the predicted noise levels could be included in the EPA Licence to enable noise compliance measurements to be conducted once the proposal is operational for verification.

Air Quality: Todorski have reviewed the Independent Peer Review by SLR and prepared the attached response. It has concluded that the our basis and conclusions of our previous assessment are valid, and that no changes are required. As above, the predicted air quality levels could be included in the EPA Licence to enable noise compliance measurements to be conducted once the proposal is operational for verification.

Traffic: Taylor Thomson Whiting have reviewed the RMS Advice, and endeavoured to consult with RMS to resolve any questions (which proved to be problematic). As Council is aware, SUEZ has significantly revised the proposed traffic and access concept so that use of the Kealman Road/Canberra Avenue intersection is not required. Further, the landowner, and owner of the MonaroMix Concrete and adjacent titles, has expressed an interest in purchasing Bowen Place from Council, enabling engineering controls to be put in place to improve access and egress to Kealman Road. Therefore, we are of the view that some of the issues raised by RMS are no longer relevant, and the remaining issues have been resolved by the reconfigured layout, soft/hard engineering controls, or by potential conditions of approval. This response was sent to Council on Friday 8 September 2017.

Please note that SUEZ proposes, should the DA be approved, to operate the existing and proposed new facility as a single consolidated site, with a single EPA Licence. This would enable comprehensive and effective management of all health, safety and environmental aspects, and post-operational monitoring to verify modelling predictions, clearly accountability for site management, and optimum consultation and management of community and landuser interaction/contacts.

I will call you Monday later today to discuss, thx and regards andrew

Andrew Wild | Principal Consultant | Wild Environment
☎ 0438 246 344 | ✉ andrew.wild@wildenvironment.com.au
PO Box 66, Annandale NSW 2038 Australia

WILKINSON MURRAY

8 September 2017

WM Project Number: 13246
Our Ref: 13246 Ltr 080917 NH

Andrew Wild
Wild Environment
PO Box 66
ANNANDALE NSW 2038

Dear Andrew

Re: DA 338-2015 - Responses to Independent Peer Review (Noise)

Thank you for providing us with the independent peer review of the Noise Impact Assessment (NIA) for this Development Application, prepared by SLR Consulting on behalf of Queanbeyan Council.

We have reviewed the issues raised in the independent peer review, and our responses are presented in Table 1.

I trust this information is sufficient. Please contact us if you have any further queries.

Yours faithfully
WILKINSON MURRAY

Nic Hall
Manager (Wollongong)

Table 1 Responses Independent Peer Review

Issue Raised	Response
The INP requires the noise assessment to consider adverse meteorological conditions, if they are found to be a feature of the area. The NIA does not include an examination of the existing meteorological environment. SLR conducted an assessment of prevailing wind conditions as derived from meteorological data from the Bureau of Meteorology site at Canberra. The assessment concluded that there are prevailing summer winds, and moderate to strong temperature inversions during winter for more than 30 percent of the time. Adverse weather conditions were not included in the NIA.	The noise model prepared for the NIA used the ISO 9613 noise prediction algorithms, which include a degree of meteorological noise enhancement through a "downwind component". The extent of noise enhancement in the ISO 9613 algorithm is typically less than that in the CONCAWE algorithm. The noise modelling conducted in the NIA is considered to be generally conservative; and, notwithstanding the lower levels of meteorological noise enhancement, the predicted operational noise levels presented in the NIA are considered to adequately represent the range of receiver noise levels likely to occur during the operation of the proposal. It is recommended that the Project Specific Noise Levels (PSNL) established in the NIA are adopted as approval/licence conditions for the development, and that noise compliance measurements are conducted once the proposal is operational.
According to the NSW EPA's INP impacts from a proposed addition to an existing facility should include the cumulative impacts of the overall operation. The NIA only assesses the new transfer station.	The NIA focused on assessing operational noise levels from the proposal during the night time period as the night time PSNL is the most stringent. During the night time period, it is understood that L_{Aeq} noise emissions associated with the existing site operations are negligible compared to those associated with the proposal. Accordingly, the cumulative night time operational noise emissions from the overall operation are expected to be consistent with those presented in the NIA. Further to the above, Wilkinson Murray understands that SITA would manage the entire site operations with a view to controlling overall noise emissions. It is therefore recommended that any noise limits in the approval/licence be applicable to the entire site operations.
Noise modelling for the potential for sleep disturbance indicates exceedances of the sleep disturbance screening level of up to 17 dB. It is also noted Revision A of the NIA adopted a Sound Power Level of 122 dBA, which reduced to 115 dBA in Revision B. SLR uses a level of 122 dBA for parking brakes (air release), based on measurement.	In the initial NIA (Version A), the sleep disturbance assessment was based upon a truck trailer/parking brake with an L_{Amax} sound power level (SWL) of 122 dBA. However, it is considered unlikely that truck trailer/parking brakes would be used within the site, and that a more likely source of L_{Amax} noise levels would be regular truck brakes with typical SWL of 115 dBA, as per the revised sleep disturbance assessment in Version B of the NIA. Wilkinson Murray considers the revised (Version B) sleep disturbance assessment to adequately represent the potential sleep disturbance impacts associated with the development. Notwithstanding, it is recommended that, if trucks are regularly required to apply trailer/parking brakes within outdoor areas of the proposal site, that those trucks be fitted with silenced parking brakes.

Issue Raised	Response
	The NSW EPA acknowledges that sleep disturbance screening levels set at 15 dBA above the night time RBL are not ideal; and, in the *Draft Industrial Noise Guideline* (EPA, 2015), recommend an L_{Amax} sleep disturbance screening criterion of 52 dBA. It is recommended that the latest guidance from the NSW EPA is adopted in the approval/licence conditions for the development, and that noise compliance measurements are conducted once the proposal is operational.
Residences located to the east of the project site were identified by the NIA as being the nearest sensitive receptors. Sensitive receptors closer to the project site were identified during the SLR site visit. It is noted that these receptors are located in an area zoned for industrial activity. However, the Council has confirmed that all identified sensitive receptors are approved premises and therefore fall within the Approved Methods definition of sensitive receptors. The Approved Methods defines a sensitive receptor as "*A location where people are likely to work or reside; this may include a dwelling, school, hospital, office or public recreational area*".	Project Specific Noise Levels (PSNL) for sensitive receivers have been established in accordance with the *NSW Industrial Noise Policy* (EPA, 2000) and, therefore, consider the land zoning as defined in Local Environment Plan (LEP). Section 2.2.1 of the NSW INP recommends that the industrial amenity criteria are applied to isolated residences within an industrial zone. The *Approved Methods for the Modelling and Assessment of Air Pollutants in New South Wales* (EPA, 2016), commonly referred to as the "Approved Methods" is the principal document of the NSW Government for the assessment of potential air quality impacts from land use developments. This document is not relevant to the assessment of noise impacts.

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8 September 2017

Andrew Wild
Principal Consultant
Wild Environment
Via email: andrew.wild@wildenvironment.com.au

RE: Response to the Independent Peer Review – Air Quality Assessment Proposed Resource Recovery Facility Queanbeyan West

Dear Andrew,

The following addresses each of the items raised in the independent peer review of the *Air Quality and Greenhouse Gas Assessment Proposed Resource Recovery Facility, Queanbeyan West* (AQA) (**Todoroski Air Sciences, 2015**) and subsequent addendum report, as commissioned by Queanbeyan-Palerang Regional Council.

The independent peer review of the AQA was conducted by SLR Consulting on 7 August 2017. Each of the items raised in the review are individually addressed as set out in **Table 1**.

Overall, the review makes many incorrect assumptions, many incorrect statements and some significant errors.

We consider that none of the significant issues raised by the review are substantiated by the available Project information; for example the assertions about odour emissions are erroneous or inconsistent with the body of industry data and good modelling practice. This situation is also evident in the EPA issuing only the standard odour and dust conditions in its General Terms of Approval (GTA) for the Project to operate.

Hence we do not consider that any of the issues raised in the review could alter the overall AQA conclusions.

Please feel free to contact us if you would like to discuss or clarify any aspect of this report.

Yours faithfully,
Todoroski Air Sciences

Philip Henschke

Aleks Todoroski

Table 1: Response to Air Quality issues raised for Queanbeyan West Resource Recovery Facility

SLR Response ID	Comment heading	Response
Air Quality and Greenhouse Gas Assessment, Proposed Resource Recovery Facility, Queanbeyan West (February 2015)		
1	Identification of Sensitive Receptors	The review considers that "sensitive receptors" within industrial areas should have been explicitly addressed. Examination of AQA shows that there is no unacceptable or unreasonable level of impact predicted at any of the "sensitive receptor" locations listed by the review. For example; the NSW EPA odour impact assessment criteria ranges from 2 OU in the most sensitive receiving environments such as dense urban areas, to 7 OU in sparsely populated areas such as rural environments, or industrial area where there is a low likelihood of the "population" present to expect high odour amenity or be sensitive to the types of odour that occur in these environments. Per Figure 8-7 of the AQA, it is clear that the predicted odour levels for the Project would not be above 4 OU at any of the receptors identified in the review (refer to Figure 2) and thus no unacceptable impacts would arise. The EPA GTA's specifically point out that acceptable levels of odour would occur at the immediately adjacent receptor in the industrial area, and common sense dictates that the more distant receptors would not experience greater impacts. Similarly, per Figure 8-1 to Figure 8-6 of the AQA the predicted dust impacts at the identified receptors would be below the relevant air quality assessment criteria. In any case, it is noted that industrial areas are specifically zoned to allow the operation of facilities which have the potential to cause some level of environmental impacts, such as noise or odour, beyond their boundary. Deliberately planned clustering of industries allows the same buffer zones to be used by several industries, resulting in more efficient land use and a smaller area of impacted land. The use of careful industrial/ residential zoning allows facilities to operate and support the economy or provide essential services (such as waste handling) without otherwise causing adverse impacts across extensive land areas, or in areas zoned for sensitive residential use. This results in a better residential living environment for the community.
2	Selection of Air Quality Criteria	The revised Approved Methods the review is referring to, only apply to planning applications first lodged on or after 20 January 2017, not to assessments conducted in early 2015. Regardless, the AQA conducted an assessment of potential $PM_{2.5}$ impacts as per the National Environmental

SLR Response ID	Comment heading	Response
		Protection (Ambient Air Quality) Measure (AAQ NEPM) advisory reporting standard at the time of writing, which has now been adopted in the AAQ NEPM particle standards. Also, the dispersion modelling predictions indicate that the Project would have a negligible impact at the assessed sensitive receptors and the recent changes to the Approved Methods particles assessment criteria does not change this outcome. The AQA was assessed in accordance with the relevant air quality assessment criteria at the time the assessment was prepared. The assessment methodology followed guidance in the New South Wales (NSW) Environmental Protection Authority (EPA) documents *Approved Methods for the Modelling and Assessment of Air Pollutants in NSW* (**NSW DEC, 2005**).
3	Peak-to-mean factors	The odour sources were included in the dispersion modelling as area sources and a peak-to-mean factor of 2.5 was applied to the modelling predictions.
4	Background Air Quality	The review comments that the use of the monitoring data from the Monash and Civic monitoring sites is appropriate are noted. Annual average PM_{10} data directly from the Monash and Civic monitoring sites were not available when preparing the AQA, hence the data could only be sourced from the National Environment Protection (Ambient Air Quality) Measure Annual Reporting (**ACT EPA, 2016**), as presented in the report. A review of the environment surrounding the Project does not identify any activities with similar odour character, hence there is no potential for cumulative odour impacts to arise. This is consistent with the reviewer's own findings that "*No significant odours were detected in the area surrounding the Proposed Development Site*".
5	Construction Phase Air Quality Impacts	The reviewer's comments are noted. Construction phase air quality impacts are expected to be able to be managed to acceptable levels with implementation of appropriate dust mitigation measures.
6	Dispersion Modelling Approach	The air dispersion model setup is in general accordance with the methods provided in the NSW EPA documents *Approved Methods for the Modelling and Assessment of Air Pollutants in NSW* (**NSW DEC, 2005**) and *Generic Guidance and Optimum Model Setting for the CALPUFF Modeling System for Inclusion into the 'Approved Methods for the Modeling and Assessment of Air Pollutants in NSW, Australia'* (**TRC, 2011**).
7	Meteorological Data Selected for Modelling	A statistical analysis of five contiguous years of meteorological data from the Tuggeranong (Isabella Plains) Automatic Weather Station (AWS) were analysed against the long-term measured wind speed, temperature and

SLR Response ID	Comment heading	Response
		relative humidity spanning a 14 to 21 year period recorded at the station. The analysis found the 2012 calendar period to be generally representative of the long-term trends and thus was selected for use in the dispersion modelling.
8	Dust Emission Estimation	All of the activities associated with the Project that have potential to generate significant dust emissions were accounted for in the dispersion modelling. The proposed shredding activities on site relate to paper and cardboard and would not generate significant dust emissions. As noted in the Environmental Management Plan for the Project, in the event that shredding activity proves to generate excessive dust, say due to an unusual batch of material, this activity can be easily modified or temporarily halted to manage dust emissions.
9	TSP Emission estimation	For conservatism, the emission calculation in the air assessment deliberately overestimated the truck movements for operations at the Project by assuming 100 trucks per day for Stage 1 and 80 trucks per day for Stage 2 (refer to Appendix B of the AQA). Consequently, the predicted dust concentrations at nearby receptors would be lower in reality.
10	PM_{10} and $PM_{2.5}$ Emission Estimation	The modelling does not apply TSP as a model input and then break down the predicted results into PM_{10} and $PM_{2.5}$ size categories after the dispersion modelling as assumed by the reviewer. The dispersion modelling includes various size fractions for the dust emission particles to ensure that the dispersion of these particles is accurately represented in the predicted results at each receptor. The particle size fraction's distributions applied in the dispersion modelling have been estimated based on known ratios of measured dust levels in NSW. We do not concur with the reviewer's suggestion that using US EPA AP42 emission factors is the only method that is appropriate. The US EPA AP42 emission factors are based on limited data collected in North America, generally under different conditions to that in NSW, and there is no compelling reason to consider these data in preference to NSW data. Regardless, any variation to the method for estimating emissions of PM_{10} and $PM_{2.5}$ would not make any tangible

SLR Response ID	Comment heading	Response
		difference as the levels at the receptors would be very low.
11	Odour Emission Estimation	The odour emission rate used in the AQA was based on odour measurements made on exactly the type of material that would be at the site. The measurements were performed by credible consultants and concur with measurements taken elsewhere. The odour measurements were conducted per the EPA flux hood reference method for odour sampling of an emitting surface. This sampling methodology is per conditions similar to stable, light wind conditions over the odour emitting surface. As the odour sources are located within a building the wind speed over the surface would be light, hence it is most appropriate to use the isolation flux hood measurement. The reviewer however inappropriately compares flux hood measurements taken on the surface of the material, with in-stack exhaust measurements taken on a building with an air extraction system. When this is considered, contrary to what the reviewer states, the measured odour concentration for the material source applied in the study is 6,210 OU, and is significantly higher that the odour concentrations that are mentioned by the reviewer. We note that the review has also made an error in its calculations and hence conclusions. Examination of the reviewer's calculation for the SITA Rockdale Waste and Recycling Centre shows that the reviewer actually applied a different value for the floor area than it states, and that using the stated value of 1,800m^2 for the whole area of the transfer station (hypothetically covered in waste) would equate to an odour emission rate of 0.75 OU.m^3/m^2/s to 3.69 OU.m^3/m^2/s, which ranges from being significantly lower, to very similar to the rate of 3.65 OU.m^3/m^2/s used in the AQA. The review also comments that the reviewer adopted a different emission rate for a proposed facility in Western Sydney. The reviewer's adopted emission factor is well above the emission rates used in the AQA, any otherwise credible study we are aware of, and also any of other studies quoted by the reviewer. None of the information or data supports the reviewer's assumptions. The assumptions, calculations and statements made by the review win this regard are not valid.
12	Odour Modelling Assumptions	Odour impacts arise due to the frequency and strength of odour being experienced at a receptor. When the source is enclosed, there is a dramatically less frequent release of odour which reduces the likelihood of any impact actually occurring. Enclosing the source also ameliorates the rate and hence quantity of odour generated

SLR Response ID	Comment heading	Response
		from the source, and available in the air for transport to the receiver. This is why enclosing an odour source is one of the most fundamental and effective odour control measures that can be applied. The review appears to incorrectly assume that the emissions would continue to build up within the building and be released as a large efflux leading to an impact. The review assumes that the odour released would reach receptors and cause impact, which appears due incorrectly equating or comparing the dispersion of a continuous stream of odour with how a relatively small parcel of odour disperses. The AQA has modelled the odour sources out in the open and has predicted levels below the relevant air quality criteria at the receptor locations. By having the odour sources within an enclosure the emission and also transport of odorous emissions would be restricted and hence the actual odour can be expected to be lower than predicted.
13	Mitigation Measures	The trucks entering and leaving the building whenever the doors of the facility are opened would provide an exchange of air which is sufficient to prevent dangerously high contaminant build-up in the building. Odour sprays can act in two ways; as a carrier for a masking agent to reduce the intensity of the perceived odour, or to suppress the release of odour from the source. As a conservative measure in the AQA, any odour reduction in this regard has not been included in the assessment, which is why there is no comment on its effectiveness.
14	Assessment of Particulate Matter Impacts	The AQA does consider cumulative impacts, and it is incorrect to assert that the AQA assumes zero background levels. The conclusions in the AQA regarding no scope for cumulative impacts can be confirmed by examination of the isopleths presented in Section 8.1 of the AQA, which show that the predicted dust levels at the identified receptors are negligible and, as outlined in the AQA, any cumulative effects would be well below the relevant air quality assessment criteria for each of the assessed dust metrics. Modelling predictions for TSP and deposited dust at the sensitive receptor locations are presented in Table 8-1 of the AQA. Isopleths of the predicted incremental annual average TSP and deposited dust levels are presented in Figure 8-5 and Figure 8-6 of the AQA.
Draft Addendum Report to the Air Quality and Greenhouse Gas Assessment for the Proposed Queanbeyan Resource Recovery Facility (March 2016)		
15	Odour Emission Estimation	As outlined in Response 10, the reviewer is comparing odour measurements from two different sources which are not directly relatable. The odour emissions rates adopted in the AQA are high (even when correctly compared with the range of the reviewer's own measured data) and in conjunction with the modelling

SLR Response ID	Comment heading	Response
		assumptions the AQA presents a conservative assessment that would overestimate the potential impacts.
16	Modelling Assumptions	The review comments are noted.
17	Identification of Sensitive Receptors	As outlined in Response 1, the predicted air quality levels would be below the relevant air quality assessment criteria, this is also explicitly evident in the EPA GTA.
18	Dispersion modelling results	Refer to Response to 12.
The Councils Request for Information (April 2016)		
19	-	The assessment states that there would not be ventilation, odour extraction or treatment, hence at this time, the EMP is correct. If the ventilation, treatment etc. is revised once in operation, the EMP will also be revised to include further details on ventilation, and changes to triggers for corrective action and odour and air quality monitoring methodology as appropriate.
Environmental Management Plan (EMP) (April 2016)		
20	-	As outlined in Response 12, the reviewer incorrectly assumes a dangerous build-up of emissions within the building.
21	-	Continuous checking for excessive dust or odour levels will be conducted by the usual means: visual identification of dust plumes and human detection of excessive odours.
22	-	The comment is noted, the EMP will consider all reasonably foreseeable potential incidents that may lead to excessive odour, and appropriate contingency measures in the event of the incidents occurring. The occurrence of abnormal traffic conditions preventing the transport of waste off the site along all accessible roads for 24 hours is unreasonable and will not be considered.
Submissions from Community Consultation for DA 338-2015 (October 2016)		
23	-	The EMP will incorporate contingency measures for abnormal operating conditions where waste may not be removed from site on time or if dedicated waste trucks are not available.

SLR Response ID	Comment heading	Response
24	-	See Response to 15-18.
25	-	See Response to 1, 11, 12, 15 and 16.
26	-	See Response to 14. The review's implied possibility of impacts is not supported by any data or evidence, which are all to the contrary.
27	-	See Response to 1.
28	-	The comment is noted. The proposed odour controls are similar to those applied at other resource recovery facilities and are deemed suitable for this Project. The air dispersion modelling predicts the potential odour levels at the sensitive receptors due to the Project will be below the applicable criteria, without such controls. With the implementation of proposed odour controls the odour levels would be lower.
29	-	See Response to 8, 9, 10 and 14.

Jacinta Tonner

From: Andrew Wild <andrew.wild@wildenvironment.com.au>
Sent: Tuesday, 20 June 2017 12:52 PM
To: Jacinta Tonner
Cc: Stewart, Jason
Subject: DA 338/2016: Response to Agency Submissions
Attachments: DA 338-2015 Agency Response 170620.docx

Hi Jacinta,

Pls see attached our response to the Agency Submissions. All seem fair and reasonable, and SUEZ is comfortable being subject to Conditions of Consent where noted. Please don't hesitate to call anytime if our responses are not clear.

I'll call you later in the week regarding the status of matters and JRPP timing.

t' andrew/Jason

Andrew Wild | Principal Consultant | Wild Environment
☎ 0438 246 344 | ✉ andrew.wild@wildenvironment.com.au
PO Box 66, Annandale NSW 2038 Australia

No	Key Points & Recommendations	SUEZ Response
	Recommendations are:	
a	That the existing Fire Safety Study (FSS) be updated in accordance with Hazardous Industry Advisory Paper No. 2) and that the FSS be submitted to FRNSW for approval	SUEZ agrees to this recommendation as a condition of consent.
b	That SUEZ incorporate lessons learned from its Australian and international operations into the above FSS.	SUEZ agrees to this recommendation as a condition of consent.
6	**NSW Roads & Maritime Services (RMS)** RMS has reviewed the Additional Information Submission (2016) and does not support the development in its current form, as set out below:	
a	Concerns regarding heavy vehicle movements through the intersection of Canberra Avenue (Kings Highway) and Kealman Road. Considers that traffic counts should be undertaken at this intersection.	SUEZ has amended the proposed traffic route from the proposed site, as set out in the Traffic Access and Parking Submission (TTW, 9 June 2017), and considers this concern is no longer warranted.
b	Considers that SIDRA intersection modelling on the intersection of Canberra Avenue (Kings Highway) and Kealman Road at various times of the day.	As above.
c	RMS Highlights that the above SIDRA intersection has previously been requested. This modelling would be required prior to the determination of any further expansion of the development.	As Above.
d	Notes that articulated large vehicles cannot turn left from Bowen Place to Kealman Road. within the allotted width. Concerns regarding controls to would prevent this left turn.	As above.

No	Key Points & Recommendations	SUEZ Response
		operation, truck washdown and for dust suppression. The reference in the draft OEMP should have been deleted, and SUEZ apologies for this over-sight. Nevertheless, SUEZ will investigate, in the medium term, beneficial reuse of stormwater to MonaroMix subject to strict EPA, NSW Health and Council requirements, and where public and worker health can be ensured.
	Further, a reference was included to using captured rainwater for vehicle washdown and landscaping, but not for external hard surfaces. NSW Health notes that final stormwater detailed design will be subject to review and approval by Council.	SUEZ is uncertain regarding this statement. However the site stormwater detailed design, operational parameters, and OEMP, will be subject to Council review prior to issue of the Occupation Certificate.
5	**Fire & Rescue NSW (FRNSW):** Has reviewed the EIS (2015) and Additional Information Submission (2016) and comments as follows: • Underground carpark now removed from proposal • Automatic Sprinkler System within buildings proposed, and will be installed to comply with Clause E1.5 of Part 1 of Volume 1 of the National Construction Code (NCC) • Smoke detection and alarm system proposed, with a connection to Fire Brigade, and installed to comply with NCC requirements. Noted that SUEZ intend to consult with FRNSW regarding monitoring and first response protocols for the Emergency response Plan (ERP) prior to occupancy • That detailed design regarding containment of the fire water runoff will be provided at the Construction certificate (CC) stage • That an ERP has been drafted and will be finalised prior to occupancy • That SUEZ will implement storage of two ERP's in a prominent Emergency Information cabinet directly adjacent to the sites main vehicle entry point • That a Fire Safety Study was submitted as part of the 2015 EIS.	

No	Key Points & Recommendations	SUEZ Response
b	**Odour Control:** acknowledges additional odour study. Concerns regarding discretionary manual over-ride of dust and odour suppression system while vehicles tipping.	SUEZ operating experience indicates that there may be loads when the Enviro-Mist spays are not warranted eg known customers where loads are all bagged. As stated above, all procedures will be detailed in the OEMP, staff inducted and tool-boxed, finalised before commencement of operations, and optimised with operating experience, monitoring data and reviews. The critical outcome will be that there are no adverse odour or dust impacts.
c	**Basement carpark**: deleted.	N/A
d	**Odour & Dust**: Additional Addendum regarding odour control does not make any reference to opening and closing of doors, as previously raised.	SUEZ is uncertain of this reference. As stated above in the draft OEMP Section 4.2 Odour and Dust Control, a key mitigation measure will be "keeping the doors to the building closed at all times". Refer further to OEMP process above.
e	**Operational Environmental Management Plan:** NSW Health notes that following final detailing, the OEMP be subject to further review, and that this is reflected in a Condition of Development Consent.	SUEZ agrees to this recommendation as a condition of consent.
f	**Liquid Trade Waste**: NSW Health notes the conceptual design of the proposed liquid trade waste storage and transfer element of the project, yet notes that some detail has not been provided.	SUEZ stated in its 2016 DA Submission that detailed design would be carried out prior to construction to comply with all relevant EPA requirements for liquid waste management. This will be a pre-condition for EPA issue of the Environment Protection Licence for operation.
g	**Stormwater Reuse**: NSW Health noted that while re-use to the neighbouring concrete batch plant has been withdrawn, references were still included in the OEMP to transport by truck to MonaroMix.	SUEZ stated in its 2016 DA Submission that direct (piped) reuse of captured and stored rainwater to MonaroMix had been withdrawn. SUEZ has a long established policy of encouraging reuse where viable and environmentally sustainable. MonaroMix is also a large consumer of potable water in its batching

No	Key Points & Recommendations	SUEZ Response
3	**NSW Environment Protection Authority (EPA)** EPA Notes that General Terms of Approval (GTA) have already been issued, based on the previous (2015) DA Submission. Having reviewed the 2016 DA submission, including modifications. EPA notes: • The amended DA removes the proposed transfer of treated wastewater to the adjoining concrete batch plant, and EPA will need to amend the wording of Condition L1.1 of the GTA. EPA supports this modification. • The revised noise assessment predicts a small reduction in off-site noise impacts. EPA will not need to amend the relevant GTA conditions. • The revised odour assessment predicts lower odour levels due to the inclusion of additional mitigation measures, and odour levels remain under the EPA's odour goals. EPA will not need to amend the relevant GTA conditions.	
4	**NSW Health** NSW Health reviewed the 2016 DA submission and responded with the following comments, in addition to the previous comments provided on 17 March 2016:	
a	**Vermin Control Program:** noted the Operational Environmental Management Plan (draft framework (OEMP) submitted in Annexure F. Acknowledged that the basic fundamentals are covered, but could be improved in terms of content and detail (eg mosquitoes not specifically covered).	SEZ acknowledges that the draft OEMP was intended to be a framework only, and to be fully detailed during the construction phase to incorporate all necessary elements, prior to operation. SUEZ operates many Recycling Facilities in Australia, and has many years' experience in operating centres to meet stringent OH&S standards. This includes all types of vectors (note that mosquitoes are not generally an issue as rapid turnover, floors sloping to drains, and housekeeping requirements ensure that no water is allowed to pond in process areas). The OEMP will be continually reviewed and updated as necessary to incorporate monitoring and learnings, and therefore improve operating performance.

No	Key Points & Recommendations	SUEZ Response
e	**Access Control:** NSW Police recommend a suite of measures to minimise risk of access, including locks, gate access security, monitored intruder alarm system, and limiting scaling of the perimeter fence.	SUEZ agrees in principle to this recommendation as a condition of consent, however notes that: • SUEZ may have limited potential to limit scaling of the perimeter fence from roadways and neighbours.
2	**Department of Defence Estate and Infrastructure Group** Submission of 7 December 2016: Has reviewed the proposal and has no objections or additional comments to previous submission. Submission of 11 March 2017: Has reviewed the proposal and notes: • The proposal will be some 400 metres from the perimeter of HMAS Harman • Defence does not object to building height • Is concerned that the proposed Facility may emit odours that may adversely impact on HMAS Harman • Is concerned that there be no potential excessive noise emissions from night-time operations that may adversely impact on HMAS Harman	
a	**Odour Management**: Defence recommends Council applies a Condition of Consent that the Facility complies with NSW EPA Technical Framework – Assessment and Management of Odour from Stationary Sources.	SUEZ agrees in principle to this recommendation as a condition of consent, however notes that: • SUEZ will need to comply with EPA requirements, as set out in the General Terms of Approval (GTA) and subsequent Environment Protection Licence.
b	**Odour Management**: Defence recommends Council applies a Condition of Consent that the Facility complies with NSW EPA Industrial Noise Policy	SUEZ agrees in principle to this recommendation as a condition of consent, however notes that: • SUEZ will need to comply with EPA requirements, as set out in the General Terms of Approval (GTA) and subsequent Environment Protection Licence.

TABLE 1: AGENCY SUBMSSIONS & SUEZ Response

No	Key Points & Recommendations	SUEZ Response
1	**NSW POLICE** BSW Police reviewed the DA Submission using the Crime Prevention Guidelines pursuant to Section 79C of the EP&A Act 1979. Primarily this entailed consideration of the proposal using the established Crime Prevention Through Environmental Design (CPTED) principles and strategies. The NSW Police Safer by Design Evaluation, based on ANZ Management standard ISO 31000: 2009, concluded the rating for the proposal as ***Low-Crime Risk.***	
a	**Surveillance**: NSW Police recommend surveillance equipment is installed to assist in monitoring the development.	SUEZ agrees to this recommendation as a condition of consent.
b	**Landscaping:** NSW Police recommend plantings do not restrict surveillance of the development, and that landscaping maintenance is carried out such that this is maintained.	SUEZ agrees in principle to this recommendation as a condition of consent, however notes that: • There is limited landscaping proposed • Maintenance of any plantings on the nature strip may not be under the care and maintenance of SUEZ.
c	**Lighting:** NSW Police recommend lighting be designed and installed to ANZ Standards and consider crime risk. This would include integration with CCTV, use of sensors to provide 'short bursts', mitigation of glare, avoidance of 'dark spots', and ensuring entry/exit points are well lit.	SUEZ agrees to this recommendation as a condition of consent.
d	**Territorial Reinforcement:** NSW Police recommends effective signage. Boundary fences and access security controls. No specific further recommendations.	SUEZ acknowledges the comments and will incorporate into detailed design.

TTW Taylor Thomson Whitting

Traffic Assessment

Waste Recovery Facility – Gilmore Road West Queanbeyan

Prepared for Wild Environment / April 2017

179015

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Structural
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Traffic
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Received 9 June 17

Contents

Revision Register

Rev	Date	Prepared By	Approved By	Remarks
1	16.02.2017.	CP	CP	For Review

1.0 Introduction

Taylor Thomson Whitting has been engaged to carry out additional traffic investigations into the traffic and road safety elements of the proposed Resource Recovery Facility located within 184 Gilmore Road, West Queanbeyan.

The report addresses a number of comments received from Queanbeyan Pallerang Regional Council (QPRC) as part of the Development Approval process and forms the formal traffic response to the comments received.

The report shall be read in conjunction with the traffic report prepared by Auswide Traffic Engineers (hereon referred to as the Auswide Report) as items covered in the Auswide Report which are not covered in this report as deemed as remaining valid.

The report then provides a recommendation as to the suitability of the proposed works in relation to traffic and the anticipated effects of the development on the surrounding road network.

2.0 Scope of Report

The specific items addressed in this report include the following comments:

Reference documents for the study omitted the use of QPRC Design Specification D1 Road Geometric Design, the applicant must review that the parameters of D1 were considered in the submission of the traffic impact assessment.

- 3.2.1 states that Canberra Avenue speed limit is 60km/hr. The posted speed limit at the location of Gilmore Road and Kealman Road is 80kmh.
- The review of swept path analysis supplied are inconclusive for Development Engineering concurrence.

The applicant is required to provide further information in relation to the following comments on the traffic impact statement and its annexures:

A) 19m Semi exiting the site: The trailer of the semi is still tracked across the traffic lane for traffic entering Bowen Place at the Kealman Road intersection. *This is not satisfactory to allow suitable function of Bowen Place.*

B) 25m B-double exiting the site: The trailer is partially across the lane and affecting Bowen Place, the position depicted of the vehicle is half way across Kealman Road. *The swept path and vehicle positioning are to be in scale and context to the site to enable an assessment.*

C) 19m Semi turning right onto Kealman Road: The location from where the vehicle begins its swept path does not match the location of the vehicle after exiting the development site. *The swept paths and vehicle positioning are to be in scale and context to the site to enable an assessment.*

D) 25m B- double turning right onto Kealman Road: The location from where the vehicle begins its swept path does not match the location of the vehicle after exiting the development site. The swept path would indicate that as a right hand turn is made the traffic cannot make a felt turn into Bowen Place. *The swept paths and vehicle positioning are to be in scale and context to the site to enable an assessment.*

E) Entering the site from Gilmore Road: Traffic entering the site would be satisfactory for the site had one way circulation. The site cannot function adequately with two way circulation as articulated vehicles are tracking into opposing lanes. Council requires traffic to enter the site only via Gilmore Road and exit via Bowen Place. *Two way traffic on site is not supported, plans are to be edited to show one way travel through the site.*

F) Site Manoeuvrability: *The applicant must demonstrate with a turning template how both proposed articulated vehicles can access and egress the receivable hall without affecting the proposed onsite parking.*

G) Kealman and Bowen Place Intersection: Trucks turning right from Bowen Place onto Kealman Road may compromise stopping sight distance for vehicles travelling along Kealman Road when they come over the crest near Bowen Place and encounter and articulated vehicle turning right out of Bowen Place while travelling to Canberra Road, the applicant must show

i) The available stopping sight distance at the crest;
ii) If a vehicle is stopped n Kealman Road waiting for a truck to turn out of Bowen Place how much the SSD is compromised;
iii) How the right hand turn can be enforced out of Bowen Place;
iv) Treatments proposed to prevent and accident at this intersection, and
v) Act on any feedback from RMS referral.

Stopping Sight Distance

Each of the above comments are addressed individually in the following sections for clarity.

2.1 Reference Document

Comment:

Reference documents for the study omitted the use of QPRC Design Specification D1 Road Geometric Design, the applicant must review that the parameters of D1 were considered in the submission of the traffic impact assessment.

Response:

TTW has reviewed the requirements of the QPRC Design Specification D1 Road Geometric Design, and can confirm that the proposed works are in accordance with the requirements of the specification.

2.2 Speed Limit of Canberra Avenue

Comment:

3.2.1 states that Canberra Avenue speed limit is 60km/hr. The posted speed limit at the location of Gilmore Road and Kealman Road is 80kmh.

Response:

Agreed.

2.3 19m Semi Exiting the Site

Comment:

19m Semi exiting the site: The trailer of the semi is still tracked across the traffic lane for traffic entering Bowen Place at the Kealman Road intersection. *This is not satisfactory to allow suitable function of Bowen Place.*

Response:

Please refer to the revised turning circle demonstration (C001) prepared using the architectural CAD background and Auto Turn. The Autoturn template used for this analysis is the Austroads 2006 19m Semi trailer template with a minimum intersection speed of 5km/hr.

The plan shows that a 19m Semi trailer is able to turn right out of Bowen Place onto Kealman Road without tracking across the intersection as depicted in the previously submitted turning demonstration.

2.4 25m B-Double Exiting the Site

Comment:

25m B-double exiting the site: The trailer is partially across the lane and affecting Bowen Place, the position depicted of the vehicle is half way across Kealman Road. *The swept path and vehicle positioning are to be in scale and context to the site to enable an assessment.*

Response:

Please refer to the revised turning circle demonstration (C002) prepared using the architectural CAD background and Auto Turn. The Autoturn template used for this analysis is the Austroads 2006 25m B-double template with a minimum intersection speed of 5km/hr.

The plan shows that a 25m B-double is able to turn right out of Bowen Place onto Kealman Road without tracking across the intersection as depicted in the previously submitted turning demonstration.

2.5 19m Semi turning right onto Kealman Road

Comment:

19m Semi turning right onto Kealman Road: The location from where the vehicle begins its swept path does not match the location of the vehicle after exiting the development site. *The swept paths and vehicle positioning are to be in scale and context to the site to enable an assessment.*

Response:

Please refer to the revised turning circle demonstration (C001) showing continuous turning circle path prepared using the architectural CAD background and Auto Turn. The Autoturn template used for this analysis is the Austroads 2006 19m Semi trailer template with a minimum intersection speed of 5km/hr.

The associated turning demonstrations illustrate the suitability of the proposed arrangement, which caters for movements of the required vehicles through the site without impeding or being impeded by parked or moving vehicles.

2.6 25m B- Double Turning Right onto Kealman Road

Comment:

25m B- double turning right onto Kealman Road: The location from where the vehicle begins its swept path does not match the location of the vehicle after exiting the development site. The swept path would indicate that as a right hand turn is made the traffic cannot make a felt turn into Bowen Place. *The swept paths and vehicle positioning are to be in scale and context to the site to enable an assessment.*

Response

Please refer to the revised turning circle demonstration (C002) showing continuous turning circle path prepared using the architectural CAD background and Auto Turn. The Autoturn template used for this analysis is the Austroads 2006 25m B-double template with a minimum intersection speed of 5km/hr.

The associated turning demonstrations illustrate the suitability of the proposed arrangement, which caters for movements of the required vehicles through the site without impeding or being impeded by parked or moving vehicles.

2.7 Entering the Site from Gilmore Road

Comment:

Entering the site from Gilmore Road: Traffic entering the site would be satisfactory for the site had one way circulation. The site cannot function adequately with two way circulation as articulated vehicles are tracking into opposing lanes. Council requires traffic to enter the site only via Gilmore Road and exit via Bowen Place. *Two way traffic on site is not supported, plans are to be edited to show one way travel through the site.*

Response:

Please refer to the attached plan (C005) outlining the proposed vehicle circulation through the site. As requested by QPRC the circulation of vehicles through the site has been amended to cater for one way circulation.

The associated turning demonstrations illustrated on plans C001 to C005 demonstrate the suitability of the proposed arrangement, which caters for movements of the required vehicles through the site without impeding or being impeded by parked or moving vehicles.

2.8 Site Manoeuvrability

Comment:

Site Manoeuvrability: The applicant must demonstrate with a turning template how both proposed articulated vehicles can access and egress the receivable hall without affecting the proposed onsite parking

Response:

The onsite parking is located in the north and north west portion of the site, outside of the hardstand area to be used for manoeuvring of the articulated and rigid vehicles into and out of the receivable hall. The attached turning circles illustrate the forwards exit movements from the receivables hall which constitute the worst case vehicle movements into and out of the hall.

The critical movement for these vehicles is that from the receivable hall to the exit driveway on Bowen Place. To exit the facility all articulated vehicles will be required to drive over the weigh bridge which will position them on the path of travel illustrated on drawings C001 and C002.

There is no conflict between articulated vehicles and vehicles parked within nominated site parking areas.

2.9 Kealman and Bowen Place Intersection

Kealman and Bowen Place Intersection: Trucks turning right from Bowen Place onto Kealman Road may compromise stopping sight distance for vehicles travelling along Kealman Road when they come over the crest near Bowen Place and encounter and articulated vehicle turning right out of Bowen Place while travelling to Canberra Road, the applicant must show:

i) *The available stopping sight distance at the crest;*
ii) *If a vehicle is stopped n Kealman Road waiting for a truck to turn out of Bowen Place how much the SSD is compromised;*
iii) *How the right hand turn can be enforced out of Bowen Place;*
iv) *Treatments proposed to prevent and accident at this intersection, and*
v) Act on any feedback from RMS referral.

Response:

i) An onsite assessment of the Stopping Sight Distance available for vehicle travelling on Kealman Road towards Canberra Avenue has been carried out. The assessment involved measuring the sight distances available for a vehicle travelling on the northbound lane of Kealman Road to the intersection of Bowen Place and Kealman Road.

The assessment was carried out using a 0.2m high target set up at the northern kerb return of the Bowen Place leg of the intersection (this point is lower than the southern kerb return and provides a more conservative result) and taking line of sight measurements using a calibrated laser measuring device from a height of 1.15m until the crest obstructed the line of sight.

The onsite survey resulted in an available Stopping Sight Distance of 65m, and satisfied the minimum allowable stopping sight distance at a crest of 45m for a 50km/hr speed zone.

Assessment of the Safe Intersection Sight Distance was carried out using a 1.15m high target set up at the northern kerb return of the Bowen Place leg of the intersection (this point is lower than the southern kerb return and provides a more conservative result) and taking line of sight measurements using a calibrated laser measuring device from a height of 1.15m until the crest obstructed the line of sight.

The onsite survey resulted in an available Safe Intersection Sight Distance of 88m, and satisfied the minimum allowable distance at a crest of 80m for a 50km/hr speed zone.

TTW note that the actual sight distance available to drivers travelling on Kealman Road towards Canberra Avenue would actually be longer than surveyed as the design vehicle entering Kealman Road is nominally 4m in height.

ii) This item is no longer relevant as the turning demonstrations show that a vehicle turning onto Kealman Road does not obstruct a vehicle turning left into Bowen Place. In saying this, if for some reason a vehicle was stopped at the intersection of Kealman Road prior to turning left into Bowen Place there would be stopping sight distance of 53m available, satisfying the minimum requirement of 45m for a 50km/hr speed zone.

iii) TTW recommend that the right turn movement out of Bowen Place be enforced using an extended kerb return as illustrated on the drawings in Appendix A as well as special regulatory signage stating that all vehicles greater than passenger vehicle size must turn right to access Canberra Avenue. It is also suggested that the facility provide signage on site illustrating the route into and out of the facility for vehicles other than passenger vehicles.

iv) Aside from the kerb extension and signposting of the restriction of left turn movements, TTW does not recommend any upgrades to the intersection as it has been demonstrated that intersection safety is not compromised by the turning movements of the facilities transport vehicles.

v) Feedback was provide by RMS prior to TTWs engagement to carry out the additional traffic works addressing the comments provided by QPRC. The RMS requested the following information:

- RMS continues to have concerns with the intersection of Canberra Avenue and Kealman Road. The applicant has not provided enough information to assess the impacts that the development will create on this intersection.
- RMS requires existing traffic counts for the AM and PM peak periods to be provided.
- Based on the aforementioned traffic counts RMS may require intersection modelling using SIDRA to be undertaken for the junction of Canberra Avenue with Kealman Road considering the following:
    - Full development of the site;
    - AM and PM peak volumes and business peak volumes;
    - Existing traffic volumes with and without development and 10 year projected volumes with and without the development, and

- The base SIRDA models must identify suitable infrastructure required to ameliorate any traffic impacts and safety impacts associated with the development. Concept plans need to be provided for and works proposed within the road reserve prior to determination to demonstrate that they can be constructed within the road reserve. If the works could not be constructed within the road reserve, RMS would not support the proposal unless appropriate legally binding arrangements were in place to ensure that the appropriate land required to construct the works could be obtained.

Response:

The design team and facility operator has developed a plan to have all vehicles greater than passenger vehicle size access Canberra Avenue via the signalised intersection of Gilmore Road and Canberra Avenue. This solution is considerably safer than having large vehicles entering Canberra Avenue via Kealman Road via the seagull type intersection arrangement which does not provide acceleration lanes for entering traffic.

The engineering controls implemented include the extension of the kerb return into Bowen Place to physically restrict the left turn movement onto Kealman Road by heavy vehicles. It is also proposed that special regulatory signage be implemented within the extended kerb return to reinforce the restriction.

TTW has significant knowledge of the traffic arrangements of this specific area that have been formed over many years of use and observation of the road network surrounding the development. Section 4.3 of the Auswide Report details the arrival and departure times for employees as well as the final number of anticipated vehicle trips of 140 per day generally comprising of:

- 40 staff vehicle trips of which 20 occur during the AM Peak and 20 occur between 5 and 6am.
- 40 staff vehicle trips of which 20 occur during the PM peak and 20 occur between 2 and 3pm.
- 60 service vehicle trips of which generally occur between 5am and 3pm.

The aforementioned traffic generation is not anticipated to adversely affect the traffic flow along Canberra Avenue, Gilmore Road or Kealman Road outside of peak traffic periods. The capacities of these roads is considered significantly greater than the anecdotal traffic flows experienced outside of the peak traffic periods.

The predicted heavy vehicle trips per day consisting of 30 arrivals and 30 departures will occur outside of the peak AM and PM periods to maximise productivity of the fleet. A conservative assessment of the traffic produced would result in a maximum of15 vehicles leaving the facility prior to the AM peak, which would be of no consequence to the traffic on Canberra Avenue at the specified time.

The predicted traffic generated by the development during the peak AM and PM periods (20 vehicle trips each) would result in an increase in peak traffic volumes on Canberra Avenue of no more than 2.3%, and assuming a nominal 50% split in the direction of travel is expected to result in an insignificant change to the existing traffic conditions.

TTW recommend that a SIDRA analysis of any junction with Canberra Avenue is not justified, and if there were concerns that they could be dealt with through observations between TTW and QPRC in the first instance.

3.0 Recommendations

TTW recommend that the proposed vehicular access arrangement to the facility be accepted for the purpose of Development Approval, as it has been demonstrated that the vehicle movements into and out of the site are able to be performed without a reduction in the current amenity or safety available to all road users.

Prepared by
TAYLOR THOMSON WHITTING (ACT) PTY LTD

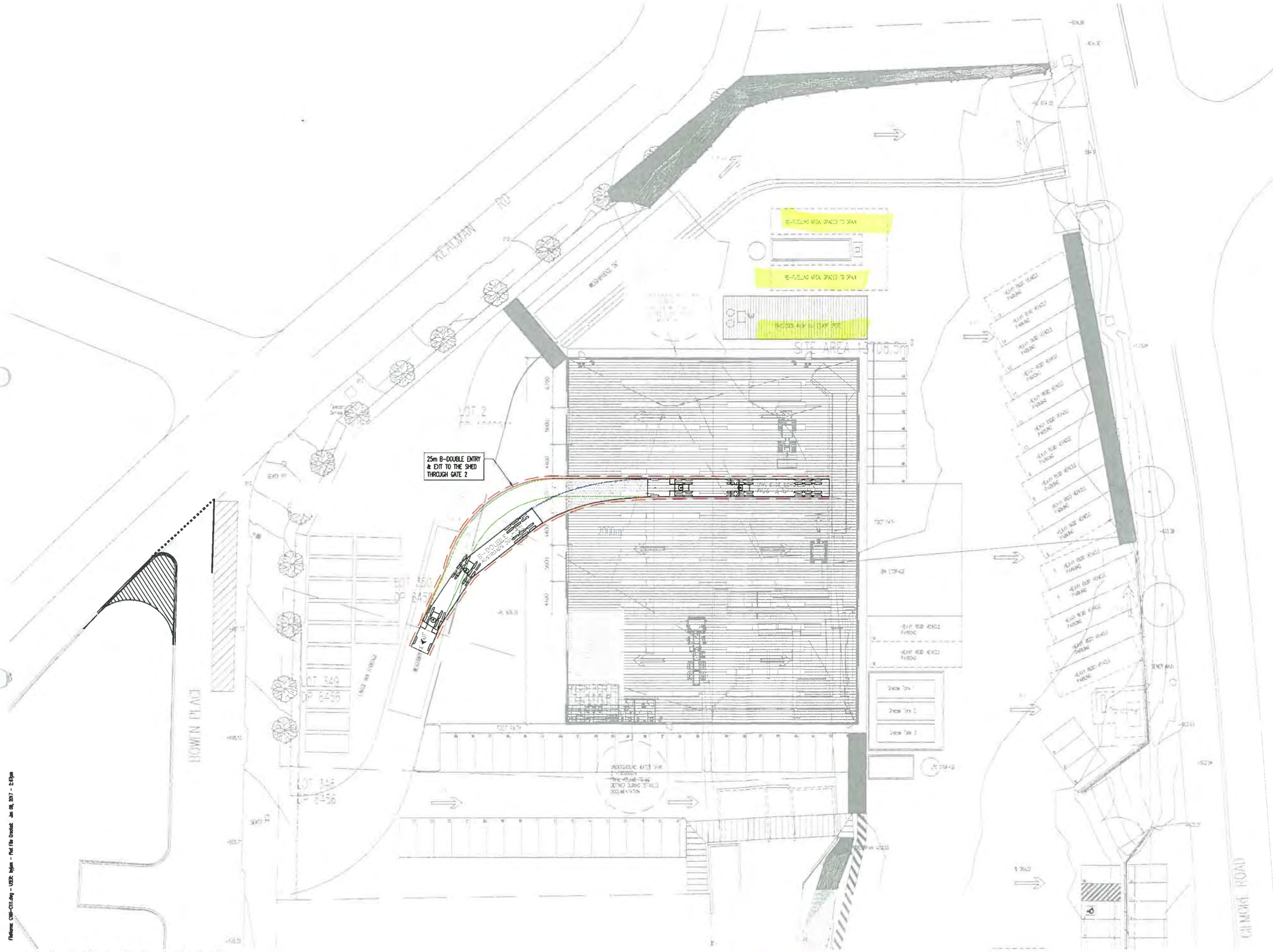
Authorised By
TAYLOR THOMSON WHITTING (ACT) PTY LTD

CHRISTIE PLAYER
Associate

ROSS MCDOUGALL
Director

J:\2017\1790\179015\Reports\TTW\160217 - Waste Recivery Facility Traffic Assessment - CP.docx

THIS DRAWING TO BE READ IN CONJUNCTION WITH ALL RELEVANT NOTES ON DRAWING C1001



PRELIMINARY

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A	DRAFT PSP	CP	RG	28.02.17					

TTW Taylor Thomson Whitting

612 6285 1766 | 103 Tennant Street Fyshwick ACT 2609

Project
WASTE RECOVERY FACILITY
GILMORE ROAD WEST
QUEANBEYAN

Sheet Subject
TURNING MOVEMENTS
INTO AND OUT OF SHED
SHEET 2

Scale : A1	Drawn	Authorised
1:250	BM	

Job No	Drawing No	Revision
179015	C108	B

Plot File Created: Jun 09 2017 - 2:07pm

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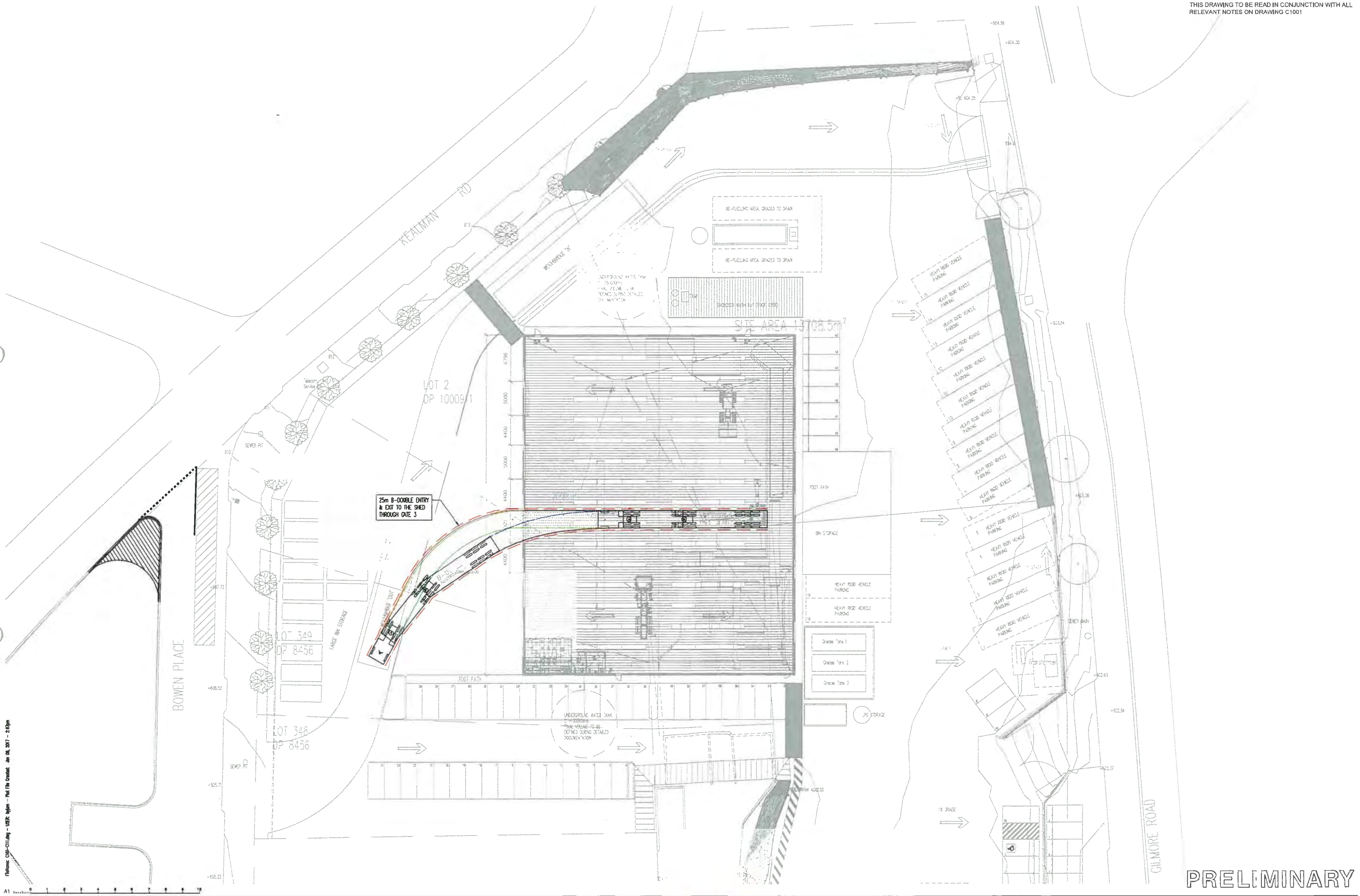

PRELIMINARY

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B	FOR APPROVAL	CP	BM	09.06.17
A	DRAFT PSP	CP	RG	28.02.17

Taylor Thomson Whitting
612 6285 1766 | 103 Tenrant Street Fyshwick ACT 2069

Project: WASTE RECOVERY FACILITY GILMORE ROAD WEST QUEANBEYAN

Sheet Subject: TURNING MOVEMENTS INTO AND OUT OF SHED SHEET 3

Scale: A1 1:250 | Drawn: BM | Authorised:

Job No: 179015 | Drawing No: C109 | Revision: B

Plot File Created: Jun 09 2017 - 2:07pm

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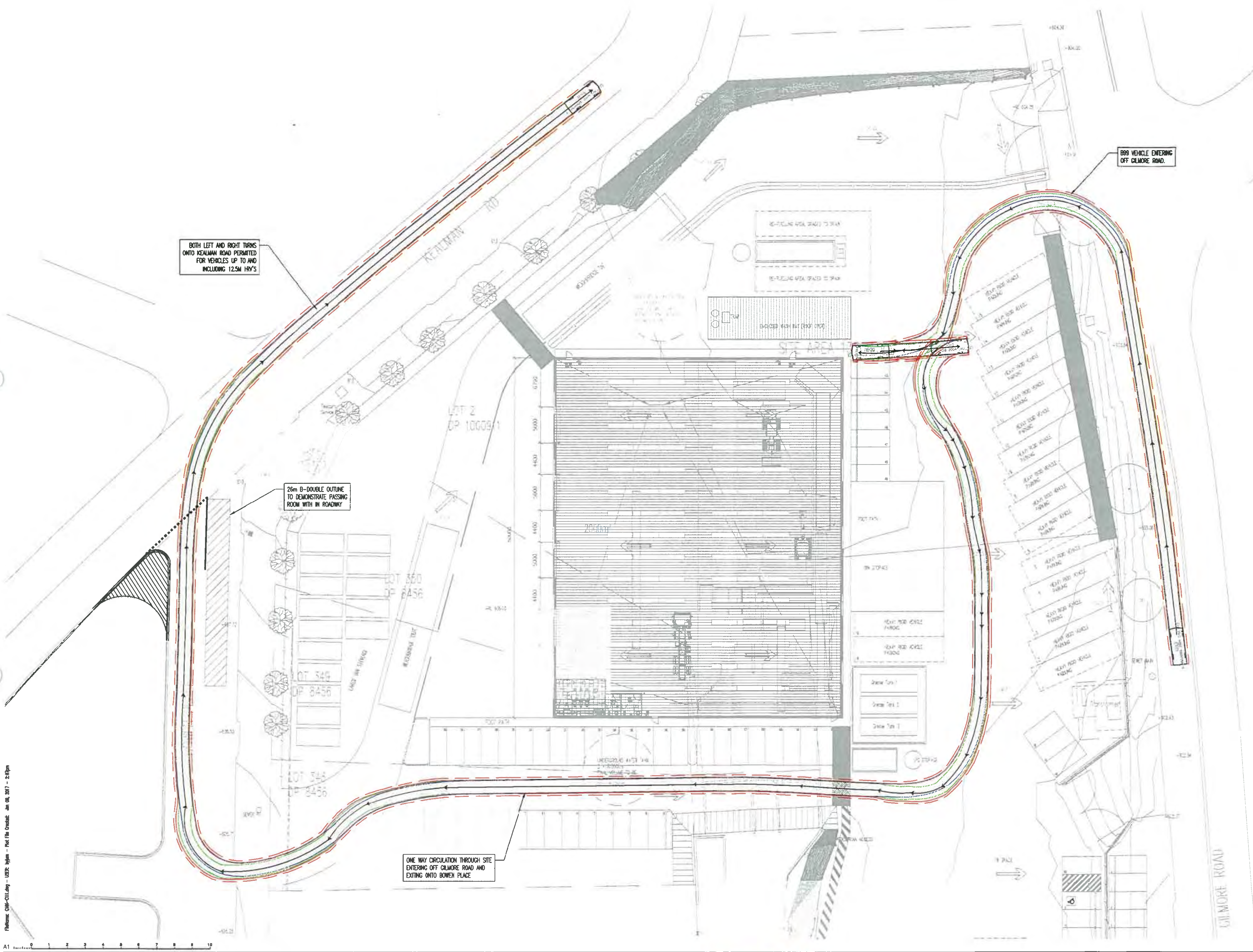

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B	FOR APPROVAL	CP	BM	09.06.17					
A	DRAFT PSP	CP	RG	28.02.17					

TTW Taylor Thomson Whitting
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Project: WASTE RECOVERY FACILITY GILMORE ROAD WEST QUEANBEYAN

Sheet Subject: B99 TURNING CIRCLE

Scale : A1	Drawn	Authorised
1:250	BM	
Job No	**Drawing No**	**Revision**
179015	C104	B

Plot File Created. Jun 09 2017 - 2 07pm

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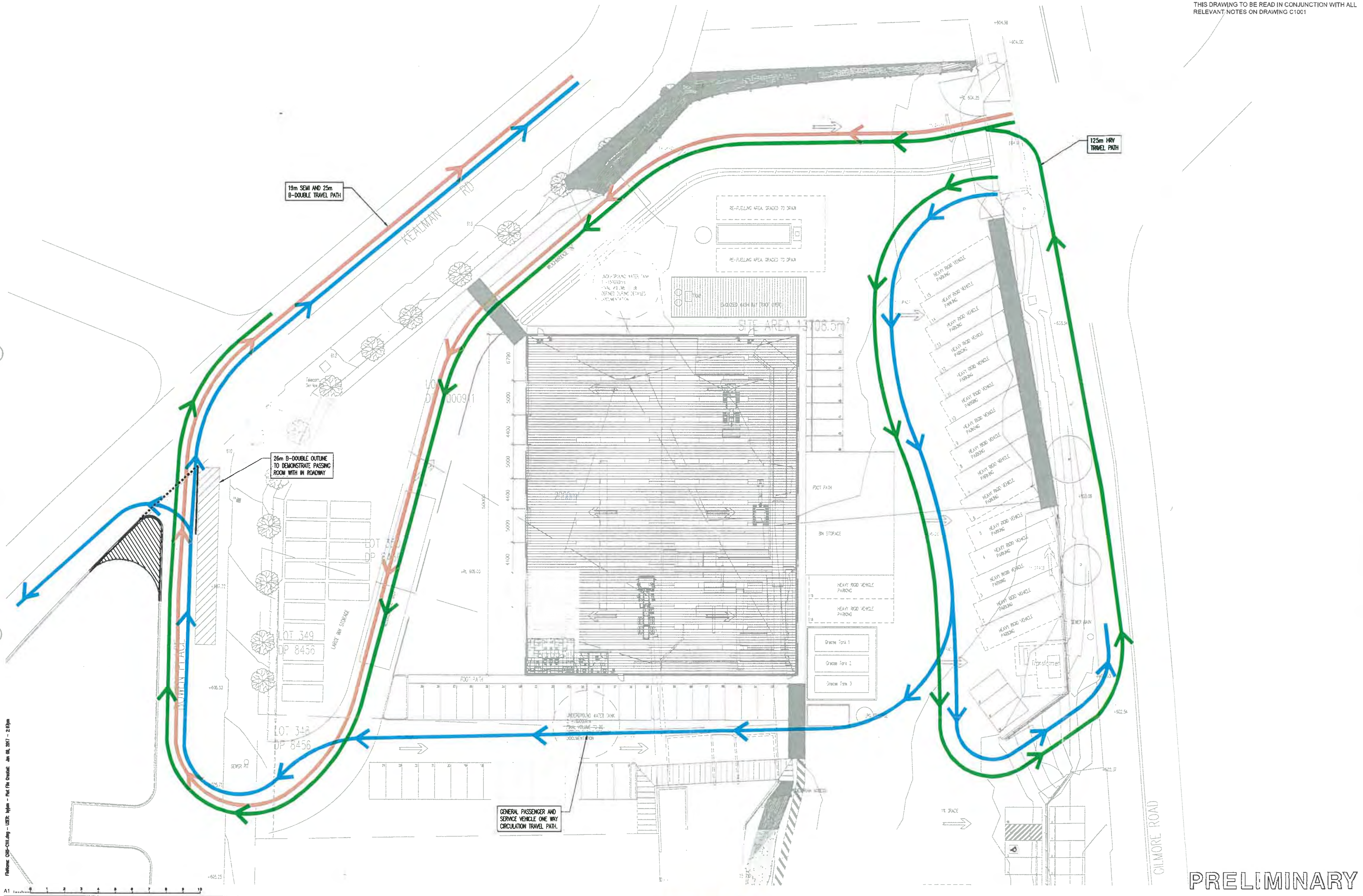

PRELIMINARY

Rev	Description	Eng	Draft	Date
B	FOR APPROVAL	CP	BM	09.06.17
A	DRAFT PSP	CP	RG	28.02.17

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Project: WASTE RECOVERY FACILITY GILMORE ROAD WEST QUEANBEYAN

Sheet Subject: VECHILE CIRCULATION PLAN

Scale : A1	Drawn	Authorised
1:250	BM	

Job No	Drawing No	Revision
179015	C105	B

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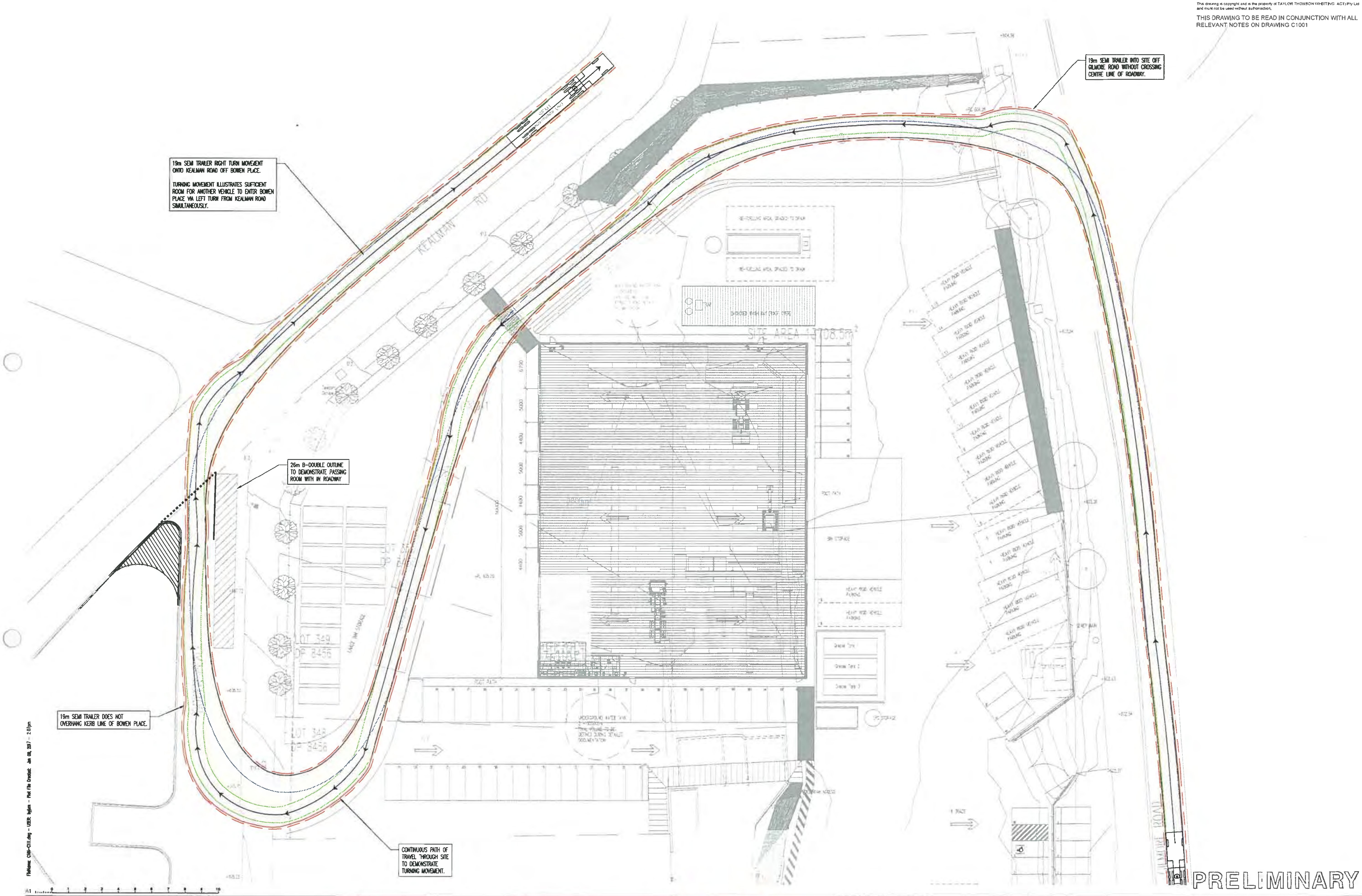

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Rev	Description	Eng	Draft	Date
B	FOR APPROVAL	CP	BM	09.06.17
A	DRAFT PSP	CP	RG	28.02.17

TTW Taylor Thomson Whitting

612 6285 1766 | 103 Tennant Street Fyshwick ACT 2609

Project: WASTE RECOVERY FACILITY GILMORE ROAD WEST QUEANBEYAN

Sheet Subject: 19M SEMI-TRAILER TURNING CIRCLE

Scale : A1	Drawn	Authorised
1:250	BM	
Job No	**Drawing No**	**Revision**
179015	C101	B

Plot File Created: Jun 09 2017 - 2:07pm

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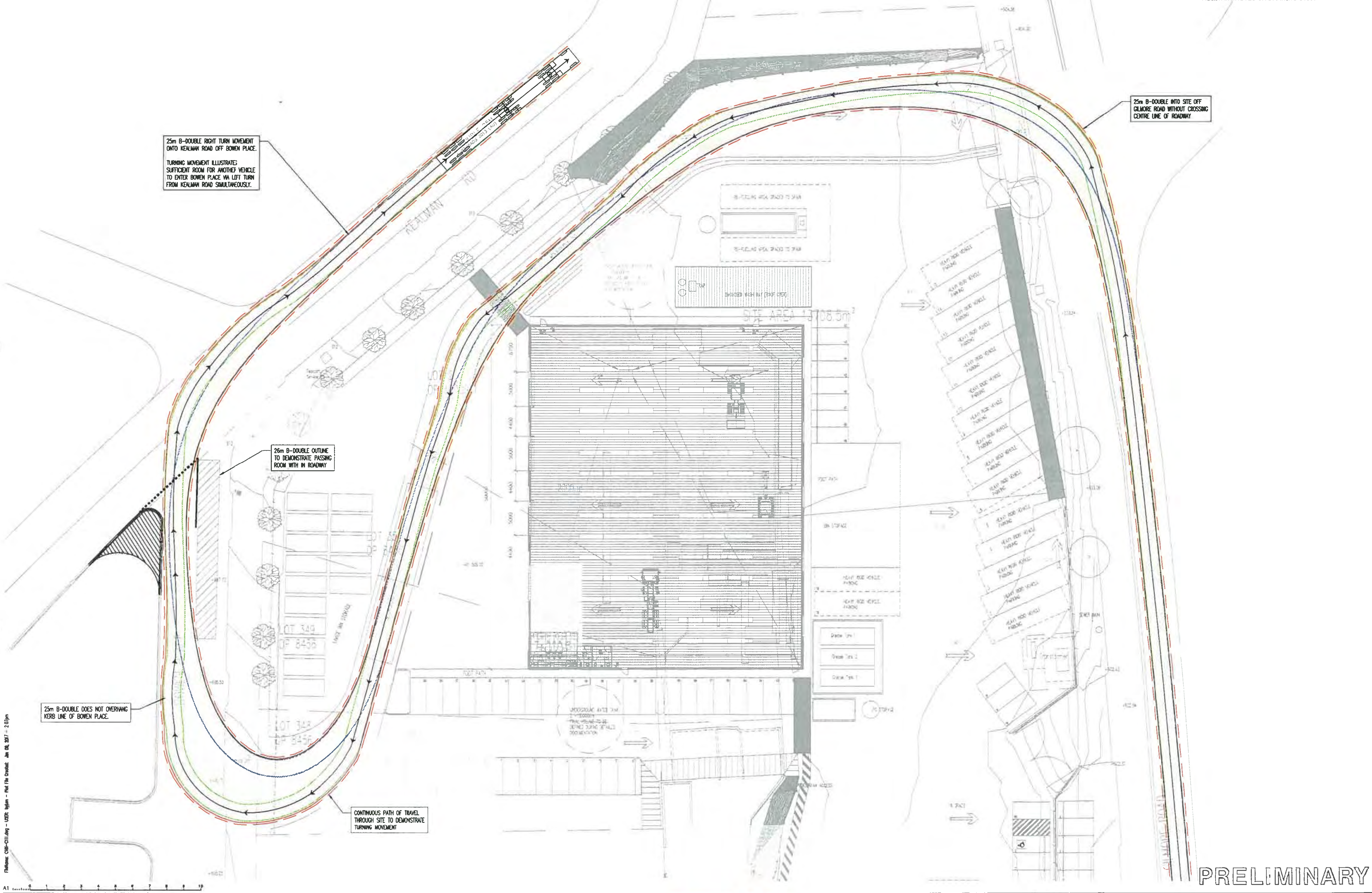

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A	DRAFT PSP	CP	RG	28.02.17					

TTW Taylor Thomson Whitting

612 6285 1766 | 103 Tennant Street Fyshwick ACT 2609

Project: WASTE RECOVERY FACILITY GILMORE ROAD WEST QUEANBEYAN

Sheet Subject: 25M B-DOUBLE TURNING CIRCLE

Scale : A1	Drawn	Authorised
1:250	BM	

Job No	Drawing No	Revision
179015	C103	B

Plot File Created: Jun 09 2017 - 2:07pm

THIS DRAWING TO BE READ IN CONJUNCTION WITH ALL RELEVANT NOTES ON DRAWING C1001

ALL VEHICLES OVER 6M MUST TURN RIGHT

26m B-DOUBLE OUTLINE TO DEMONSTRATE PASSING ROOM WITH IN ROADWAY

ENTRY ONLY

NO EXIT

REALWAY RD

BOWEN PLACE

LOT 2 DP 1000941

LOT 650 DP 8456

LOT 649 DP 8456

LOT 648 DP 8456

SITE AREA 13706.0m²

ONE WAY

ONE WAY

ONE WAY

NO ENTRY

ACCESS TO CANBERRA AVENUE VIA GILMORE ROAD FOR ALL VEHICLES OVER 6M

LEFT TURN ONLY

LEFT TURN ONLY

NO ENTRY

GILMORE ROAD

PRELIMINARY

Rev	Description	Eng	Draft	Date
B	FOR APPROVAL	CP	BM	09.06.17
A	DRAFT PSP	CP	RG	28.02.17

Taylor Thomson Whitting

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Project: WASTE RECOVERY FACILITY GILMORE ROAD WEST QUEANBEYAN

Sheet Subject: PROPOSED SIGNAGE PLAN

Scale : A1 1:250 | Drawn BM | Authorised

Job No 179015 | Drawing No C106 | Revision B

Plot File Created: Jun 09 2017 - 2:07pm

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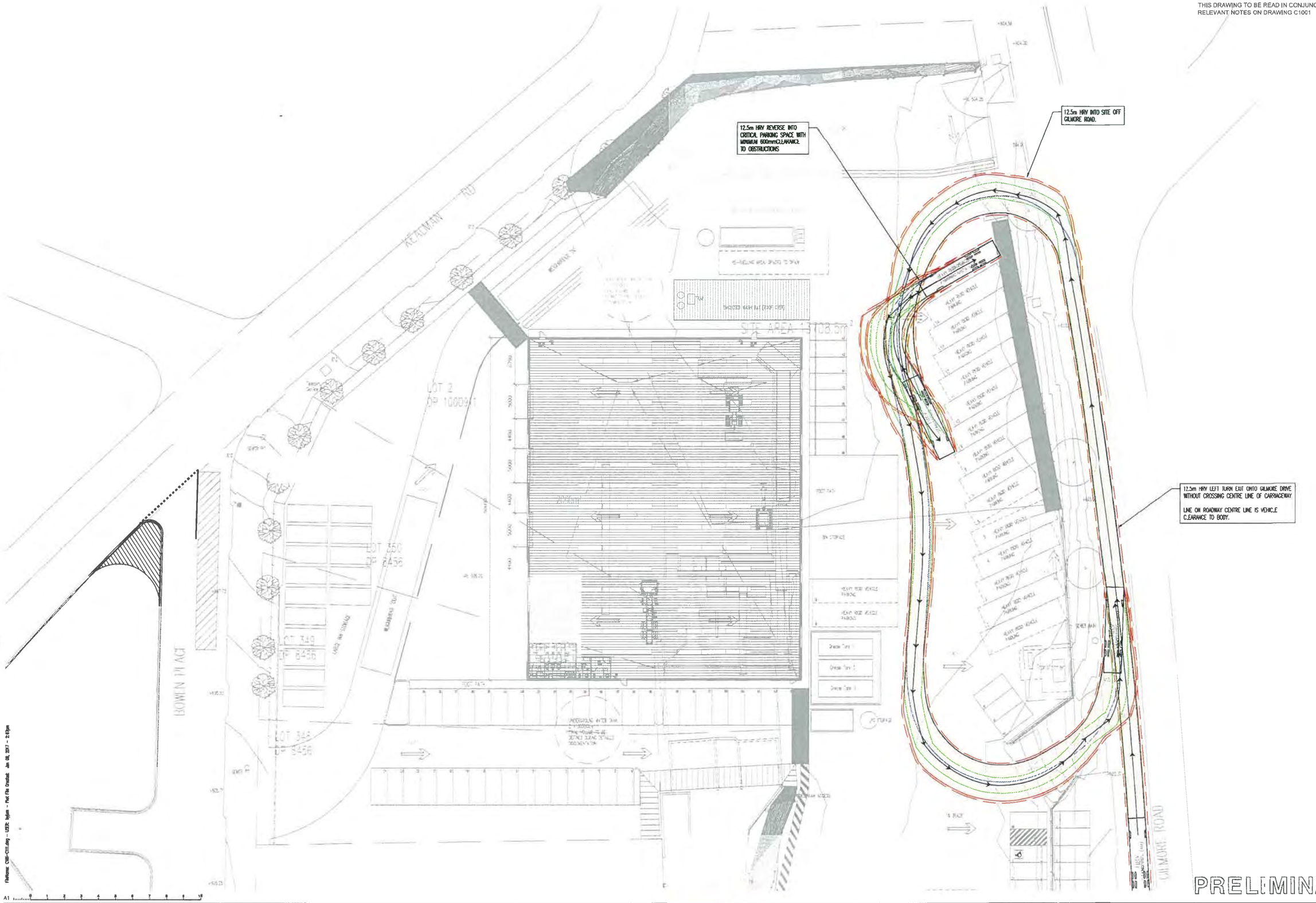

PRELIMINARY

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B	FOR APPROVAL	CP	BM	09.06.17
A	DRAFT PSP	CP	RG	28.02.17

Taylor Thomson Whitting
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Project: WASTE RECOVERY FACILITY GILMORE ROAD WEST QUEANBEYAN

Sheet Subject: 12.5M TURNING CIRCLE

Scale : A1: 1:250 | Drawn: BM | Authorised:

Job No: 179015 | Drawing No: C102 | Revision: B

Plot File Created: Jun 09 2017 - 2:07pm

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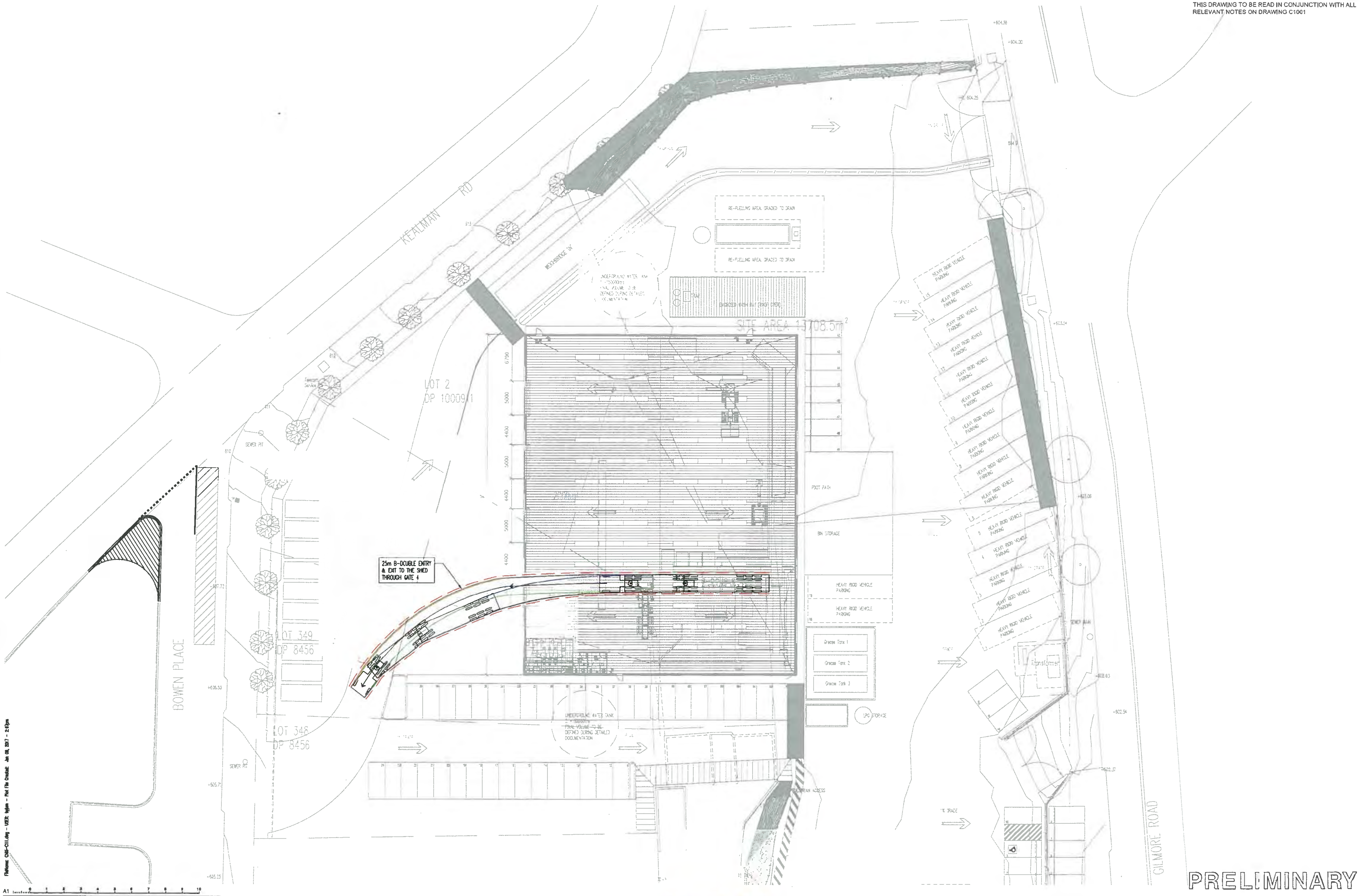

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B	FOR APPROVAL	CP	BM	09.06.17					
A	DRAFT PSP	CP	RG	28.02.17					

Taylor Thomson Whitting (TTW)
612 6285 1766 | 103 Tenrant Street Fyshwick ACT 2069

Project: WASTE RECOVERY FACILITY GILMORE ROAD WEST QUEANBEYAN

Sheet Subject: TURNING MOVEMENTS INTO AND OUT OF SHED SHEET 4

Scale : A1	Drawn	Authorised
1:250	BM	
Job No	Drawing No	Revision
179015	C110	B

Plot File Created: Jun 09 2017 - 2:07pm

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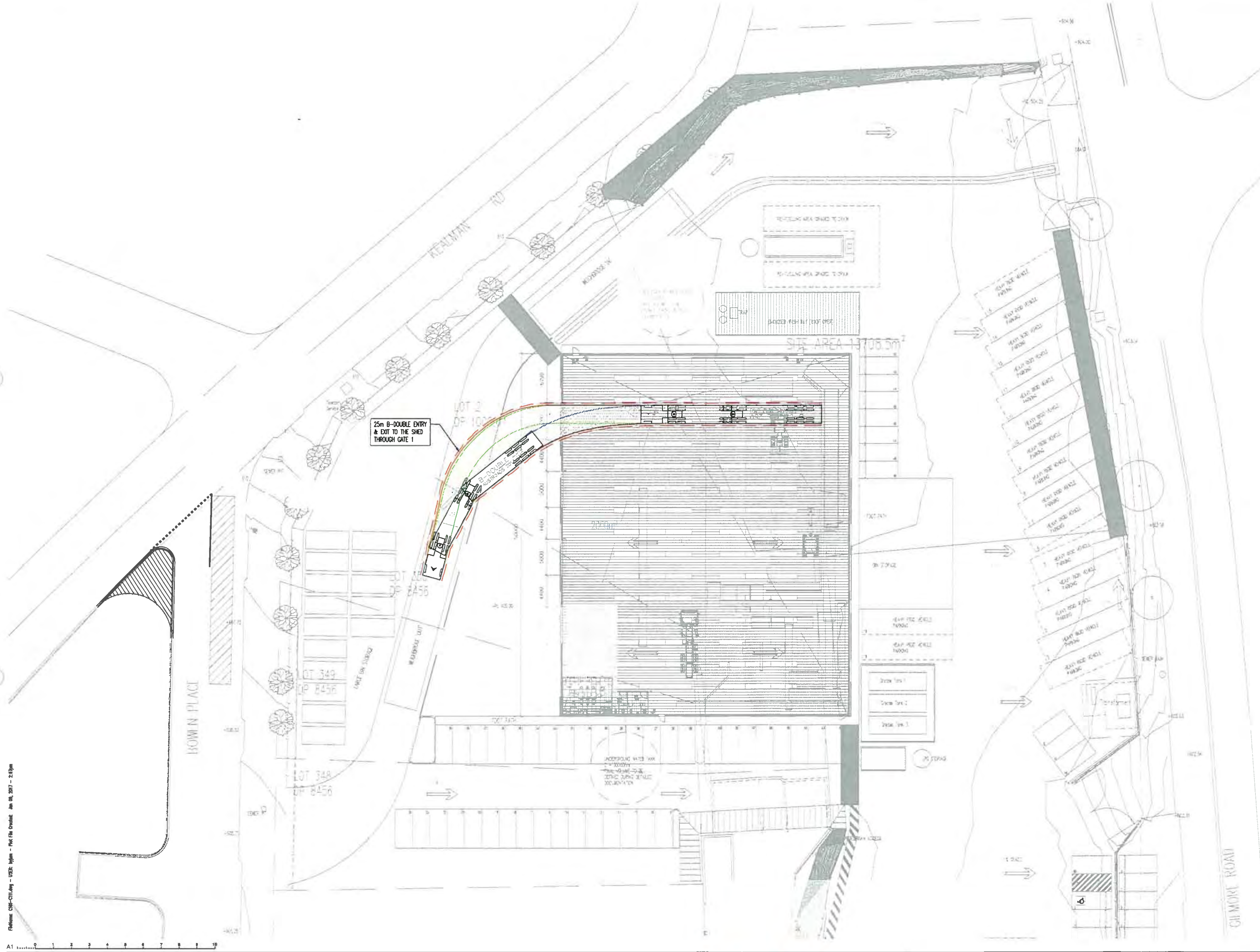

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B	FOR APPROVAL	CP	BM	09.06.17					
A	DRAFT PSP	CP	RC	28.02.17					

TTW Taylor Thomson Whitting
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Project: WASTE RECOVERY FACILITY GILMORE ROAD WEST QUEANBEYAN

Sheet Subject: TURNING MOVEMENTS INTO AND OUT OF SHED SHEET 1

Scale : A1	Drawn	Authorised
1:250	BM	
Job No	Drawing No	Revision
179015	C107	B

Plot File Created: Jun 09, 2017 - 2:07pm

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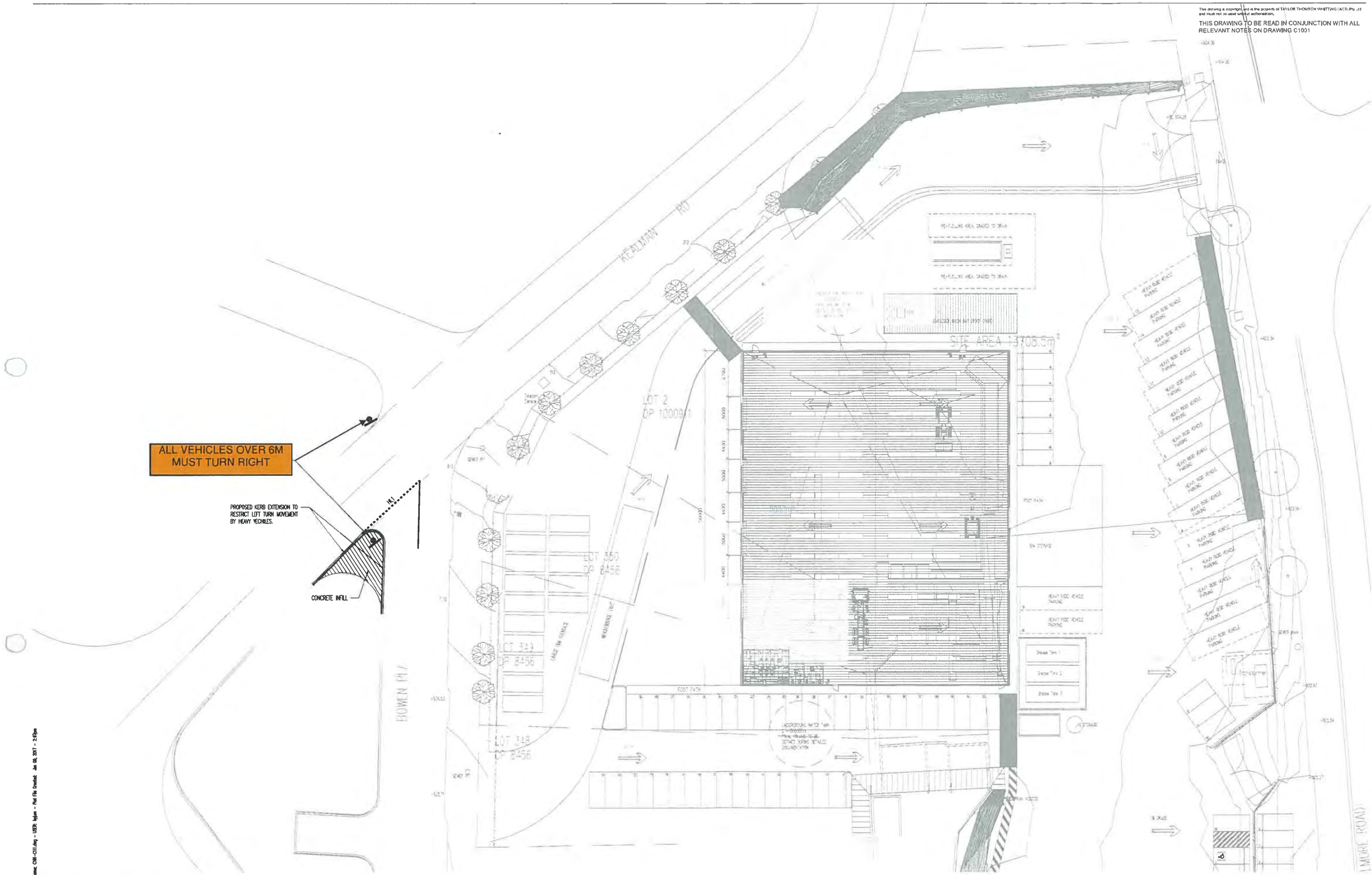

ALL VEHICLES OVER 6M MUST TURN RIGHT

PROPOSED KERB EXTENSION TO RESTRICT LEFT TURN MOVEMENT BY HEAVY VECHILES.

CONCRETE INFILL

PRELIMINARY

Filename: C1M-C111.dwg - USER: bglen - Plot File Created: Jun 09, 2017 - 2:07pm

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TTW Taylor Thomson Whitting
612 6285 1766 | 103 Tennant Street Fyshwick ACT 2069

Project
WASTE RECOVERY FACILITY
GILMORE ROAD WEST
QUEANBEYAN

Sheet Subject
PROPOSED KERB ALIGNMENT AND SIGNAGE PLAN

Scale : A1	Drawn	Authorised
1:250	BM	

Job No	Drawing No	Revision
179015	C111	B

Plot File Created. Jun 09, 2017 - 2.07pm