Traffic Impact Assessment

The Next Generation NSW Pty Ltd
Energy from Waste Facility, Eastern Creek (SSD 6236)

Suite 2.08 Holt Street
Surry Hills NSW 2011
t: +61 2 8324 8700
w: www.traffix.com.au

Reference: 13.519r01v11 (November 2016)

traffix
traffic & transport planners

Document Verification

Job Number:	13.519
Project:	Energy from Waste Facility, Eastern Creek (SSD 6236)
Client:	The Next Generation NSW Pty Ltd

Revision	Date	Prepared by	Checked by	Signature
v10-Draft	06/09/2016	HB	GP	
v11	02/11/2016	HB	GP	

Contents

Appendices

1. Introduction

TRAFFIX has been commissioned by The Next Generation NSW Pty Ltd (TNG NSW) to undertake a traffic impact assessment in support of a proposed Energy from Waste Electricity Generation Plant (EfW Facility) at Eastern Creek. The proposed plant is to have capacity for up to 1.35 million tonnes of waste per annum, the majority of which will be sourced from the neighbouring Genesis Xero Resource Recovery Facility (Refer MP 06_0239) which is situated to the immediate north of the proposed EfW Facility.

The site is located within the Blacktown Council LGA and lies within the Eastern Creek Precinct of the *State Environmental Planning Policy (Western Sydney Employment Area) 2009.*

This report documents the findings of our investigations and should be read in the context of the Environmental Impact Statement (EIS) prepared separately by Urbis. The development relates to a Resource Recovery Facility and will therefore require formal referral to the Roads & Maritime Services (RMS) under the provisions of SEPP (Infrastructure). A copy of the RMS correspondence to the Director General's Requirements (DGR's) is included in **Appendix A**.

The report is structured as follows:

- Section 2: Describes the site and its location
- Section 3: Documents existing traffic conditions
- Section 4: Describes the proposed development
- Section 5: Assesses the parking requirements
- Section 6: Assesses the operational traffic impacts
- Section 7: Discusses the construction traffic impacts
- Section 8: Discusses access and internal design aspects
- Section 9: Presents the overall study conclusions.

2. Location and Site

The site forms part of the Western Sydney Employment Area (WSEA) located approximately 35 kilometres west of the Sydney CBD and 14 kilometres west of the Parramatta CBD as shown in **Figure 1**. More specifically, the site is located within the Eastern Creek Precinct and lies to the south of the M4 Motorway, west of the Wallgrove Road / Westlink M7 Motorway.

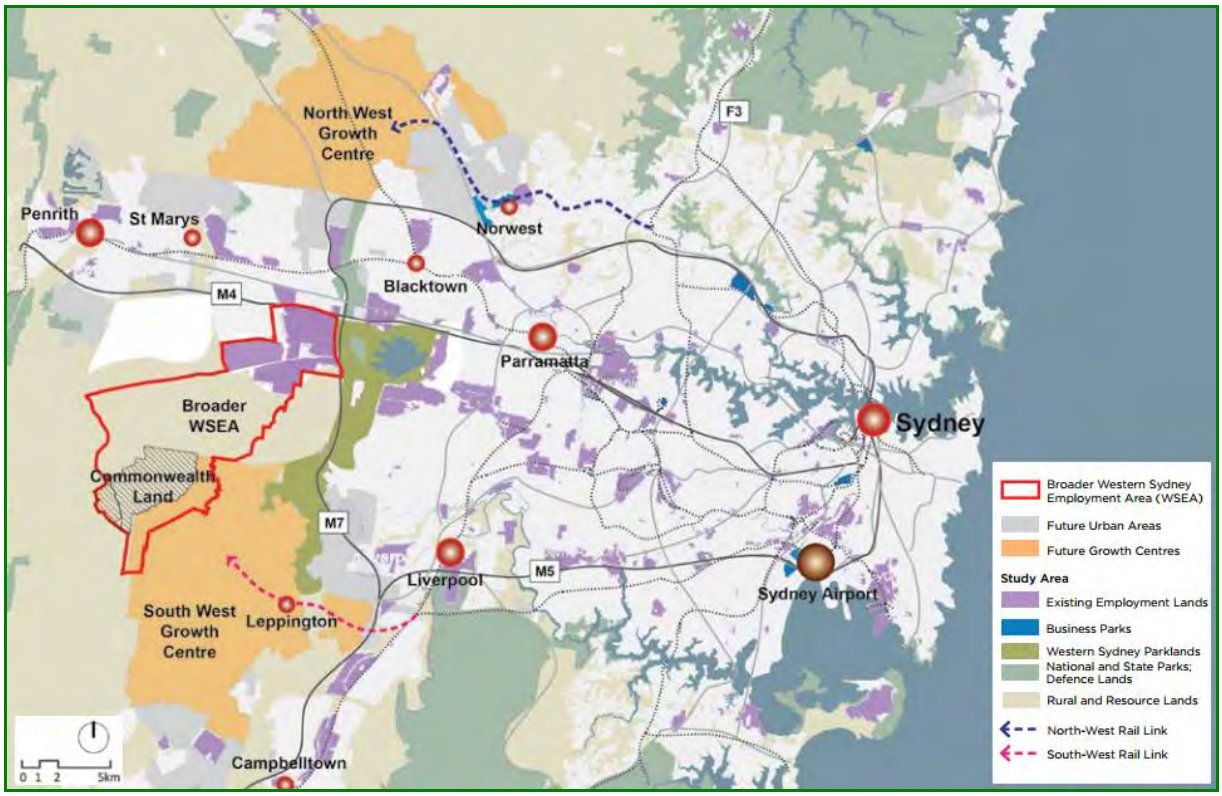


Figure 1: Western Sydney Employment Area

The site is located to the south of the Genesis Xero Resource Recovery Facility and to the west of the Hanson site. All vehicular access to the site is provided from Honeycomb Drive which provides the main access to the estate road, known as Dadi Drive that serves both the Hanson site and the Genesis Xero facility.

A Location Plan is presented in **Figure 2**, with a Site Plan presented in **Figure 3**.

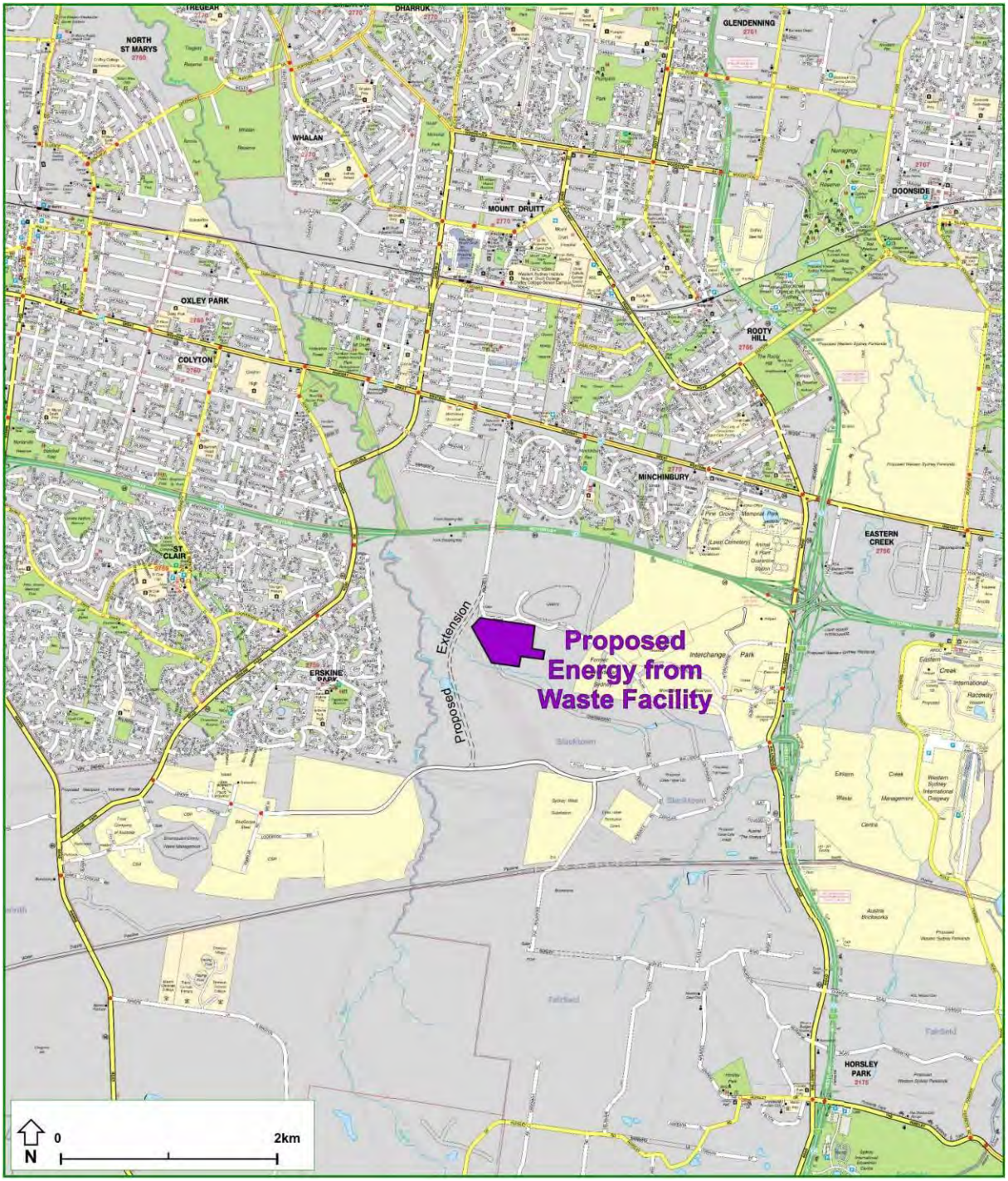


Figure 2: Location Plan

Figure 3: Site Plan

3. Existing Traffic Conditions

3.1 Road Network

The road hierarchy in the vicinity of the site is shown in **Figure 4** with the following roads of particular interest:

- M7 Motorway: an arterial road that provides Sydney with a key orbital connection between numerous radial arterial roads including the M4 to the north and the M5 to the south.
- M4 Motorway: an RMS State Road (MR 6004) that forms the primary east-west arterial link between the Sydney CBD and the Western Suburbs. Site access to the M4 is available via Wallgrove Road.
- Wallgrove Road: a classified road (MR 515) that traverses in a north-south direction to the east of the site. It historically carried in the order of 31,500vpd; however this has reduced to approximately 25,750vpd since the completion of the M7 Motorway.
- Wonderland Drive: a local road that lies to the east of the site and generally traverses in an east-west direction between Honeycomb Drive in the west and Wallgrove Road in the east. It provides direct access to Wallgrove Road and will form a primary route used by vehicles to/from the M4 motorway.
- Honeycomb Drive: a local road that generally runs in an eastbound direction from Wonderland Drive.
- Archbold Road: a local road that runs in a north-south direction to the west of the site. Archbold Road is currently constructed with an unsealed carriageway to the south of its bridge over the M4 Motorway with restricted access conditions. In the future, it is intended that Archbold Road be reconstructed to provide a link between the Erskine Park Link Road and the Great Western Highway to better serve the industrial areas of the WSEA. This connection may involve future ramp connections to the M4 Motorway.
- Dadi Drive: an estate road that provides access to the Genesis Xero Facility and Hanson site.

It can be seen from Figure 4 that the site is conveniently located with respect to the arterial and local road systems serving the region and can effectively distribute traffic onto the wider road network. The future road hierarchy, following completion of the planned Archbold Road works, is shown in **Figure 5**.

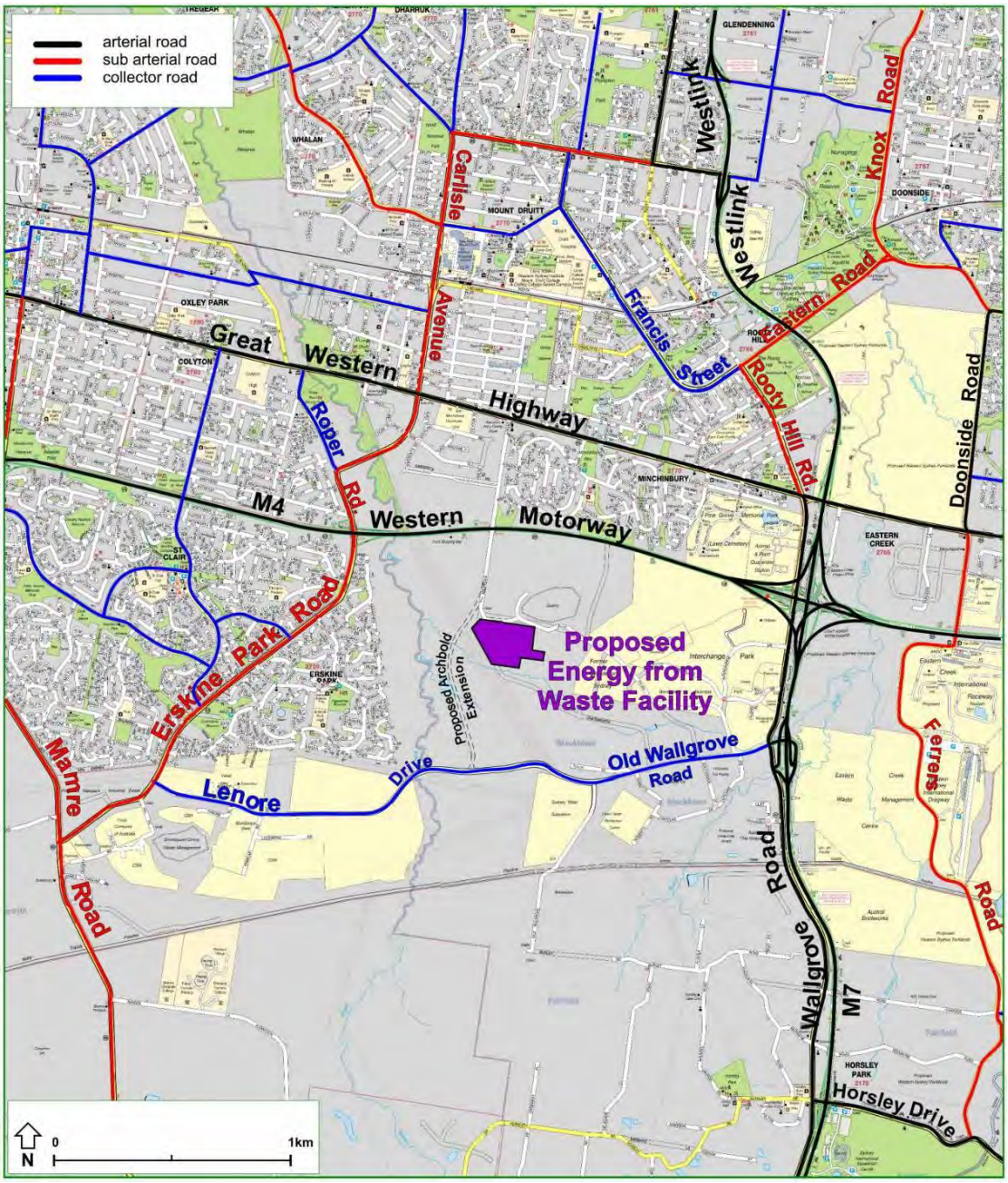


Figure 4: Existing Road Hierarchy

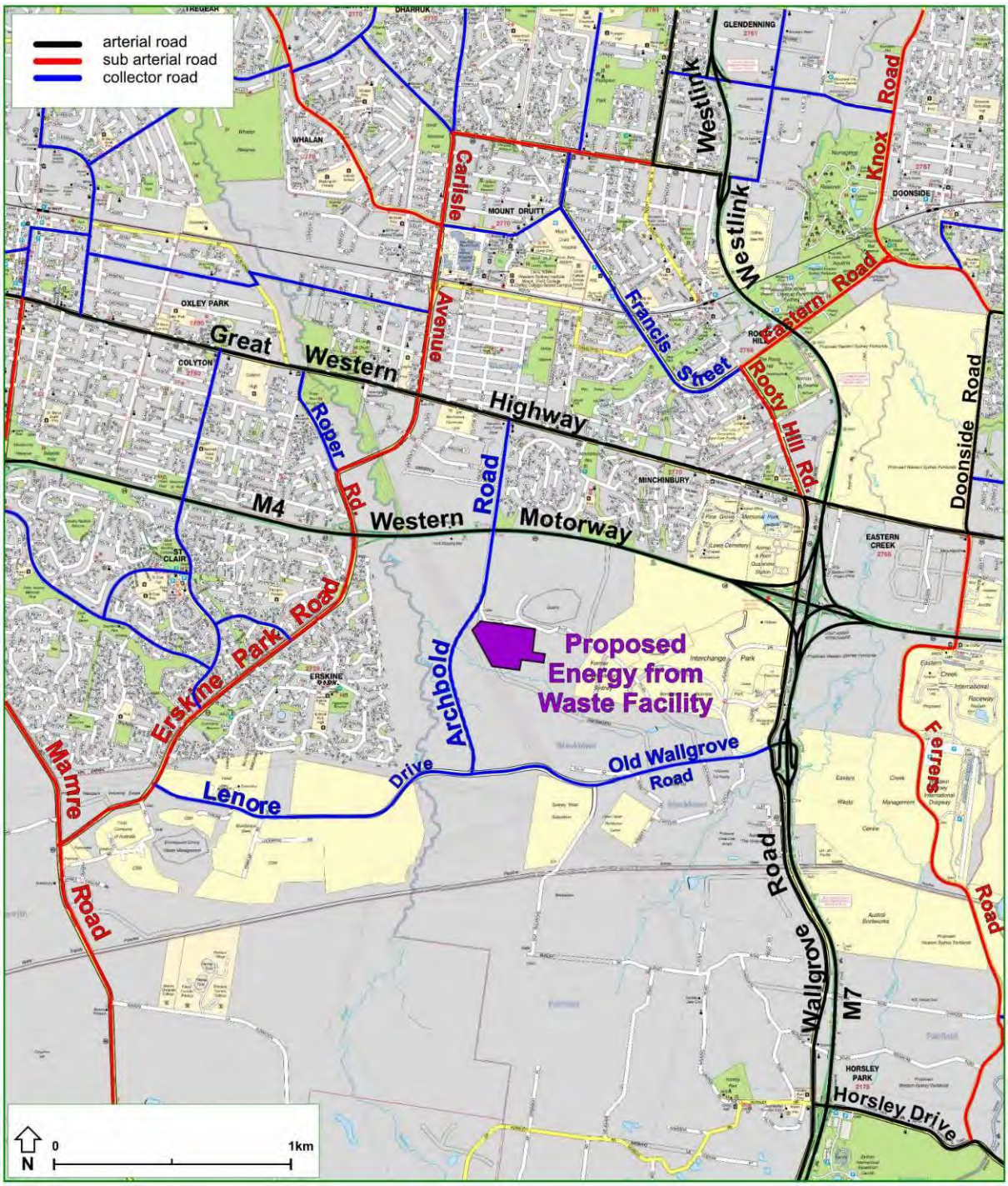


Figure 5: Future Road Hierarchy

3.2 Public Transport

Bus services operating in the vicinity of the site include Busways Route 738 that traverses Wonderland Drive and Wallgrove Road to the east of the site. This route provides connections to the Mount Druitt Railway Station.

Alternative bus routes and increased frequencies may occur in the future as employment increases in the locality as a result of development generally within the Eastern Creek Precinct. The provision of additional bus services will be assisted by the completion of the Archbold Road works which will provide additional route options for service providers that may be more conducive to regular services.

3.3 Existing Site Generation

The area of the site currently intended for the Energy Plant is currently vacant and therefore does not generate any traffic volumes of significance.

A traffic report prepared by Transport and Traffic Planning Associates (TTPA) in relation to the Genesis Xero Waste facility identified the following traffic volumes associated with the Genesis Xero Waste and Hanson facilities, as summarised in **Table 1** below.

Table 1: Existing Traffic Volumes

Site	AM Traffic Volume	PM Traffic Volume
Genesis Xero Waste	96	96
Hanson	156	125
Total	252	211

Tube count surveys with the estate road (Dadi Drive) undertaken over the week starting 18th March 2014 resulted in the following peak two-way traffic volumes:

- AM Peak 209 veh/hr (8.00-9.00am) 102 in, 107 out
- PM Peak 197 veh/hr (3.00-4.00pm) 80 in, 117 out

It can be seen from above that the existing Genesis Xero Waste and Hanson site traffic volumes are less than adopted by the previous TTPA traffic impact assessment. The relevance of this is discussed further in Section 6.

3.4 Existing Intersection Performances

For the purposes of the assessment of traffic impacts of this development, surveys were undertaken of the most critical intersection in the vicinity of the site, being the intersection of Wallgrove Road with Wonderland Drive to the west of the site. These were undertaken on a typical weekday between 6:30-9:30am and 3:30-6:30pm.

The results of these surveys were analysed using the SIDRA computer program to determine their performance characteristics under existing traffic conditions. The SIDRA model produces a range of outputs, the most useful of which are the Degree of Saturation (DOS) and Average Vehicle Delay per vehicle (AVD). The AVD is in turn related to a level of service (LOS) criteria. These performance measures can be interpreted using the following explanations:

DOS - the DOS is a measure of the operational performance of individual intersections. As both queue length and delay increase rapidly as DOS approaches 1, it is usual to attempt to keep DOS to less than 0.9. When DOS exceeds 0.9 residual queues can be anticipated, as occurs at many major intersections throughout the metropolitan area during peak periods. In this regard, a practical limit at 1.1 can be assumed. For intersections controlled by roundabout or give way/stop control, satisfactory intersection operation is generally indicated by a DOS of 0.8 or less.

AVD - the AVD for individual intersections provides a measure of the operational performance of an intersection. In general, levels of acceptability of AVD for individual intersections depend on the time of day (motorists generally accept higher delays during peak commuter periods) and the road system being modelled (motorists are more likely to accept longer delays on side streets than on the main road system).

LOS - this is a comparative measure which provides an indication of the operating performance of an intersection as shown below:

Level of Service	Average Delay per Vehicle (secs/veh)	Traffic Signals, Roundabout	Give Way and Stop Signs
A	less than 14	Good operation	Good operation
B	15 to 28	Good with acceptable delays and spare capacity	Acceptable delays and spare capacity
C	29 to 42	Satisfactory	Satisfactory but accident study required
D	43 to 56	Operating near capacity	Near capacity and accident study required
E	57 to 70	At capacity; at signals incidents will cause excessive delays. Roundabouts require other control mode	At capacity and requires other control mode
F	More than 70	Unsatisfactory and requires additional capacity.	Unsatisfactory and requires other control mode or major treatment.

A summary of the modelled results are provided below. Reference should also be made to the SIDRA outputs provided in **Appendix B** which provide detailed results for individual lanes and approaches.

Table 2: Intersection Performance Summary - Existing

Intersection Description	Control Type	Period	Degree of Saturation	Intersection Delay	Level of Service
Wallgrove Road / Wonderland Drive	Signals	AM	0.581	19.7	B
		PM	0.595	19.5	B

It can be seen from Table 2 that the intersection operates satisfactorily under the existing 'base case' scenario, with a Level of Service B during the morning and evening peak period with moderate delays. Nevertheless, it is stressed that the most relevant use of this analysis is to compare the relative change in the performance parameters as a result of the proposed development. This is discussed further in Section 6.

4. Description of Proposed Development

A detailed description of the proposed development is provided in the Project Definition Brief prepared by Ramboll and Environmental Impact Statement prepared separately by Urbis. In summary, the proposed development involves the construction and operation of an Energy from Waste (EfW) Electricity Generation Plant for The Next Generation NSW Pty Ltd (TNG) in Eastern Creek, approximately 36km west of the Sydney CBD.

The development involves the construction and operation of an Electricity Generation Plant, which will allow for unsalvageable and uneconomic residue waste from the Genesis Xero Material Processing Centre (MPC) and Waste Transfer Station (WTS) to be used for generation of electrical power. The EfW Plant is proposed to be located on Lots 2 and 3, DP 1145808.

This development site is part of a proposal to construct and operate NSW's largest Energy from Waste Plant using as fuel, residual waste which would otherwise be land filled, to allow for a "green" electricity generation facility. The plant, powered by burning non-recyclable combustible waste material, will have a maximum capacity for up to 1.35 million tonnes of waste material per annum. This assumes a conservative energy or calorific value (measure of energy released upon combustion) of 10 for the residual waste material to be used as a fuel source. The residual waste material to used is planned to have a calorific value of 12.3 MJ/kg and therefore only require approximately 1,105,000 tonnes per annum of input material and this input maximum will be implemented in two phases.

The proposed EfW Facility will employment of a total of up to 55 staff upon operation, working over 3 shifts (i.e. not on site at any one time).

The proposed works will, in addition to the Energy from Waste Electricity Generation Facility, include the adoption of a plan of subdivision and the following ancillary works:

- Earthworks associated with the balance of the site;
- Internal roadways;
- Provision of a direct underpass connection (Precast Arch and Conveyor Culvert) between TNG Facility and the Genesis Xero Waste Facility;
- Staff amenities and ablutions;
- Staff car parking facilities;
- Water detention and treatment basins; and
- Services (Sewerage, Water Supply, Communications, Power Supply).

The parking requirements and traffic impacts associated with the development are discussed in Sections 5 and 6, respectively. Reference should be made to the plans submitted separately to Council which are presented at reduced scale in **Appendix C**.

Further to the above physical works associated with the proposed Energy from Waste Facility, this application seeks approval for the subdivision Lot 1, 2 and 3 in DP 1145805 in order to create a separate lot for the Transgrid Switching or Substation and additional lots to allow for future development of land not associated with the Energy from Waste Facility and the Genesis Xero Material Processing Centre.

It is intended that these separate 'pads' will be used for lay down areas during construction of the EfW Waste Facility, however future use of these 'pads' will be subject to a separate application and are therefore not assessed as part of this report.

5. Parking Requirements

5.1 Car Parking Requirements

The proposal relates to a relatively unique use that is not adequately covered by the generic land uses for which parking rates are provided within the RMS *Guide to Traffic Generating Developments* (RMS Guide), Blacktown City Council Development Control Plan (DCP) or the Western Sydney Employment Area – Eastern Creek Precinct Plan. As such a 'first-principles' assessment has been undertaken.

A total of up to 55 staff will be employed by the proposed facility. Staff rosters will include 3 shifts per day and it is assumed that staff numbers will be relatively evenly distributed across each shift.

Having regard for the above, there is potential for up to 37 persons to be on-site at shift changeover periods. Assuming each staff member drives to the site separately, as a worst case scenario, then this results in a staff parking demand of 37 spaces. This demand would reduce to say 18 spaces outside of peak shift changeover periods.

Allowance for an additional 2-3 visitor spaces is also considered appropriate, so that a total provision of 40 car parking spaces is an appropriate provision, as follows:

- 37 staff parking spaces, plus
- 3 visitor parking spaces.

Having regard for the above, a total of 42 parking spaces are proposed within three separate car parking areas (one area with 30 car spaces capacity and two areas with 6 spaces each) either side of EfW Facility. Therefore, all future parking demands associated with the proposed development can be readily accommodated on-site.

5.2 Disabled Parking

The Disability (Access to Premises – Buildings) 2010 requires accessible car parking spaces be provided at a rate of 1 space per 100 car parking spaces or part thereof for Class 5 & 7 buildings. As such, the proposed development is nominally required to provide a single (1) accessible parking space for the proposed development. This space shall be designed in accordance with AS2890.6.

6. Operational Traffic Impacts

6.1 Trip Generation

The RMS Guide does not include an applicable traffic generation rate for a development of this nature. As such, a 'first principles' assessment is required, as outlined below.

6.1.1 Staff Movements

As discussed in Section 5, the development will employ a total of up to 55 staff per day across 3 shifts. As such, the development will generate up to 110 staff trips per day (55 in, 55 out). A peak staff traffic generation of 37 vehicles per hour is expected to occur during shift changeover periods.

6.1.2 Waste / Fuel Deliveries

Trucks are anticipated to carry an average load of 22 tonnes. The plant will operate 24 hours a day, seven days of the week. The proposed plant is to have a total capacity of 1.35 million tonnes per annum. As such, the plant will receive a maximum of up to 168 truck deliveries per day associated with input waste material. However, the planned operational input of 1,105,000 tonnes per annum will result in only 138 trucks per day.

Of this input, it is expected that a significant proportion of input material will be sourced from the adjoining Genesis Xero Waste Facility site which currently has a capacity for up to 2.0 million tonnes per annum. It is anticipated that approximately 469,000 tonnes per annum will be eligible to be redirected straight to the new EfW Facility and therefore bypass the Genesis site. A further 136,000 of existing residual chute waste from the Material Processing Centre, also currently sent to land fill, will be carried via conveyor to the new EfW Facility. As such, the proposed EfW Facility will only require an additional 500,000 tonnes per annum of input waste material from external sources (via vehicle), as summarised in **Table 3** below.

Table 3: Input Material Source Summary - Planned

Location	Annual Input Material
via Conveyor from Genesis Xero Material Processing Centre	136,000 tonnes
Vehicles Re-routed (i.e. Reduced) From Genesis Xero Direct to EfW	469,000 tonnes
New Material from External Sources	500,000 tonnes
Combined TOTAL	1,105,000 tonnes

Traffic volumes associated with the Genesis Xero Waste Facility, with a capacity for 2,000,000 tonnes per annum, are already accounted for within the traffic surveys and thus are not changed by the proposal which seeks only to divert some of this input material internally between facilities.

Notwithstanding, an additional traffic generation of 168 truck deliveries (336 movements) has been adopted for the purposes of this assessment to provide a worst case analysis and to acknowledge the potential variability in the location source for input material. As such, this assessment adopts the full input capacity of 1.35 million tonnes per annum as additional to that of the existing Genesis Xero Waste Facility, as outlined in **Table 4** below.

Table 4: Input Material Source Summary - Modelled

Location	Annual Input Material
Genesis Xero Only	2,000,000 tonnes
EfW Facility - New Material from External Sources	1,350,000 tonnes
Combined TOTAL	3,350,000 tonnes

This calculation results in a total of 336 tuck movements per day (168 in and 168 out) for input and waste deliveries, with an average of hourly rate of 14 trucks per hour.

6.1.3 Miscellaneous Deliveries

An additional 20 truck movements per week are expected for miscellaneous deliveries such as hydrated lime, activated carbon and other materials required for the various processes involved in the power generation. Assuming these will be delivered over a standard 5 day week results in a demand for up to 4 additional trucks per day.

This calculation results in a miscellaneous 8 truck movements per day (4 in and 4 out), with an average of hourly rate of 0.3 trucks per hour.

6.1.4 Ash Residue and Bottom Ash Removal

The removal of ash residue and bottom ash from the facility may also result in additional traffic generation. The expanded site operating at maximum capacity could potentially generate an additional 451,700 tonnes per annum of ash and residue. This has been adopted as a worst case as in practice the tonnage could reduce to 336,966 tonnes per annum based on the 1,105,000 tonnes per annum at the limit of phase 2. A significant proportion of this material would be deposited on the adjacent Genesis site, in addition ash residue material being removed from site can be loaded onto the emptied Waste / Fuel delivery trucks identified in Section 6.1.2 thereby not attracting additional vehicle trips. Nevertheless, in order to undertake a conservative modelling assessment, the combined traffic generation has been considered by assuming separate trucks for ash removal, operating 12 hours a day, six days a week each carrying a 18t payload off site.

This calculation results in an additional 160 truck movements a day (80 in and 80 out), with an average hourly rate of 14 trucks per hour.

6.1.5 Community Group Visiting

Community group visitations require a prior appointment and generally would occur at off peak times in a high capacity vehicle. Therefore, the traffic generated by visitors are expected to be minimal.

6.1.6 Combined Traffic Generation

Having regard for the above, the development will result in a combined traffic generation of up to 65 vehicle movements per hour, as summarised in **Table 5** below. This assumes the total 1.35 million tonnes per annum capacity is a net increase above existing conditions and does not take into consideration the potential synergy between the existing Genesis Xero Waste and proposed EfW Facility.

It is also noteworthy that the weekly transport management plan for all truck movements in the future will involve some of the incoming trucks carrying waste to also be used for outgoing movements carrying ash (bottom ash) or residue. This has not been taken into account to ensure a worst case scenario as assessed below.

Table 5: Traffic Generation on External Road Network

Type	Movements (two-way)			
	Car Movement		Truck Movement	
	Daily (veh/day)	Hourly (veh/hr)	Daily (veh/day)	Hourly (veh/hr)
Staff (Cars)	110	37	-	-
Input Waste / Fuel Deliveries	-	-	336	14
Miscellaneous Deliveries	-	-	8	0.3
Ash Removal	-	-	160	13.3
Total	**110**	**37**	**504**	**28**

6.2 Traffic Impacts

It is assumed that the additional traffic movements in Table 5 will be evenly distributed in all directions, via the M4 and M7 motorways. Vehicles arriving from the north using the M7 are expected to use the Old Wallgrove Road exit ramp to access the site. However, outgoing vehicles heading north are expected to rely on Wallgrove Road to access the M7 on-ramps. Having regard for this distribution, daily traffic volumes will increase as follows:

- Wonderland Drive 614 vehicles per day, including 504 trucks
- Wallgrove Road (north) 384 vehicles per day, including 315 trucks
- Wallgrove Road (south) 230 vehicles per day, including 189 trucks

For the purposes of this assessment, the traffic volumes in **Figure 6** below have been adopted for the purposes of peak hour intersection analysis for both peak periods. The top value in Figure 6 relates to car movements, with the bottom value indicating the number of truck movements.

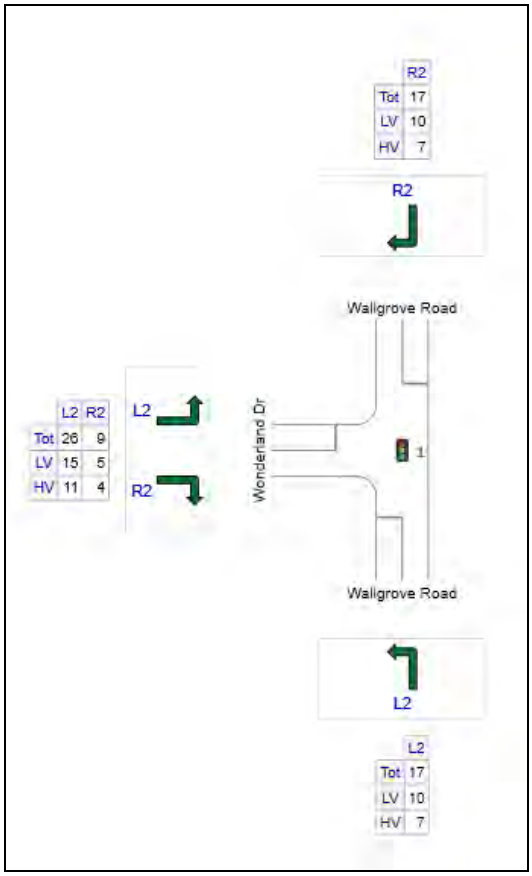


Figure 6: Peak Hour Intersection Volume Change

The performance of the critical intersection of Wallgrove Road and Wonderland Drive with the addition of this traffic is summarised in **Table 6** below.

Table 6: Intersection Performance Summary – Existing plus Development

Intersection Description	Control Type	Period	Degree of Saturation	Intersection Delay	Level of Service
Wallgrove Road / Wonderland Drive	Signals	AM	0.643	21.0	B
		PM	0.622	20.8	B

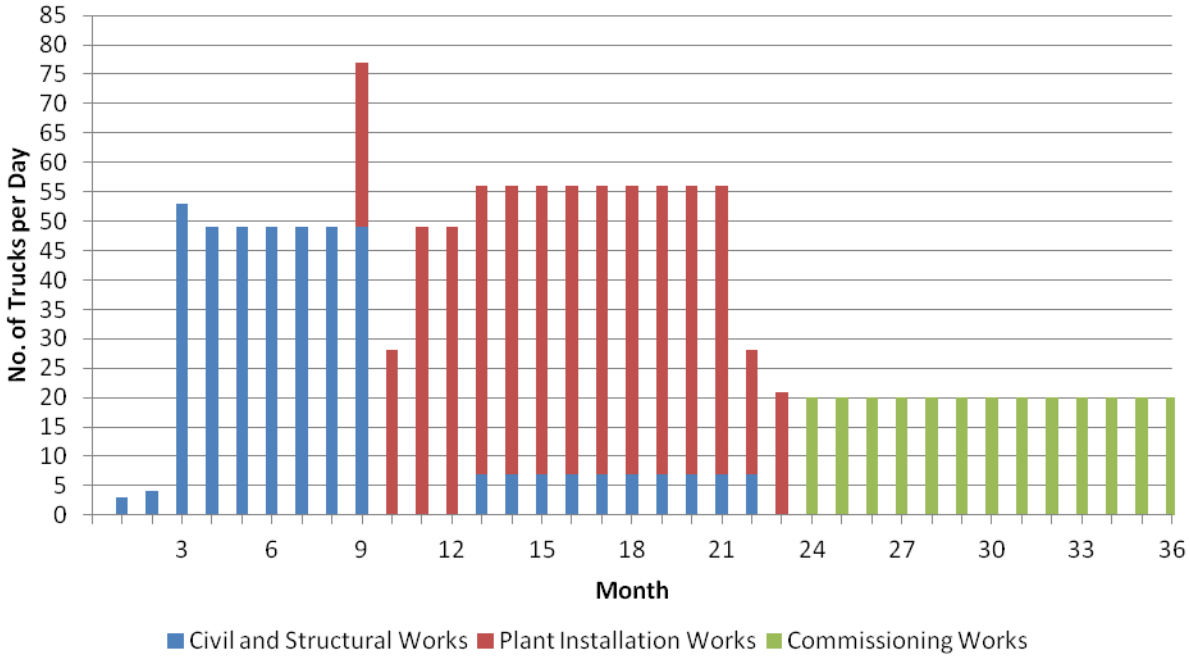
It can be seen from Table 6 that the critical intersection of Wallgrove Road and Wonderland Drive will continue to operate with an unchanged (and acceptable) Level of Service with moderate delays during both peak periods. As such, the traffic impacts of the development can be readily accommodated by the surrounding road network.

Furthermore, the future peak hourly traffic volume of 274 vehicles per hour (209 veh/hr existing plus 65 veh/hr proposed) during the critical AM peak is only marginally higher than the 252 vehicles per hour previously adopted for the Genesis Xero Waste Facility traffic impact assessment.

7. Construction Traffic Impacts

A preliminary estimate of truck movements associated with construction of the proposed facility, is summarised in **Figure 7** below.

Figure 7: Construction Trucks per Day



It can be seen from the above, that a general maximum of up to 56 trucks per day is anticipated during construction and an average of approximately 37 trucks per day across the total construction period of 3 years. An absolute maximum of up to 77 trucks per day could occur at the end of Civil and Structural Works (month 9) due to the overlap between phases, however any delay to Plant Installation Works would negate this isolated peak.

The general maximum of up to 56 trucks per day equates to 112 movements per day which is substantially less than the 504 truck movements per day associated with the facility once operational. As such, additional traffic modelling is not considered necessary to assess the impacts of the proposed construction traffic movements which are less than will occur once the facility is operational, as discussed in Section 6 previously.

Notwithstanding the above, it is expected that a Construction Traffic Management Plan (CTMP) will be provided, prior construction once the construction methodology and timings are confirmed.

8. Access Internal Design Aspects

8.1 Site Access

Access to the site is proposed via the existing Genesis Xero Waste Facility. However, the existing access (Dadi Drive) will be replaced by a new Estate Road as indicated on the plans as part of this application. Connection of this Estate Road between Honeycomb Drive and the future Archbald Road extension is not relied upon by the proposed development. Indeed, the traffic impacts of the development can be readily accommodated by the existing road network as discussed in Section 6.

In the longer term, an additional access to the Estate Road will be constructed to provide direct access to The Next Generation Facility, independent from Genesis Xero Waste.

Notwithstanding, it is proposed that an underpass be constructed beneath this Estate Road to provide unrestricted access between the Genesis Xero Waste facility and the EfW Facility. This is a desirable outcome from a traffic management perspective as much of the waste material to be used as fuel for the power plant is to be sourced from the Genesis Xero Waste Facility.

8.2 Internal Design

The proposed car park and loading areas have been designed in accordance with AS2890.1 and AS2890.2 as appropriate, with the following considered noteworthy:

- The general layout of the site lends itself to a one-way clockwise circulation throughout the site and this arrangement is encouraged.
- Separate car and truck accesses are not considered necessary having regard for the relatively moderate truck movements of approximately 28 trucks per hour (in and out combined), when including internal movements to/from the Genesis Xero Facility. All car parking manoeuvres themselves are separated from the general truck circulations areas. Similarly, no cars will be permitted within the Tipping Hall area where truck reverse movements will occur.
- A swept path analysis, included in **Appendix D**, has been undertaken for all critical manoeuvres through the site in accordance with relevant standards. This includes 26m B-Double access to the Tipping Hall and articulated tucks (AV) accessing all other areas within the site.

- Parking spaces are generally 2.4 metres in width and therefore satisfy the requirements of AS2890.1 for a Class 1 user, and

- Internal roads are a minimum of 6.0 metres in width and therefore satisfy the requirements for emergency vehicle access and can accommodate two-way traffic where required.

In summary, the internal configuration of the car park and loading areas has been designed in accordance with AS 2890.1 and AS 2890.2. It is however envisaged that a condition of consent would be imposed requiring compliance with these standards such that the detailed design of the proposed car parking and other internal circulation areas can be dealt with prior to the release of a Construction Certificate.

9. Conclusions

In summary:

- The development is a highly specialised use and therefore requires a 'first principles' parking and traffic assessment, as included in this report, based on its known operating characteristics.

- Management of staff shift changeovers will spread the peak car parking demands. Having regard for the number of staff and proposed shift rosters, it is anticipated that a car parking demand of up to 40 cars will occur at shift changeover periods, with a reduced demand for only 21 spaces at other times. In response, 42 car parking spaces are proposed and this satisfies the expected peak demand.

- The development will generate up to 614 traffic movements per day (in and out combined), with these activities dispersed over operating hours.

- An increase of 65 vehicle trips per hour associated with the proposed facility, conservatively assuming no synergy exists between the EfW and Genesis Xero site./ Even on this conservative assessment, this traffic can be readily accommodated by the surrounding road network with no change to the existing Level of Service and only minimal impact on average delays. That is, the traffic impacts associated with the proposed development can be readily accommodated by the surrounding road network with no improvements considered necessary.

- The access and internal layout of the facility is acceptable and complies with relevant standards..

It is therefore concluded that the proposed development is supportable on traffic planning grounds and will operate satisfactorily.

Appendix A

RMS Correspondence

Transport
Roads & Maritime
Services

4 December 2013

RMS Reference: SYD13/01382 (A5685271)

The Director – Industry Projects
Department of Planning and Infrastructure
GPO Box 39
SYDNEY NSW 2001

DIRECTOR GENERAL'S REQUIREMENTS FOR PROPOSED ENERGY FROM WASTE FACILITY, HONEYCOMBE DRIVE, EASTERN CREEK

Dear Sir/Madam

Reference is made to your email dated 29 November 2013 requesting Roads and Maritime Services (RMS) to provide details of key issues and assessment requirements regarding the abovementioned development for inclusion in the Director General's Environmental Assessment (EA) requirements.

RMS would like the following issues to be included in the transport and traffic impact assessment of the proposed development:

1. Daily and peak traffic movements likely to be generated by the proposed development including the impact on nearby intersections and the need/associated funding for upgrading or road improvement works (if required).

2. Details of the proposed accesses and the parking provisions associated with the proposed development including compliance with the requirements of the relevant Australian Standards (ie: turn paths, sight distance requirements, aisle widths, etc).

3. Proposed number of car parking spaces and compliance with the appropriate parking codes.

4. Details of service vehicle movements (including vehicle type and likely arrival and departure times).

5. RMS requires an assessment of the likely toxicity levels of loads transported on arterial and local roads to / from the site and, consequently, the preparation of an incident management strategy for crashes involving such loads, if relevant.

6. RMS will require in due course the provision of a traffic management plan for all demolition/construction activities, detailing vehicle routes, number of trucks, hours of operation, access arrangements and traffic control measures.

Any inquiries in relation to this development application can be directed to Angela Malloch on 8849 2041 or <Angela.Malloch@rms.nsw.gov.au>

Yours faithfully

Pahee Rathan
A/Senior Land Use Planner
Transport Planning, Sydney Region

Appendix B-1

SIDRA Outputs - Existing

MOVEMENT SUMMARY

Site: Wallgrove Rd & Wonderland Dr EX_AM

13.406ms
Wallgrove Road and Wonderland Drive
EX_AM
Signals - Fixed Time Isolated Cycle Time = 120 seconds (User-Given Cycle Time)

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Wallgrove Road (south)											
1	L2	159	6.0	0.159	12.5	LOS A	2.5	18.6	0.45	0.69	53.7
2	T1	744	6.0	0.553	33.0	LOS C	17.4	127.8	0.86	0.74	41.2
3	R2	12	6.0	0.049	18.0	LOS B	0.2	1.8	0.62	0.67	46.2
Approach		915	6.0	0.553	29.3	LOS C	17.4	127.8	0.78	0.73	43.0
East: Access Road											
4	L2	3	6.0	0.041	64.5	LOS E	0.2	1.6	0.97	0.63	23.6
5	T1	1	6.0	0.041	61.0	LOS E	0.2	1.6	0.97	0.63	23.6
6	R2	3	6.0	0.041	64.4	LOS E	0.2	1.6	0.97	0.63	23.6
Approach		7	6.0	0.041	64.0	LOS E	0.2	1.6	0.97	0.63	23.6
North: Wallgrove Road (north)											
7	L2	18	6.0	0.532	18.3	LOS B	19.9	146.6	0.58	0.53	53.2
8	T1	1279	6.0	0.532	11.9	LOS A	19.9	146.8	0.58	0.53	57.0
9	R2	457	6.0	0.581	19.0	LOS B	11.7	86.2	0.81	0.84	48.8
Approach		1754	6.0	0.581	13.8	LOS A	19.9	146.8	0.64	0.61	54.6
West: Wonderland Dr											
10	L2	135	6.0	0.076	4.4	LOS A	0.0	0.0	0.00	0.46	47.8
11	T1	1	6.0	0.378	63.8	LOS E	2.1	15.1	1.00	0.72	25.9
12	R2	66	6.0	0.378	68.4	LOS E	2.1	15.1	1.00	0.72	25.9
Approach		202	6.0	0.378	25.7	LOS B	2.1	15.1	0.33	0.55	37.3
All Vehicles		2878	6.0	0.581	19.7	LOS B	19.9	146.8	0.66	0.65	48.7

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Average Back of Queue Distance m	Prop. Queued	Effective Stop Rate per ped
P2	East Full Crossing	5	10.0	LOS B	0.0	0.0	0.41	0.41
P3	North Full Crossing	5	54.2	LOS E	0.0	0.0	0.95	0.95
P4	West Full Crossing	53	31.6	LOS D	0.1	0.1	0.73	0.73
All Pedestrians		63	31.7	LOS D			0.72	0.72

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

Site: Wallgrove Rd & Wonderland Dr EX_PM

13.406ms
Wallgrove Road and Wonderland Drive
EX_PM
Signals - Fixed Time Isolated Cycle Time = 120 seconds (User-Given Cycle Time)

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Wallgrove Road (south)											
1	L2	57	6.0	0.039	7.8	LOS A	0.4	2.9	0.19	0.62	57.6
2	T1	1264	6.0	0.595	18.0	LOS B	23.8	175.5	0.71	0.64	49.5
3	R2	1	6.0	0.003	14.0	LOS A	0.0	0.1	0.50	0.59	48.7
Approach		1322	6.0	0.595	17.6	LOS B	23.8	175.5	0.68	0.64	49.8
East: Access Road											
4	L2	19	6.0	0.218	66.3	LOS E	1.2	8.6	0.99	0.70	23.3
5	T1	1	6.0	0.218	62.8	LOS E	1.2	8.6	0.99	0.70	23.2
6	R2	19	6.0	0.218	66.3	LOS E	1.2	8.6	0.99	0.70	23.3
Approach		39	6.0	0.218	66.2	LOS E	1.2	8.6	0.99	0.70	23.3
North: Wallgrove Road (north)											
7	L2	2	6.0	0.422	22.1	LOS B	14.7	108.2	0.61	0.54	50.6
8	T1	895	6.0	0.422	15.7	LOS B	14.7	108.2	0.61	0.54	53.9
9	R2	87	6.0	0.310	19.6	LOS B	1.8	13.6	0.69	0.74	48.4
Approach		984	6.0	0.422	16.0	LOS B	14.7	108.2	0.62	0.56	53.3
West: Wonderland Dr											
10	L2	354	6.0	0.199	4.4	LOS A	0.0	0.0	0.00	0.46	47.8
11	T1	1	6.0	0.586	57.1	LOS E	6.6	48.3	1.00	0.79	27.2
12	R2	225	6.0	0.586	61.6	LOS E	6.6	48.3	1.00	0.79	27.2
Approach		580	6.0	0.586	26.8	LOS B	6.6	48.3	0.39	0.59	36.9
All Vehicles		2925	6.0	0.595	19.5	LOS B	23.8	175.5	0.61	0.60	46.9

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Average Back of Queue Distance m	Prop. Queued	Effective Stop Rate per ped
P2	East Full Crossing	5	14.5	LOS B	0.0	0.0	0.49	0.49
P3	North Full Crossing	5	54.2	LOS E	0.0	0.0	0.95	0.95
P4	West Full Crossing	53	16.1	LOS B	0.1	0.1	0.52	0.52
All Pedestrians		63	19.1	LOS B			0.55	0.55

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

Appendix B-2

SIDRA Outputs – Existing + Development

MOVEMENT SUMMARY

Site: 1 [Wallgrove Rd & Wonderland Dr EX+DEV_PM]

Wallgrove Road and Wonderland Drive
Period: PM
Scenario: Existing + Development
Signals - Fixed Time Isolated Cycle Time = 120 seconds (User-Given Cycle Time)

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Wallgrove Road (south)											
1	L2	75	14.1	0.057	7.8	LOS A	0.6	4.4	0.20	0.62	52.6
2	T1	1264	6.0	0.622	20.2	LOS B	25.2	185.8	0.75	0.68	48.1
3	R2	1	0.0	0.002	14.4	LOS A	0.0	0.1	0.52	0.59	49.6
Approach		1340	6.4	0.622	19.5	LOS B	25.2	185.8	0.72	0.67	48.3
East: Access Road											
4	L2	19	5.6	0.218	66.3	LOS E	1.2	8.6	0.99	0.70	23.3
5	T1	1	0.0	0.218	62.8	LOS E	1.2	8.6	0.99	0.70	19.0
6	R2	19	5.6	0.218	66.2	LOS E	1.2	8.6	0.99	0.70	23.3
Approach		39	5.4	0.218	66.1	LOS E	1.2	8.6	0.99	0.70	23.2
North: Wallgrove Road (north)											
7	L2	2	0.0	0.441	23.9	LOS B	15.6	114.5	0.65	0.57	50.5
8	T1	895	6.0	0.441	17.5	LOS B	15.6	114.6	0.65	0.57	52.4
9	R2	105	12.0	0.361	20.1	LOS B	2.4	18.3	0.72	0.76	41.6
Approach		1002	6.6	0.441	17.8	LOS B	15.6	114.6	0.66	0.59	51.5
West: Wonderland Dr											
10	L2	381	8.6	0.218	4.5	LOS A	0.0	0.0	0.00	0.47	47.1
11	T1	1	0.0	0.575	55.4	LOS D	6.8	50.4	0.99	0.80	22.4
12	R2	235	7.6	0.575	59.9	LOS E	6.8	50.4	0.99	0.80	22.4
Approach		617	8.2	0.575	25.7	LOS B	6.8	50.4	0.38	0.59	33.2
All Vehicles		2998	6.8	0.622	20.8	LOS B	25.2	185.8	0.63	0.63	45.5

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate per ped
P2	East Full Crossing	5	13.5	LOS B	0.0	0.0	0.48	0.48
P3	North Full Crossing	5	54.2	LOS E	0.0	0.0	0.95	0.95
P4	West Full Crossing	53	17.1	LOS B	0.1	0.1	0.53	0.53
All Pedestrians		63	19.9	LOS B			0.56	0.56

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

Site: 1 [Wallgrove Rd & Wonderland Dr EX+DEV_AM]

Wallgrove Road and Wonderland Drive
Period: AM
Scenario: Existing plus Development
Signals - Fixed Time Isolated Cycle Time = 120 seconds (User-Given Phase Times)

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Wallgrove Road (south)											
1	L2	177	9.5	0.173	10.5	LOS A	2.1	16.0	0.39	0.68	50.6
2	T1	744	5.9	0.643	38.6	LOS C	18.8	138.4	0.92	0.80	38.8
3	R2	12	9.1	0.036	20.2	LOS B	0.3	2.1	0.67	0.67	44.5
Approach		933	6.7	0.643	33.0	LOS C	18.8	138.4	0.82	0.77	40.1
East: Access Road											
4	L2	3	0.0	0.039	64.3	LOS E	0.2	1.5	0.97	0.63	23.6
5	T1	1	0.0	0.039	60.9	LOS E	0.2	1.5	0.97	0.63	19.4
6	R2	3	0.0	0.039	64.2	LOS E	0.2	1.5	0.97	0.63	23.6
Approach		7	0.0	0.039	63.8	LOS E	0.2	1.5	0.97	0.63	23.1
North: Wallgrove Road (north)											
7	L2	36	23.5	0.542	18.2	LOS B	20.0	148.1	0.57	0.54	52.5
8	T1	1279	6.0	0.542	11.8	LOS A	20.5	151.0	0.58	0.53	57.0
9	R2	457	6.0	0.544	19.9	LOS B	10.6	78.1	0.76	0.83	42.4
Approach		1772	6.4	0.544	14.0	LOS A	20.5	151.0	0.63	0.61	53.5
West: Wonderland Dr											
10	L2	162	12.3	0.095	4.7	LOS A	0.0	0.0	0.00	0.47	47.6
11	T1	1	0.0	0.453	63.8	LOS E	2.4	18.1	1.00	0.74	20.8
12	R2	76	11.1	0.453	68.5	LOS E	2.4	18.1	1.00	0.74	20.8
Approach		239	11.9	0.453	25.2	LOS B	2.4	18.1	0.32	0.56	33.8
All Vehicles		2951	6.9	0.643	21.0	LOS B	20.5	151.0	0.66	0.66	46.6

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

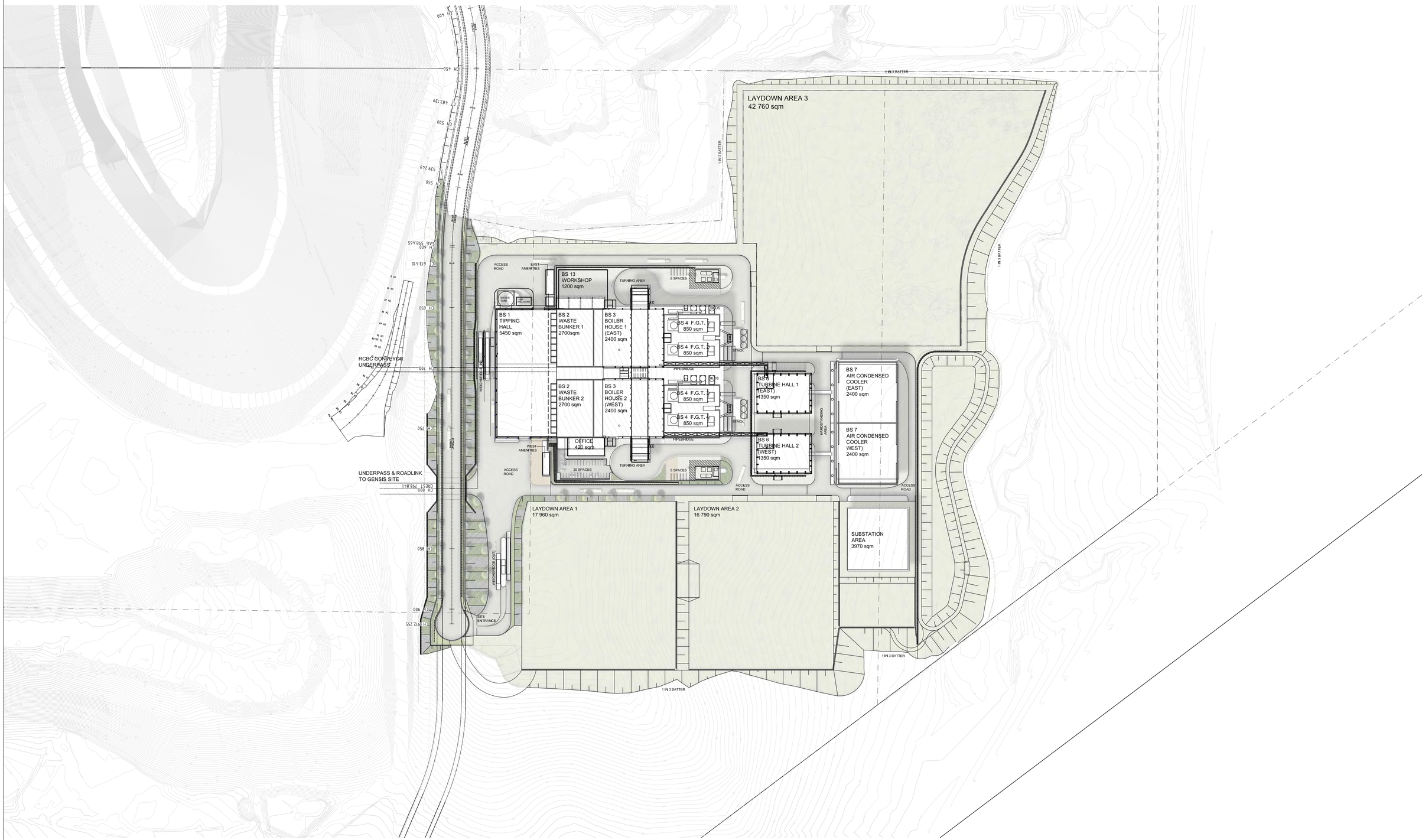
Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate per ped
P2	East Full Crossing	5	8.1	LOS A	0.0	0.0	0.37	0.37
P3	North Full Crossing	5	54.2	LOS E	0.0	0.0	0.95	0.95
P4	West Full Crossing	53	35.3	LOS D	0.1	0.1	0.77	0.77
All Pedestrians		63	34.6	LOS D			0.75	0.75

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

Appendix C

Reduced Plans



THE NEXT GENERATION- ENERGY FROM WASTE FACILITY

EASTERN CREEK, SYDNEY

PROPOSED SITE MASTERPLAN

DO NOT SCALE DRAWINGS.
VERIFY ALL DIMENSIONS ON SITE.
REFER ANY DISCREPANCIES TO THE SUPERINTENDENT BEFORE PROCEEDING WITH THE WORK.

PROPRIETOR

THE NEXT GENERATION
Energise Your Future

ARCHITECT

krikis tayler architects

a level 7 97 pacific highway
north sydney nsw 2060
m po box 726 north sydney nsw 2059
p +61(0)2 9900 6000 **f** +61(0)2 9900 6001
w www.krikistayler.com.au

DATE 13.10.2016
SCALE 1:1500 @ A1

0 15 30 45 75 112.5

DRAWING NO. AR-KTA-1001

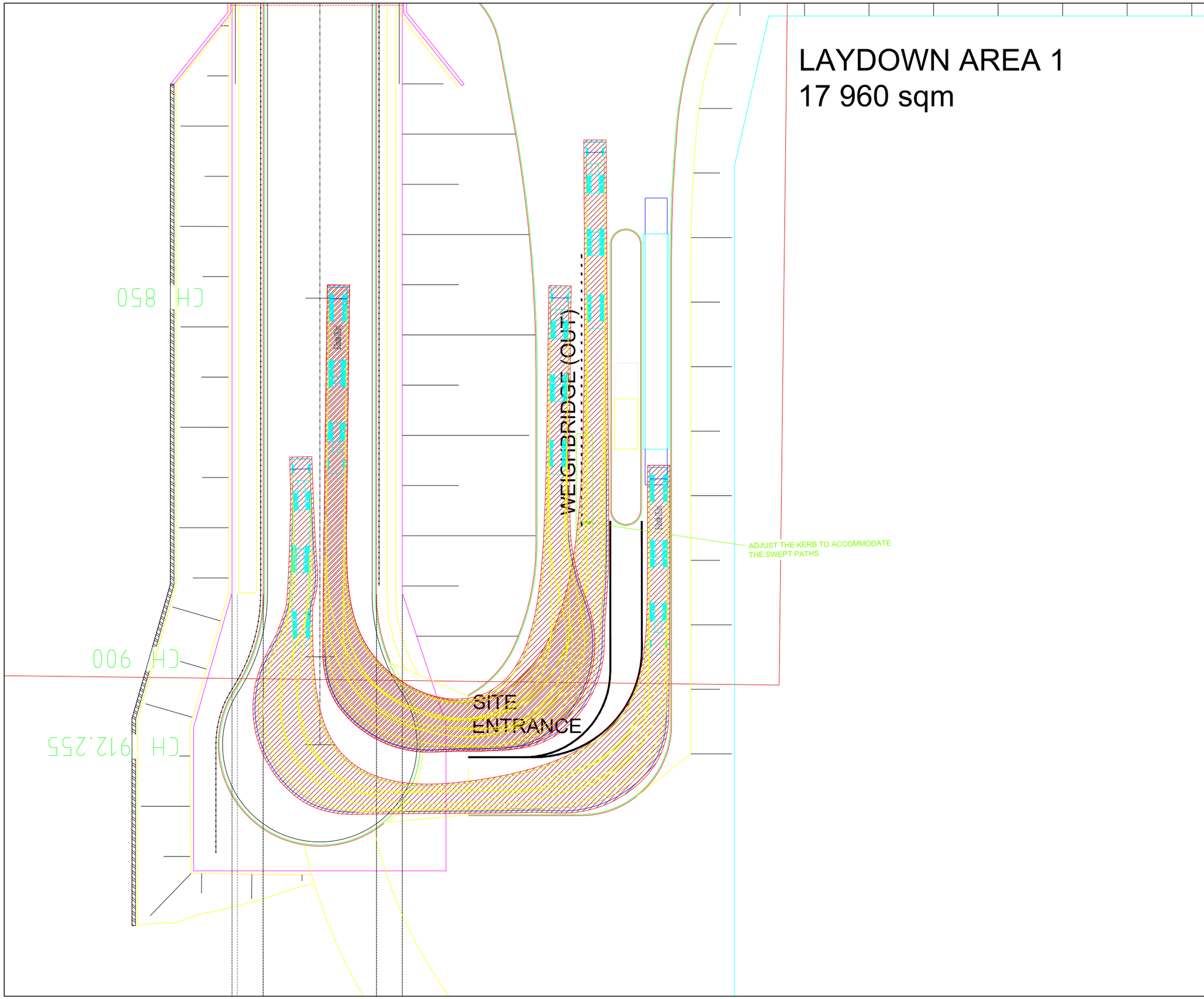
ISSUE 3

A1

100mm | 200mm | 300mm ON ORIGINAL

Appendix D

Swept Paths & Design Comments



no. revision note by. date

project manager
Urbis

client
The Next Generation NSW

scale
1:500 @ A3
m 5 10 15 20
0

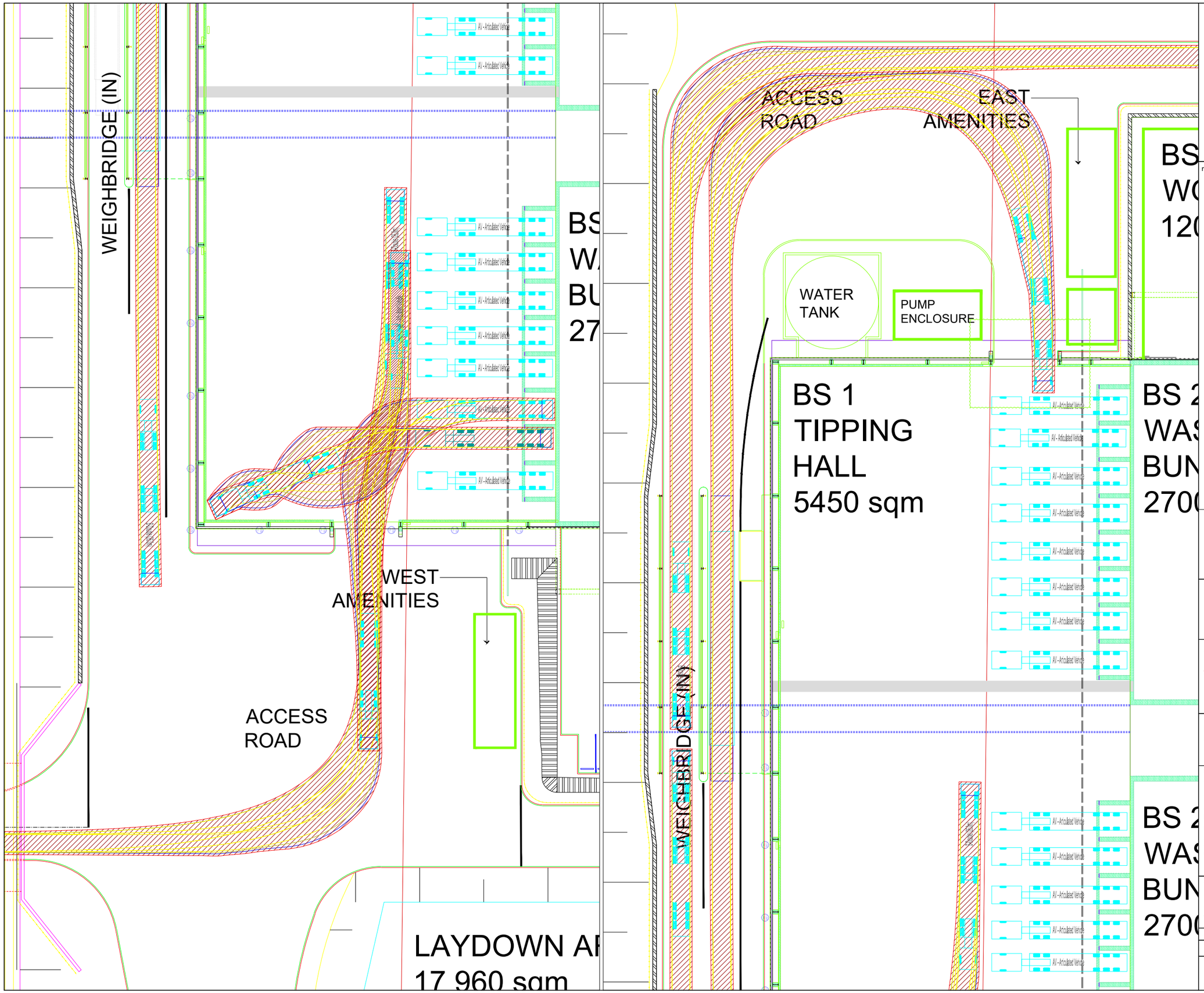
project
Energy from Waste Facility,
Eastern Creek

drawing prepared by
TRAFFIX
traffic and transport planners
suite 3.08 46a maclaey street
potts point NSW 2011
PO Box 1061 potts point nsw 1035
t: +61 2 8324 8700
f: +61 2 9380 4481
e: info@traffix.com.au
traffix
traffic & transport planners

drawing title
Swept paths
26m B-Double

drawn:	checked:	date:
HB	GP	28-Oct-16

project no.	drawing phase.	drawing no.	rev
13.519	DA	TX.01	-



no. revision note — by. date

project manager
Urbis

client
The Next Generation NSW

scale
1:500 @ A3
m 5 10 15 20
0

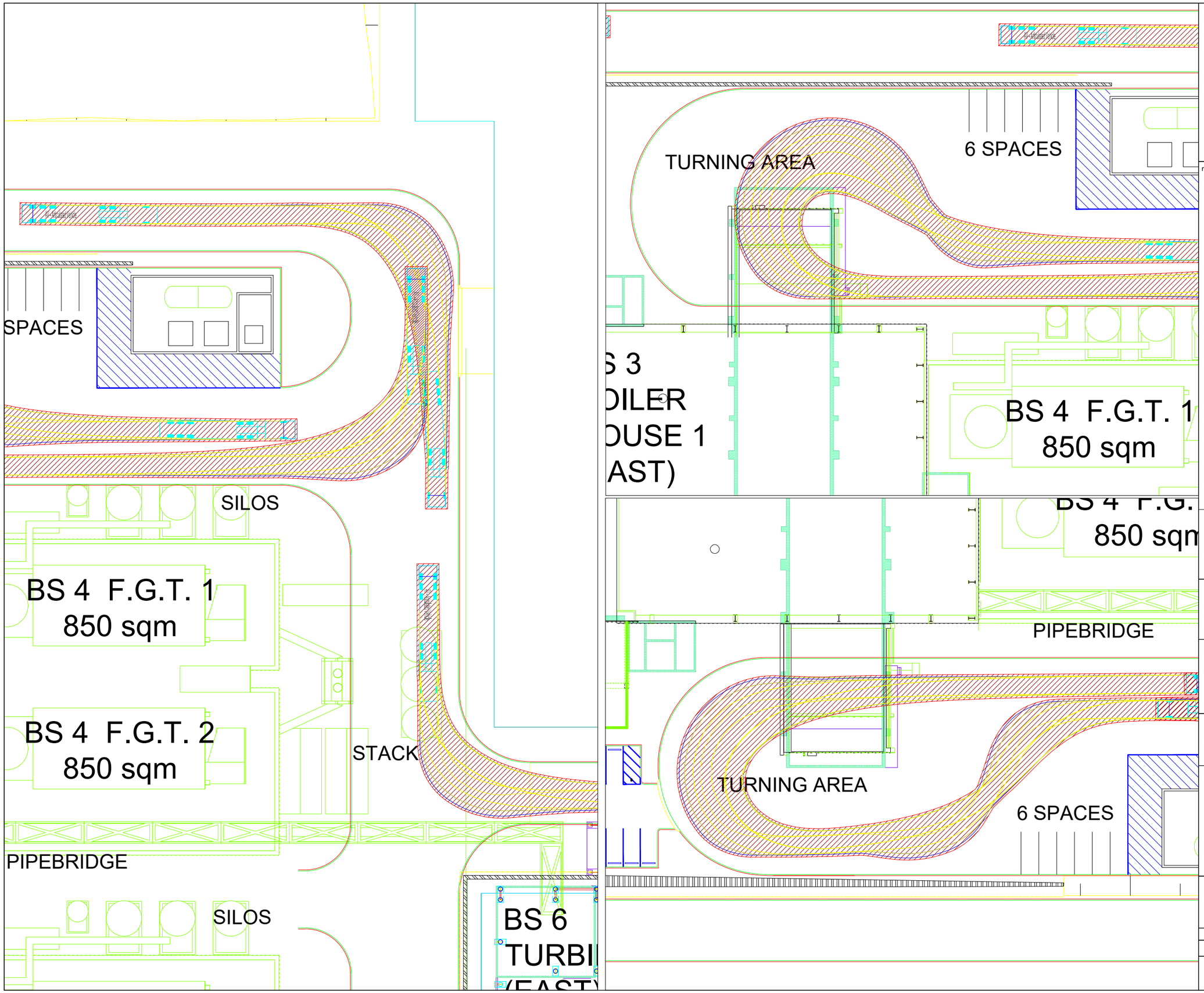
project
Energy from Waste Facility,
Eastern Creek

drawing prepared by
TRAFFIX
traffic and transport planners
suite 3.08 46a maclaey street
potts point NSW 2011
PO Box 1061 potts point nsw 1035
t: +61 2 8324 8700
f: +61 2 9380 4481
e: info@traffix.com.au
traffix
traffic & transport planners

drawing title
Swept Paths
26m B-Double Turning to Tipping Area &
19m semi-trailer reversing to unloading area

drawn:	checked:	date:
HB	GP	28-Oct-16

project no.	drawing phase.	drawing no.	rev
13.519	DA	TX.02	-



no. revision note by. date

project manager
Urbis

client
The Next Generation NSW

scale
1:500 @ A3
m 5 10 15 20
0

project
Energy from Waste Facility,
Eastern Creek

drawing prepared by
TRAFFIX
traffic and transport planners
suite 3.08 46a maclaey street
potts point NSW 2011
PO Box 1061 potts point nsw 1035
t: +61 2 8324 8700
f: +61 2 9380 4481
e: info@traffix.com.au
traffix
traffic & transport planners

drawing title
Swept Paths
Articulated Truck (AV)

drawn:	checked:	date:
HB	GP	28-Oct-16

project no.	drawing phase.	drawing no.	rev
13.519	DA	TX.03	-

PIPEBRIDGE

SILOS

BS 4 F.G.T. 3
850 sqm

BS 4 F.G.T. 4
850 sqm

STACK

PIPEBRIDGE

6 SPACES

ACCESS
ROAD

LAYDOWN AREA 2
16 790 sqm

BS
TU
(EA
135

BS
TU
(W
135

BS 7
AIR CONDENSED
COOLER
(EAST)
2400 sqm

BS 7
AIR CONDENSED
COOLER
WEST)
2400 sqm

ACCESS
ROAD

no.	revision note	by.	date

project manager
Urbis

client
The Next Generation NSW

scale
1:500 @ A3
m 5 10 15 20
0

project
Energy from Waste Facility,
Eastern Creek

drawing prepared by
TRAFFIX
traffic and transport planners
suite 3.08 46a maclaey street
potts point NSW 2011
PO Box 1061 potts point nsw 1035
t: +61 2 8324 8700
f: +61 2 9380 4481
e: info@traffix.com.au
traffix
traffic & transport planners

drawing title
Swept Paths
Articulated Truck (AV)

drawn:	checked:	date:
HB	GP	28-Oct-16

13.519	DA	TX.04	-
project no.	drawing phase.	drawing no.	rev