TRAFFIC IMPACT ASSESSMENT

Glebe Island Cement Distribution Facility
Sommerville Road, Rozelle

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1. INTRODUCTION

TRAFFIX has been commissioned by Cement Australia to undertake a Traffic Impact Assessment in support of a State Significant Development Application (SSD-8595604) for the proposed uplift in capacity of the Glebe Island Cement Distribution Facility, located at Sommerville Road, Rozelle. The development is located in a State Significant Precinct and within the Inner West Council Local Government Area.

This report documents the findings of our investigations and should be read in the context of the Environmental Impact Statement (EIS), prepared separately.

The report is structured as follows:

- Section 2: Describes the site and its location
- Section 3: Outlines the SEARs requirements
- Section 4: Describes the alternative transport available
- Section 5: Documents existing traffic conditions
- Section 6: Describes the proposed development
- Section 7: Assesses the parking requirements
- Section 8: Assesses traffic impacts
- Section 9: Discusses access and internal design aspects
- Section 10: Presents the overall study conclusions

2. SITE DESCRIPTION

2.1 Background

The Glebe Island Silos are a state significant heritage item (Inventory Number: 4560016) under the Port Authority of New South Wales (NSW). It has a total of 30 silos, of which the 16 westernmost silos are operated by Cement Australia, while the remaining 14 silos being operated by Sugar Australia.

The Cement Australia Distribution Facility currently imports cement powder via cargo ships from various locations around Australia. These cargo ships dock at Berth No. 8, located north of the site at White Bay and the cement powder is then transferred to the Glebe Island Silos for storage. This cement powder is ultimately distributed via commercial vehicles to destinations around the Sydney region.

2.2 Location and Site

The Glebe Island Cement Distribution Facility on Sommerville Road, Rozelle is legally known as Lot 12 of DP1170710. It is located approximately 2.3 kilometres west of Sydney CBD and is part of the Bays Precinct. As mentioned above, it forms part of the Glebe Island Silos, with the 16 westernmost silos utilised by the distribution facility for storage.

The site is irregular in configuration and has a total site area of approximately 3,740m^2. It has a northern boundary to a bitumen access road of length 91 metres and an eastern boundary shared with Sugar Australia of length 28 metres. The southern frontage to Solomons Way measures approximately 94 metres in length.

Vehicular access to the site is currently provided via a perimeter road network. This comprises Somerville Road that passes beneath Anzac Bridge (connecting to The Crescent) and which also traverses the northern site boundary. The site is served by an exit driveway onto Somerville Road along this boundary. In addition, Solomon Way provides an efficient one-way connection between Somerville Road in the south-east of the site, traversing the southern site boundary and providing direct access at the western end of the site. This one-way system serves predominantly commercial vehicles and provides direct access to on-site weighbridges.

A Location Plan is presented in **Figure 1**, with a Site Plan presented in **Figure 2**.

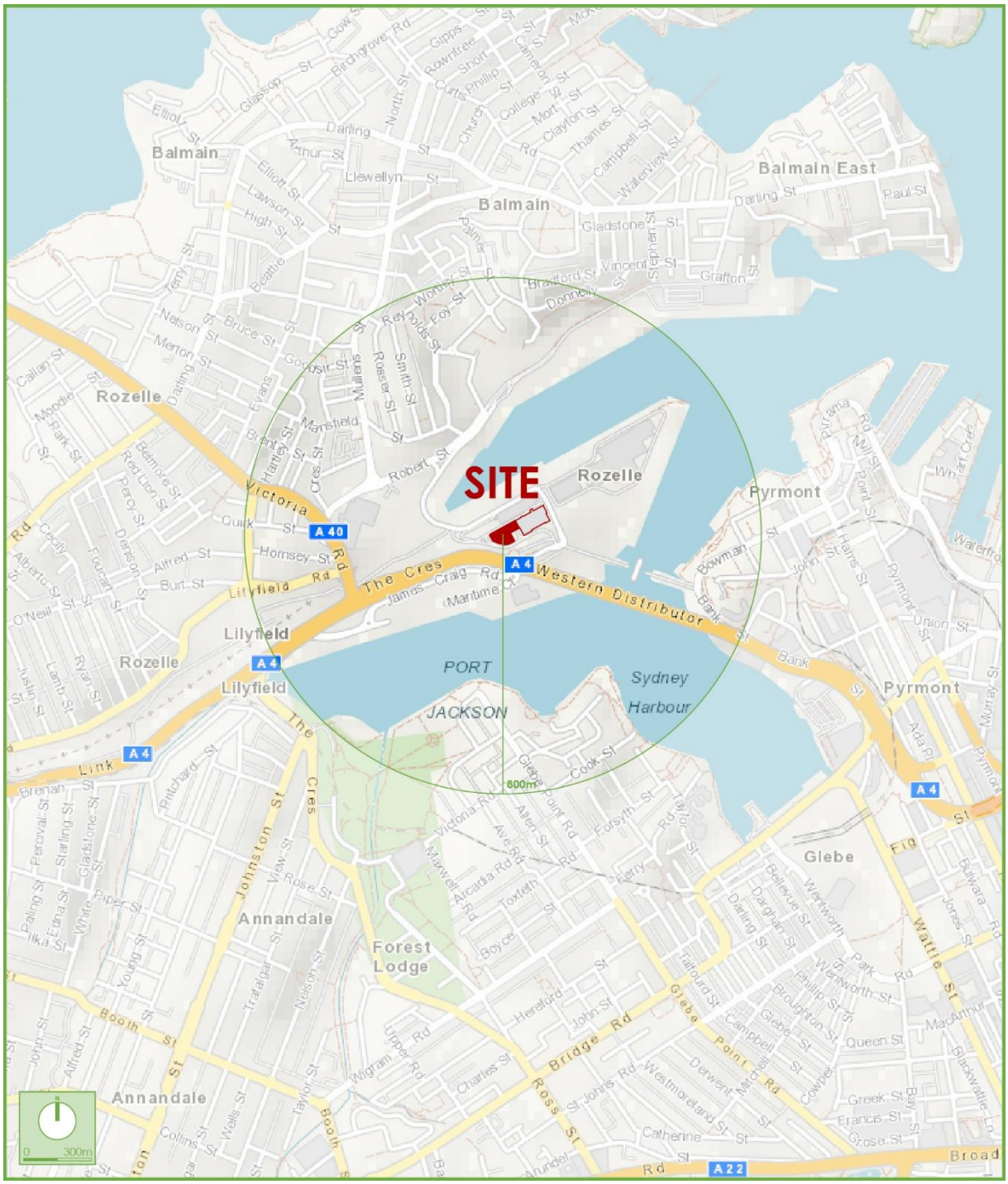


Figure 1: Location Plan

Figure 2: Site Plan

2.3 Existing Operations

The Glebe Island Distribution Facility presently has a throughput of approximately 500,000 tonnes per annum (tpa), all of which is imported via cargo ship. It is noted that the facility only stores and distributes cement powder, with no concrete batching on-site.

The facility is highly automated, operates 24 hours a day 7 days a week and has a total of three (3) staff, comprising two (2) full-time staff and a single part-time staff member. The existing characteristics of the facility are summarised as follows.

2.3.1 Car Parking

The development currently provides a total of 10 off-street car parking spaces that are available for staff, contractors and visitors. These spaces are accessible from Solomons Way and comprise:

- Seven (7) parallel car parking spaces, along the southern boundary; and
- Three (3) parallel car parking spaces, along the western boundary adjacent to the silos.

2.3.2 Heavy Vehicle Parking

The site is serviced by rigid and B-double cement trucks that arrive to site and distribute cement powder to various locations around the Sydney Region. The development provides 12 heavy vehicle parking spaces within the facility.

2.3.3 Weighbridge

The site currently provides three (3) on-site weighbridges situated south of the silos with entry and egress access via Solomons Way. The weighbridges are limited to 26 tonnes per load and a maximum capacity of 12 trucks per hour (12 in, 12 out).

3. SEARS REQUIREMENTS

The Planning Secretary's Environmental Assessment Requirements (SEARs) outlines the traffic and transport requirements for the SSDA as stated below, which includes references to sections of this report, where applicable:

6. *Traffic and Transport* *– including:*

- *Details of all traffic types and volumes likely to be generated during operation, including a description of key access / haul routes.* **Refer to Section 9.1 and Appendix E**
- *An assessment of the predicted impacts of this traffic on road safety and the capacity of the road network, including consideration of cumulative traffic impacts at key intersections using SIDRA or similar traffic model.* **Refer to Section 8**
- *Plans demonstrating how all vehicles likely to be generated during operation and awaiting loading, unloading or servicing can be accommodated on the site to avoid queuing in the street network.* **Refer to Section 9.2 and Appendix E**
- *Details and plans of any proposed the internal road network, loading dock servicing and provisions, on-site parking provisions, and sufficient pedestrian and cyclist facilities, in accordance with the relevant Australian Standards.* **Refer to Section 7 and Appendix B**
- *Details of the largest vehicle anticipated to access and move within the site, including swept path analysis.* **Refer to Section 2.3 and Appendix F**
- *Swept path diagrams depicting vehicles entering, exiting and manoeuvring throughout the site.* **Refer to Appendix F**
- *Details of road upgrades, infrastructure works, or new roads or access points required for the development if necessary.* **Refer to Section 8**
- *Cumulative impacts from existing onsite operations and from surrounding developments.* **Refer to Section 8.6**

4. ALTERNATIVE TRANSPORT

4.1 Pedestrian and Cycling Facilities

The subject site is presently accessible by pedestrian and cycling facilities. The main pedestrian facilities include dedicated footpaths along James Craig Road, The Crescent, Victoria Road and the Anzac Bridge. In addition, the topography of the area is such that there are several pedestrian walkway and stairway connections, including a dedicated walkway to Anzac Bridge from Sommerville Road.

Bicycle facilities are also provided in the surrounding area, with several off-road shared paths, dedicated lanes and bicycle-friendly shared road space. These cycleways can be used in conjunction with other bicycle routes, to provide connection to a wide range of localities throughout the Sydney region. The primary cycleways in the locality are presented in **Figure 3** although other local routes are also available. These primary routes include the following:

- Off-road shared trails: The Crescent, James Craig Road, Victoria Road and the Anzac Bridge accommodate off-road shared trails. These provide connections to Sydney and the Inner West.
- Dedicated lanes: The Crescent and Lilyfield Road accommodate dedicated bicycle lanes. These provide connections to various bicycle friendly roads and off-road shared trails.
- Bicycle friendly roads: The Crescent, James Craig Road and Victoria Road accommodate sections of bicycle friendly roads. These provide connections to bicycle friendly roads in the area.

Figure 3: Cycle Routes in the Locality

4.2 Public Transport

The existing public transport services that operate in the locality are summarised as follows. It should be noted that these public transport services are typically accessible via the existing pedestrian network surrounding the site.

4.2.1 Bus Services

The subject site is located within 500 metres of various bus stops along Victoria Road. These bus stops are presented in **Figure 4**, with the routes and services summarised in **Table 1** below.

Table 1: Bus Services and Routes

Bus Service	Routes	Bus Service	Routes
433	Balmain Gladstone Park to Central	507	Macquarie University to City Circular Quay via Putney
441	City Art Gallery to Birchgrove via QVB	508	Drummoyne to City Town Hall
442	City QVB to Balmain East Wharf	510	Ryde to City Town Hall
500	Ryde to City Circular Quay	515	Eastwood to City Circular Quay
501	West Ryde to Central Pitt Street via Pyrmont and Ultimo	518	Macquarie University to City Circular Quay
502	Five Dock to City Town Hall	520	Parramatta to City Circular Quay via West Ryde
504	Chiswick to City Domain	L37	Haberfield to City Town Hall
505	Woolwich to City Town Hall	M50	Coogee to Drummoyne
506	Macquarie University to City Domain via East Ryde	M52	Parramatta to City Circular Quay

It can be seen from **Table 1** that bus services operating in the locality provide regular accessible routes that connect to the wider Sydney metropolitan region. These bus services also allow commuters access to the wider public transport network with connections to major railway stations and interchanges.

4.2.2 Light Rail Services

The subject site is located approximately 930 metres northeast of the Rozelle Bay Light Rail Station. This station provides light rail services along the Inner West Line between Dulwich Hill and Central Railway Station, with a service frequency of 7-8 minutes during the AM and PM peak periods.

In addition, this light rail station provides services to Central Railway Station, thereby connecting commuters to the wider public transport network.

4.2.3 Railway Services

The subject site is not located within proximity of a railway station however, the aforementioned bus and light rail services do provide regular routes to major railway stations. The primary railway station these routes service is Central Railway Station. This station provides frequent services to the routes summarised in **Table 2** below.

Table 2: Central Railway Station Services and Routes

Train Service	Routes	Train Service	Routes
CNN	Central Coast and Newcastle Line	BMT	Blue Mountains Line
SHL	Southern Highlands Line	T1	North Shore, Northern and Western Line
SCO	South Coast Line	T2	Inner West and Leppington Line
Regional NSW	North Coast NSW	T3	Bankstown Line
	North West NSW	T4	Eastern Suburbs and Illawarra Line
	Southern NSW	T7	Olympic Park Line
	Western NSW	T8	Airport and South Line

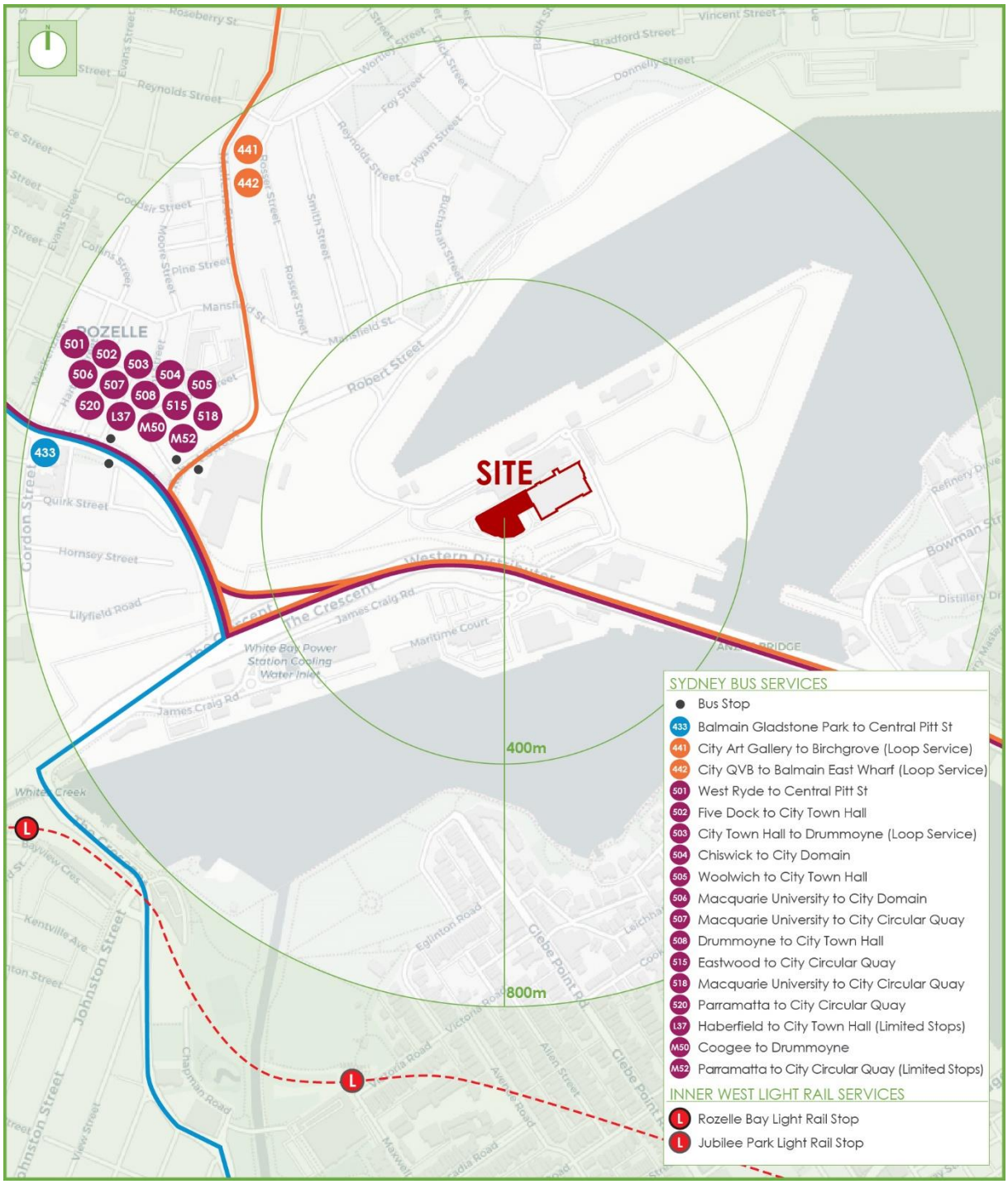


Figure 4: Public Transport

5. EXISTING TRAFFIC CONDITIONS

5.1 Road Network

The road hierarchy in the vicinity of the site is shown in **Figure 5**, with the following roads of particular interest.

- Victoria Road: an RMS Main Road (MR 165) that traverses east-west between the Anzac Bridge / Western Distributor in the east and O'Connell Street (Parramatta) in the west. Within the vicinity of the site, it is subject to a posted speed limit of 60km/h and generally accommodates three (3) lanes of traffic in each direction. In addition, there are clearway restrictions for both directions, as well as a dedicated eastbound bus lane, which operates Monday to Friday, between 6:00am and 10:00am. Furthermore, Victoria Road provides the variable eastbound lanes that connect onto The Crescent, which change during the AM and PM peak periods.
- City-West Link Road: an RMS Main Road (MR 650) that traverses east-west between The Crescent in the east and Dobroyd Parade in the west. It is subject to a posted speed limit of 70km/h and accommodates two (2) lanes of traffic in each direction. The City-West Link Road is currently one of the main connections between the Inner West suburbs and Sydney CBD.
- The Crescent: an RMS Main Road (MR 666) that traverses north-south between Victoria Road in the north and Minogue Crescent in the south. Within the vicinity of the site, it is subject to a posted speed limit of 70km/h and generally accommodates five (5) lanes of traffic in each direction, between City-West Link Road and Victoria Road. The Crescent provides the main access for vehicles utilising James Craig Road.

- James Craig Road: a local road that traverses east-west between Glebe Island in the east and The Crescent in the west. It is subject to a posted speed limit of 50km/h and accommodates a single lane of traffic in each direction. James Craig Drive provides the primary vehicular access between Glebe Island and the wider road network.
- Sommerville Road: a local road that traverses north-south between Robert Street in the north and James Craig Drive in the south. It is subject to a posted speed limit of 30km/h and 50km/h for trucks and light vehicles, respectively. Sommerville Road accommodates a single lane of traffic in each direction and provides access to the internal road network of Glebe Island.

It can be seen from **Figure 5** that the strategic location of the site permits good local access to the arterial road network serving the region, thereby distributing traffic safely and efficiently.

Figure 5: Road Hierarchy

5.2 Key Intersections

The key intersections in the vicinity of the site are shown below and provide an understanding of the existing road geometry and alignment.

5.2.1 Victoria Road and The Crescent Intersection

It can be seen from **Figure 6** that the intersection of Victoria Road and The Crescent is a three-legged signalised intersection. The attributes of each approach are outlined as follows:

Figure 6: Intersection of Victoria Road and The Crescent

- Victoria Road (north-east)
  - The northern approach provides three (3) left-turn only lanes onto the Anzac Bridge Access Road and two (2) right-turn only lanes onto the Crescent.
  - The eastern approach provides two (2) through lanes onto The Crescent and three (3) right-turn only lanes onto Victoria Road.
- Victoria Road Access Road (west)
  - The western approach provides two (2) left-turn only lanes onto Victoria Road (via Victoria Road Access Road).

5.2.2 The Crescent and James Craig Road Intersection

It can be seen from **Figure 7** that the intersection of The Crescent and James Craig Road is a three-legged signalised intersection. The attributes of each approach are outlined as follows:

Figure 7: Intersection of The Crescent and James Craig Road

- The Crescent (northeast-southwest)
  - The north-eastern approach provides three (3) through lanes and a single left-turn only lane via a slip lane. A signalised pedestrian crossing is also provided to a shared path.
  - The south-western approach provides two (2) through lanes onto Victoria Road (via Victoria Road Access Road), two (2) through lanes onto the Anzac Bridge and two (2) right-turn only lanes onto James Craig Road.
- James Craig Road (southeast)
  - The south-eastern approach provides a one (1) right-turn only onto the Anzac Bridge, one (1) shared right-turn only onto Victoria Road (northbound) and the Anzac Bridge and a single left-turn only lane onto The Crescent. A signalised pedestrian crossing is provided that traverses across the southeast leg.

5.2.3 The Crescent and City-West Link Road

It can be seen from **Figure 8** that the intersection of City-West Link Road and The Crescent is a three-legged signalised intersection. The attributes of each approach are outlined as follows:

Figure 8: Intersection of The Crescent and City-West Link Road

- The Crescent (south)
  - The southern approach provides three (3) right-turn only lanes and a single left-turn slip lane. A signalised pedestrian crossing is provided across The Crescent, with a 'zebra' crossing provided across the left-turn slip lane.
- City-West Link Road (northeast-southwest)
  - The north-eastern approach provides three (3) through lanes and a single left-turn only lane via slip lanes.
  - The south-western approach provides three (3) through lanes and two (2) right-turn only lanes. It is noted that the left-most through lane is approximately 40m in length.

5.3 Existing Generation

5.3.1 2018 Annual Generation

Cement Australia has provided 2018 annual data for the existing Glebe Island Distribution Facility, which relates to a throughput of over 500,000 tpa cement powder. A review of this data shows that these operations relate to a total of 21,536 vehicles in 2018, resulting in the following annual vehicle movements:

- 43,072 vehicle trips throughout 2018 (21,536 in, 21,536 out)

It is emphasised that the above vehicle trips were distributed throughout the year, throughout the week and throughout the day, with the site peak period typically not coinciding with the network AM and PM peak periods. Reference should be made to the distribution facility's 2018 Heat Map in **Appendix A**.

5.3.2 2018 Maximum Generation

The above data has also been analysed to establish the maximum trip generation for the Glebe Island Distribution Facility during the AM and PM peak periods associated with the surrounding network, which is the worst case scenario in terms of the overall network operations.

Standard traffic engineering methodology requires that the traffic impacts of the facility be based on the concept of the 85th percentile 'design' day. With 260 weekdays in a one year period assessed, this would relate to the 39th highest day and this forms the basis of the assessment criteria. This approach may be compared with, for example, a shopping centre where traffic and parking impacts would never be assessed at peak times such as Christmas and other retail peaks, but rather the demand that is only exceeded 15% of the time (that is, the 85th percentile design level). The existing traffic volumes at the 95th percentile demand level have been used to be conservative and have been determined as follows:

- 16 vehicle trips/hr during the AM peak period (8 in, 8 out)
- 10 vehicle trips/hr during the PM peak period (5 in, 5 out)

These volumes reflect the spread of traffic activity at the facility and establishes a 'base case' for the assessment of future traffic conditions as discussed in subsequent sections.

6. DESCRIPTION OF PROPOSED DEVELOPMENT

A detailed description of the proposed development is provided in the EIS, prepared separately. In summary, the development for which approval is now sought comprises of the following components:

- Increase of annual throughput capacity of cementitious material from 500,000 tpa to 1,200,000 tpa (net increase of 700,000 tpa);
- Retention of all existing structures, including:
  - Cement Australia Distribution Facility; and
  - Glebe Island Silos for cement storage (16 westernmost silos).
- Retention of all existing off-street car parking spaces, including:
  - 7 x Parallel parking spaces along the southern boundary; and
  - 3 x Parallel parking spaces along the western boundary.
- Retention of 12 existing heavy vehicle parking spaces;
- Retention of existing vehicular access off Solomons Way;
- No increase to existing staff numbers (3 staff) at the facility.

The parking and traffic impacts arising from the development are discussed in **Section 7** and **Section 8**, respectively. Reference should be made to the plans submitted separately to Council which are presented at reduced scale in **Appendix B**.

7. PARKING REQUIREMENTS

7.1 Car Parking

The Leichhardt Development Control Plan (DCP) 2013 and the RMS Guide to Traffic Generating Developments 2002 do not provide specific car parking rates for a cement distribution facility, which in any case has very particular operational characteristics. Rather, the Leichhardt DCP Part C, Provision C14 states the following regarding general parking rates:

C14 Developments and land uses, which are not specifically listed in Table C4: General Vehicle Parking Rates, will be assessed on their merit in accordance with the following criteria to determine the required parking provision:

a. Parking requirements established by survey of comparable establishments;
b. The person capacity of the premises;
c. The proportion of visitors, staff or patrons likely to arrive by car;
d. The characteristics of the use and whether persons are likely to arrive in concentrated groups and the consistency of such arrivals / departures;
e. The availability and level of service of public transport;
f. Details provided in a Site Specific "Travel Plan"; and
g. The proportion of trips induced by the development that can be taken by bicycle.

This approach is supported and is appropriate.

In this regard and as reference to **Section 6**, the proposal is highly automated and involves no increase to the existing three (3) staff numbers or to the existing infrastructure, at either design production scenario. Hence the development proposes to retain the 10 existing car parking spaces which serves the needs of staff, occasional contractors and visitor use.

In summary, the retention of 10 car parking spaces is considered sufficient to accommodate the parking demands of the expanded distribution facility.

7.2 Bicycle Parking

The Leichhardt DCP does not outline specific bicycle parking rates and provisions for a cement distribution facility, with a 'generic' DCP rate of only one bicycle space per 10 staff. With no increase in staff proposed, no additional bicycle parking is required or proposed.

7.3 Motorcycle Parking

The Leichhardt DCP outlines the motorcycle parking provisions for all developments with the following recommended rates:

- 1 motorcycle space for the first 10 required car spaces; and
- 5% of the car spaces thereafter.

The development proposes no additional staff, such that no additional motorcycle parking is required or proposed. In any event, the existing parking provision is generally underutilised and therefore able to cater for any additional motorcycle parking demands, should this occur.

7.4 Servicing and Loading

The daily operational activities of the site involve the frequent loading of heavy vehicles via three (3) weighbridges, located at the southern section with access via Solomons Way. It is noted that these weighbridges are approved to operate 24 hours a day 7 days a week (24/7) and provide a total throughput capacity of 12 trucks per hour (12 in, 12 out).

As the 95th percentile demand level equates to a peak of 8 trucks per hour, it is evident that no significant queuing occurs on site.

The worst case uplift scenario (700,000 tpa) relates to an effective doubling of activity. This will equate to an additional 12 trucks per hour at peak times, based on current operational parameters. Hence, of these 12 trucks, 4 can be accommodated by the current spare capacity of the weighbridges at the 95th percentile design level discussed above.

This is however unlikely to occur as the operations are proposed to be managed to achieve a greater spread of activity throughout the day on all days. In this regard, the facility presently operates with an average of 3 trucks per hour over the entire day. This is well below the available capacity of 12 trucks per hour.

Hence, subject to proper management and in particular, the requirement to limit truck volumes to 12 trucks/hr at any time (in accordance with current capacity), the facility will continue to operate satisfactorily, with no significant internal queuing and no requirement for additional parking, given that the throughput of 12 trucks per hour already occurs without any difficulty. This is also supported by the discussion in **Section 8**.

8. TRAFFIC AND TRANSPORT IMPACTS

In order to assess the potential traffic impacts of a proposed uplift in capacity, the following scenarios were identified:

- 2019 Base Case
- 2019 Base Case + Maximum Generation for Weighbridge

8.1 Annual and Peak Hourly Trip Generation

The proposed trip generation of the site was based on the average capacity of heavy vehicles (26 tonnes) and the following throughputs of the facility:

- No additional throughput (Total 500,000 tpa)
  - 21,536 trucks during 2018
- Additional throughput of 700,000 tpa (Total 1,200,000 tpa)
  - Net increase of +26,923 truck arrivals per year

It is emphasised that the additional vehicle trips in the above scenarios would be distributed throughout the year and under 24/7 operation of the site. Furthermore, the site peak period would be typically managed to not coincide with the network peak periods.

Accordingly, to assess the traffic impacts of the above scenarios, the number of trucks generated during AM and PM peak periods are of particular interest. These numbers can be estimated using the demand profile and 2018 data of the existing Cement Australia Distribution Facility. This data can identify temporal and spatial trip distributions, including seasonal, monthly and daily variations, as well as vehicle movements during the network AM and PM peak periods.

On this basis, the estimated number of vehicles generated by the proposed scenarios during the AM and PM peak periods are outlined in **Table 3** below, based on the 95th percentile demand level. It is noted that the number of truck arrivals were assumed to be equal to the truck departures, thus a 50/50 modal split was adopted.

Table 3: 95th Percentile Trip Generation during the Network Peak Periods

Scenario	No. of Truck Arrivals	No. of Truck Departures	Network AM Peak 7:30am – 8:30am		Network PM Peak 4:30pm – 5:30pm	
			IN	OUT	IN	OUT
Existing 2018 Capacity						
2018 Existing Data *(Total 500,000 tpa)*	21,536	21,536	8	8	5	5
Proposed Additional Capacity						
Net Increase 700,000 tpa *(Total 1,200,000 tpa)*	+26,923	+26,293	**+8**	**+8**	**+5**	**+5**

The above is a worst case scenario as it assumes no change to the distribution profile of activity over the day, which as discussed in **Section 7** is to be managed to achieve a greater spread of activity.

Nevertheless, the worst case scenario shown in **Table 3** shows a maximum additional 8 trucks per hour at peak times during the AM peak and 5 trucks per hour in the PM peak. These additional peak volumes can be readily accommodated by the road network and equates to a single additional truck every 7 minutes.

8.2 Network Distribution

The additional trucks under a worst case scenario where spreading of activity does not occur is moderate and a maximum of one additional truck every 7 minutes. Cement Australia 2018 data shows that from all trips will be distributed with 40% to/from the east and 60% to/from the west. Accordingly, these trips were distributed and assigned to the key intersections of the surrounding road network, thus enabling the assessment of traffic impacts. Network diagrams have been provided in **Appendix C**.

8.3 Road Network Performance

8.3.1 Trip Generation

In reference to **Section 5.3**, the subject site currently accommodates the Cement Australia Distribution Facility that has an existing throughput of 500,000 tpa. This cement distribution resulted in a maximum trip generation of 8 trucks (16 veh/hr) and 5 trucks (10 veh/hr) during the network AM and PM peak periods, respectively at the 95th percentile peak design level. This traffic is already included within the traffic surveys reported upon below.

8.3.2 Base Case Scenarios

The proposed development has been assessed against the 2019 Base Case, with the full development impacts associated with the additional 700,000 tpa superimposed onto this scenario, to assess the development impacts.

It is therefore emphasised that the existing site generation (500,000 tpa) is already included within the base case traffic volumes.

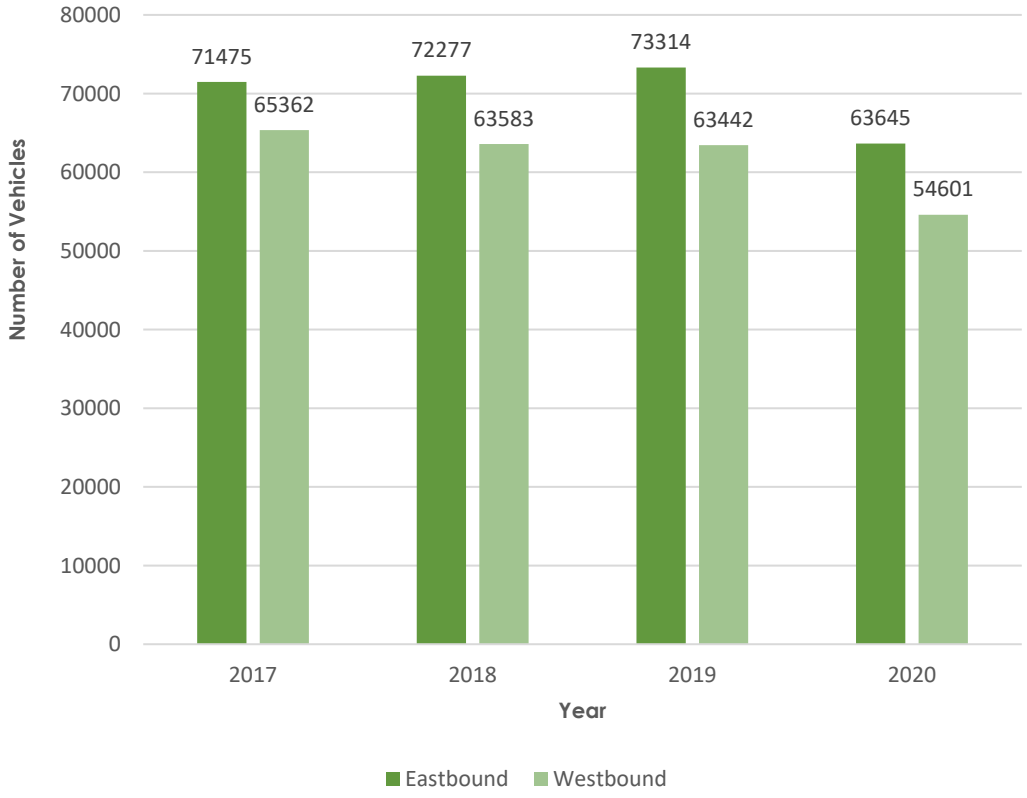
For the purposes of assessing the traffic impacts of this development, surveys were undertaken of the most critical intersections near the site. These traffic count surveys were conducted on a typical Thursday between 7:00am to 9:00am and 4:00pm to 6:00pm, and a typical Saturday between 10:00am to 2:00pm.

The key intersections that were surveyed, comprised:

- The intersection of Victoria Road / The Crescent;
- The intersection of The Crescent / James Craig Road; and
- The intersection of The Crescent / City-West Link Road.

Furthermore, the above surveys were undertaken in 2017, which are still considered applicable for the development, given that any additional surveys conducted in 2020 would represent a reduced traffic volume in the surrounding areas due to COVID-19 restrictions throughout the year, noting the M4-M5 Link Rozelle Interchange is currently not operational. This is further emphasised with the TfNSW Traffic Volume Viewer that has a permanent counter on the Western Distributer (Anzac Bridge), which identified the annual volumes as summarised in **Chart 1** below.

Chart 1: TfNSW Traffic Volume – Western Distributer (Anzac Bridge)



It can be seen from **Chart 1** that the total traffic volumes in 2017 equated to 136,837 vehicles and is comparable to 2018 and 2019 with 135,860 and 136,756 vehicles, respectively, while the 2020 identified a total of 118,246 vehicles. As such, the traffic surveys conducted in 2017 are considered conservative and therefore more representative of traffic volumes outside COVID-19 restrictions.

The 2017 surveys were analysed using the SIDRA Intersection 8 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 (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 in **Table 4**.

Table 4: Intersection Performance Indicators

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.

8.3.3 Existing (2019) Base Case Intersection Performance

The intersection operations on the existing road network for 2019 data is shown in **Table 5**.

Table 5: Intersection Performance for Existing Base Case

Intersection	Control Type	Period	Degree of Saturation	Intersection Delay	Level of Service
Victoria Road / The Crescent	Signalised	AM	0.894	23.1	B
		PM	0.954	28.4	B
The Crescent / James Craig Road	Signalised	AM	0.772	7.2	A
		PM	0.781	10.4	A
The Crescent / City-West Link Road	Signalised	AM	0.896	27.0	B
		PM	0.866	27.9	B

It can be seen from **Table 5** that all key intersections are operating with acceptable delays, resulting in a LoS B or better.

8.3.4 2019 Base Case Plus Development Traffic

The impacts of the development have been assessed against the 2019 Base Case, with a 700,000 tpa net increase in capacity (total of 1,200,000 tpa). The results are presented below and reproduced in **Appendix D**.

It has been determined that the additional traffic generation would be 16 veh/hr (8 in, 8 out) in the AM peak period and 10 veh/hr (5 in, 5 out) in the evening peak period, based on the 95th percentile demand level and assuming no management intervention to spread the distribution profile across the day to achieve peak spreading. In addition, no changes to staff levels are proposed.

In effect, this peak spreading must occur due to the capacity limitations of the three (3) existing weighbridges, which are to be retained. These weighbridges are limited to a maximum of 12 vehicles per hour. Accordingly, the maximum trip generation for the development regardless of the total throughput of the distribution facility is expected to be 12 trucks per hour (12 in, 12 out). This is only slightly above the existing 8 trucks (AM peak) and 5 trucks (PM peak) that presently occur during the 95th percentile demand level. Indeed, these higher volumes could already occur under current approvals.

Even so, for the purpose of a sensitivity test and to assess a worst case scenario, a net additional 24 veh/hr (12 in, 12 out) has been assessed (heavy vehicles) on the road network, noting the proposal does not involve any additional light vehicle traffic generation. This therefore ignores the internal capacity constraints presented by the weighbridges. The impacts of this traffic on the two Base Case scenarios are discussed below. The development traffic results in impacts shown in **Table 6**.

Table 6: 2019 Base Case with Peak Development Traffic

Intersection	Scenario	Period	Degree of Saturation	Intersection Delay	Level of Service
Victoria Road / The Crescent	Base Case	AM	0.894	23.1	B
		PM	0.954	28.4	B
	+ 700,000 tpa	AM	0.873	20.0	B
		PM	0.956	28.6	C
The Crescent / James Craig Road	Base Case	AM	0.772	7.2	A
		PM	0.781	10.4	A
	+ 700,000 tpa	AM	0.806	7.9	A
		PM	0.795	10.5	A
The Crescent / City-West Link Road	Base Case	AM	0.896	27.0	B
		PM	0.866	27.9	B
	+ 700,000 tpa	AM	0.896	28.7	C
		PM	0.866	27.9	B

It can be seen from **Table 6** that the maximum total of 12 trucks per hour results in minimal changes when compared to the 2019 base case, noting the following minor increases in average intersection delay:

- 28.6 seconds (net increase of 0.2 seconds) for Victoria Road / The Crescent (LoS C) during the PM peak period; and
- 28.7 seconds (net increase of 1.7 seconds) for The Crescent / City-West Link Road (LoS C) during the AM peak period.

These net increases in intersection delay are considered minor, noting that the above scenarios were 0.6 seconds and 0.7 seconds from maintaining LoS B (between 15-28 seconds). As such, the limitations of the existing weighbridges would result in a maximum trip generation of 24 veh/hr (12 in, 12 out), regardless of any proposed uplift in capacity. Accordingly, the surrounding key intersections are able to accommodate the maximum trip generation associated with the development during the AM and PM peak periods.

8.4 Cumulative Impacts

The subject site is located in an area of various key Glebe Island Developments and NSW Government Infrastructure projects are outlined as follows:

8.4.1 Glebe Island Developments

Multi-User Facility

The Multi-User Facility (MUF) Glebe Island facility is situated on the eastern side of Glebe Island, adjacent berth 1 and berth 2 and will provide Port Authority a low impact facility for material shipments in response to the increased demand for construction materials in the Sydney CBD. The construction for this project commenced in 2020 and is anticipated to be completed in 2021, with this development anticipated to generate a maximum of 40 vehicle movements per hour upon completion.

White Bay Cruise Terminal

White Bay Cruise Terminal (WBCT) is situated on Robert Street, Balmain and provides waterfront venues for various types of events and has been operational since 2013. Accordingly, the traffic surveys conducted in 2017 and associated SIDRA intersection modelling would have included the traffic volumes of this development at the key intersections within the vicinity of the site.

Hanson Concrete Batching Plant

The Hanson Concrete Batching Plant is situated on the southern corner of Glebe Island and was anticipated to generate a maximum of 286 vehicle movements per hour upon completion. This traffic generation was included within the base case SIDRA intersection model for the proposed development, resulting in largely similar intersection performances at the key intersections within the vicinity of the site.

New Sydney Fish Market

The New Sydney Fish Market (nSFM) is situated within Blackwattle Bay on Bridge Street and will include new facilities, retail shops, office premises and parking within a three-storey building, with associated road upgrades to Bridge Road at the intersections of Wattle Street and Wentworth Park Road. This development was approved in 2020 and as such, the associated traffic volumes were not included within the SIDRA intersection model.

Summary

Overall, the intersection performances of these key intersections during the morning and evening peak periods remain largely similar, with the WBCT and Hanson Concrete Batching Plan traffic generation incorporated within the SIDRA model, noting that the envisaged traffic volumes of the MUF are considered relatively minor. As previously mentioned, the traffic volumes of the nSFM were not included within the model, however, it is envisaged that the proposed development traffic generation (maximum of 24 vehicles per hour or a single additional vehicle every 2.5 minutes) represents a minor increase in traffic volume that would not adversely impact the key intersections within the vicinity of the site.

8.4.2 Infrastructure Projects

Westconnex

The WestConnex (WCX) project will feature the M4-M5 Link Tunnels between the M4 at Haberfield to the M5 at St Peters, as well as the M4-M5 Link Rozelle Interchange. This interchange will provide an underground motorway interchange between the City-West Link and Victoria Road, as well as connections to the future Western Harbour Tunnel, noting the following key access points:

- M4-M5 Link Tunnels and Victoria Road, with entry/exit situated on The Crescent, west of Victoria Road;
- Future Western Harbour tunnel, with entry/exit situated on the City West Link, west of The Crescent; and
- M4-M5 Link Tunnels and City West Link, with entry/exit vehicular access on the City West Link, approximately 370 metres west of The Crescent.

The construction of this project commenced in 2015 and is anticipated to be completed in 2023, with peak construction traffic generation estimated to be approximately 46 heavy vehicle movement in the morning and evening peak periods. Nevertheless, the traffic surveys conducted in 2017 and associated SIDRA intersection modelling would have included these ongoing construction vehicle traffic at the key intersections within the vicinity of the site.

Sydney Metro West

Sydney Metro West (SMW) is an NSW Government Public Transport infrastructure project that will connect Greater Parramatta and the Sydney CBD via a 24 kilometre metro line. The

construction of this project commenced in 2020 and is anticipated to be completed in 2030, with peak construction traffic generation estimated to be approximately 42 and 60 heavy vehicle movement in the morning and evening peak periods, respectively.

Western Harbour Tunnel

The Western Harbour Tunnel (WHT) is an NSW Government Public Transport infrastructure project that aims to provide direct connections between the Inner West, Sydney and North Sydney in addition to future public transport services. The future Western Harbour Tunnel link is envisaged to be situated on the Crescent, near the City West Link. The construction for this project is envisaged to commence in 2022 and is anticipated to be completed in 2027, with peak construction traffic generation estimated to be approximately 130 and 250 heavy vehicle movement in the morning and evening peak periods, respectively.

Summary

The ongoing infrastructure projects within the vicinity of the site are anticipated to generate moderate construction vehicle traffic volumes, however it is emphasised that these vehicle movements pertain to construction activities (i.e. temporary) and once complete, would not adversely impact the ongoing operations of the proposed development. Rather, these infrastructure projects are anticipated to significantly improve the performances of these intersections, with future traffic envisaged to be distributed onto the WCX and WHT upon completion.

8.4.3 Cumulative Impacts Summary

In summary, the cumulative impacts of the various developments and infrastructure projects within the vicinity of the site are considered minimal and well within typical fluctuations in traffic volumes that are currently accommodated within the internal road network of Glebe Island.

In addition, the existing development trip pattern is used for static trip assignment in SIDRA, it is considered more than likely that the development would adjust truck distributions and routes accordingly to increase efficiency and minimise delays. As such, the 24/7 operation of the development, would likely result in trucks being distributed to non-peak periods. Furthermore, the strategic location of the site enables drivers to choose various routes via Anzac Bridge, Victoria Road and City-West Link Road, thereby avoiding intersections that are not operating satisfactorily within specific peaks.

Notwithstanding, the development proposes to utilise the internal Traffic Management Plan prepared by Cement Australia and presented in **Appendix E**, which provides the operational aspects with regard to the surrounding developments, as outlined below:

- All drivers are aware of the induction process and Sugar Australia heavy vehicles, prior to attending the terminal, noting the reduced speed limit throughout the internal road network; and
- All Cement Australia heavy vehicles are required to give way to traffic along Solomons Way when egressing the development.

The above arrangements and minor traffic volume resulting from the proposed up lift in capacity are therefore considered appropriate to ensure minimal operational impacts towards the surrounding developments, with the proposed net increase of 700,000 tpa (total 1,200,000 tpa) is considered supportable from a traffic planning perspective.

9. ACCESS AND INTERNAL DESIGN ASPECTS

9.1 Access

9.1.1 Vehicular Access

The development proposes no change to the existing access arrangements via Solomons Way. Solomons Way provides one-way traffic from Sommerville Road and accommodates two (2) right-turn only lanes for access to the site, with all vehicles required to egress onto Solomons Way and onto Port Access Road. This existing access and internal road network are able to accommodate both light and heavy vehicles and as such, anticipated to operate satisfactorily.

A swept path analysis has been included in **Appendix F** demonstrating satisfactory internal vehicle circulation of the internal road network and entry/egress movements at the access.

9.1.2 Haul Routes

All heavy vehicle haul routes around the internal road network of Glebe Island are summarised as follows:

- Routes to the subject site (IN):
  1. Trucks will arrive on James Craig Road, eastbound.
  2. Turn left onto Sommerville Road, eastbound.
  3. Turn left onto Solomons Way, northbound.
  4. Access the site/ weighbridges via right-turn only lanes.
- Routes from the subject site (OUT):
  1. Trucks will depart onto Solomons Way, westbound.
  2. Turn right onto Port Access Road, eastbound.
  3. Turn right onto Sommerville Road, southbound.
  4. Continue along Sommerville Road, westbound.
  5. Turn right onto James Craig Road, westbound.

Reference should be made to the internal Traffic Management Map prepared by Cement Australia included in **Appendix E**, which provides the haul routes, as well as various roadway restrictions throughout the internal road network of Glebe Island.

9.2 Heavy Vehicle Queuing

The daily operational activities of the site involve the frequent loading of heavy vehicles via three (3) weighbridges, which are approved to operate 24/7 and provide a total throughput capacity of 12 trucks per hour (12 in, 12 out).

As the 95th percentile demand level equates to a peak of 8 trucks per hour, it is evident that no significant queuing occurs on site.

Nevertheless, the proposed uplift in capacity would result in an increased number of heavy vehicles accessing the site up to the maximum limitations of the weighbridge. In response, the development proposes to distribute the number of vehicles throughout the day, thereby minimising the number of vehicles on-site at any one time. This in turn would reduce the likelihood of heavy vehicle queuing, which is currently accommodated within the common area off Solomons Way.

In addition, the development proposes to retain the existing 12 heavy vehicle parking spaces in the unlikely event that there is a surplus in heavy vehicles. These arrangements are considered supportable and will ensure all heavy vehicle queuing is contained on-site.

9.3 Internal Design

The development proposes to retain all existing parking spaces comprising of 10 light vehicle spaces and 12 heavy vehicle spaces. As the development proposes no change to these existing parking spaces, no further assessment is required with the car parking areas anticipated to operate satisfactorily.

10. CONCLUSIONS

In summary:

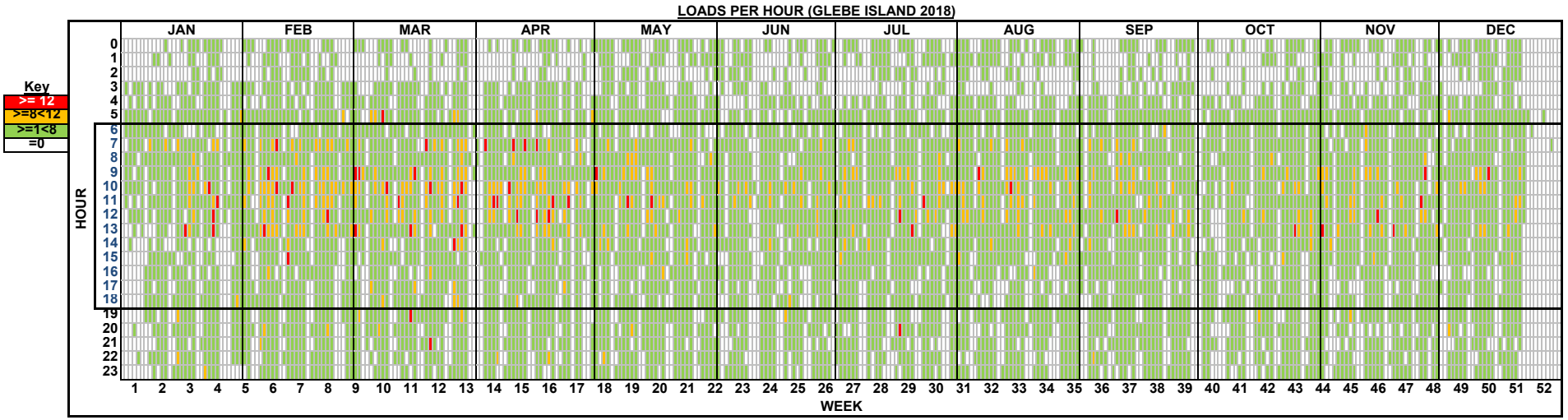
- The proposal seeks approval for an uplift in capacity of the Glebe Island Cement Distribution Facility, located at Sommerville Road, Rozelle. It is emphasised that this uplift in capacity seeks no change to the existing infrastructure or staff numbers.
- The subject site is well connected to various public transport services operating in the locality, with access to regular bus and light rail services. These, along with existing pedestrian and cycle links, ensure the site is accessible through several modes of alternative transportation.
- The development proposes to retain all existing infrastructure and parking spaces, with no increase to staff numbers. As such, the current parking arrangements are considered appropriate to accommodate the parking demands of the proposed additional throughput of the development.
- The traffic generation arising from the proposal has been assessed using various scenarios as discussed in **Section 8**. This analysis concluded that due to the weighbridge restrictions and 24/7 operational hours of the development, the trip generation would equate to a maximum of 12 vehicles per hour (12 in, 12 out). As such, it is considered that a net increase in capacity of 700,000 tpa (Total 1,200,000 tpa) is supportable on traffic engineering grounds, with minimal impacts on the surrounding road network.
- The proposed increase to a total throughput of 1,200,000 tpa involves no additional infrastructure, parking or staff. As such, the existing vehicular access and internal design aspects are anticipated to operate satisfactorily.

This traffic impact assessment therefore demonstrates that the subject application is supportable on traffic planning grounds. TRAFFIX anticipates an ongoing involvement during the development approval process.

APPENDIX A

2018 Heat Map

Cement Australia Distribution Facility - Heat Map 2018



Right turn	40%
Left turn	60%

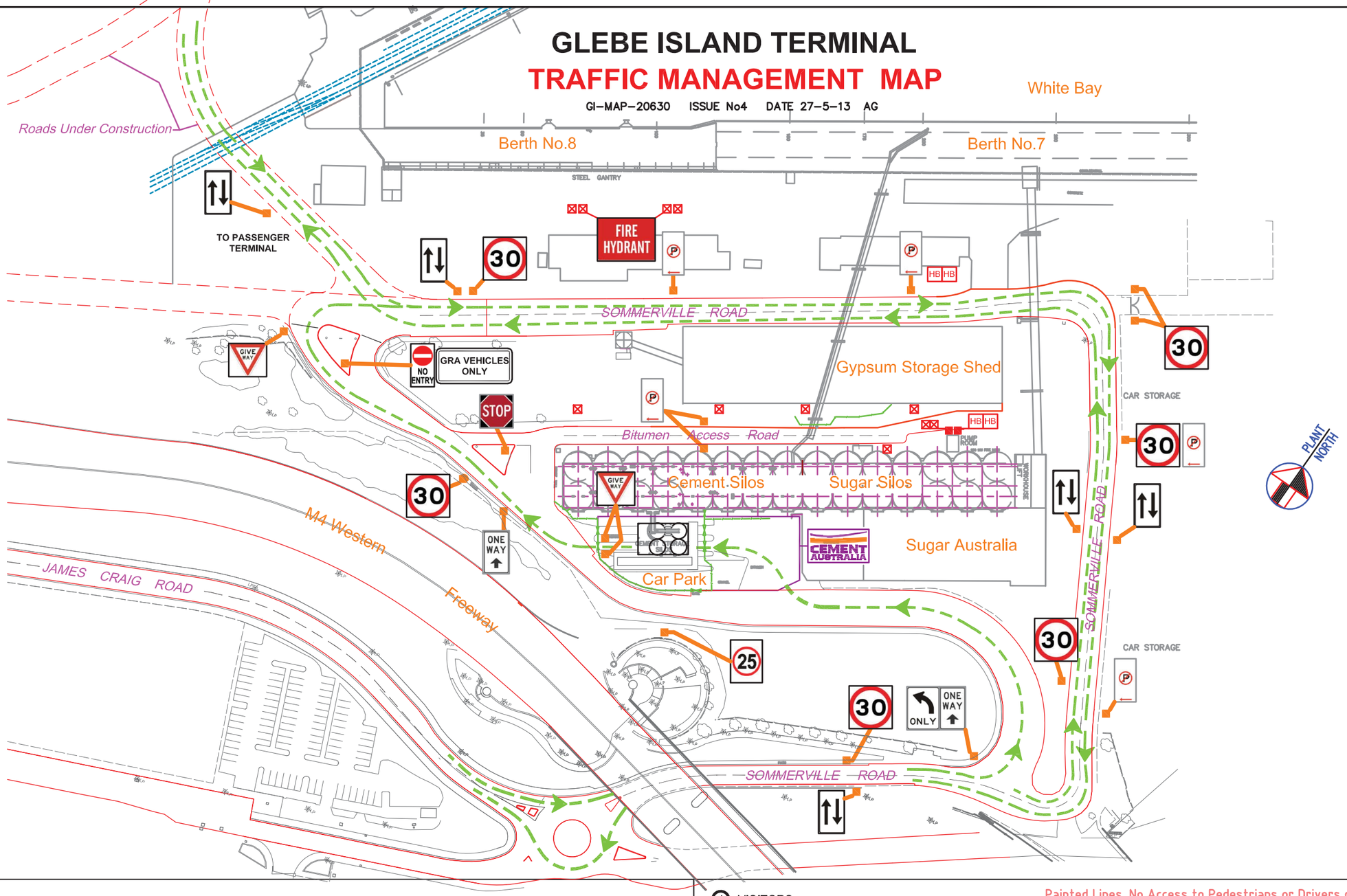
APPENDIX B

Reduced Plans

GLEBE ISLAND TERMINAL

TRAFFIC MANAGEMENT MAP

GI–MAP–20630 ISSUE No4 DATE 27–5–13 AG



TRAFFIC SIGN LEGEND

- SPEED LIMIT
- PEDESTRIAN CROSSING
- GIVE WAY
- ONE WAY
- GIVE WAY TO FORKLIFTS
- TWO WAY

WARNING SIGN LEGEND

- NO SMOKING
- CLEARANCE 4.2m
- TRAFFIC LIGHTS
- STOP — ENTER WHEN GIVEN GREEN LIGHT

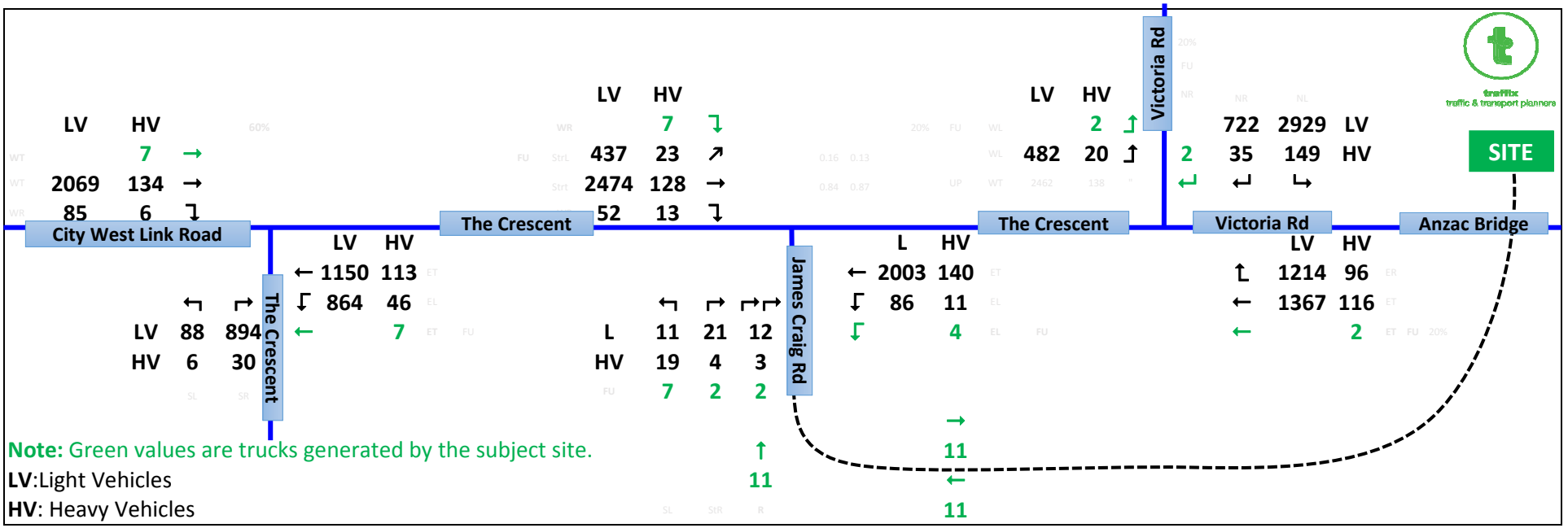
TRAFFIC TYPE & DIRECTION

- WALKWAYS
- TRAIN TRACK
- BULK TRAFFIC & WORKSHOP
- HB — HYDRANT BOOSTER VALVES
- FIRE HYDRANT

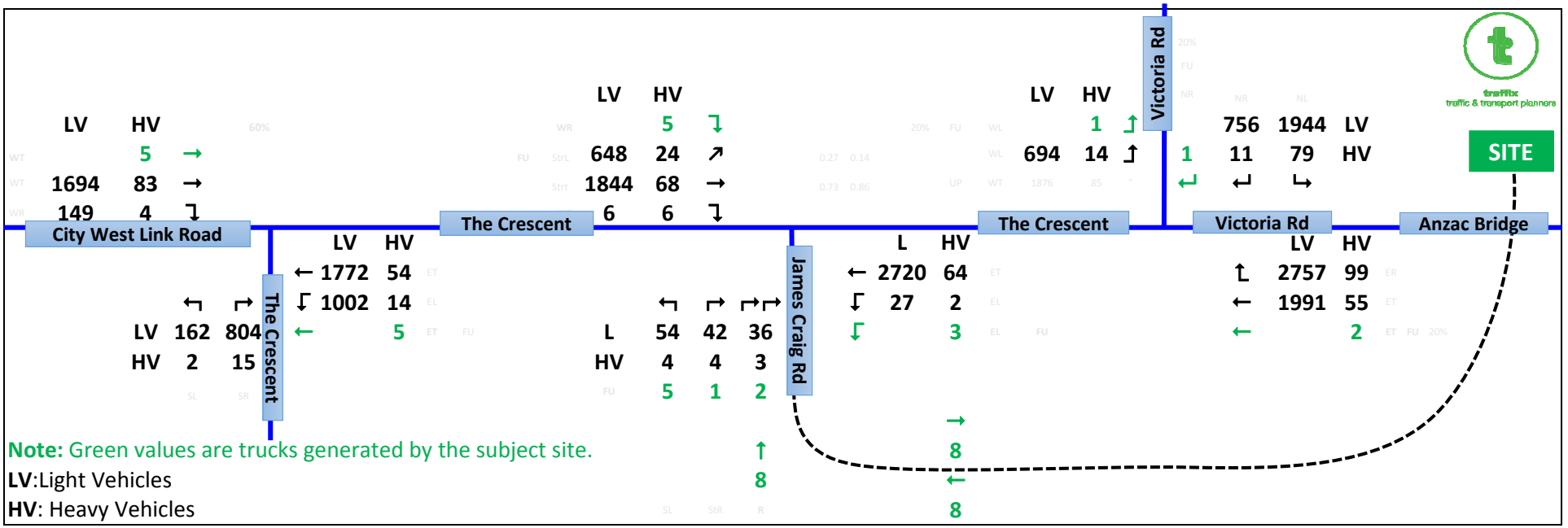
1. VISITORS
   Visitors to Report to Control Room Office.
2. ALL VEHICLES
   All Vehicles other than Mobile Plant are to Travel in the Direction of Plant Signage.
3. PEDESTRIANS
   Padestrians to follow all Signage and Give Way to to Mobile Plant.
4. VEHICLES ENTERING BAGGING SHED
   Vehicles Entering the Bagging Shed must Follow Signage to Bagging Shed. Stop at Entry Point and Wait for Green Traffic Light.
5. PEDESTRIAN EXCLUSION ZONE
   The Pedestrian Exclusion Zone is Clesrly Marked with Painted Lines. No Access to Pedestrians or Drivers during the Loading Process. If the Driver or Pedestrian require access to the Exclusion Zone the Forklift Operator will Stop the Forklift immediately until the Zone is Clear.There will be Only One Vehicle in the Loading Area at All Times.
6. VEHICLES
   Vehicles Exiting Silos must Give Way to the Right.
7. VEHICLES ENTERING WEIGHBRIDGE
   Vehicles Entering the Weighbridge must Stop before Entering Silo and Give Way to Pedestrians. When they Have a Green Light they May Enter the Weighbridge Loading Bay.
8. CAR PARK EXIT
   Car Park Exit – Light Vehicles Only
9. LOADING VEHICLES
   Please Switch Off Engine while Loading. Exhaust Fumes in Enclosed Areas are a Health Hazard.

APPENDIX C

Network Diagram



AM Peak in 2019 and 700,000 TPA Scenario



PM Peak in 2019 and 700,000 TPA Scenario

APPENDIX D

SIDRA Intersection Outputs

APPENDIX D-1

SIDRA Intersection – Layout

USER REPORT FOR NETWORK SITE

All Movement Classes

Project: 18.618m03 TRAFFIX Cement Australia Distribution Facility, Glebe Island AM_2019 — **Template: Layouts**

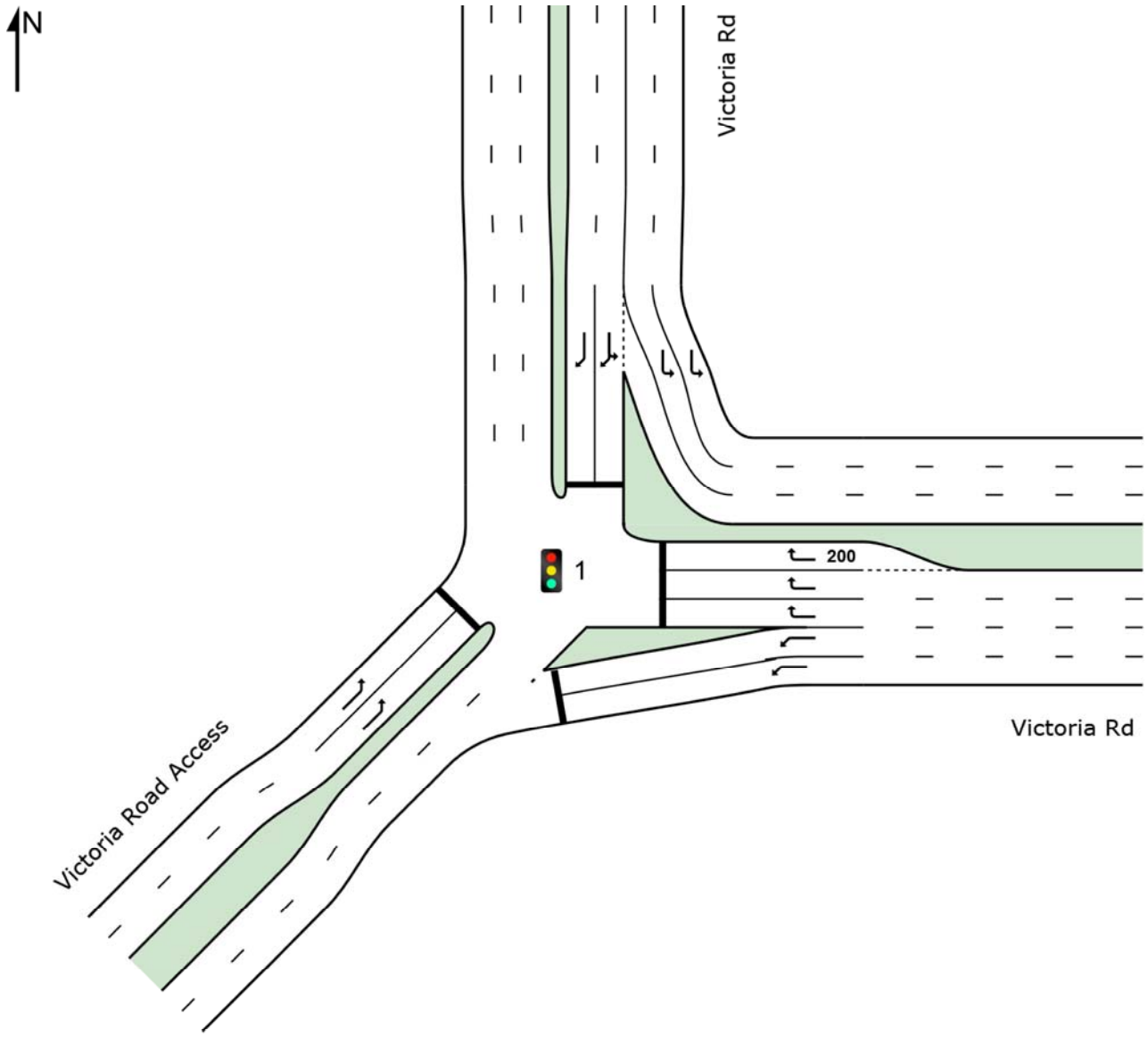
Site: 1 [1_EX_AM_Victoria Rd / The Crescent (Site Folder: Existing)] — **Network: 1 [2019 AM Base Case (Network Folder: Existing)]**

1. Victoria Rd / The Crescent
AM Peak
Existing
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Coordinated

Timings based on settings in the Network Timing dialog
Phase Times determined by the program
Downstream lane blockage effects included in determining phase times
Green Split Priority has been specified
Phase Sequence: Variable Phasing
Reference Phase: Phase A
Input Phase Sequence: A, B
Output Phase Sequence: A, B

Site Layout

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.


N
Victoria Rd
1
200
Victoria Road Access
Victoria Rd

Site: 2 [2_EX_AM_The Crescent / James Craig Rd (Site Folder: Existing)]

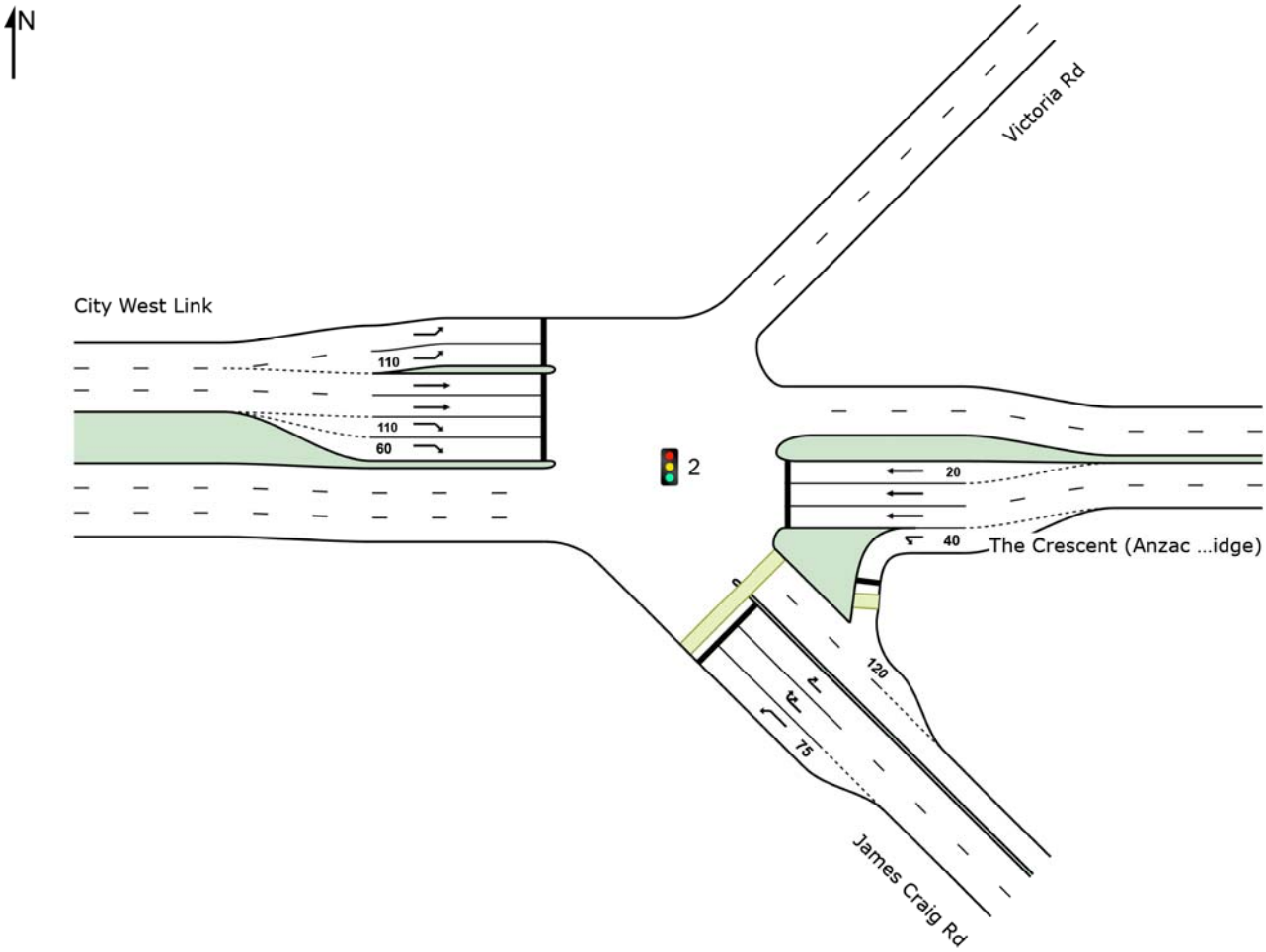
Network: 1 [2019 AM Base Case (Network Folder: Existing)]

2. The Crescent / James Craig Rd
AM Peak
Existing
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Coordinated

Timings based on settings in the Network Timing dialog
Phase Times determined by the program
Downstream lane blockage effects included in determining phase times
Green Split Priority has been specified
Phase Sequence: Variable Phasing
Reference Phase: Phase A
Input Phase Sequence: A, B, C
Output Phase Sequence: A, B, C

Site Layout

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



Site: 3 [3_EX_AM_The Crescent / West Link Road (Site Folder: Existing)]

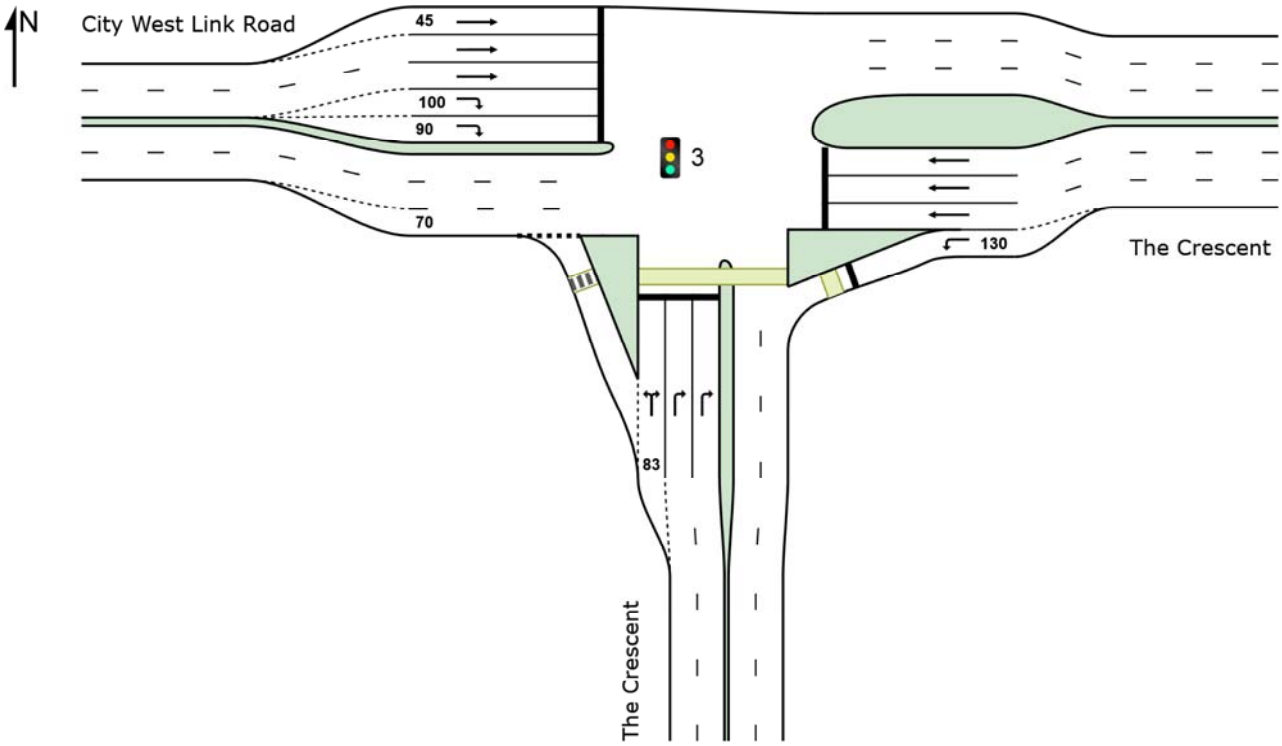
Network: 1 [2019 AM Base Case (Network Folder: Existing)]

3. The Crescent / West Link Road
AM Peak
Existing
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Coordinated

Timings based on settings in the Network Timing dialog
Phase Times determined by the program
Downstream lane blockage effects included in determining phase times
Green Split Priority has been specified
Phase Sequence: Variable Phasing
Reference Phase: Phase A
Input Phase Sequence: A, B, C
Output Phase Sequence: A, B, C

Site Layout

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



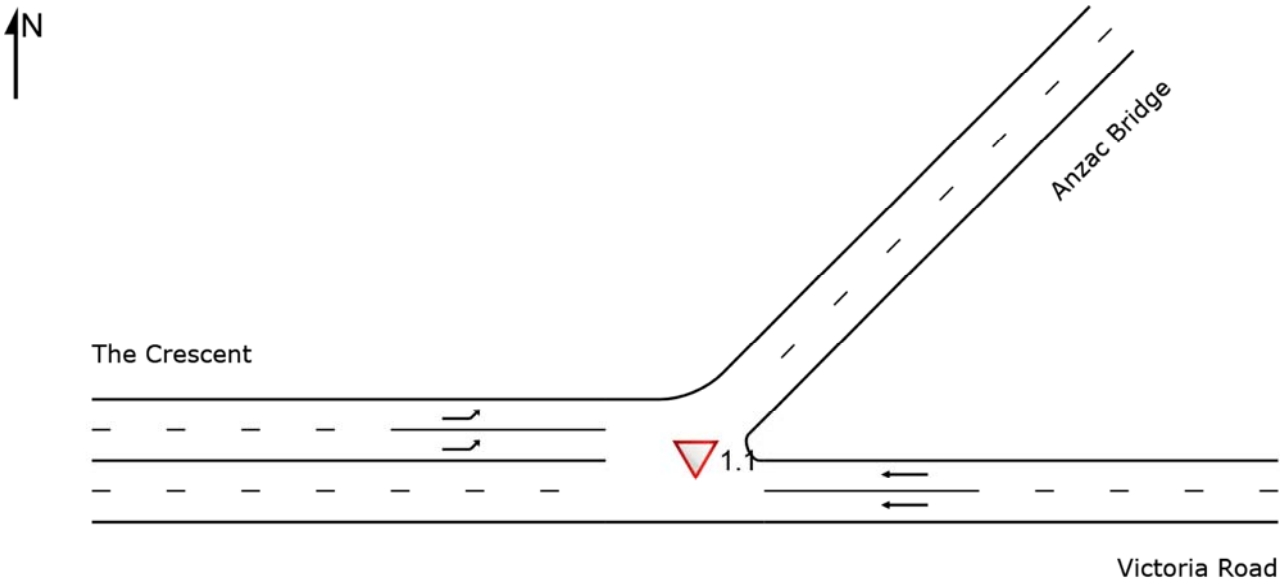
Site: 1.1 [1.1 Link EX AM (Site Folder: Existing)]

Network: 1 [2019 AM Base Case (Network Folder: Existing)]

New Site
Site Category: (None)
Give-Way (Two-Way)

Site Layout

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



APPENDIX D-2

SIDRA Intersection – Base Case

USER REPORT FOR NETWORK SITE

All Movement Classes

Project: 18.618m03 TRAFFIX Cement Australia Distribution Facility, Glebe Island AM_2019

Template: Movement Summaries

Site: 1 [1_EX_AM_Victoria Rd / The Crescent (Site Folder: Existing)]

Network: 1 [2019 AM Base Case (Network Folder: Existing)]

1. Victoria Rd / The Crescent
AM Peak
Existing
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 145 seconds (Network Optimum Cycle Time - Minimum Delay)

Timings based on settings in the Network Timing dialog
Phase Times determined by the program
Downstream lane blockage effects included in determining phase times
Green Split Priority has been specified
Phase Sequence: Variable Phasing
Reference Phase: Phase A
Input Phase Sequence: A, B
Output Phase Sequence: A, B

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
East: Victoria Rd														
4a	L1	1561	7.8	1561	7.8	* 0.849	27.4	LOS B	54.9	409.8	0.83	0.89	0.86	41.3
6	R2	1379	7.3	1379	7.3	0.385	16.5	LOS B	13.9	103.5	0.47	0.71	0.47	48.1
Approach		2940	7.6	2940	7.6	0.849	22.3	LOS B	54.9	409.8	0.66	0.80	0.68	44.6
North: Victoria Rd														
7	L2	3240	4.8	3240	4.8	0.894	6.7	LOS A	33.3	242.3	0.01	0.51	0.01	54.8
9a	R1	797	4.6	797	4.6	* 0.894	73.8	LOS F	33.3	242.3	1.00	0.96	1.20	8.8
Approach		4037	4.8	4037	4.8	0.894	20.0	LOS B	33.3	242.3	0.20	0.60	0.25	45.2
SouthWest: Victoria Road Access														
30a	L1	528	4.0	442	4.3	0.493	56.3	LOS D	14.0	101.8	0.95	0.82	0.95	17.2
Approach		528	4.0	442 N1	4.3	0.493	56.3	LOS D	14.0	101.8	0.95	0.82	0.95	17.2
All Vehicles		7505	5.8	7419 N1	5.9	0.894	23.1	LOS B	54.9	409.8	0.43	0.70	0.46	43.4

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network 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.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

* Critical Movement (Signal Timing)
N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

Site: 2 [2_EX_AM_The Crescent / James Craig Rd (Site Folder: Existing)]

Network: 1 [2019 AM Base Case (Network Folder: Existing)]

2. The Crescent / James Craig Rd
AM Peak
Existing
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 145 seconds (Network Optimum Cycle Time - Minimum Delay)

Timings based on settings in the Network Timing dialog
Phase Times determined by the program
Downstream lane blockage effects included in determining phase times
Green Split Priority has been specified
Phase Sequence: Variable Phasing
Reference Phase: Phase A
Input Phase Sequence: A, B, C
Output Phase Sequence: A, B, C

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
SouthEast: James Craig Rd														
21a	L1	32	63.3	32	63.3	0.180	65.4	LOS E	2.0	22.0	0.93	0.72	0.93	9.1
23	R2	26	16.0	26	16.0	* 0.374	83.0	LOS F	1.9	15.5	1.00	0.72	1.00	7.1
23b	R3	16	20.0	16	20.0	0.259	83.8	LOS F	1.2	9.6	1.00	0.70	1.00	7.5
Approach		74	37.1	74	37.1	0.374	75.6	LOS F	2.0	22.0	0.97	0.71	0.97	7.9
East: The Crescent (Anzac Bridge)														
4b	L3	102	11.3	102	11.3	0.077	8.5	LOS A	1.5	11.8	0.23	0.66	0.23	40.1
5	T1	2256	6.5	2256	6.5	* 0.772	7.4	LOS A	17.7	130.6	0.48	0.44	0.48	28.0
Approach		2358	6.7	2358	6.7	0.772	7.4	LOS A	17.7	130.6	0.47	0.45	0.47	29.0
West: City West Link														
10a	L1	484	5.0	393	5.4	0.122	7.4	LOS A	1.9	13.8	0.15	0.66	0.15	38.2
11	T1	2739	4.9	2221	5.4	0.687	2.7	LOS A	23.8	174.5	0.32	0.30	0.32	54.0
12a	R1	68	20.0	56	21.5	* 0.418	84.5	LOS F	2.5	20.7	1.00	0.72	1.00	12.4
Approach		3292	5.2	2670 N1	5.7	0.687	5.1	LOS A	23.8	174.5	0.31	0.36	0.31	44.9
All Vehicles		5723	6.3	5101 N1	7.0	0.772	7.2	LOS A	23.8	174.5	0.39	0.41	0.39	35.2

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network 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.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

* Critical Movement (Signal Timing)
N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

Site: 3 [3_EX_AM_The Crescent / West Link Road (Site Folder: Existing)]

Network: 1 [2019 AM Base Case (Network Folder: Existing)]

3. The Crescent / West Link Road
AM Peak
Existing
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 145 seconds (Network Optimum Cycle Time - Minimum Delay)

Timings based on settings in the Network Timing dialog
Phase Times determined by the program
Downstream lane blockage effects included in determining phase times
Green Split Priority has been specified
Phase Sequence: Variable Phasing
Reference Phase: Phase A
Input Phase Sequence: A, B, C
Output Phase Sequence: A, B, C

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: The Crescent														
1	L2	99	6.4	99	6.4	0.896	75.5	LOS F	28.8	208.5	1.00	1.00	1.23	22.6
3	R2	973	3.2	973	3.2	* 0.896	77.2	LOS F	30.0	215.9	1.00	0.98	1.24	9.8
Approach		1072	3.5	1072	3.5	0.896	77.0	LOS F	30.0	215.9	1.00	0.98	1.24	11.3
East: The Crescent														
4	L2	958	5.1	958	5.1	0.615	9.4	LOS A	18.6	135.5	0.31	0.70	0.31	43.6
5	T1	1329	8.9	1329	8.9	0.501	15.9	LOS B	18.3	137.6	0.50	0.45	0.50	48.4
Approach		2287	7.3	2287	7.3	0.615	13.2	LOS A	18.6	137.6	0.42	0.55	0.42	46.8
West: City West Link Road														
11	T1	2319	6.1	2319	6.1	* 0.780	15.3	LOS B	46.8	345.0	0.67	0.63	0.67	44.5
12	R2	96	6.6	96	6.6	0.559	84.4	LOS F	3.5	26.3	1.00	0.75	1.03	21.3
Approach		2415	6.1	2415	6.1	0.780	18.0	LOS B	46.8	345.0	0.68	0.63	0.69	42.0
All Vehicles		5774	6.1	5774	6.1	0.896	27.0	LOS B	46.8	345.0	0.64	0.66	0.68	33.5

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network 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.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

* Critical Movement (Signal Timing)

Site: 1.1 [1.1 Link EX AM (Site Folder: Existing)]

Network: 1 [2019 AM Base Case (Network Folder: Existing)]

New Site
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
East: Victoria Road														
5	T1	2358	6.7	2358	6.7	0.727	0.1	LOS A	17.6	130.6	0.00	0.00	0.00	58.7
Approach		2358	6.7	2358	6.7	0.727	0.1	NA	17.6	130.6	0.00	0.00	0.00	58.7
West: The Crescent														
10a	L1	2755	5.0	2261	5.4	0.614	5.0	LOS A	0.0	0.0	0.00	0.58	0.00	49.0
Approach		2755	5.0	2261 N1	5.4	0.614	5.0	NA	0.0	0.0	0.00	0.58	0.00	49.0
All Vehicles		5113	5.8	4619 N1	6.4	0.727	2.5	NA	17.6	130.6	0.00	0.29	0.00	50.1

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

USER REPORT FOR NETWORK SITE

All Movement Classes

Project: 18.618m03 TRAFFIX Cement Australia Distribution Facility, Glebe Island AM_2019

Template: Movement Summaries

Site: 1 [1_EX_PM_Victoria Rd / The Crescent (Site Folder: Existing)]

Network: 5 [2019 PM Base Case (Network Folder: Existing)]

1. Victoria Rd / The Crescent
PM Peak
Existing
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 85 seconds (Network Optimum Cycle Time - Minimum Delay)

Timings based on settings in the Network Timing dialog
Phase Times determined by the program
Downstream lane blockage effects included in determining phase times
Green Split Priority has been specified
Phase Sequence: Variable Phasing
Reference Phase: Phase A
Input Phase Sequence: A, B
Output Phase Sequence: A, B

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
East: Victoria Rd														
4a	L1	2154	2.7	2154	2.7	* 0.903	31.8	LOS C	48.8	349.7	0.93	0.98	1.10	39.4
6	R2	3006	3.5	3006	3.5	0.870	27.1	LOS B	40.3	290.2	0.89	0.94	1.00	43.3
Approach		5160	3.1	5160	3.1	0.903	29.0	LOS C	48.8	349.7	0.90	0.96	1.04	41.8
North: Victoria Rd														
7	L2	2129	3.9	2129	3.9	0.589	5.7	LOS A	0.0	0.0	0.00	0.52	0.00	55.2
9a	R1	807	1.4	807	1.4	* 0.954	65.2	LOS E	23.0	163.3	1.00	1.12	1.59	9.7
Approach		2937	3.2	2937	3.2	0.954	22.1	LOS B	23.0	163.3	0.27	0.69	0.44	43.0
SouthWest: Victoria Road Access														
30a	L1	745	2.0	745	2.0	0.884	48.5	LOS D	17.6	125.3	1.00	0.98	1.27	19.2
Approach		745	2.0	745	2.0	0.884	48.5	LOS D	17.6	125.3	1.00	0.98	1.27	19.2
All Vehicles		8842	3.1	8842	3.1	0.954	28.4	LOS B	48.8	349.7	0.70	0.87	0.86	40.6

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network 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.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

* Critical Movement (Signal Timing)

Site: 2 [2_EX_PM_The Crescent / James Craig Rd (Site Folder: Existing)]

Network: 5 [2019 PM Base Case (Network Folder: Existing)]

2. The Crescent / James Craig Rd
PM Peak
Existing
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 85 seconds (Network Optimum Cycle Time - Minimum Delay)

Timings based on settings in the Network Timing dialog
Phase Times determined by the program
Downstream lane blockage effects included in determining phase times
Green Split Priority has been specified
Phase Sequence: Variable Phasing
Reference Phase: Phase A
Input Phase Sequence: A, B, C
Output Phase Sequence: A, B, C

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
SouthEast: James Craig Rd														
21a	L1	61	6.9	61	6.9	0.156	33.1	LOS C	2.1	15.6	0.85	0.71	0.85	15.2
23	R2	48	8.7	48	8.7	* 0.384	48.5	LOS D	9.6	71.9	0.99	0.74	0.99	11.1
23b	R3	41	7.7	41	7.7	0.366	49.6	LOS D	1.8	13.2	0.99	0.74	0.99	11.4
Approach		151	7.7	151	7.7	0.384	42.5	LOS D	9.6	71.9	0.93	0.73	0.93	12.6
East: The Crescent (Anzac Bridge)														
4b	L3	31	6.9	21	7.5	0.017	8.4	LOS A	0.2	1.4	0.22	0.65	0.22	40.2
5	T1	2931	2.3	2054	2.5	* 0.781	11.6	LOS A	18.3	130.6	0.64	0.61	0.68	20.8
Approach		2961	2.3	2075 N1	2.5	0.781	11.6	LOS A	18.3	130.6	0.64	0.61	0.67	21.1
West: City West Link														
10a	L1	707	3.6	707	3.6	0.482	10.3	LOS A	36.2	261.1	0.48	0.75	0.48	32.2
11	T1	2013	3.6	2013	3.6	0.684	6.5	LOS A	26.5	190.8	0.67	0.62	0.67	40.7
12a	R1	13	50.0	13	50.0	* 0.075	48.1	LOS D	0.3	3.1	0.96	0.66	0.96	18.9
Approach		2733	3.8	2733	3.8	0.684	7.7	LOS A	36.2	261.1	0.62	0.66	0.62	37.8
All Vehicles		5844	3.2	4958 N1	3.7	0.781	10.4	LOS A	36.2	261.1	0.64	0.64	0.65	28.8

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network 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.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

* Critical Movement (Signal Timing)
N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

Site: 3 [3_EX_PM_The Crescent / West Link Road (Site Folder: Existing)]

Network: 5 [2019 PM Base Case (Network Folder: Existing)]

3. The Crescent / West Link Road
PM Peak
Existing
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 85 seconds (Network Optimum Cycle Time - Minimum Delay)

Timings based on settings in the Network Timing dialog
Phase Times determined by the program
Downstream lane blockage effects included in determining phase times
Green Split Priority has been specified
Phase Sequence: Variable Phasing
Reference Phase: Phase A
Input Phase Sequence: A, B, C
Output Phase Sequence: A, B, C

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: The Crescent														
1	L2	173	1.2	173	1.2	0.866	46.2	LOS D	30.5	216.4	0.99	1.07	1.32	30.9
3	R2	862	1.8	862	1.8	* 0.866	47.1	LOS D	30.5	216.4	1.00	1.03	1.33	14.6
Approach		1035	1.7	1035	1.7	0.866	46.9	LOS D	30.5	216.4	1.00	1.04	1.32	18.2
East: The Crescent														
4	L2	1069	1.4	719	1.5	0.496	11.1	LOS A	13.9	98.8	0.51	0.75	0.51	42.1
5	T1	1922	3.0	1294	3.2	* 0.719	22.2	LOS B	17.5	125.6	0.80	0.71	0.81	43.0
Approach		2992	2.4	2013 N1	2.6	0.719	18.3	LOS B	17.5	125.6	0.70	0.72	0.70	42.8
West: City West Link Road														
11	T1	260	33.6	260	33.6	0.171	11.3	LOS A	11.8	106.5	0.55	0.45	0.55	49.2
12	R2	161	2.6	161	2.6	* 0.626	51.9	LOS D	3.6	25.5	1.00	0.80	1.11	28.8
Approach		421	21.8	421	21.8	0.626	26.8	LOS B	11.8	106.5	0.72	0.58	0.76	36.8
All Vehicles		4447	4.1	3469 N1	5.2	0.866	27.9	LOS B	30.5	216.4	0.79	0.80	0.89	33.2

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network 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.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

* Critical Movement (Signal Timing)
N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

Site: 1.1 [1.1 Link EX PM (Site Folder: Existing)]

Network: 5 [2019 PM Base Case (Network Folder: Existing)]

New Site
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
East: Victoria Road														
5	T1	2961	2.3	2157	2.5	0.679	0.1	LOS A	15.1	107.9	0.00	0.00	0.00	59.0
Approach		2961	2.3	2157 N1	2.5	0.679	0.1	NA	15.1	107.9	0.00	0.00	0.00	59.0
West: The Crescent														
10a	L1	2054	3.6	2054	3.6	0.551	5.0	LOS A	0.0	0.0	0.00	0.59	0.00	33.5
Approach		2054	3.6	2054	3.6	0.551	5.0	NA	0.0	0.0	0.00	0.59	0.00	33.5
All Vehicles		5015	2.9	4211 N1	3.4	0.679	2.5	NA	15.1	107.9	0.00	0.29	0.00	39.6

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

APPENDIX D-3

SIDRA Intersection – Base + Development

USER REPORT FOR NETWORK SITE

All Movement Classes

Project: 18.618m03 TRAFFIX Cement Australia Distribution Facility, Glebe Island AM_2019

Template: Movement Summaries

Site: 1 [1_EX+DEV_AM_Victoria Rd / The Crescent (Site Folder: Existing + Development)]

Network: 2 [2019 AM Base Case + DEV (Network Folder: Existing + Development)]

1. Victoria Rd / The Crescent
AM Peak
Existing
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 120 seconds (Network Optimum Cycle Time - Minimum Delay)

Timings based on settings in the Network Timing dialog
Phase Times determined by the program
Downstream lane blockage effects included in determining phase times
Green Split Priority has been specified
Phase Sequence: Variable Phasing
Reference Phase: Phase A
Input Phase Sequence: A, B
Output Phase Sequence: A, B

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
East: Victoria Rd														
4a	L1	1563	7.9	1563	7.9	* 0.800	22.0	LOS B	39.6	295.7	0.79	0.86	0.80	44.1
6	R2	1379	7.3	1379	7.3	0.401	16.2	LOS B	12.5	93.0	0.51	0.72	0.51	48.3
Approach		2942	7.7	2942	7.7	0.800	19.3	LOS B	39.6	295.7	0.66	0.79	0.67	46.2
North: Victoria Rd														
7	L2	3240	4.8	3240	4.8	0.873	7.7	LOS A	31.3	228.3	0.03	0.53	0.04	50.9
9a	R1	799	4.9	799	4.9	* 0.873	58.2	LOS E	31.3	228.3	1.00	0.96	1.19	10.8
Approach		4039	4.8	4039	4.8	0.873	17.7	LOS B	31.3	228.3	0.22	0.61	0.27	40.7
SouthWest: Victoria Road Access														
30a	L1	531	4.4	437	4.8	0.472	46.8	LOS D	11.3	82.7	0.93	0.81	0.93	19.6
Approach		531	4.4	437 N1	4.8	0.472	46.8	LOS D	11.3	82.7	0.93	0.81	0.93	19.6
All Vehicles		7512	5.9	7418 N1	6.0	0.873	20.0	LOS B	39.6	295.7	0.44	0.70	0.46	42.2

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network 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.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

* Critical Movement (Signal Timing)
N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

Site: 2 [2_EX+DEV_AM_The Crescent / James Craig Rd (Site Folder: Existing + Development)]

Network: 2 [2019 AM Base Case + DEV (Network Folder: Existing + Development)]

2. The Crescent / James Craig Rd
AM Peak
Existing
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 120 seconds (Network Optimum Cycle Time - Minimum Delay)

Timings based on settings in the Network Timing dialog
Phase Times determined by the program
Downstream lane blockage effects included in determining phase times
Green Split Priority has been specified
Phase Sequence: Variable Phasing
Reference Phase: Phase A
Input Phase Sequence: A, B, C
Output Phase Sequence: A, B, C

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
SouthEast: James Craig Rd														
21a	L1	39	70.3	39	70.3	0.200	53.5	LOS D	2.1	23.1	0.91	0.73	0.91	10.8
23	R2	28	22.2	28	22.2	* 0.347	68.9	LOS E	1.7	14.5	1.00	0.72	1.00	8.4
23b	R3	18	29.4	18	29.4	0.256	69.9	LOS E	1.1	9.6	0.99	0.70	0.99	8.7
Approach		85	45.7	85	45.7	0.347	62.1	LOS E	2.1	23.1	0.96	0.72	0.96	9.4
East: The Crescent (Anzac Bridge)														
4b	L3	106	14.9	106	14.9	0.084	7.7	LOS A	0.8	6.5	0.14	0.64	0.14	39.1
5	T1	2256	6.5	2256	6.5	* 0.806	9.2	LOS A	17.7	130.6	0.50	0.47	0.52	24.2
Approach		2362	6.9	2362	6.9	0.806	9.2	LOS A	17.7	130.6	0.48	0.48	0.50	25.5
West: City West Link														
10a	L1	484	5.0	412	5.3	0.132	7.4	LOS A	1.7	12.3	0.15	0.66	0.15	38.1
11	T1	2739	4.9	2329	5.2	0.742	3.0	LOS A	24.3	177.6	0.37	0.35	0.37	52.4
12a	R1	76	27.8	66	29.9	* 0.499	70.2	LOS E	2.4	21.5	1.00	0.73	1.00	13.9
Approach		3299	5.5	2807 N1	5.8	0.742	5.3	LOS A	24.3	177.6	0.36	0.41	0.36	44.2
All Vehicles		5746	6.6	5255 N1	7.3	0.806	7.9	LOS A	24.3	177.6	0.42	0.45	0.43	33.5

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network 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.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

* Critical Movement (Signal Timing)
N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

Site: 3 [3_EX+DEV_AM_The Crescent / West Link Road (Site Folder: Existing + Development)]

Network: 2 [2019 AM Base Case + DEV (Network Folder: Existing + Development)]

3. The Crescent / West Link Road
AM Peak
Existing
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 120 seconds (Network Optimum Cycle Time - Minimum Delay)

Timings based on settings in the Network Timing dialog
Phase Times determined by the program
Downstream lane blockage effects included in determining phase times
Green Split Priority has been specified
Phase Sequence: Variable Phasing
Reference Phase: Phase A
Input Phase Sequence: A, B, C
Output Phase Sequence: A, B, C

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: The Crescent														
1	L2	99	6.4	99	6.4	0.896	65.8	LOS E	24.5	177.5	1.00	1.02	1.28	24.6
3	R2	973	3.2	973	3.2	* 0.896	67.6	LOS E	24.8	178.5	1.00	1.00	1.29	11.0
Approach		1072	3.5	1072	3.5	0.896	67.5	LOS E	24.8	178.5	1.00	1.00	1.29	12.6
East: The Crescent														
4	L2	958	5.1	958	5.1	0.629	9.7	LOS A	17.7	129.1	0.35	0.71	0.35	43.3
5	T1	1337	9.4	1337	9.4	0.529	12.2	LOS A	14.2	107.4	0.45	0.41	0.45	52.2
Approach		2295	7.6	2295	7.6	0.629	11.1	LOS A	17.7	129.1	0.41	0.53	0.41	49.1
West: City West Link Road														
11	T1	2326	6.4	2326	6.4	* 0.887	26.5	LOS B	56.5	418.0	0.71	0.75	0.83	35.1
12	R2	96	6.6	96	6.6	0.540	71.4	LOS F	3.0	21.9	1.00	0.75	1.03	23.7
Approach		2422	6.4	2422	6.4	0.887	28.3	LOS B	56.5	418.0	0.73	0.75	0.84	34.2
All Vehicles		5788	6.3	5788	6.3	0.896	28.7	LOS C	56.5	418.0	0.65	0.71	0.75	32.5

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network 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.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

* Critical Movement (Signal Timing)

Site: 1.1 [1.1 Link (Site Folder: Existing + Development)]

Network: 2 [2019 AM Base Case + DEV (Network Folder: Existing + Development)]

New Site
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
East: Victoria Road														
5	T1	2362	6.9	2362	6.9	0.780	0.2	LOS A	14.8	109.8	0.00	0.00	0.00	58.2
Approach		2362	6.9	2362	6.9	0.780	0.2	NA	14.8	109.8	0.00	0.00	0.00	58.2
West: The Crescent														
10a	L1	2757	5.1	2222	5.6	0.604	5.0	LOS A	0.0	0.0	0.00	0.59	0.00	49.0
Approach		2757	5.1	2222 N1	5.6	0.604	5.0	NA	0.0	0.0	0.00	0.59	0.00	49.0
All Vehicles		5119	5.9	4584 N1	6.6	0.780	2.5	NA	14.8	109.8	0.00	0.28	0.00	50.1

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

USER REPORT FOR NETWORK SITE

All Movement Classes

Project: 18.618m03 TRAFFIX Cement Australia Distribution Facility, Glebe Island AM_2019

Template: Movement Summaries

Site: 1 [1_EX+DEV_PM_Victoria Rd / The Crescent (Site Folder: Existing + Development)]

Network: 6 [2019 PM Base Case + DEV (Network Folder: Existing + Development)]

1. Victoria Rd / The Crescent
AM Peak
Existing
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 85 seconds (Network Optimum Cycle Time - Minimum Delay)

Timings based on settings in the Network Timing dialog
Phase Times determined by the program
Downstream lane blockage effects included in determining phase times
Green Split Priority has been specified
Phase Sequence: Variable Phasing
Reference Phase: Phase A
Input Phase Sequence: A, B
Output Phase Sequence: A, B

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
East: Victoria Rd														
4a	L1	2157	2.8	2157	2.8	* 0.905	32.3	LOS C	49.4	353.8	0.93	0.98	1.11	39.1
6	R2	3006	3.5	3006	3.5	0.870	27.1	LOS B	40.3	290.2	0.89	0.94	1.00	43.3
Approach		5163	3.2	5163	3.2	0.905	29.3	LOS C	49.4	354.2	0.91	0.96	1.05	41.7
North: Victoria Rd														
7	L2	2129	3.9	2129	3.9	0.589	5.7	LOS A	0.0	0.0	0.00	0.52	0.00	52.6
9a	R1	808	1.6	808	1.6	* 0.956	65.9	LOS E	23.2	164.6	1.00	1.13	1.60	9.6
Approach		2938	3.3	2938	3.3	0.956	22.3	LOS B	23.2	164.8	0.28	0.69	0.44	36.6
SouthWest: Victoria Road Access														
30a	L1	746	2.1	746	2.1	0.886	48.8	LOS D	17.7	126.0	1.00	0.98	1.27	19.1
Approach		746	2.1	746	2.1	0.886	48.8	LOS D	17.7	126.0	1.00	0.98	1.27	19.1
All Vehicles		8847	3.1	8847	3.1	0.956	28.6	LOS C	49.4	354.2	0.70	0.87	0.86	38.8

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network 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.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

* Critical Movement (Signal Timing)

Site: 2 [2_EX+DEV_PM_The Crescent / James Craig Rd (Site Folder: Existing + Development)]

Network: 6 [2019 PM Base Case + DEV (Network Folder: Existing + Development)]

2. The Crescent / James Craig Rd
AM Peak
Existing
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 85 seconds (Network Optimum Cycle Time - Minimum Delay)

Timings based on settings in the Network Timing dialog
Phase Times determined by the program
Downstream lane blockage effects included in determining phase times
Green Split Priority has been specified
Phase Sequence: Variable Phasing
Reference Phase: Phase A
Input Phase Sequence: A, B, C
Output Phase Sequence: A, B, C

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
SouthEast: James Craig Rd														
21a	L1	66	14.3	66	14.3	0.178	33.5	LOS C	2.3	18.0	0.86	0.72	0.86	15.1
23	R2	49	10.6	49	10.6	* 0.795	57.4	LOS E	9.8	74.8	1.00	0.94	1.54	9.7
23b	R3	43	12.2	43	12.2	0.396	49.9	LOS D	1.9	14.4	0.99	0.74	0.99	11.4
Approach		159	12.6	159	12.6	0.795	45.4	LOS D	9.8	74.8	0.94	0.79	1.11	12.0
East: The Crescent (Anzac Bridge)														
4b	L3	34	15.6	24	16.2	0.020	8.4	LOS A	0.2	1.6	0.22	0.64	0.22	37.7
5	T1	2931	2.3	2045	2.5	* 0.778	11.5	LOS A	18.3	130.6	0.64	0.60	0.68	20.9
Approach		2964	2.5	2069 N1	2.7	0.778	11.4	LOS A	18.3	130.6	0.63	0.60	0.67	21.3
West: City West Link														
10a	L1	707	3.6	707	3.6	0.482	10.3	LOS A	36.2	261.1	0.48	0.75	0.48	32.2
11	T1	2013	3.6	2013	3.6	0.684	6.5	LOS A	26.5	191.1	0.67	0.62	0.67	40.7
12a	R1	18	64.7	18	64.7	* 0.115	48.7	LOS D	0.5	5.0	0.98	0.67	0.98	17.1
Approach		2738	4.0	2738	4.0	0.684	7.8	LOS A	36.2	261.1	0.62	0.66	0.62	37.5
All Vehicles		5861	3.4	4965 N1	4.0	0.795	10.5	LOS A	36.2	261.1	0.64	0.64	0.66	28.6

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network 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.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

* Critical Movement (Signal Timing)
N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

Site: 3 [3_EX+DEV_PM_The Crescent / West Link Road (Site Folder: Existing + Development)]

Network: 6 [2019 PM Base Case + DEV (Network Folder: Existing + Development)]

3. The Crescent / West Link Road
AM Peak
Existing
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 85 seconds (Network Optimum Cycle Time - Minimum Delay)

Timings based on settings in the Network Timing dialog
Phase Times determined by the program
Downstream lane blockage effects included in determining phase times
Green Split Priority has been specified
Phase Sequence: Variable Phasing
Reference Phase: Phase A
Input Phase Sequence: A, B, C
Output Phase Sequence: A, B, C

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: The Crescent														
1	L2	173	1.2	173	1.2	0.866	46.4	LOS D	30.5	216.5	0.99	1.07	1.32	30.9
3	R2	862	1.8	862	1.8	* 0.866	47.2	LOS D	30.5	216.5	1.00	1.03	1.33	14.6
Approach		1035	1.7	1035	1.7	0.866	47.0	LOS D	30.5	216.5	1.00	1.04	1.33	18.2
East: The Crescent														
4	L2	1069	1.4	716	1.5	0.494	11.0	LOS A	13.6	96.7	0.50	0.75	0.50	42.2
5	T1	1927	3.2	1293	3.6	* 0.720	22.3	LOS B	17.5	126.5	0.80	0.71	0.81	42.9
Approach		2997	2.6	2009 N1	2.9	0.720	18.3	LOS B	17.5	126.5	0.70	0.72	0.70	42.7
West: City West Link Road														
11	T1	265	34.9	265	34.9	0.176	11.3	LOS A	12.1	109.4	0.55	0.45	0.55	49.1
12	R2	161	2.6	161	2.6	* 0.626	51.9	LOS D	3.6	25.5	1.00	0.80	1.11	28.8
Approach		426	22.7	426	22.7	0.626	26.7	LOS B	12.1	109.4	0.72	0.58	0.76	36.9
All Vehicles		4458	4.3	3470 N1	5.5	0.866	27.9	LOS B	30.5	216.5	0.79	0.80	0.89	33.2

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network 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.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

* Critical Movement (Signal Timing)
N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

Site: 1.1 [1.1 Link - EX PM (Site Folder: Existing + Development)]

Network: 6 [2019 PM Base Case + DEV (Network Folder: Existing + Development)]

New Site
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
East: Victoria Road														
5	T1	2964	2.5	2151	2.7	0.675	0.1	LOS A	14.8	106.3	0.00	0.00	0.00	59.0
Approach		2964	2.5	2151 N1	2.7	0.675	0.1	NA	14.8	106.3	0.00	0.00	0.00	59.0
West: The Crescent														
10a	L1	2056	3.7	2056	3.7	0.552	5.0	LOS A	0.0	0.0	0.00	0.59	0.00	33.5
Approach		2056	3.7	2056	3.7	0.552	5.0	NA	0.0	0.0	0.00	0.59	0.00	33.5
All Vehicles		5020	3.0	4207 N1	3.6	0.675	2.5	NA	14.8	106.3	0.00	0.29	0.00	39.6

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

APPENDIX E

Cement Australia Traffic Management Plan

Glebe Terminal

Traffic Management Plan

Table of Contents

1 Purpose

A Traffic Management Plan provides for the safe movement of pedestrians, cars, trucks, etc. through the site. This Plan sets out the way in which Cement Australia – Glebe will manage traffic on our terminal to ensure the safety of all people on our site.

2 Keys Site Traffic Rules and Requirements

2.1 Conditions and Requirements

This section details the conditions on our site and the requirements that arise from the environment in which we work.

2.2 Speed and Direction of Travel

- The speed limit within the terminal site is 10km/hr, and the surrounding roads at 30km/hr.
- Direction of travel is shown in the site map and detailed below in the RA portion of the document. Entry and exit of site must be in a forward direction.

2.3 Site Access

- Site access is gained via James Craig Road as shown on the map.
- All visitors to the site are to report to the site office and must be accompanied by a Cement Australia representative at all times whilst onsite.

2.3.1 Types of Vehicles on Site

The following types of vehicles may be found on site:

- Heavy vehicles (Tankers/ISO's/delivery vehicles)
- Cars
- Forklift on occasion
- EWP on occasion
- Contractor vehicles

2.4 Parking, Drop-off and Pick-up Areas

Some people are onsite for a relatively short period of time in order to drop off/collect items/product. The following arrangements have been made to accommodate these individuals:

2.4.1 Light Vehicle Parking

On-site light vehicle parking is to the south side of the weigh bridges, there is also additional car spaces to the west end of the silos and on Sommerville Rd east of the silo's. All parking must be with the marked lines. If you are un-sure please speak to the Terminal Team Leader.

2.4.2 Heavy Vehicle Parking and Queuing

The only area to park a heavy vehicle is in the CA truck compound to the west of the silos on the lower level. All trucks that are visiting the terminal to load must only queue in the 'Common Area' allocate for this purpose.

2.4.3 Couriers

Couriers are to park in front of the site office, report to the office and deliver their goods according to instructions from Cement Australia personnel.

2.4.4 Rubbish/ Skip Collection

General waste is collected from the front gate on Dutton Street.

2.4.5 Tanker Unloading

Tankers must follow the traffic flow on the site map when delivering product to Glebe Terminal.

2.4.6 Forklift Loading / Unloading

- Prior to a truck or ute being loaded or unloaded the driver must put truck keys to the lock box on the forklift, to prevent inadvertently driving off. Keys are to be secured in lock box.
- The truck driver is to stand in designated 'safe zone' whilst the forklift is loading or unloading the truck or ute.
- This includes the walk behind pallet forklift which is capable of loading/unloading a truck or ute.

2.5 Signage and Markings Onsite

Signage and markings have been installed across our site to communicate the requirements of this plan to ensure the safety of all people traversing the site.

2.6 Visitors

Pedestrians must be aware of trucks and remain in designated walkways where provided.
All Vehicles must observe Stop signs, Give way signs, speed limits, one-way signs and pedestrian crossings.

2.7 Pedestrian Access and Movement

- Pedestrians crossing roadways are to give way to trucks
- Pedestrians to stay on yellow marked paths wherever practical
- Eye contact to be made with driver before walking across in front of vehicle, unless driver is out of cab
- CA personnel to park personal vehicles in marked car parking spots.

2.8 Interactions with other Tenants

Tanker drivers and visitors entering the terminal are to be aware of sugar trucks exiting onto Solomons Way and follow speed limit. Cement Trucks exiting the terminal loading area are to give way to traffic coming down Solomons Way. Trucks area to use mirrors to view oncoming traffic when exiting. Drivers will also be made aware through the induction process of increased public traffic in and around the terminal due to cruise ship passengers.

3 Risk Assessment and Action Plan

Area / Site: Glebe Terminal	**Date:** 17/02/2020
Completed by: D Palmer, B Rodden	

List vehicles and mobile equipment used on site and/or in the area under review including those used by contractors record below			
1. Fork lift traversing to load / unload courier	**2.** Light vehicles traversing to and from car park	**3.** Contractor vehicles traversing to parking	**4.** Courier light and heavy vehicle access to site
5. Heavy vehicles accessing to load / unload	**6.** Waste removal by heavy vehicles	**7.** EWP traversing site for various maintenance tasks	

List likely pedestrian movements in the area under review (including those used by contractors) and record below
CA personnel walking between areas of operation and office
All site personnel walking through the car park area
Contractors walking between areas of operation
Unauthorised Public entry to site
Couriers accessing office
Visitors accessing office
Waste removal vehicles interacting with pedestrians near waste bins

Consider the list of potential Hazards/Interactions and document here	List controls currently in place?	List any additional Controls required	By whom?	By when?
CA personnel and contractors interacting with fork lift	Trained Fork lift operator Separate pedestrian walkway marked Contractors complete JSEA or equivalent before working with mobile plant Lighting around the building and site	N/A		

Consider the list of potential Hazards/Interactions and document here	List controls currently in place?	List any additional Controls required	By whom?	By when?
All site personnel and contractors interacting with light vehicles	10 km speed limit on site, 30 km on surrounding roads Designated parking areas Lighting around buildings and in car parks	N/A		
Access to site via Sommerville Road – heavy vehicles, mobile plant interacting with pedestrians	10 km speed limit on site, 30 km on surrounding roads Signage On-line inductions Site specific inductions Lighting around the site Traffic Management Plan	N/A		
Light vehicle movement of contractors and CA Terminal staff access and leaving parking areas	On-line induction Site specific induction Go directly to and from parking area Lighting around the site Traffic Management Plan	N/A		
Heavy vehicle movement involving CA and contractor vehicles parking / loading / unloading on-site	On-line inductions Site specific induction 10 km speed limit on site, 30 km on surrounding roads One way through loading area – from front of site – exit to be through the wash bay and unloading area Reversing into the loading area is only permitted with a spotter Lighting around the site	N/A		
Access through loading area exit by heavy vehicles and interaction with pedestrians	Signage each end for give way 10 km speed limit on site, 30 km on surrounding roads Pedestrians to give way to	N/A		

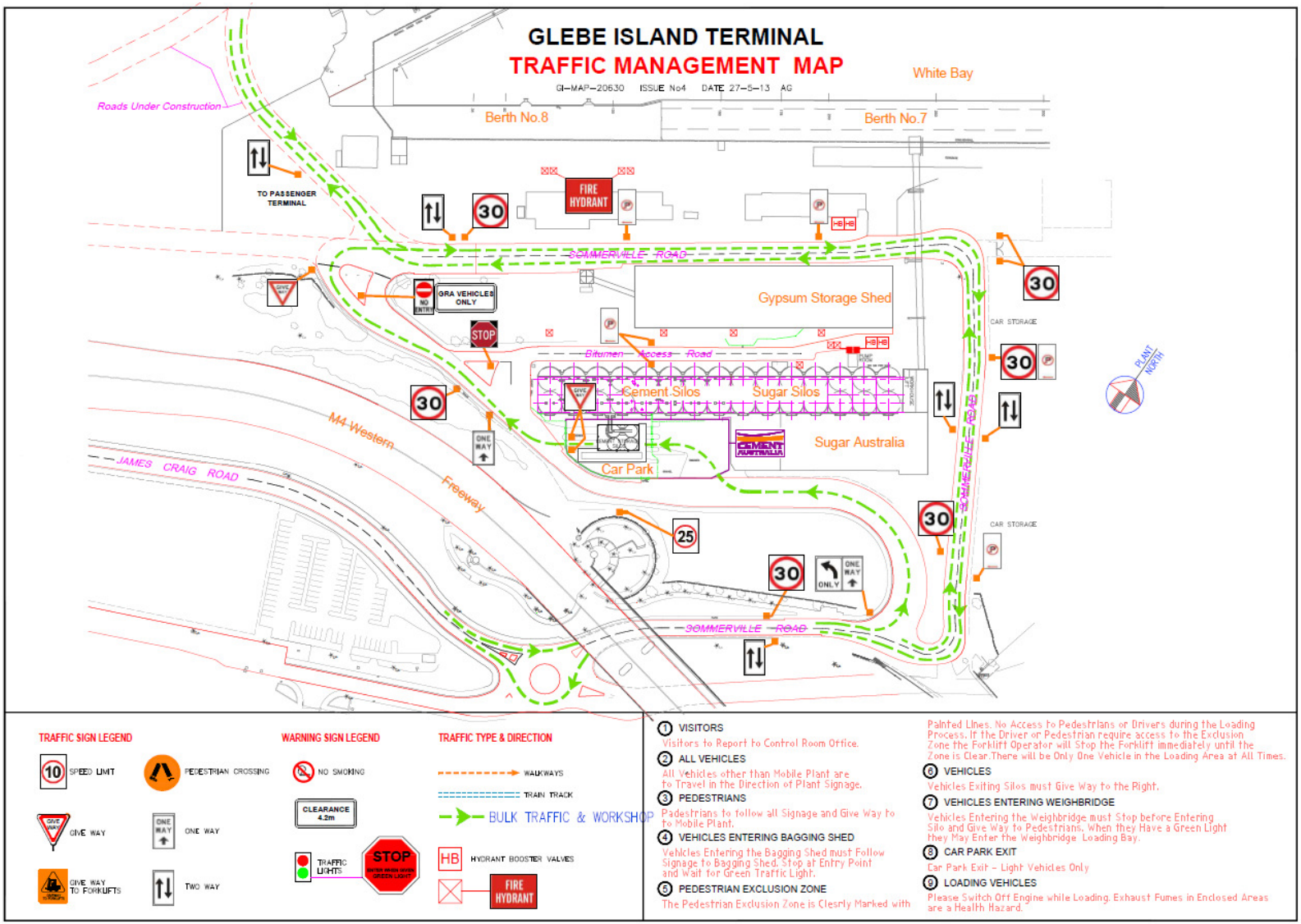
Consider the list of potential Hazards/Interactions and document here	List controls currently in place?	List any additional Controls required	By whom?	By when?
	heavy vehicles Mirrors to see on-coming traffic			
Waste removal vehicles interacting with pedestrians and other heavy vehicles on site	10 km speed limit on site, 30 km on surrounding roads Bins are to the side of the main entry to loading area Task completed early morning before site becomes busy	N/A		
Truck/ute moves off whilst still being loaded by forklift	Truck/ute driver to hand keys to forklift driver and placed in lock box. Driver to remain in 'safe zone' whilst truck is being loaded. Forklift driver to only hand paper work back to driver once loading is complete.	N/A		

4 Alterations and Amendments

Table 2. Alterations and Amendments

Date	Initial	Alteration / Amendment
25/03/2015	BD	Reviewed and No changes needed
12/04/2017	BD/LB	Reviewed and no changes needed
17/02/2020	DP/BR	Reviewed and updated parking information
15/05/2020	BR	Inclusion of new forklift safety requirements
21/05/2020	BR	Update truck queuing information

Appendix 1: Site Map / Building Plan



APPENDIX F

Swept Path Analysis

Notes:

This drawing is prepared for information purposes only. It is not to be used for construction.

TRAFFIX is responsible for vehicle swept path diagrams and/or drawing mark-ups only. Base drawing prepared by others.

Vehicle swept path diagrams prepared using computer generated turning path software and associated CAD drawing platforms. Vehicle data based upon relevant Australian Standards (*AS/NZS 2890.1:2004 Parking facilities - Off-street car parking*, and/or *AS2890.2:2002 Parking facilities - Off-street commercial vehicle facilities*). These standards embody a degree of tolerance, however the vehicle characteristics in these standards represent a suitable design vehicle and do not account for all variations in vehicle dimensions / specifications and/or driver ability or behaviour.

Rev.	Revision Note	By.	Date
A	Swept Path Analysis	NC	11-11-20

Swept Path Legend

- Wheel Path
- Vehicle Body Envelope
- Clearance Envelope (300mm)

Architect

Client
Cement Australia
18 Station Avenue
DARRA QLD 4076

Scale / Plan Orientation

0 10 20 30 40m
1:1000 @ A3

Project Description
Glebe Island Silos
Lot 12 Sommerville Road, ROZELLE NSW 2039

Drawing Prepared By

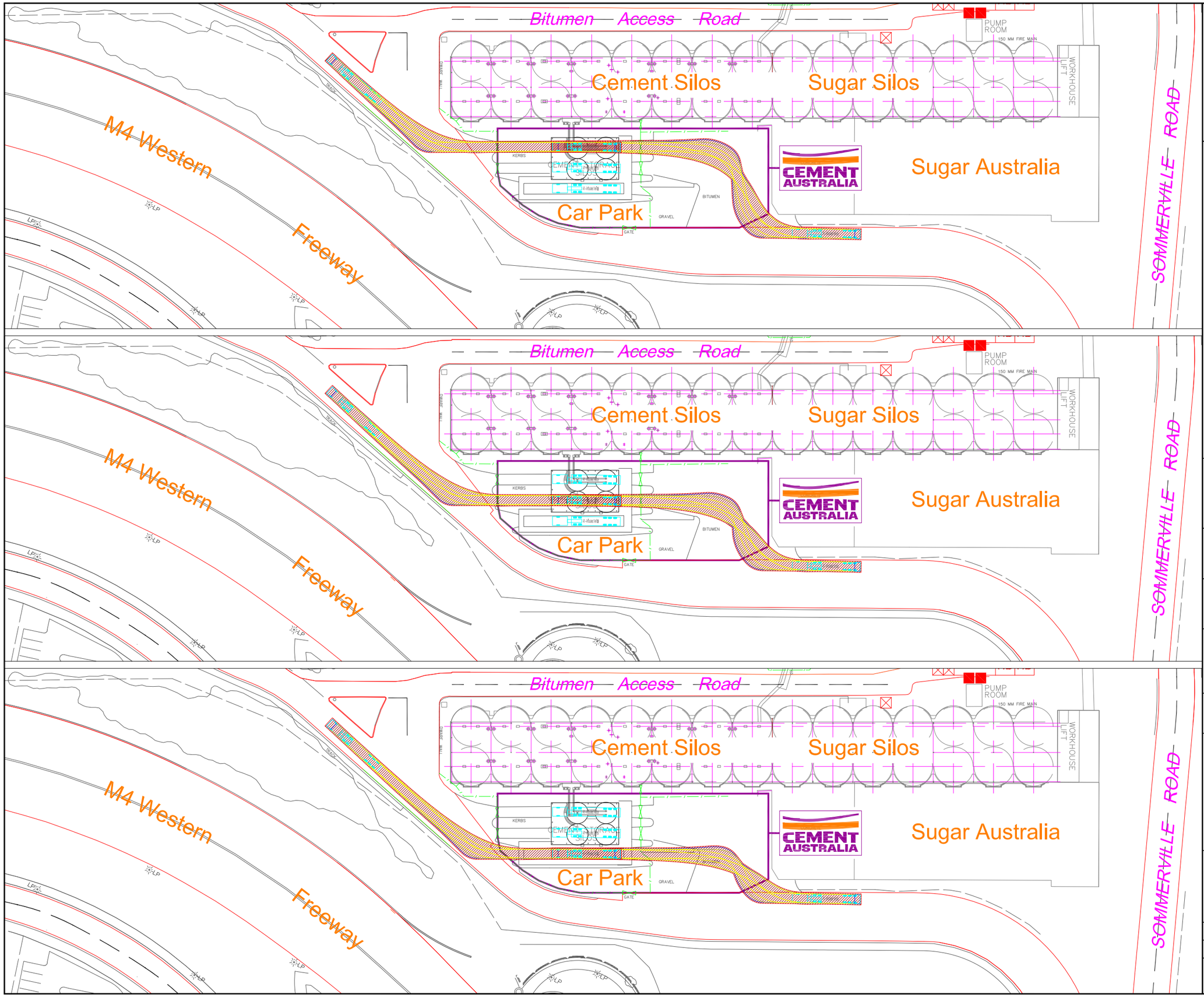
TRAFFIX
TRAFFIC & TRANSPORT PLANNERS
Suite 2.08, 50 Holt Street
Surry Hills, NSW 2010
PO Box 1124
Strawberry Hills, NSW 2012
t: +61 2 8324 8700
f: +61 2 9830 4481
w: www.traffix.com.au

Drawing Title
Swept Path Analysis
Glebe Island Site Plan
19.0m Articulated Vehicle
Overall Vehicle Circulation

Drawn:	Checked:	Date:
NC	VD	11-11-2020

18.618d01v01 TRAFFIX [2020-09-28] - Swept Path Analysis.dwg

Project No.	Drawing Phase	Drawing No.	Rev.
18.618	DA	TX.01	A



Notes:

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TRAFFIX is responsible for vehicle swept path diagrams and/or drawing mark-ups only. Base drawing prepared by others.

Vehicle swept path diagrams prepared using computer generated turning path software and associated CAD drawing platforms. Vehicle data based upon relevant Australian Standards (*AS/NZS 2890.1:2004 Parking facilities - Off-street car parking*, and/or *AS2890.2:2002 Parking facilities - Off-street commercial vehicle facilities*). These standards embody a degree of tolerance, however the vehicle characteristics in these standards represent a suitable design vehicle and do not account for all variations in vehicle dimensions / specifications and/or driver ability or behaviour.

Rev.	Revision Note	By.	Date
A	Swept Path Analysis	NC	11-11-20

Swept Path Legend

- Wheel Path
- Vehicle Body Envelope
- Clearance Envelope (300mm)

Architect

Client
Cement Australia
18 Station Avenue
DARRA QLD 4076

Scale / Plan Orientation

0 10 20 30 40m
1:1000 @ A3

Project Description
Glebe Island Silos
Lot 12 Sommerville Road, ROZELLE NSW 2039

Drawing Prepared By

TRAFFIX
TRAFFIC & TRANSPORT PLANNERS
Suite 2.08, 50 Holt Street
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PO Box 1124
Strawberry Hills, NSW 2012
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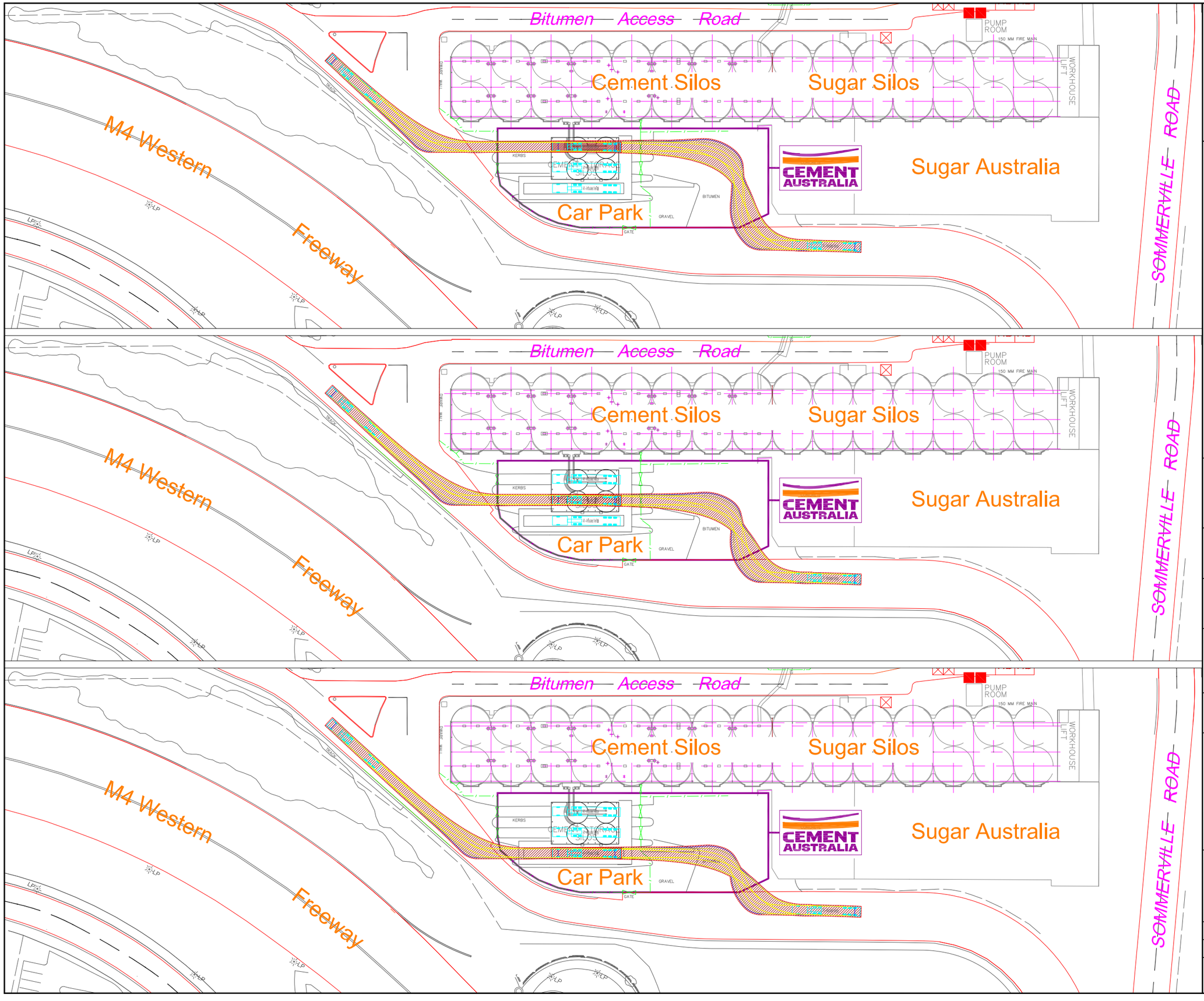
Drawing Title
Swept Path Analysis
Cement Australia Weighbridges
Solomons Way Access (Northern Lane)
19.0m Articulated Vehicle
Vehicle Entry and Egress Movements

Drawn:	Checked:	Date:
NC	VD	11-11-2020

18.618d01v01 TRAFFIX [2020-09-28] - Swept Path Analysis.dwg

Project No.	Drawing Phase	Drawing No.	Rev.
18.618	DA	TX.02	A



Notes:

This drawing is prepared for information purposes only. It is not to be used for construction.

TRAFFIX is responsible for vehicle swept path diagrams and/or drawing mark-ups only. Base drawing prepared by others.

Vehicle swept path diagrams prepared using computer generated turning path software and associated CAD drawing platforms. Vehicle data based upon relevant Australian Standards (*AS/NZS 2890.1:2004 Parking facilities - Off-street car parking*, and/or *AS2890.2:2002 Parking facilities - Off-street commercial vehicle facilities*). These standards embody a degree of tolerance, however the vehicle characteristics in these standards represent a suitable design vehicle and do not account for all variations in vehicle dimensions / specifications and/or driver ability or behaviour.

Rev.	Revision Note	By.	Date
A	Swept Path Analysis	NC	11-11-20

Swept Path Legend

- Wheel Path
- Vehicle Body Envelope
- Clearance Envelope (300mm)

Architect

Client
Cement Australia
18 Station Avenue
DARRA QLD 4076

Scale / Plan Orientation

0 10 20 30 40m
1:1000 @ A3

Project Description
Glebe Island Silos
Lot 12 Sommerville Road, ROZELLE NSW 2039

Drawing Prepared By

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Drawing Title
Swept Path Analysis
Cement Australia Weighbridges
Solomons Way Access (Southern Lane)
19.0m Articulated Vehicle
Vehicle Entry and Egress Movements

Drawn:	Checked:	Date:
NC	VD	11-11-2020

18.618d01v01 TRAFFIX [2020-09-28] - Swept Path Analysis.dwg

Project No.	Drawing Phase	Drawing No.	Rev.
18.618	DA	TX.03	A