Traffic

TTW

TaylorThomsonWhitting

Addendum Traffic Statement

Abercrombie Precinct Re-Development Project

for John Holland Group

TTW-BUS-TRAFFIC-RPT-018-3

10 October 2013

121784UTB

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Table of Contents

Revision Register

Rev	Date	Prepared By	Approved By	Remarks
1	19/7/2013	PD	PY	Interim Traffic Statement
2	23/7/2013	PD	PY	Signed
3	10/10/2013	PD	PY	Addendum Traffic Statement

1.0 BACKGROUND

Abercrombie Precinct Re-development Project (MP07_0158) has the Minister of Planning & Infrastructure approval subject to a number of conditions of consent being satisfied.

The John Holland Group is the University of Sydney's Principal Builder for the project and is submitting a Section 75W application to obtain construction certificate approval. This traffic statement has been prepared in support of this application.

Since the preparation of the original Transport Impact Assessment (Rev B) 18 April 2012 there have been changes to the development proposal. The original Transport Impact Assessment now contains anomalies in the text which will need to be revised and updated. This Addendum Traffic Impact Report revises and updates this original Transport Impact Assessment.

The key traffic change is that the proposed vehicle access to the University of Sydney Abercrombie Street Re-Development, Darlington Campus, Corner of Abercrombie Street and Codrington Street, Darlington will be to and from Darlington Lane.

The key traffic issues arising from the change of the access point from Abercrombie Street to Darlington Lane include:

- Safe and functional access to and from the site driveway off Darlington Lane
- Safe and functional access to and from the immediate intersections providing access to Darlington Lane
- Traffic impacts on the immediate existing intersections providing access to Darlington Lane.

This Addendum Traffic Statement briefly addresses these key traffic issues.

Figure 1.0 shows the surrounding road network connectivity with the proposed development.

The proposal at ground level is shown in the Architectural drawing prepared by KannFinch that is contained in Appendix B:

- KFG_BUS_ARC_DWG_035 – Level 2 Floor Plan

The John Holland Group on 20 June 2013 submitted a report to Planning and Infrastructure prepared by TTW titled - Abercrombie Precinct Re-Development Design Modifications Traffic Statement, 28 June 2013. This report is relevant to this application as it addressed the safety, functional and operational traffic issues associated with the development access being located off Darlington Lane.

The report made recommendations that will be incorporated into the development proposal at the design development phase of the project and Planning & Infrastructure on 9 July 2013 supported the report providing approval to the design and layout of the car park and vehicle access in accordance with condition B4 of the development consent.

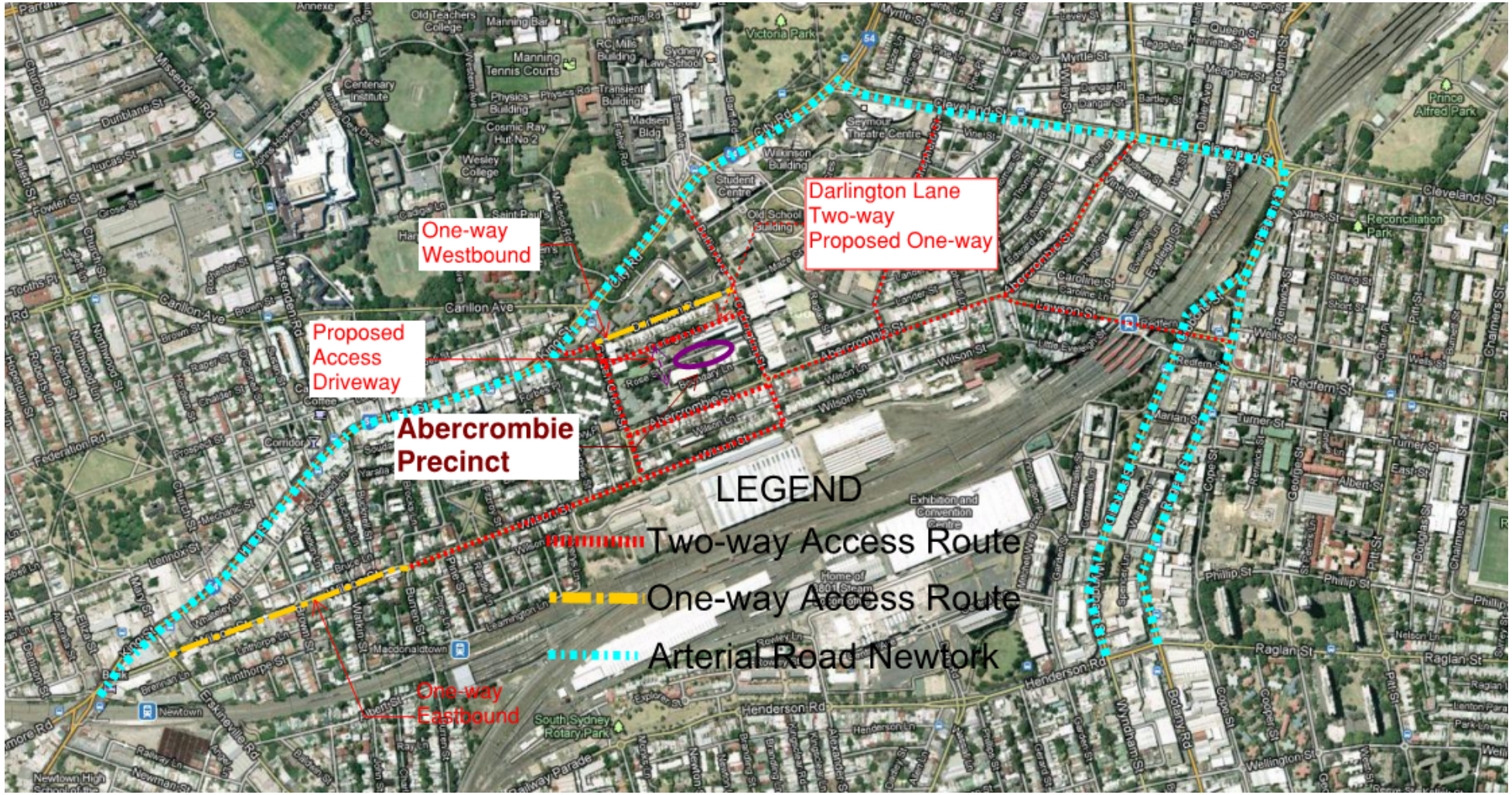

Figure1.0 Road Network Connectivity to the Abercrombie Precinct

2.0 SAFE & FUNCTIONAL DRIVEWAY ACCESS

Sight Distance Drivers'

Drivers' exiting the access driveway will need visibility to oncoming eastbound and westbound vehicles. For the speed limit of 50km/hr the minimum sight distance provision to westbound and eastbound traffic of 45m for cars and 69m for trucks is available. The angle formed by the access driveway intersection with Darlington Lane is the desirable 90 degrees and the 5 percent longitudinal gradient for the 7m wheel base length of the medium rigid vehicle measured from boundary line provides the best sight lines for exiting vehicles.

Pedestrian Sight Distance.

Clear sight lines between drivers' exiting and pedestrians on the Darlington Lane frontage will be maintained by the provision of sight triangles. The sight triangles at the junction of the driveway and Darlington road are larger than the dimension requirements outlined in AS2890. Sight distances will be maintained by limiting fencing, walls, landscaping and vegetation to less than 0.6 metre in height at the driveway junction with Darlington Lane.

The Darlington Lane access driveway sight distance requirements are shown in **Figure 2.0**

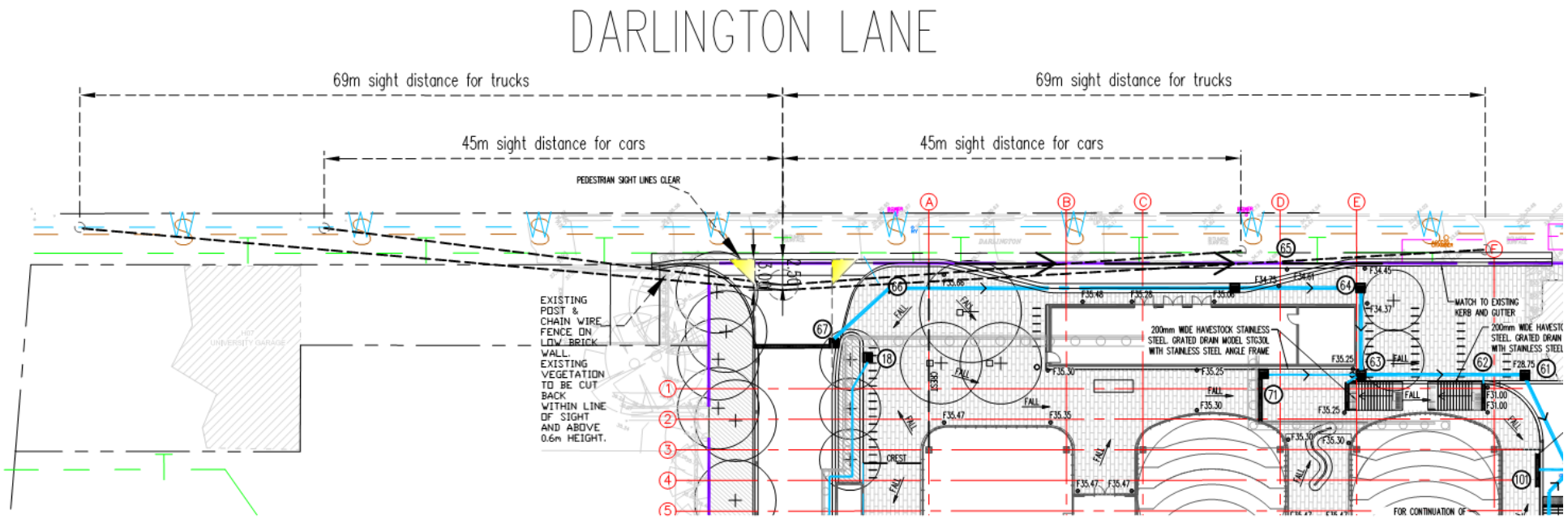

Figure 2.0 Darlington Lane Access Driveway Sight Distance Requirements

3.0 DARLINGTON LANE ACCESS

Darlington Lane has a 4m wide road carriageway and is too narrow for opposing vehicles to pass each other. The proposal allows for one-way access for both cars and the medium rigid delivery vehicles.

Driveway

The turning path analysis for the B99 car and medium rigid vehicles (MRV) at the access driveway are shown in **Appendix A.**

Because Darlington Lane is narrow there is potential for opposing through and/or turning vehicle movements to create traffic congestion or conflict on the driveway crossover, if the driveway width is too narrow, and in Darlington Lane due to the narrow 4m width of the lane carriageway. Vehicles would need to reverse to allow an oncoming vehicle to pass.

The proposed driveway entry and exit width will accommodated inbound and outbound car (B99) and the medium rigid delivery vehicle (MRV) turning movements.

The driveway is to be designed to allow a car (B99) and truck (MRV) to pass each other on the driveway at the same time. A vehicle exiting the access driveway would give way to an entering vehicle. This is consistent with AS2890 guidelines that a vehicle should be able to enter an access driveway without being required to stop in the adjacent public road.

Darlington Lane

The one-way traffic movements could be eastbound or westbound, and is subject to consideration of how the proposed one-way traffic movements will fit with the wider area traffic management issues, community consultation and road authority approvals. The approval process will firstly require the preparation of a TMP for RMS approval and, then the concurrence of Sydney City Traffic Committee and Council approval.

The preferred traffic movement along Darlington Lane is one-way eastbound. The eastbound direction has the advantage of promoting an anti-clockwise circulation in the immediate road network by complimenting the opposite one-way westbound movement in Darlington Road.

Alternatively, Darlington Lane may remain two-way. To alleviate potential congestion and vehicle-vehicle conflict the provision of a parking bay has been designed into the Darlington Lane frontage. In the event that Darlington Lane becomes one-way, the passing bay will not be necessary. The passing bay proposal is shown in **Appendix D**.

4.0 DARLINGTON LANE INTERSECTION'S SAFE AND FUNCTIONAL ACCESS

The functional aspects are dependent on the adoption of eastbound or westbound one-way movement from the School of Business driveway access. Darlington Lane is a service road and is used infrequently by vehicles. The School of Business will have a limited number of car parking spaces for visitors and staff as determined by the development consent

conditions. The Abercrombie Precinct campus will implement a Vehicle Access Management Plan that requires visitors and staff to enter Darlington Lane via Golden Grove Street and access the School of Business driveway via a right-turn. Exiting vehicles will be directed to turn right into Darlington Lane by the application of the regulatory sign “All Traffic Turn Right” (R2-14(R)-A) as well as associated pavement markings on the driveway and, then transit east to Codrington Street.

The main criterion for safe access to and from Darlington Lane intersections with Codrington Street and Golden Grove Street is the stopping sight distance.

The stopping sight distance criterion for intersections is contained in Austroads Part 3A Geometric Design. The stopping sight distance is the distance required for a driver to stop their vehicle to avoid a collision with a turning vehicle at the intersection or a stationary hazard on the roadway. The stopping sight distance standards for cars and trucks have been applied to the intersection of Golden Grove Street and Darlington Lane and the intersection of Codrington Street and Darlington Lane that provide immediate access to Darlington Lane.

Both these intersections provide immediate vehicle access to and from the Abercrombie Precinct Darlington Lane access driveway. The stopping sight distance (SSD) analysis results for each approach to an intersection for the 50km/hr statute speed limit is outlined in the following tables. The desirable SSD for a car is 55m (Table 5.4 Part 3 Geometric Design) and the desirable SSD for a truck is 62m (Table 5.5 Part 3. Geometric Design).

Observations on site indicate that the vertical and horizontal geometry of Golden Grove Road, Codrington Street and Darlington Lane are linear. The alignments provide uninterrupted lines of sight between the driver’s eye (1.10m) and a 0.2m high stationary object on the road at the junction of the T- intersections. Right turn and left turn turning movements are possible at both these intersections.

Golden Grove and Darlington Lane Intersection – Estimated Stopping Site Distance			
Approach	**Northern Approach**	**Southern Approach**	**Eastern approach**
Golden Grove Street	49m for car & truck	Greater than 55m for car & 62m for truck	-
Darlington Lane	-	-	Greater than 55m for car & 62m for truck

Speed 50km/hr and R_T=2.0s

Codrington Street and Darlington Lane Intersection – Estimated Stopping Site Distance			
Approach	**Northern Approach**	**Southern Approach**	**Western approach**
Golden Grove Street	Greater than 55m for car & 62m for truck	Greater than 55m for car & 62m for truck	-
Darlington Lane	-	-	Greater than 55m for car & 62m for truck

Speed 50km/hr and R_T=2.0s

The desirable stopping sight distance in accordance with Austroads Part 3A Geometric Design is available on the approaches to the intersections, except the Golden Grove Street northern approach to Golden Grove Street and Darlington Lane intersection.

There is an estimated 49m of stopping distance to a vehicle turning right into Darlington Lane or left and right from Darlington Lane or to an object on the road surface in Golden Grove Street opposite the Darlington Lane.

The 49m SSD measured around the 90 degree bend at the junction of Golden Grove Street and Darlington Street matches the stopping sight distance requirements (40m-car and 44m-truck) for 40km/hr speed limit. Under normal conditions the 90 degree bend has the effect of traffic calming and drivers' would transit this tight 90 degree bend (radius 12m) at a lower speed (estimated to be 25km/hr) to remain within the traffic lane. The stopping sight distance required at 25km/hr is estimated to be 22m for a car and 23m for a truck. This is less than the 49m measured.

There is sufficient stopping sight distance available for the northern approach due to the traffic calming effect of the 90 degree bend at the junction of Golden Grove Street and Darlington Road.

5.0 TRAFFIC IMPACTS ON INTERSECTIONS

From the ARUP Transport Impact Assessment (Rev B) 18 April 2012 it is estimated that there will be approximately 134 peak hour vehicles generated and attracted at the new School of Business. These are existing staff and students already attending on-campus. The proposal will not be generating additional traffic volumes on the surrounding road network.

The operational performance of the road network in the urban area such as Darlington is controlled by its intersections. ARUP's Transport Impact Assessment includes network traffic analysis and intersection traffic modelling using SIDRA that reported on the level of service and delay at key intersections providing access to the Abercrombie Precinct development.

Network traffic analysis for the School of Business development was obtained from the Traffic & Transport Impact Assessment of the North Eveleigh Development. This report included cumulative traffic generation from the North Eveleigh Development, Abercrombie Development and the associated Child Care Centre.

5.1 Network Modelling

The cordon for the Strategic Traffic modelling of the Darlington road network is shown in **Figure 3.0**

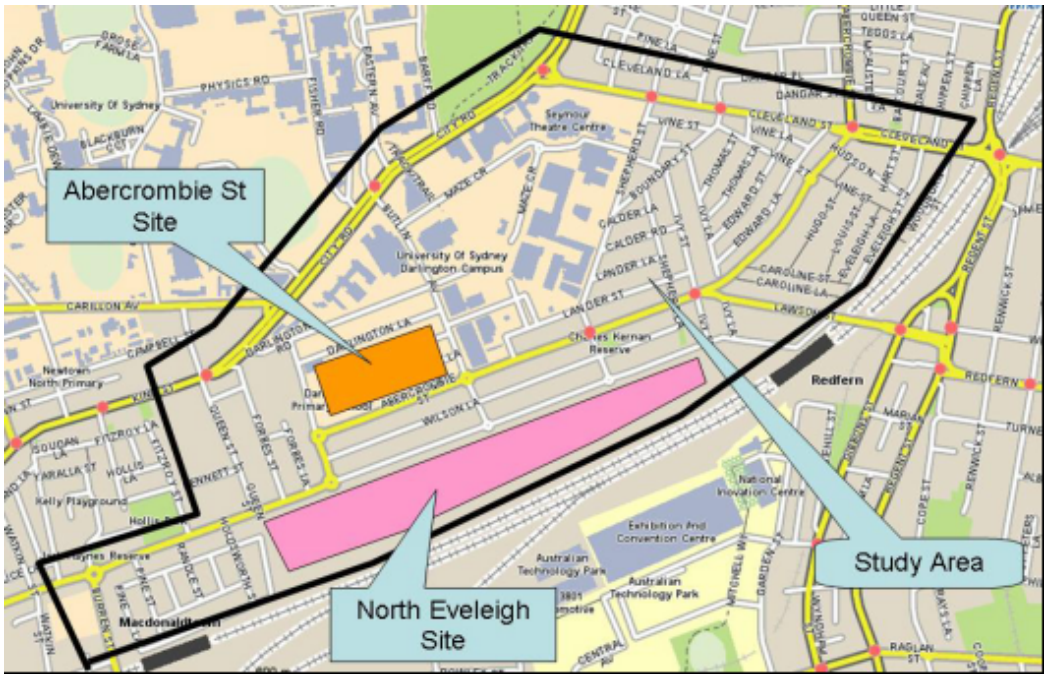

Figure 3.0 Cordon for the Traffic Modelling of the Darlington Road network

The network model was calibrated against RTA TCS Scats Data, cordon counts and screen line counts. The network traffic model incorporated the local area future traffic generating development, including the University of Sydney Abercrombie campus up to 2016.

The content of the traffic modelling outlined in the original Transport Impact Assessment (Rev B) 18 April 2012 indicates a comprehensive approach with traffic generation rates for the new land use activity applied in accordance with the RTA Guidelines to Traffic Generating Developments, the trip distribution as per 2004 University of Sydney Transport Survey results (Workers - JTW modal split and Student travel mode), an allowance made for traffic growth and forecast traffic levels to 2016 in the road network.

5.2 Network Intersection Modelling Results

The key network intersections modelled included:

- Abercrombie Street/Codrington Street,
- Abercrombie Street/Golden-Grove Street
- Butlin Ave/City Road
- Golden-Grove Street/City Road(King Street)

The traffic modelling analysis with forecasted (2016) traffic loadings applied to the key intersections providing access to the University of Sydney Abercrombie Precinct development showed that all intersections had a good level of service (LoS). i.e. A or B indicating that the network intersections providing immediate access to the site will operate at low levels of average delay per vehicle (<20 secs/veh).

The assignment of traffic flows to intersection approaches will be operationally different due to the site access being relocated from Abercrombie Street to Darlington Lane. However given the low to moderate volume of traffic generated by the development and that the surrounding existing key intersections are reported in the ARUP Transport Impact Assessment (Rev B) 18 April 2012 to have spare capacity with delays that are

acceptable, it is reasonable to presume that the redistribution of traffic flows will not significantly alter the operational performance (LoS and delay) of these key intersections that provide access to Abercrombie Precinct development.

5.3 Immediate Intersection Traffic Analysis

Vehicle Traffic Generation

The existing level of traffic was determined by undertaking traffic surveys on Thursday 28 August 2013 at Darlington Lane and Codrington Street and Darlington Lane and Golden Grove Street intersections. The traffic survey recorded car, truck, pedestrian and bicycle movements in the AM and PM peak periods.

As stated above it is estimated that there will be approximately 134 peak hour vehicle generated and attracted at the new School of Business.

Bicycle Movements

Condition B14 of the development consent requires that parking provision is made for 278 bicycles. This is equivalent to 278 bicycle trips in the AM and PM peak periods.

Vehicle and Bicycle Trip Distribution

For this type of commercial development an 80/20 trip distribution to and from the site is expected in the AM peak period and a 20/80 trip distribution to and from the site is expected PM peak period.

Traffic Assignment for Darlington Lane Two-way

Vehicle and bicycle access to the site is via Darlington Lane and Codrington Street intersection or Darlington Lane and Golden Grove Street intersection with 50 percent of the vehicle trips generated (68 vehicles per hour) allocated to each of these intersections. Consequently, in the AM peak period 54 trips are assigned inbound and 14 trips are assigned outbound and in the PM peak period 14 trips are assigned inbound and 54 trips outbound.

Traffic Assignment for Darlington Lane One-way Eastbound

Vehicle and bicycle access to the site AM inbound would be via Darlington Lane and Golden Grove Street intersection with 80 percent of the vehicle trips generated (108 vehicles per hour) assigned to this intersection and, AM outbound 20 percent of the vehicle trips generated (28 vehicles per hour) assigned to Darlington Lane and Codrington Street intersection.

Vehicle and bicycle access to the site PM inbound would be via Darlington Lane and Golden Grove Street intersection with 20 percent of the vehicle trips generated (28 vehicles per hour) assigned to this intersection and, AM outbound 80 percent of the vehicle trips generated (108 vehicles per hour) assigned to Darlington Lane and Codrington Street intersection.

5.4 Immediate Intersection Modelling

Darlington Lane Two-way

The intersections of Golden Grove and Darlington Lane and Codrington Street and Darlington Lane provide immediate access to the new School of Business. To determine the operational performance of Golden Grove and Darlington Lane, and Codrington Street and Darlington Lane intersections, Sidra models have been developed for pre-development and post development levels of traffic. The results of the Sidra modelling for existing levels of traffic (pre-development) and with the level of development traffic superimposed on the existing level of traffic (post development) are contained in **Appendix C** and, a summary of the intersections operational performance for pre and post development is compared in the following tables for the AM and PM peak period level of traffic.

Darlington & Codrington	AM – Pre Development			AM – Post Development		
	LoS	Delay (sec/veh)	Queue Length (no. of veh)	LoS	Delay (sec/veh)	Queue Length (no. of veh)
Darlington Lane (west)	A	4.4	1	A	4.0	2
Codrington (Nth) - RT	A	1.4	1	A	3.6	1

Darlington & Codrington	PM – Pre Development			PM – Post Development		
	LoS	Delay (sec/veh)	Queue Length (m)	LoS	Delay (sec/veh)	Queue Length (no. of veh)
Darlington Lane (west)	A	3.5	1	A	2.8	1
Codrington (Nth) - RT	A	0.9	1	A	1.6	1

Darlington & Golden Grove	AM – Pre Development			AM – Post Development		
	LoS	Delay (sec/veh)	Queue Length (m)	LoS	Delay (sec/veh)	Queue Length (no. of veh)
Darlington Lane (east)	A	3.5	1	A	2.8	1
Golden grove (Sth) - RT	A	1.5	1	A	2.8	1

Darlington & Golden Grove	PM – Pre Development			PM – Post Development		
	LoS	Delay (sec/veh)	Queue Length (m)	LoS	Delay (sec/veh)	Queue Length (no. of veh)
Darlington Lane (east)	A	4.1	1	A	3.8	1
Golden grove (Sth) - RT	A	1.5	1	A	2.0	1

RT – Right Turn

A review of the intersection analysis with two-way traffic indicates that there is a small difference in the operational performance of Golden Grove and Darlington Lane and Codrington Street and Darlington Lane intersections with the development traffic superimposed. The traffic modelling indicates that with the development traffic in the AM and PM peak periods, the Darlington Lane side roads remain functional with a good level of service and, there would be minimal delay to through traffic due to vehicles turning right into Darlington Lane either from Codrington Street or Golden Grove Street.

Darlington Lane One-way Eastbound

Similarly Sidra models have been developed for pre-development and post development levels of traffic for Darlington Lane one–way eastbound. The results of the Sidra modelling for existing levels of traffic (pre-development) and with the level of development traffic superimposed on existing level of traffic (post development) are contained in **Appendix C** and, a summary of the intersections operational performance for pre and post development is compared in the following tables for the AM and PM peak period level of traffic.

Darlington & Codrington	AM – Pre Development			AM – Post Development		
	LoS	Delay (sec/veh)	Queue Length (no. of veh)	LoS	Delay (sec/veh)	Queue Length (no. of veh)
Darlington Lane (west) LT & RT	A	4.4	1	A	3.4	3
Codrington (Nth) - RT	A	1.4	1	na	0	0

Darlington & Codrington	PM – Pre Development			PM – Post Development		
	LoS	Delay (sec/veh)	Queue Length (m)	LoS	Delay (sec/veh)	Queue Length (no. of veh)
Darlington Lane (west) LT & RT	A	3.5	1	A	0	0
Codrington (Nth) - RT	A	0.9	1	na	0	0

Darlington & Golden Grove	AM – Pre Development			AM – Post Development		
	LoS	Delay (sec/veh)	Queue Length (m)	LoS	Delay (sec/veh)	Queue Length (no. of veh)
Darlington Lane (east)	A	3.5	1	na	na	na
Golden Grove (Sth) - RT	A	1.5	1	A	4.8	2

Darlington & Golden Grove	PM – Pre Development			PM – Post Development		
	LoS	Delay (sec/veh)	Queue Length (m)	LoS	Delay (sec/veh)	Queue Length (no. of veh)
Darlington Lane (east)	A	4.1	1	na	na	na
Golden Grove (Sth) - RT	A	1.5	1	A	2.5	1

RT - Right Turn, na - one-way eastbound

A review of the intersection analysis for one-way eastbound indicates that there is a small difference in the operation performance Codrington Street and Darlington Lane intersection with the development traffic superimposed.

The traffic modelling indicates that with the development traffic in the AM and PM peak periods the Darlington Lane (west) side road remains functional with a good level of service and, there would be minimal delay to through traffic.

Likewise there is a small difference in the operation performance at Golden Grove and Darlington Lane with the development traffic superimposed. The traffic modelling indicates that with the development traffic in the AM and PM peak periods Golden Grove Street traffic lanes remain functional with a good level of service on the approaches to Darlington Lane and, there would be minimal delay to through traffic.

6.0 PEDESTRIAN TRAFFIC

The ARUP Transport Impact Assessment (Rev B) 18 April 2012 report also provides information on student and staff numbers and travel modes used. Those students and staff using public transport and/or walking modes of travel will access the new School of Business via Codrington Street. The desire lines would be across Darlington Lane and Codrington Street intersection or Codrington Street and Abercrombie Street intersection.

The estimated number of students and staff using Codrington Street is outlined in following table.

Public Transport &/or Walking	Combined Mode Split	Trips per day	Total trips per day
Students: 4448 - 218 = 4230	79%	2	6683
Staff: 490 - 196 = 294	59%	2	329

Applying the presumption that peak hour walking trips follow peak hour vehicle trips the estimated peak hour walking trips in Codrington Street equates 946 peak hour walking trips.

The predominant access desire line to the new School of Business would be across the Darlington Lane and Codrington Street intersection with an estimated 662 peak hour pedestrian trips. Darlington Lane has no formalised pedestrian facilities and pedestrians must find a suitable gap in the traffic flow before crossing. The good operational level of service, narrow width of Darlington Lane and acceptable pedestrian crossing sight distance allows pedestrians ease of access across the eastern end of Darlington Lane.

Pedestrian numbers crossing Darlington Lane at its junction with Golden Grove Street are not anticipated to alter with the predominant desire line to and from Codrington Street. Darlington Lane at its junction with Golden Grove Street has no formalised pedestrian facilities.

At the Darlington Lane junction with Golden Grove Street there is restricted pedestrian crossing sight distance for northbound pedestrians walking on the eastern side of Golden Grove Street footpath as the existing building is built on the edge of the lane.

If Darlington Lane remains open to two-way traffic then a Stop sign should be installed across the western end of Darlington Lane and consideration should be given to the placement of a traffic mirror at this location to manage the potential pedestrian-vehicle conflict.

If Darlington Lane becomes one-way eastbound then the potential pedestrian-vehicle conflict would be rated as low risk and the installation of traffic management measures is not considered warranted.

7.0 CONCLUSION

Darlington Lane Driveway

The developments driveway off Darlington Lane is to be designed to allow a car (B99) and truck (MRV) to pass each other on the driveway at the same time. A vehicle exiting the access driveway would give way to an entering vehicle. This is consistent with AS2890 guidelines that a vehicle should be able to enter an access driveway without being required to stop in the adjacent public road.

For vehicles exiting the development's driveway off Darlington Lane the minimum sight distance to westbound and eastbound traffic of 45m for cars and 69m for trucks is available. Sight distances will be maintained by limiting fencing, walls, landscaping and vegetation to

less than 0.6 metre in height at the driveway junction with Darlington Lane. Clear sight lines in accordance with AS2890 between drivers' exiting and pedestrians on the Darlington Lane frontage are available.

Darlington Lane Intersections

The Abercrombie Precinct School of Business campus will implement a Vehicle Access Management Plan that requires visitors and staff to enter Darlington Lane via Golden Grove Street and access the School of Business driveway via a right-turn. Exiting vehicles will be directed to turn right into Darlington Lane by the application of the regulatory sign "All Traffic Turn Right" (R2-14(R)-A) as well as associated pavement markings on the driveway and, then transit east to Codrington Street.

The main criterion for safe access to and from Darlington Lane's intersection with Codrington Street and Golden Grove Street is the stopping sight distance. The desirable stopping sight distance in accordance with Austroads Part 3A Geometric Design is available on the approaches to these intersections, except the Golden Grove Street northern approach to Golden Grove Street and Darlington Lane intersection. However there is sufficient stopping sight distance available for the northern approach due to the traffic calming effect of the 90 degree bend at the junction of Golden Grove Street and Darlington Road.

Traffic Impacts

While the traffic assignment in the broader road network is operationally different due to the site access being relocated from Abercrombie Street to Darlington Lane it is reasonable to presume that the redistribution of traffic flows will not significantly impact on the road network spare capacity and acceptable delays outlined in ARUP's Transport Impact Assessment (Rev B) 18 April 2012.

Intersection analysis of Golden Grove and Darlington Lane and Codrington Street and Darlington Lane intersections for both two-way and one-way traffic on Darlington Lane indicates that there is a small difference in the operational performance of Golden Grove and Darlington Lane and Codrington Street and Darlington Lane intersections with the development traffic superimposed. The traffic modelling indicates that with the development traffic in the AM and PM peak periods, the Darlington Lane side roads remain functional with a good level of service and, there would be minimal delay to through traffic.

Darlington Lane Traffic Movements

The preferred traffic movement along Darlington Lane is one-way eastbound. The eastbound direction has the advantage of promoting an anti-clockwise circulation in the immediate road network by complimenting the opposite one-way westbound movement in Darlington Road.

Alternatively, Darlington Lane may remain two-way. To alleviate potential congestion and vehicle-vehicle conflict the provision of a parking bay has been designed into the Darlington Lane frontage. In the event that Darlington Lane becomes one-way, the passing bay will not be necessary.

At the Darlington Lane junction with Golden Grove Street there is restricted pedestrian crossing sight distance for northbound pedestrians walking across the western end of Darlington Lane because the existing building is built on the edge of the lane.

If Darlington Lane remains open to two-way traffic then a Stop sign should be installed across the western end of Darlington Lane and consideration should be given to the placement of a traffic mirror at this location to help manage the potential pedestrian-vehicle conflict.

The application of the traffic engineering principals demonstrates that the Darlington Lane access to and from the Abercrombie Precinct by way of the driveway and existing local road network intersections will comply with the safety and functional requirements of Australian Standards AS2890.1 and 2 and Austroads Part 3A Geometric Design.

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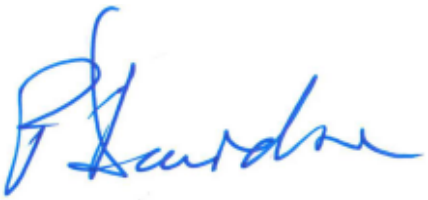

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Technical Director

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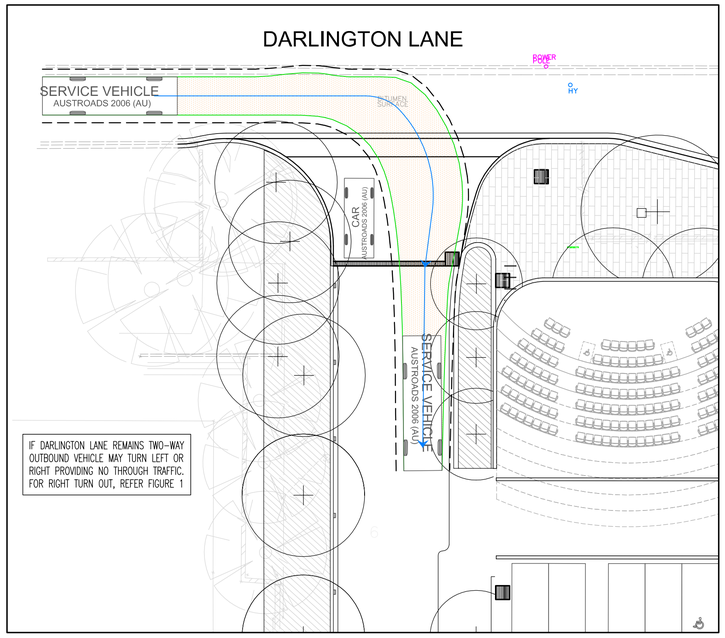
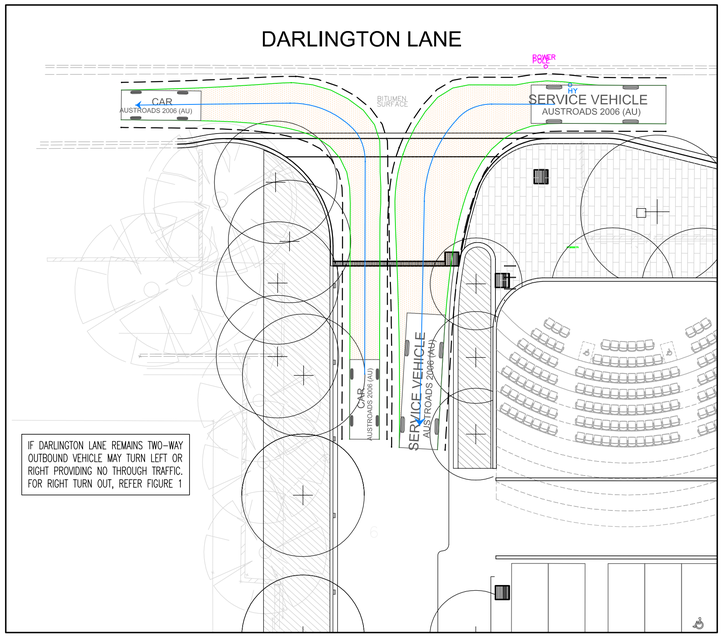
Appendix A: TURNING PATH ANALYSIS

SWEPTH PATH DIAGRAMS

B99 and B85 Cars and 8.8m Medium Rigid Vehicle



ONE-WAY EASTBOUND OR
TWO-WAY OUTBOUND



ONE-WAY WESTBOUND OR
TWO-WAY OUTBOUND

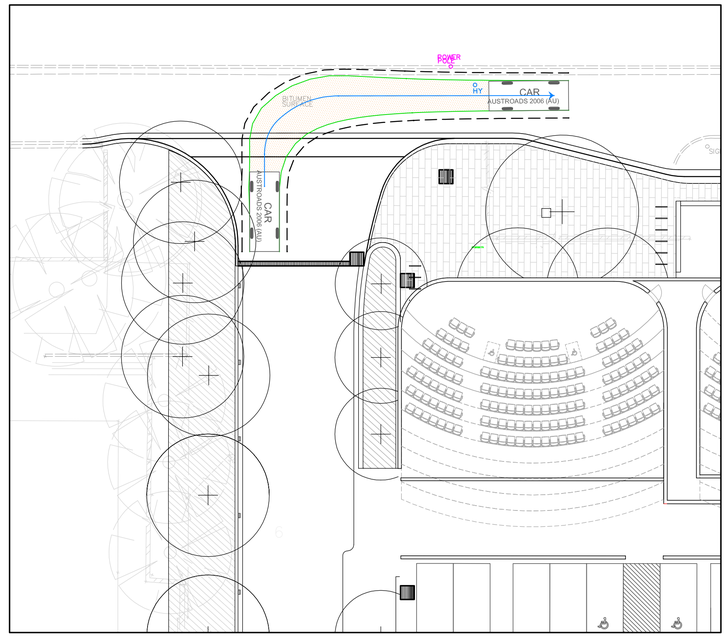
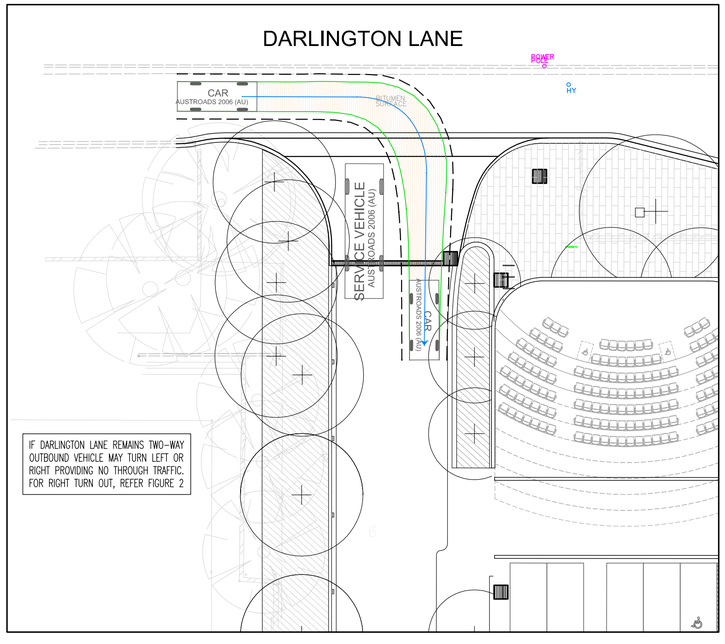
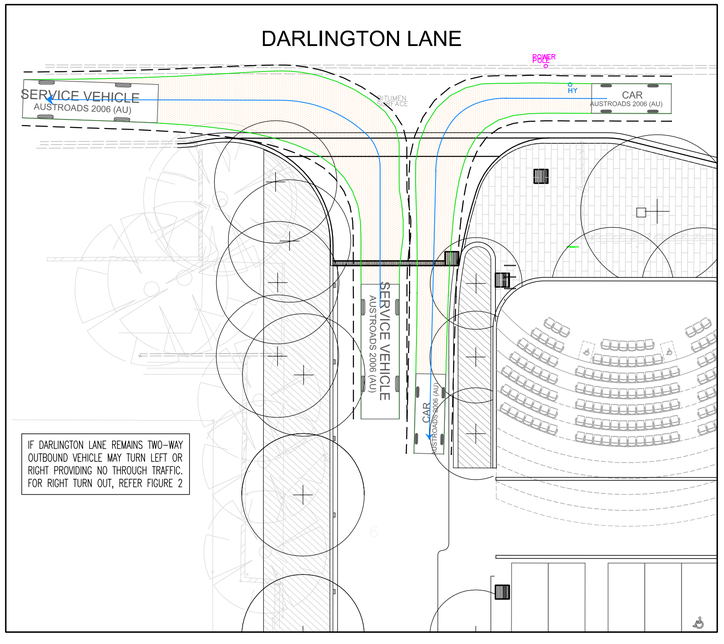


FIGURE 1



ONE-WAY EASTBOUND OR
TWO-WAY OUTBOUND



ONE-WAY WESTBOUND OR
TWO-WAY OUTBOUND

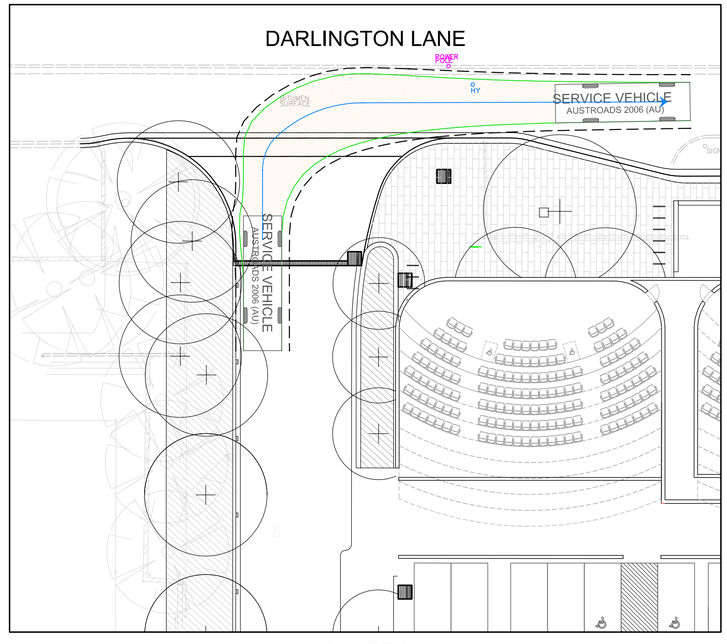


FIGURE 2

NOT FOR CONSTRUCTION

No.	AMENDMENT	DRAWN	DATE
P1	ISSUED FOR INFORMATION	AC	10.10.13

DO NOT SCALE from this drawing. Use given dimensions only. Check all dimensions on the job prior to commencement of shop drawings or fabrication. Any discrepancies are to be referred to the Architect/Engineer/Designer prior to commencement of work

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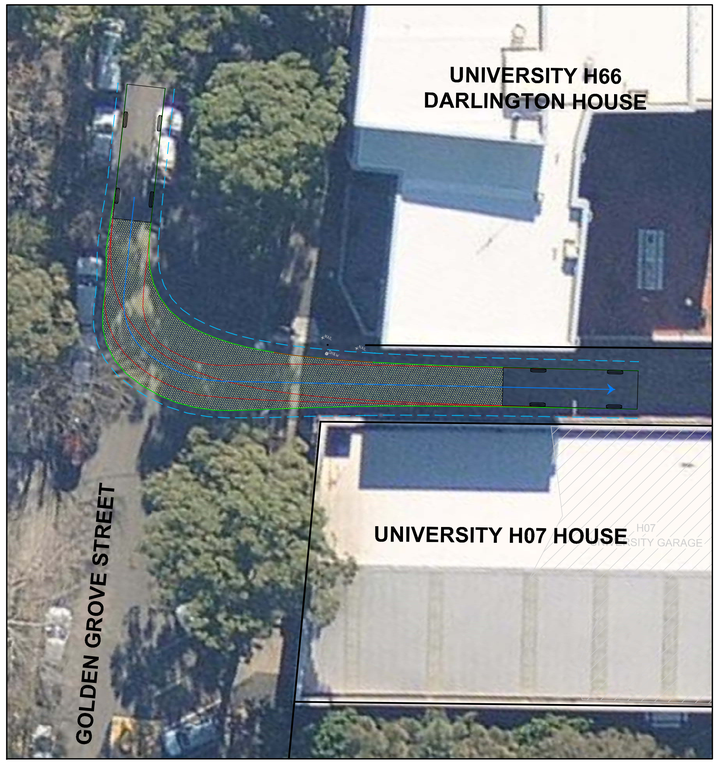
LEVEL 3, 65 PIRRAMA RD, PYRMONT NSW 2009.

Project:
ABERCROMBIE PRECINCT REDEVELOPMENT
ABERCROMBIE PRECINCT,
DARLINGTON, NSW, 2008

Architects: KANNFINCH
KannFinch Group Pty Ltd 50 Carrington St Sydney NSW 2000
ACN 139 614 798 Tel +61 2 9299 4111 www.kannfinch.com
Nominated Architect: Stephen Jamison NSW ARB Reg No 5108

Drawing: PROPOSED TURNING PATHS
CIVIL DRAWING SERIES
Drawing No: TTW-BUS-CIV-SKT- 300. Issue: P1
Scale: 1:250 @ A1 Date: AUG 2013 Drawn: AC Checked: PD Proj.No: 121784
Plot Date: 10.10.2013 9:41 AM
CAD File: Z:\jobs\12\121784\civil\TTW-BUS-CIV-SKT-300



PROPOSED 8.8m TRUCK EXITING DARLINGTON LANE TO CODRINGTON STREET

PROPOSED 8.8m TRUCK ENTERING DARLINGTON LANE VIA GOLDEN GROVE STREET

NOT FOR CONSTRUCTION

No.	AMENDMENT	DRAWN	DATE
P1	ISSUED FOR INFORMATION	AC	10.10.13

DO NOT SCALE from this drawing. Use given dimensions only. Check all dimensions on the job prior to commencement of shop drawings or fabrication. Any discrepancies are to be referred to the Architect/Engineer/Designer prior to commencement of work

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THE UNIVERSITY OF SYDNEY

Client: John Holland
LEVEL 3, 65 PIRRAMA RD, PYRMONT NSW 2009.

Project:
ABERCROMBIE PRECINCT REDEVELOPMENT
ABERCROMBIE PRECINCT,
DARLINGTON, NSW, 2008

Architects: KANNFINCH
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Nominated Architect: Stephen Jamison NSW ARB Reg No 5108

Drawing: PROPOSED TURNING PATHS

CIVIL DRAWING SERIES

Drawing No:		Issue:
TTW-BUS-CIV-SKT-	310.	P1

Scale:	Date:	Drawn:	Checked:	Proj.No:
1:250 @ A1	AUG 2013	AC	PD	121784

Plot Date: 10.10.2013 10:02 AM
CAD File: Z:\jobs\12\121784\civil\TTW-BUS-CIV-SKT-310

Appendix B: ARCHITECT'S DRAWING

- KFG_BUS_ARC_DWG_035 – Level 2 Floor Plan

Scale 1: 250

0 2500 5000 12500 25000

KEY PLAN

173.177 m 67° 43' 54"

Boundary

H69
ECONOMICS AND BUSINESS BUILDING

Potential Boundary Line

SUBSTATION
145 m²

SEMINAR ROOM
[60 LS - TAB/1:6]
206 m²

CASE STUDY ROOM
[100LT]
197 m²

CASE STUDY ROOM
[100 LT]
211 m²

STUDENT COMMS

VOID

STAIR 08

STAIR 0

MALE
27 m²

FEMALE
28 m²

STUDENT COMMONS
72 m²

SEMINAR ROOM
[24LS - TAB/1:6]
87 m²

CIRCULATION
FFL 35.500

SEMINAR ROOM
[24LS - TAB/1:6]
87 m²

COMMS
16 m²

STUDENT COMMONS
45 m²

STORE
(60 BYOD)
17 m²

SEMINAR ROOM
[24LS-TAB/1:6]
77 m²

CIRCULATION
33 m²

SEMINAR ROOM
[90LS - STAN/1:6]
269 m²

CASE STUDY ROOM
[100LT/VC]
212 m²

CASE STUDY ROOM
[100 LT]
208 m²

SEMINAR ROOM
[24 BYOD]
74 m²

STUDENT COMMONS
49 m²

SEMINAR ROOM
[24 BYOD]
72 m²

SEMINAR ROOM
[24 BYOD]
75 m²

SEMINAR ROOM
(60 BYOD)
180 m²

SEMINAR ROOM
(60 BYOD)
180 m²

STUDENT COMMONS
47 m²

STAIR 01

COMMS STORE
12 m²

STUDENT COMMONS
13 m²

SEMINAR ROOM
[60 BYOD]
181 m²

SEMINAR ROOM
[24 BYOD]
71 m²

STUDENT COMMON
100 m²

VOID

STUDENT COMMONS
52 m²

CIRCULATION
1523 m²

SEMINAR ROOM
[24 BYOD]
86 m²

SEMINAR ROOM
[60LS - TAB/1:6]
204 m²

CLUB ROOM
75m²

STAIR 03

STORE
8 m²

SEMINAR ROOM
[60LS - STAN/1:4]
184 m²

SEMINAR ROOM
[30LS - TAB/1:6]
107 m²

STUDENT COMMONS
29 m²

SEMINAR ROOM
[60 BYOD]
180 m²

LIFT 1
LIFT 2
UTILITY
13 m²

Boundary

NOT FOR CONSTRUCTION

Rev.	Revision Description	Chk.	Date
B	General Update	PM	05-09-2013
A	Issued for Information	PM	23-08-2013

DO NOT SCALE from this drawing use given dimensions only check all dimensions on the job prior to commencement of shop drawing of fabrication. Any discripancies are to be reffered to the Architect/Engineer/Designer prior to commencement of work.

Principal : THE UNIVERSITY OF SYDNEY

Client: John Holland

Architects : KANNFINCH

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Nominated Architect: Stephen Jamison NSW ARB Reg No 5108

Project:
UNIVERSITY OF SYDNEY
SCHOOL OF BUSINESS
ABERCROMBIE PRECINCT DARLINGTON NSW, 2008

Drawing:
LEVEL 2 FLOOR PLAN
Reference Plan

Drawing No: KFG-BUS-ARC-DWG-035 Issue: B
Scale: 1 : 250 @ A1 sheet size Checked: Approved: Project No: 6423

5/09/2013 11:58:01 AM :Plot Date

Appendix C: SIDRA MODELLING RESULTS

- Darlington Lane Two-way
- Darlington Lane – One-way Eastbound

MOVEMENT SUMMARY

Site: Codrington Street & Darlington Lane - AM Pre Development

AM - PRE DEVELOPMENT
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	ODMov	Demand Flows Total	HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Distance	Prop. Queued	Effective Stop Rate	Average Speed
		veh/h	%	v/c	sec		veh	m		per veh	km/h
South: Codrington Street (Sth)											
1	L2	4	50.0	0.167	5.2	LOS A	0.0	0.0	0.00	-0.01	34.8
2	T1	366	2.6	0.167	0.0	LOS A	0.0	0.0	0.00	-0.01	34.8
Approach		371	3.1	0.167	1.0	NA	0.0	0.0	0.00	-0.01	34.8
North: Codrington Street (Nth)											
4	T1	246	2.6	0.115	1.4	LOS A	0.9	6.0	0.45	0.01	33.3
3	R2	3	0.0	0.115	7.9	LOS A	0.9	6.0	0.45	0.01	33.3
Approach		249	2.5	0.115	1.4	NA	0.9	6.0	0.45	0.01	33.3
West: Darlington Lane											
5	L2	28	33.3	0.042	4.3	LOS A	0.1	1.1	0.39	0.44	24.5
6	R2	11	0.0	0.042	4.6	LOS A	0.1	1.1	0.39	0.44	24.5
Approach		39	24.3	0.042	4.4	LOS A	0.1	1.1	0.39	0.44	24.5
All Vehicles		659	4.2	0.167	12.8	NA	0.9	6.0	0.19	0.02	33.7

Level of Service (LOS) Method: Delay (RTA NSW).
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.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: Codrington Street & Darlington Lane - AM Post Development

AM - POST DEVELOPMENT
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	ODMov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Codrington Street (Sth)											
1	L2	91	2.3	0.196	5.2	LOS A	0.0	0.0	0.00	0.00	39.2
2	T1	366	2.6	0.196	0.0	LOS A	0.0	0.0	0.00	0.00	39.2
Approach		457	2.5	0.196	1.0	NA	0.0	0.0	0.00	0.00	39.2
North: Codrington Street (Nth)											
4	T1	246	2.6	0.177	1.8	LOS A	1.4	8.2	0.52	0.21	29.2
3	R2	92	1.1	0.177	8.3	LOS A	1.4	8.2	0.52	0.21	29.2
Approach		338	2.2	0.177	3.6	NA	1.4	8.2	0.52	0.21	29.2
West: Darlington Lane											
5	L2	51	20.8	0.090	3.8	LOS A	0.3	1.9	0.40	0.49	22.3
6	R2	32	0.0	0.090	4.2	LOS A	0.3	1.9	0.40	0.49	22.3
Approach		82	12.8	0.090	4.0	LOS A	0.3	1.9	0.40	0.49	22.3
All Vehicles		877	3.4	0.196	2.3	NA	1.4	8.2	0.24	0.13	31.9

Level of Service (LOS) Method: Delay (RTA NSW).
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.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: Codrington Street & Darlington Lane - PM Pre-Development

PM - PRE DEVELOPMENT
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	ODMov	Demand Flows Total	HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Distance	Prop. Queued	Effective Stop Rate	Average Speed
		veh/h	%	v/c	sec		veh	m		per veh	km/h
South: Codrington Street (Sth)											
1	L2	11	0.0	0.122	7.1	LOS A	0.0	0.0	0.00	0.04	45.5
2	T1	247	0.0	0.122	0.0	LOS A	0.0	0.0	0.00	0.04	45.5
Approach		258	0.0	0.122	0.3	NA	0.0	0.0	0.00	0.04	45.5
North: Codrington Street (Nth)											
4	T1	177	0.0	0.079	0.8	LOS A	0.6	3.6	0.36	0.01	31.6
3	R2	3	0.0	0.079	6.2	LOS A	0.6	3.6	0.36	0.01	31.6
Approach		180	0.0	0.079	0.9	NA	0.6	3.6	0.36	0.01	31.6
West: Darlington Lane											
5	L2	6	0.0	0.011	3.3	LOS A	0.0	0.2	0.30	0.46	23.9
6	R2	6	0.0	0.011	3.8	LOS A	0.0	0.2	0.30	0.46	23.9
Approach		13	0.0	0.011	3.5	LOS A	0.0	0.2	0.30	0.46	23.9
All Vehicles		451	0.0	0.122	0.6	NA	0.6	3.6	0.15	0.04	38.7

Level of Service (LOS) Method: Delay (RTA NSW).
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.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: Codrington Street & Darlington Lane - PM Post Development

PM - POST DEVELOPMENT
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	ODMov	Demand Flows Total	HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Distance	Prop. Queued	Effective Stop Rate	Average Speed
		veh/h	%	v/c	sec		veh	m		per veh	km/h
South: Codrington Street (Sth)											
1	L2	32	0.0	0.128	5.5	LOS A	0.0	0.0	0.00	0.50	34.2
2	T1	247	0.0	0.128	4.3	LOS A	0.0	0.0	0.00	0.50	34.2
Approach		279	0.0	0.128	4.5	NA	0.0	0.0	0.00	0.50	34.2
North: Codrington Street (Nth)											
4	T1	184	0.0	0.096	1.0	LOS A	0.7	4.4	0.38	0.08	29.5
3	R2	25	4.2	0.096	6.2	LOS A	0.7	4.4	0.38	0.08	29.5
Approach		209	0.5	0.096	1.6	NA	0.7	4.4	0.38	0.08	29.5
West: Darlington Lane											
5	L2	94	1.1	0.171	2.5	LOS A	0.6	2.6	0.34	0.45	21.1
6	R2	93	0.0	0.171	3.1	LOS A	0.6	2.6	0.34	0.45	21.1
Approach		186	0.6	0.171	2.8	LOS A	0.6	2.6	0.34	0.45	21.1
All Vehicles		675	0.3	0.171	3.1	NA	0.7	4.4	0.21	0.35	26.4

Level of Service (LOS) Method: Delay (RTA NSW).
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.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: Golden Grove Street - AM Pre-Development

Golden Grove Street - AM Pre Development
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	ODMov	Demand Flows Total	HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Distance	Prop. Queued	Effective Stop Rate	Average Speed
		veh/h	%	v/c	sec		veh	m		per veh	km/h
South: Golden Grove (Sth)											
3	T1	104	3.0	0.066	0.9	LOS A	0.4	2.9	0.37	0.08	37.2
4	R2	15	7.1	0.066	5.3	LOS A	0.4	2.9	0.37	0.08	37.2
Approach		119	3.5	0.066	1.5	NA	0.4	2.9	0.37	0.08	37.2
East: Darlington Lane (East)											
5	L2	4	25.0	0.005	3.3	LOS A	0.0	0.1	0.33	0.39	24.5
6	R2	1	0.0	0.005	4.1	LOS A	0.0	0.1	0.33	0.39	24.5
Approach		5	20.0	0.005	3.5	LOS A	0.0	0.1	0.33	0.39	24.5
North: Golden Grove (Nth)											
1	L2	15	0.0	0.137	4.5	LOS A	0.0	0.0	0.00	0.04	39.8
2	T1	241	3.9	0.137	0.0	LOS A	0.0	0.0	0.00	0.04	39.8
Approach		256	3.7	0.137	0.3	NA	0.0	0.0	0.00	0.04	39.8
All Vehicles		380	3.9	0.137	0.7	NA	0.4	2.9	0.12	0.06	38.6

Level of Service (LOS) Method: Delay (RTA NSW).
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.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: Golden Grove Street - AM Post Development

Golden Grove Street - AM Post Development
Giveway / Yield (Two-Way)

Movement Performance - Vehicles											
Mov ID	ODMov	Demand Flows Total	HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Distance	Prop. Queued	Effective Stop Rate	Average Speed
		veh/h	%	v/c	sec		veh	m		per veh	km/h
South: Golden Grove (Sth)											
3	T1	104	3.0	0.121	1.2	LOS A	0.7	4.3	0.42	0.31	31.9
4	R2	102	1.0	0.121	4.5	LOS A	0.7	4.3	0.42	0.31	31.9
Approach		206	2.0	0.121	2.8	NA	0.7	4.3	0.42	0.31	31.9
East: Darlington Lane (East)											
5	L2	26	4.0	0.048	2.5	LOS A	0.2	0.8	0.35	0.42	21.4
6	R2	22	0.0	0.048	3.2	LOS A	0.2	0.8	0.35	0.42	21.4
Approach		48	2.2	0.048	2.8	LOS A	0.2	0.8	0.35	0.42	21.4
North: Golden Grove (Nth)											
1	L2	102	0.0	0.162	3.8	LOS A	0.0	0.0	0.00	0.17	35.8
2	T1	241	3.9	0.162	0.0	LOS A	0.0	0.0	0.00	0.17	35.8
Approach		343	2.8	0.162	1.1	NA	0.0	0.0	0.00	0.17	35.8
All Vehicles		598	2.5	0.162	1.9	NA	0.7	4.3	0.17	0.24	32.7

Level of Service (LOS) Method: Delay (RTA NSW).
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.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: Golden Grove Street - PM Pre Development

Golden Grove Street - PM Pre Development
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	ODMov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Golden Grove (Sth)											
3	T1	207	0.0	0.109	1.4	LOS A	0.8	5.4	0.46	0.01	36.9
4	R2	3	0.0	0.109	5.8	LOS A	0.8	5.4	0.46	0.01	36.9
Approach		211	0.0	0.109	1.5	NA	0.8	5.4	0.46	0.01	36.9
East: Darlington Lane (East)											
5	L2	16	0.0	0.022	3.9	LOS A	0.1	0.5	0.41	0.51	24.4
6	R2	6	0.0	0.022	4.7	LOS A	0.1	0.5	0.41	0.51	24.4
Approach		22	0.0	0.022	4.1	LOS A	0.1	0.5	0.41	0.51	24.4
North: Golden Grove (Nth)											
1	L2	3	0.0	0.191	4.5	LOS A	0.0	0.0	0.00	0.01	40.0
2	T1	363	0.0	0.191	0.0	LOS A	0.0	0.0	0.00	0.01	40.0
Approach		366	0.0	0.191	0.1	NA	0.0	0.0	0.00	0.01	40.0
All Vehicles		599	0.0	0.191	0.7	NA	0.8	5.4	0.18	0.03	37.9

Level of Service (LOS) Method: Delay (RTA NSW).
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.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: Golden Grove Street - PM Post Development

Golden Grove Street - PM Post Development
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	ODMov	Demand Flows Total	HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Distance	Prop. Queued	Effective Stop Rate	Average Speed
		veh/h	%	v/c	sec		veh	m		per veh	km/h
South: Golden Grove (Sth)											
3	T1	207	0.0	0.122	1.5	LOS A	0.9	5.9	0.47	0.08	35.6
4	R2	25	0.0	0.122	5.8	LOS A	0.9	5.9	0.47	0.08	35.6
Approach		233	0.0	0.122	2.0	NA	0.9	5.9	0.47	0.08	35.6
East: Darlington Lane (East)											
5	L2	103	0.0	0.220	3.5	LOS A	0.8	3.7	0.47	0.57	21.3
6	R2	94	0.0	0.220	4.2	LOS A	0.8	3.7	0.47	0.57	21.3
Approach		197	0.0	0.220	3.8	LOS A	0.8	3.7	0.47	0.57	21.3
North: Golden Grove (Nth)											
1	L2	25	0.0	0.197	4.4	LOS A	0.0	0.0	0.00	0.04	39.0
2	T1	363	0.0	0.197	0.0	LOS A	0.0	0.0	0.00	0.04	39.0
Approach		388	0.0	0.197	0.3	NA	0.0	0.0	0.00	0.04	39.0
All Vehicles		818	0.0	0.220	1.6	NA	0.9	5.9	0.25	0.18	31.9

Level of Service (LOS) Method: Delay (RTA NSW).
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.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: Codrington Street & Darlington Lane - AM Post Development East One-way

AM - POST DEVELOPMENT East One-way
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	ODMov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Codrington Street (Sth)											
2	T1	296	3.9	0.133	0.1	LOS A	0.0	0.0	0.00	0.00	43.4
Approach		296	3.9	0.133	0.1	NA	0.0	0.0	0.00	0.00	43.4
North: Codrington Street (Nth)											
4	T1	208	3.0	0.093	0.0	LOS A	0.0	0.0	0.00	0.00	50.0
Approach		208	3.0	0.093	0.0	NA	0.0	0.0	0.00	0.00	50.0
West: Darlington Lane											
5	L2	74	14.3	0.129	3.1	LOS A	0.4	2.4	0.36	0.35	21.9
6	R2	59	1.8	0.129	3.8	LOS A	0.4	2.4	0.36	0.35	21.9
Approach		133	8.7	0.129	3.4	LOS A	0.4	2.4	0.36	0.35	21.9
All Vehicles		637	4.6	0.133	0.7	NA	0.4	2.4	0.07	0.08	33.6

Level of Service (LOS) Method: Delay (RTA NSW).
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.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: Codrington Street & Darlington Lane - PM Post Development East One-way

PM - POST DEVELOPMENT east One-way
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	ODMov	Demand Flows Total	Demand Flows HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	95% Back of Queue Distance	Prop. Queued	Effective Stop Rate	Average Speed
		veh/h	%	v/c	sec		veh	m		per veh	km/h
South: Codrington Street (Sth)											
2	T1	257	0.0	0.121	4.6	LOS A	0.0	0.0	0.00	0.50	34.9
Approach		257	0.0	0.121	4.6	NA	0.0	0.0	0.00	0.50	34.9
North: Codrington Street (Nth)											
4	T1	179	0.0	0.078	0.0	LOS A	0.0	0.0	0.00	0.00	44.7
Approach		179	0.0	0.078	0.0	NA	0.0	0.0	0.00	0.00	44.7
West: Darlington Lane											
5	L2	187	0.6	0.351	3.5	LOS A	1.5	8.2	0.39	0.57	22.3
6	R2	196	0.0	0.351	4.2	LOS A	1.5	8.2	0.39	0.57	22.3
Approach		383	0.3	0.351	3.9	LOS A	1.5	8.2	0.39	0.57	22.3
All Vehicles		819	0.1	0.351	3.2	NA	1.5	8.2	0.18	0.42	26.1

Level of Service (LOS) Method: Delay (RTA NSW).
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.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: Golden Grove Street - AM Post Development East One-way

Golden Grove Street - AM Post Development East One way
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	ODMov	Demand Flows Total	Demand Flows HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	95% Back of Queue Distance	Prop. Queued	Effective Stop Rate	Average Speed
		veh/h	%	v/c	sec		veh	m		per veh	km/h
South: Golden Grove (Sth)											
3	T1	104	3.0	0.192	1.6	LOS A	1.1	6.1	0.49	0.43	29.6
4	R2	189	0.6	0.192	4.8	LOS A	1.1	6.1	0.49	0.43	29.6
Approach		294	1.4	0.192	3.7	NA	1.1	6.1	0.49	0.43	29.6
North: Golden Grove (Nth)											
1	L2	191	0.6	0.188	3.4	LOS A	0.0	0.0	0.00	0.22	33.6
2	T1	241	3.9	0.188	0.0	LOS A	0.0	0.0	0.00	0.22	33.6
Approach		432	2.4	0.188	1.5	NA	0.0	0.0	0.00	0.22	33.6
All Vehicles		725	2.0	0.192	2.4	NA	1.1	6.1	0.20	0.31	31.9

Level of Service (LOS) Method: Delay (RTA NSW).
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.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: Golden Grove Street - PM Post Development East One-way

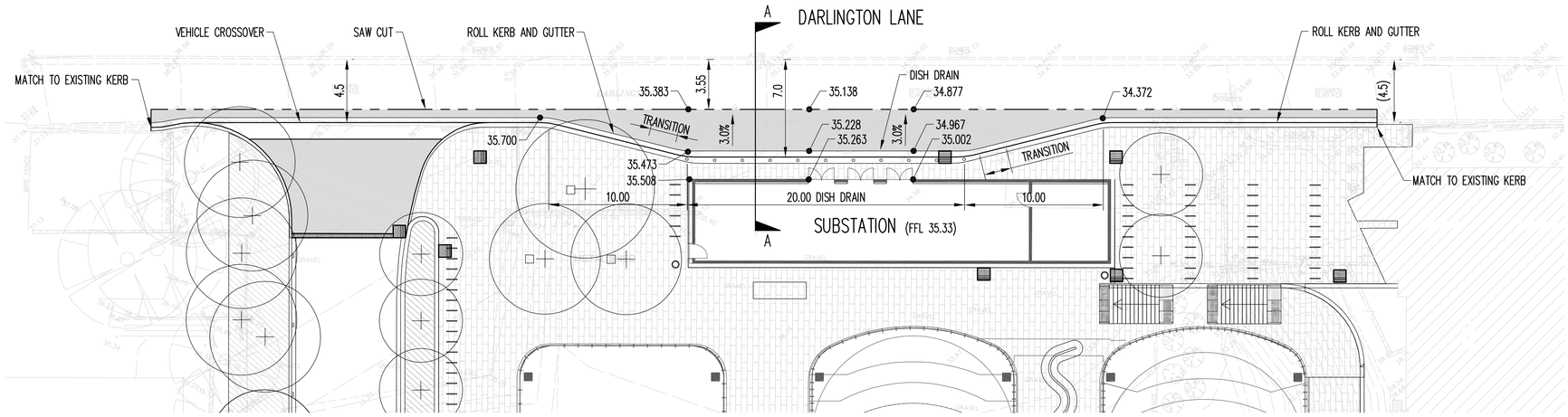
Golden Grove Street - PM Post Development East One-way
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

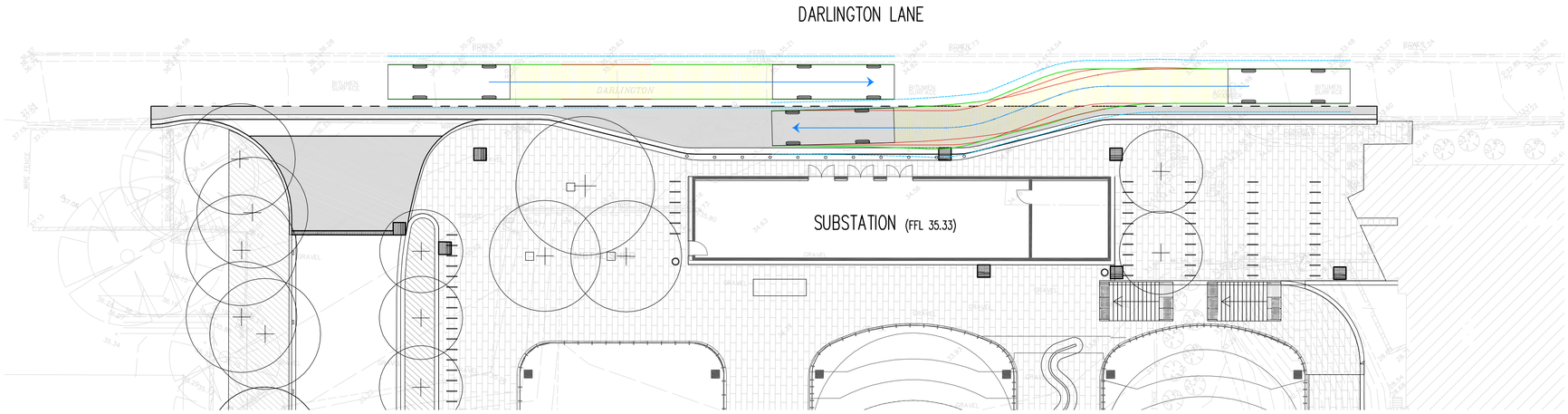
Mov ID	OD Mov	Demand Flows Total	Demand Flows HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	95% Back of Queue Distance	Prop. Queued	Effective Stop Rate	Average Speed
		veh/h	%	v/c	sec		veh	m		per veh	km/h
South: Golden Grove (Sth)											
3	T1	207	0.0	0.137	1.7	LOS A	1.0	6.4	0.49	0.14	34.6
4	R2	47	0.0	0.137	6.0	LOS A	1.0	6.4	0.49	0.14	34.6
Approach		255	0.0	0.137	2.5	NA	1.0	6.4	0.49	0.14	34.6
North: Golden Grove (Nth)											
1	L2	48	2.2	0.205	4.2	LOS A	0.0	0.0	0.00	0.08	38.2
2	T1	363	0.0	0.205	0.0	LOS A	0.0	0.0	0.00	0.08	38.2
Approach		412	0.3	0.205	0.5	NA	0.0	0.0	0.00	0.08	38.2
All Vehicles		666	0.2	0.205	1.3	NA	1.0	6.4	0.19	0.10	36.7

Level of Service (LOS) Method: Delay (RTA NSW).
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.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

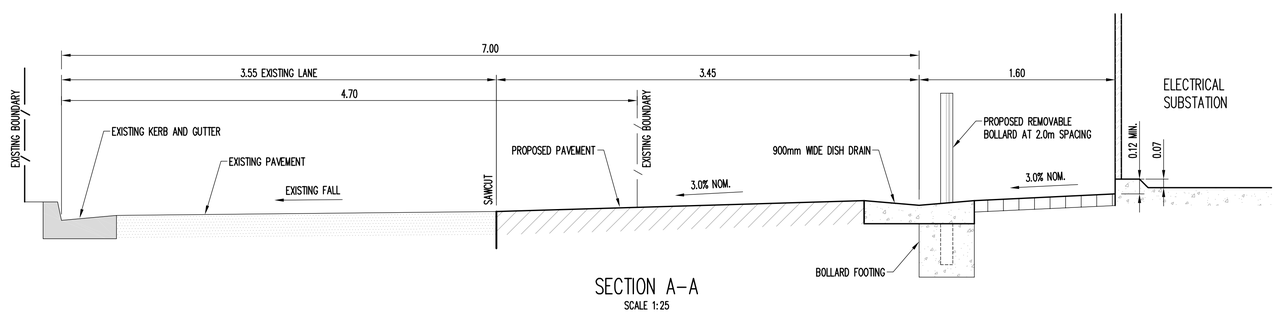
Appendix D: DARLINGTON LANE PASSING BAY



PAVEMENT AND KERBING WORKS PLAN



8.8m SERVICE VEHICLE TURNPATHS



SECTION A–A
SCALE 1:25

NOT FOR CONSTRUCTION

No.	AMENDMENT	DRAWN	DATE
P1	ISSUED FOR APPROVAL	AC	03.10.13

DO NOT SCALE from this drawing. Use given dimensions only. Check all dimensions on the job prior to commencement of shop drawings or fabrication. Any discrepancies are to be referred to the Architect/Engineer/Designer prior to commencement of work

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THE UNIVERSITY OF SYDNEY

Client: John Holland
LEVEL 3, 65 PIRRAMA RD, PYRMONT NSW 2009.

Project:
ABERCROMBIE PRECINCT REDEVELOPMENT
ABERCROMBIE PRECINCT,
DARLINGTON, NSW, 2008

Architects: KANNFINCH
KannFinch Group Pty Ltd 50 Carrington St Sydney NSW 2000
ACN 139614798 Tel +61 2 9299 4111 www.kannfinch.com
Nominated Architect: Stephen Jamison NSW ARB Reg No 5108

Drawing:
DARLINGTON LANE KERB AND PAVEMENT WORKS
CIVIL DRAWING SERIES

Drawing No:		Issue:
TTW-BUS-CIV-SKT-	110.	P1

Scale:	Date:	Drawn:	Checked:	Proj.No:
1:200 @ A1	OCT 2013	AC	PD	121784

Plot Date: 03.10.2013 3:05 PM
CAD File: Z:\jobs\12\121784\civil\TTW-BUS-CIV-SKT-110