Proposed Commercial Offices and Student Accommodation

157-163 Cleveland Street, Chippendale

TRAFFIC AND PARKING ASSESSMENT REPORT

12 April 2010

Ref 09261

VARGA TRAFFIC PLANNING Pty Ltd
Transport, Traffic and Parking Consultants

Suite 6, 20 Young Street, Neutral Bay NSW 2089 - PO Box 1868, Neutral Bay NSW 2089
Ph: 9904 3224 Fax: 9904 3228, Email: varga@vtp.net.au

TABLE OF CONTENTS

1. INTRODUCTION 1

2. PROPOSED DEVELOPMENT 4

3. TRAFFIC ASSESSMENT 15

4. PARKING IMPLICATIONS 28

APPENDIX A TRAFFIC SURVEY DATA

LIST OF ILLUSTRATIONS

Figure 1 Location
Figure 2 Site
Figure 3 Road Hierarchy
Figure 3 Road Hierarchy
Figure 4 Existing Traffic Controls
Figure 5 Traffic Assignment
Figure 6 Existing Parking Controls

1. INTRODUCTION

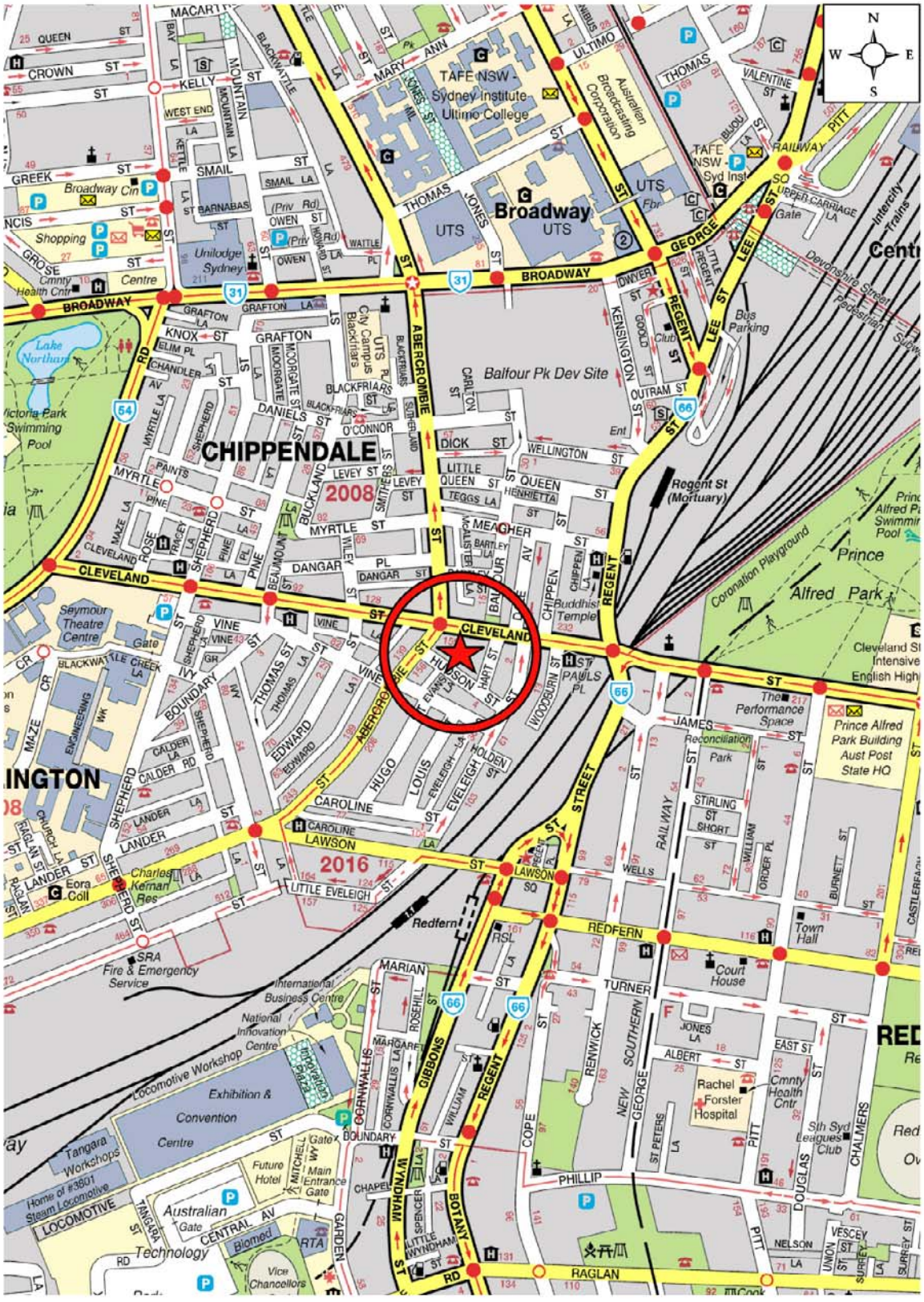
This report has been prepared to accompany a Development Application for a mixed use development comprising commercial office space and student accommodations to be located at 157-163 Cleveland Street, Chippendale (Figures 1 and 2).

The subject site is currently occupied by a former industrial building which is to be demolished.

The proposed development will involve the construction of a new mixed use building comprising 3 levels of commercial office space and a level of student accommodations to be provided on the top floor. Off-street carparking is proposed in a basement carparking area, with vehicular access to be provided via a two-way driveway located in Hudson Street.

The purpose of this report is to assess the traffic and parking implications of the development proposal and to that end this report:

- describes the site and provides details of the development proposal
- reviews the road network in the vicinity of the site, and the traffic conditions on that road network
- estimates the traffic generation potential of the development proposal, and assigns that traffic generation to the road network serving the site
- assesses the traffic implications of the development proposal in terms of road network capacity
- reviews the geometric design features of the proposed carparking facilities for compliance with the relevant codes and standards
- assesses the adequacy and suitability of the quantum of off-street carparking provided on the site.



VARGA TRAFFIC PLANNING Pty Ltd
Traffic and Parking Consultants

LOCATION

FIGURE 1


N
W
E
S
DICK ST
WELLINGTON ST
LEVEY ST
LEVEY ST
BUCKLAND ST
SMITHERS ST
ABERCROMBIE ST
LITTLE QUEEN ST
QUEEN ST
HENRIETTA ST
EGGS LA
MYRTLE ST
MEAGHER ST
WILEY PL
MCALISTER
BARTLEY LA
BALFOUR
DANGAR ST
BARTLEY ST
DALE AVE
CHIPPEN
CHIPPEN LA
REGENT
CLEVELAND ST
VINE ST
LA
ST PAULS PL
HUDSON ST
HART ST
EVELEIGH ST
EVANS LA
Shared Zone
WOOLBURN
EDWARD LA
HOLDEN ST
REGENT ST
HUGO
LOUIS
EVELEIGH LA
CAROLINE ST
CAROLINE LA
LAWSON ST
GIBBONS ST
REGENT PL
WELLS ST
LAWSON SQ
REDFERN RAILWAY STATION
Unformed Road
VARGA TRAFFIC PLANNING Pty Ltd
Transport, Traffic and Parking Consultants
SITE
FIGURE 2

2. PROPOSED DEVELOPMENT

Site

The subject site is located on the southern side of Cleveland Street, with street frontages to Hudson Street and to Hart Street. The site has street frontages approximately 52m in length to Cleveland Street, 60m in length to Hart Street, and 65m in length to Hudson Street. The total site area is 2,688m^2.

The existing development on the site comprises a predominantly single storey industrial building which occupies the entire site. There are a number of openings in the existing building to accommodate truck loading docks, however there does not appear to be any off-street carparking provided on the site at present.

Proposed Development

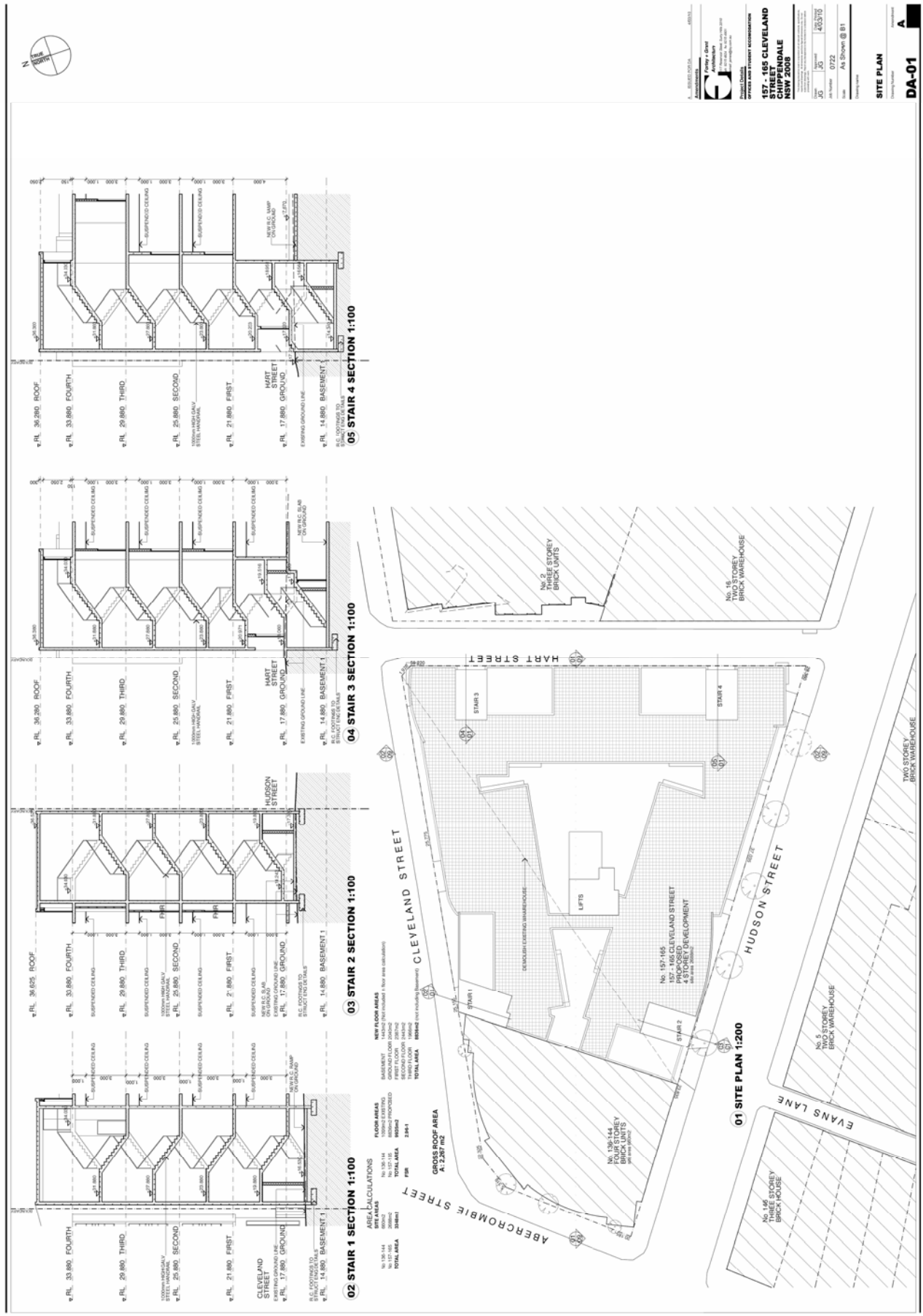
The proposed development will involve demolition of the existing industrial buildings on the site to facilitate the construction of a 4-storey mixed use building comprising commercial office space and student accommodations.

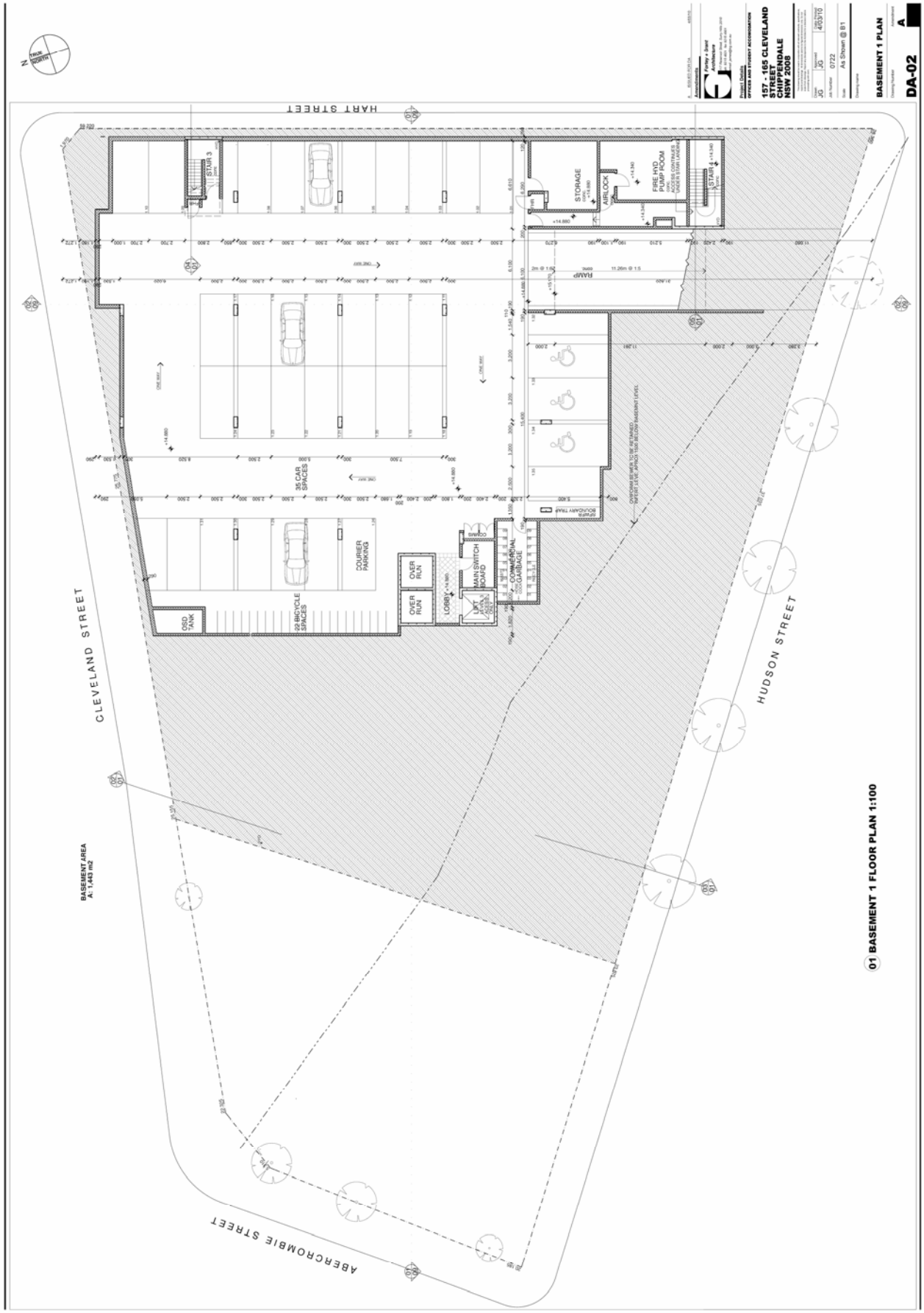
The commercial office space will comprise 6,870m^2 floor area on 3 levels (ie. ground level, first floor and second floor).

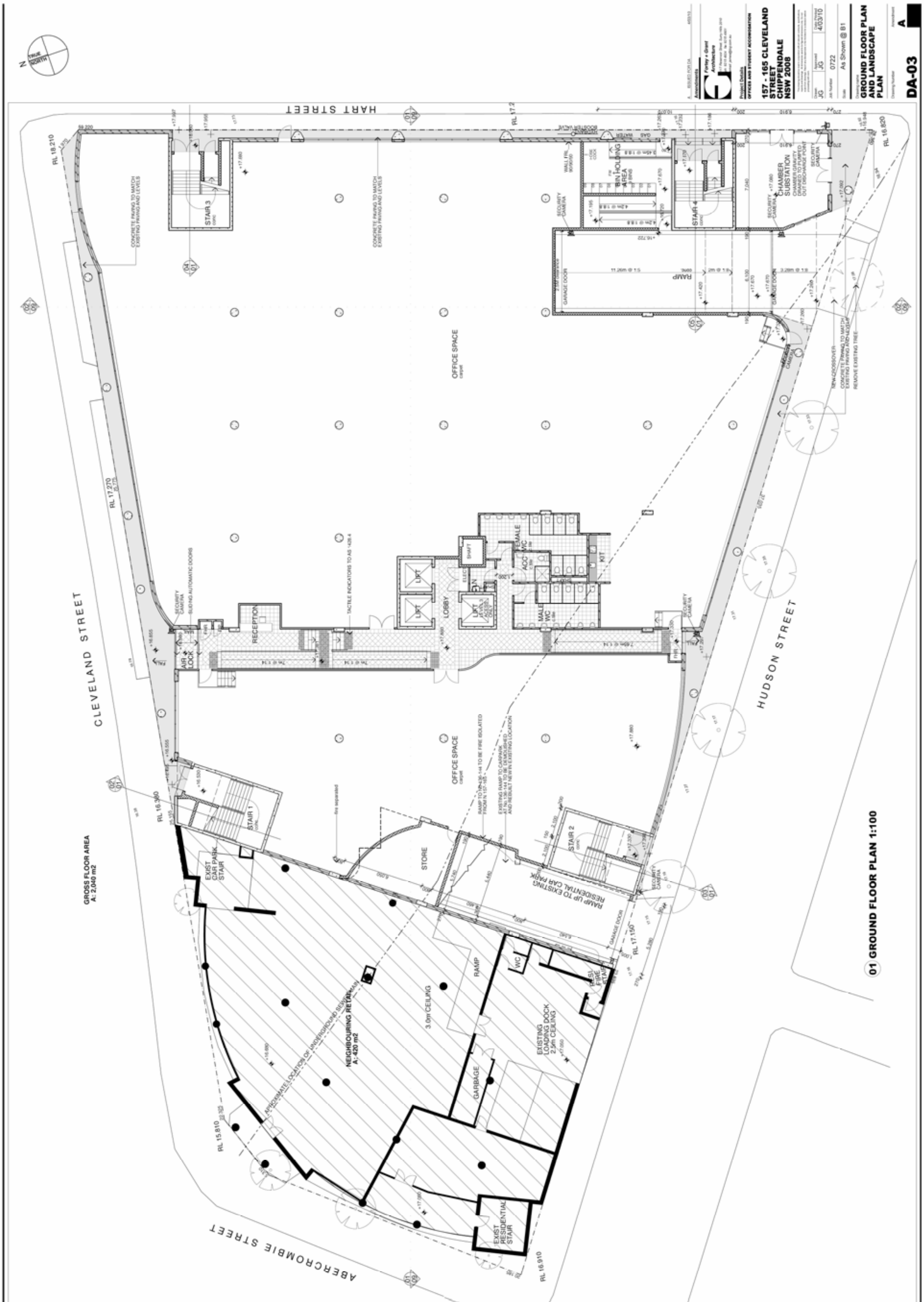
A level of student accommodations is proposed on the third floor comprising 15 apartments or units containing 4, 5 or 6 bedrooms each. A total of 73 bedrooms are proposed in each unit/apartment.

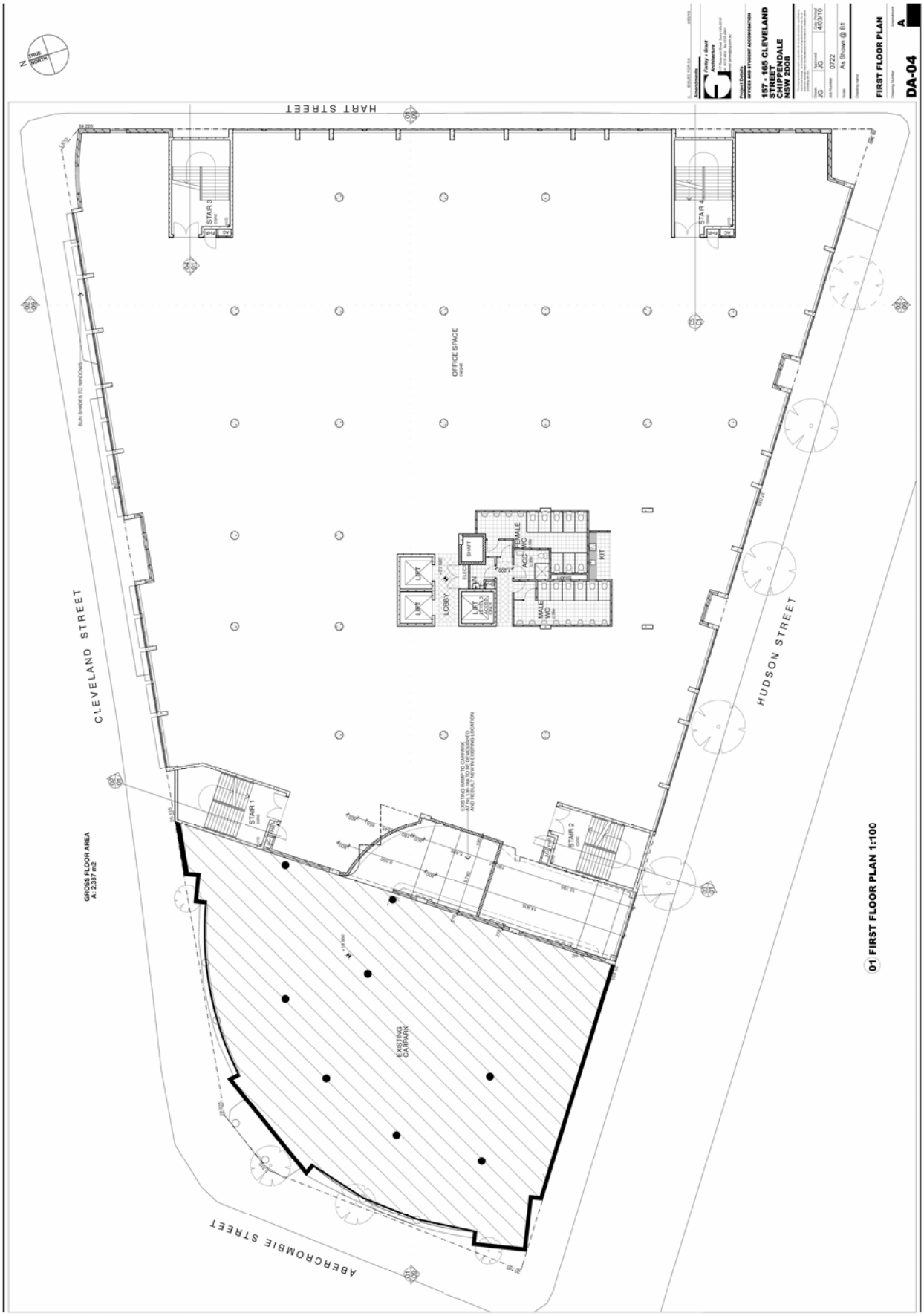
Off-street carparking is proposed in a basement carparking area for a total of 34 cars in accordance with Council's requirements. Vehicular access to the basement carparking area is to be provided via a single two-way driveway off Hudson Street.

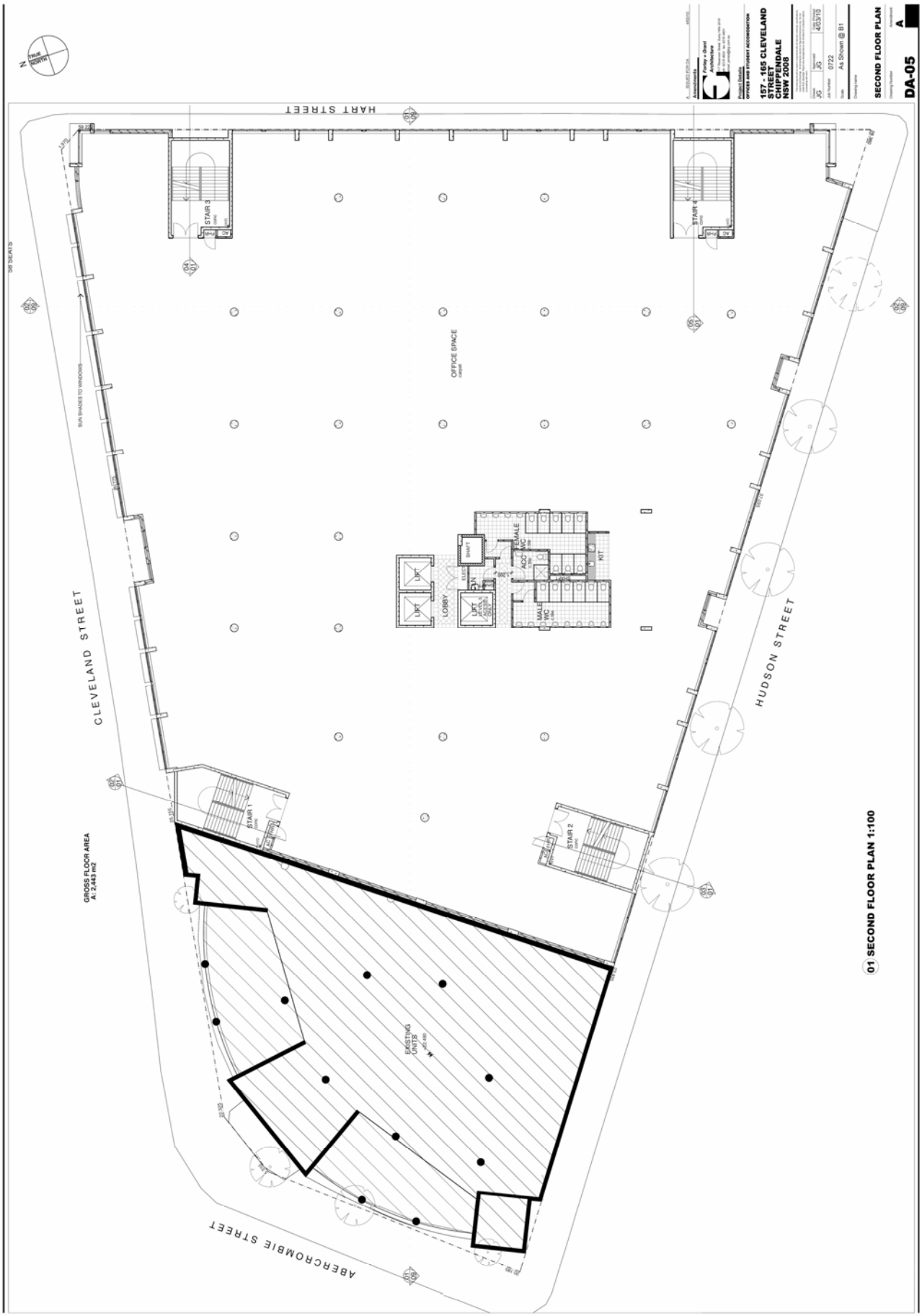
Plans of the proposed development have been prepared by *Fortey + Grant Architecture* and are reproduced in the following pages.


02 STAIR 1 SECTION 1:100
03 STAIR 2 SECTION 1:100
04 STAIR 3 SECTION 1:100
05 STAIR 4 SECTION 1:100
01 SITE PLAN 1:200
CLEVELAND STREET
HART STREET
HUDSON STREET
ABERCROMBIE STREET
EVANS LANE
No. 157-165
157 - 165 CLEVELAND STREET
PROPOSED
4 STOREY DEVELOPMENT
No. 139-144
FOUR STOREY
BRICK UNITS
No. 5
TWO STOREY
BRICK WAREHOUSE
No. 16
TWO STOREY
BRICK WAREHOUSE
No. 146
THREE STOREY
BRICK HOUSE
DEMOLISH EXISTING WAREHOUSE
LIFTS
STAIR 1
STAIR 2
STAIR 3
STAIR 4
AREA CALCULATIONS
FLOOR AREAS
NEW FLOOR AREAS
GROSS ROOF AREA
A: 2,267 m2
157 - 165 CLEVELAND STREET
CHIPPENDALE
NSW 2008
SITE PLAN
DA-01

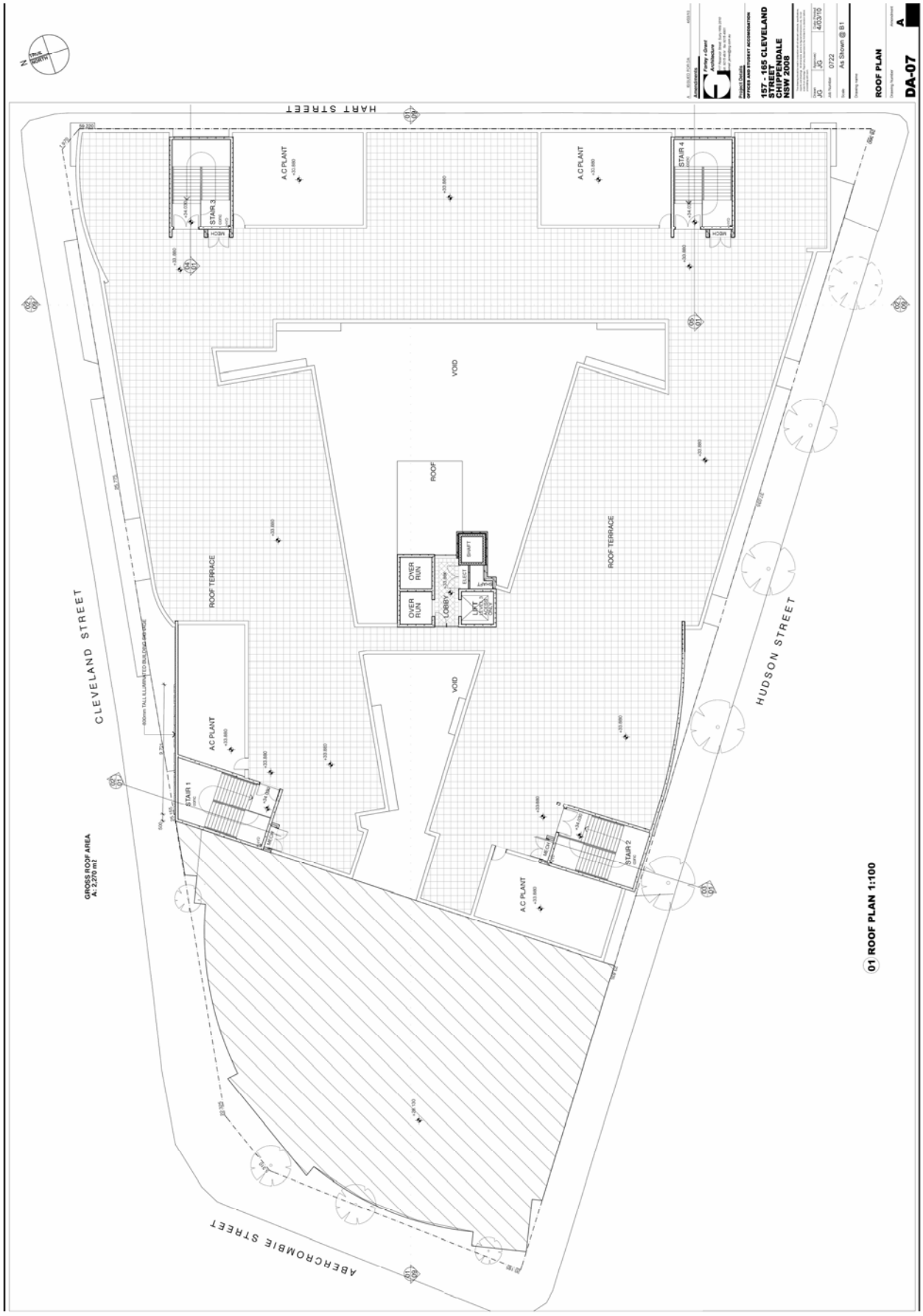

HART STREET
CLEVELAND STREET
HUDSON STREET
ABERCROMBIE STREET
STAIR 3
STORAGE
AIRLOCK
FIRE HYD. PUMP ROOM
STAIR 1
RAMP
35 CAR SPACES
COURIER PARKING
28 BICYCLE SPACES
OVER RUN
OVER RUN
LOBBY
MAIN SWITCH BOARD
COMMERCIAL GARBAGE
RESIDENTIAL GARBAGE
GRD TANK
BOUNDARY TRAP
BASEMENT AREA
A: 1,440 m2
01 BASEMENT 1 FLOOR PLAN 1:100
Farley + Steel Architecture
157 - 165 CLEVELAND STREET
CHIPPENDALE
NSW 2008
BASEMENT 1 PLAN
DA-02

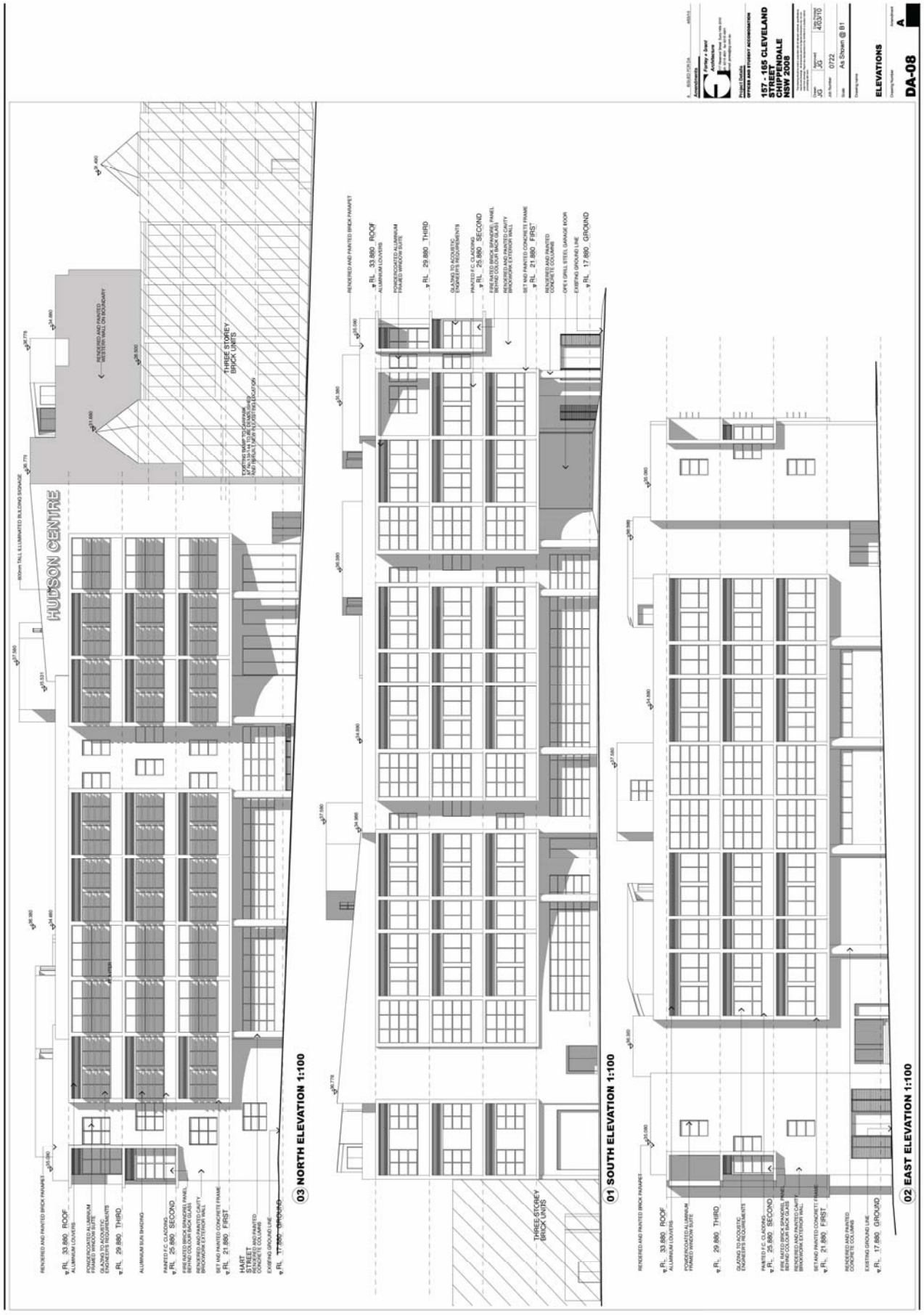

HART STREET
CLEVELAND STREET
HUDSON STREET
ABERCROMBIE STREET
OFFICE SPACE
RECEPTION
LOBBY
STAIR 1
STAIR 2
STAIR 3
STAIR 4
RAMP
STORE
GARBAGE
NEIGHBOURING RETAIL
EXISTING LOADING DOCK
RAMP UP TO EXISTING RESIDENTIAL CAR PARK
GROSS FLOOR AREA
A: 2,040 m2
01 GROUND FLOOR PLAN 1:100
157 - 165 CLEVELAND STREET CHIPPENDALE NSW 2008
GROUND FLOOR PLAN AND LANDSCAPE PLAN
DA-03

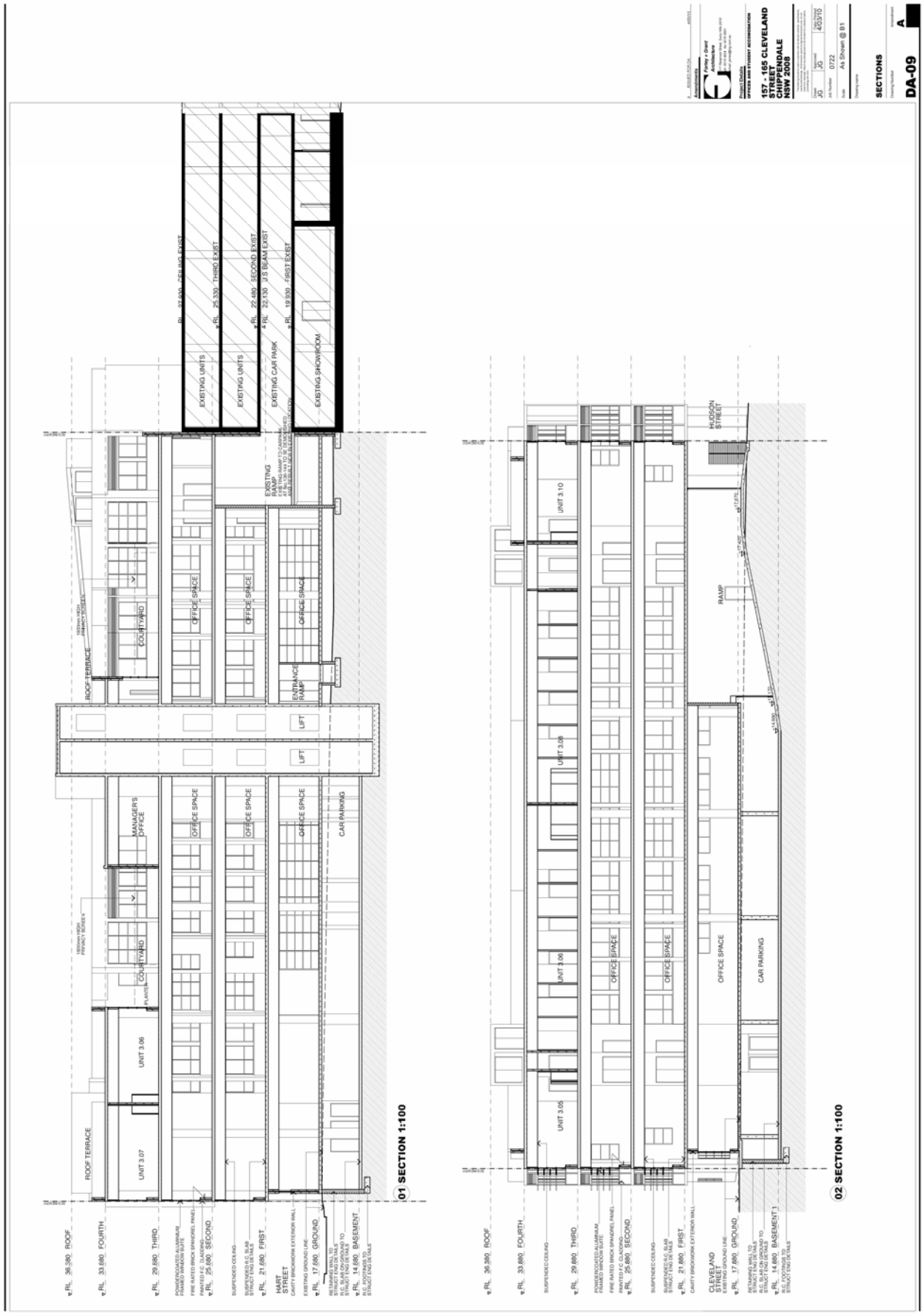

HART STREET
CLEVELAND STREET
HUDSON STREET
ABERCROMBIE STREET
OFFICE SPACE
LOBBY
LIFT
STAIR 1
STAIR 2
STAIR 3
STAIR 4
EXISTING CARPARK
GROSS FLOOR AREA
A: 2,387 m2
157 - 165 CLEVELAND STREET CHIPPENDALE NSW 2008
FIRST FLOOR PLAN
DA-04
01 FIRST FLOOR PLAN 1:100

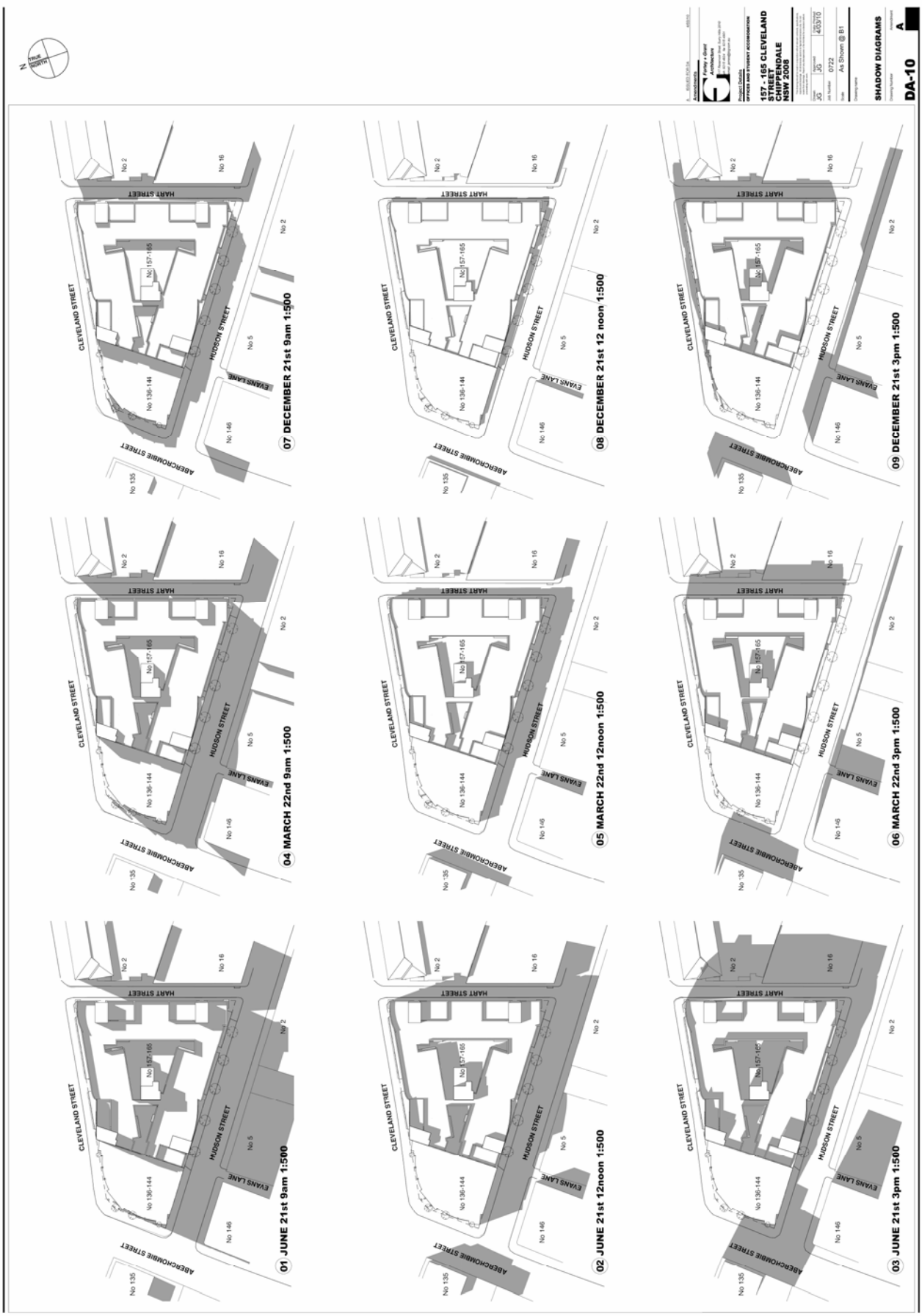

HART STREET
CLEVELAND STREET
HUDSON STREET
ABERCROMBIE STREET
OFFICE SPACE
LOBBY
LIFT
STAIR 1
STAIR 2
STAIR 3
STAIR 4
KIT
EXISTING LIMITS
SUN SHADES TO WINDOWS
GROSS FLOOR AREA
A: 2,443 m2
01 SECOND FLOOR PLAN 1:100
157 - 165 CLEVELAND STREET
CHIPPENDALE
NSW 2008
SECOND FLOOR PLAN
DA-05


HART STREET
CLEVELAND STREET
HUDSON STREET
ABERCROMBIE STREET
157 - 165 CLEVELAND STREET CHIPPENDALE NSW 2008
THIRD FLOOR PLAN
DA-06
01 THIRD FLOOR PLAN 1:100
GROSS FLOOR AREA
At 1,066 m2
MANAGER'S OFFICE
LOBBY
LDRY
ROOF
STAIR 1
STAIR 2
STAIR 3
STAIR 4


HART STREET
CLEVELAND STREET
HUDSON STREET
ABERCROMBIE STREET
A.C PLANT
STAIR 3
STAIR 4
STAIR 1
STAIR 2
VOID
ROOF
OVER RUN
LOBBY
LIFT
SHAFT
ROOF TERRACE
GROSS ROOF AREA
A: 2270 m2
01 ROOF PLAN 1:100
157 - 165 CLEVELAND STREET
CHIPPENDALE
NSW 2008
ROOF PLAN
DA-07


HUDSON CENTRE
03 NORTH ELEVATION 1:100
01 SOUTH ELEVATION 1:100
02 EAST ELEVATION 1:100
157 - 165 CLEVELAND STREET CHIPPENDALE NSW 2008
ELEVATIONS
DA-08


01 SECTION 1:100
02 SECTION 1:100
SECTIONS
DA-09
137 - 165 CLEVELAND STREET CHIPPENDALE NSW 2008
HART STREET
CLEVELAND STREET
HUDSON STREET
RAMP
OFFICE SPACE
CAR PARKING
COURTYARD
ROOF TERRACE
EXISTING UNITS
EXISTING CAR PARK
EXISTING SHOWROOM
EXISTING RAMP
ENTRANCE RAMP
LIFT
UNIT 3.05
UNIT 3.06
UNIT 3.07
UNIT 3.08
UNIT 3.10
RL 39.380 ROOF
RL 33.680 FOURTH
RL 29.680 THIRD
RL 25.680 SECOND
RL 21.680 FIRST
RL 17.680 GROUND
RL 14.680 BASEMENT


TRUE NORTH
157 - 165 CLEVELAND STREET CHIPPENDALE NSW 2008
SHADOW DIAGRAMS
DA-10
01 JUNE 21st 9am 1:500
02 JUNE 21st 12noon 1:500
03 JUNE 21st 3pm 1:500
04 MARCH 22nd 9am 1:500
05 MARCH 22nd 12noon 1:500
06 MARCH 22nd 3pm 1:500
07 DECEMBER 21st 9am 1:500
08 DECEMBER 21st 12 noon 1:500
09 DECEMBER 21st 3pm 1:500
CLEVELAND STREET
HART STREET
HUDSON STREET
EVANS LANE
ABERCROMBIE STREET
No 157-165
No 136-144
No 146
No 135
No 5
No 2
No 16

3. TRAFFIC ASSESSMENT

Road Hierarchy

The road hierarchy allocated to the road network in the vicinity of the site by the Roads and Traffic Authority is illustrated on Figure 3.

Cleveland Street is classified by the RTA as a *State Road.* It typically carries 4 traffic lanes (ie. 2 traffic lanes in each direction), with additional lanes provided at key intersections to accommodate turning movements.

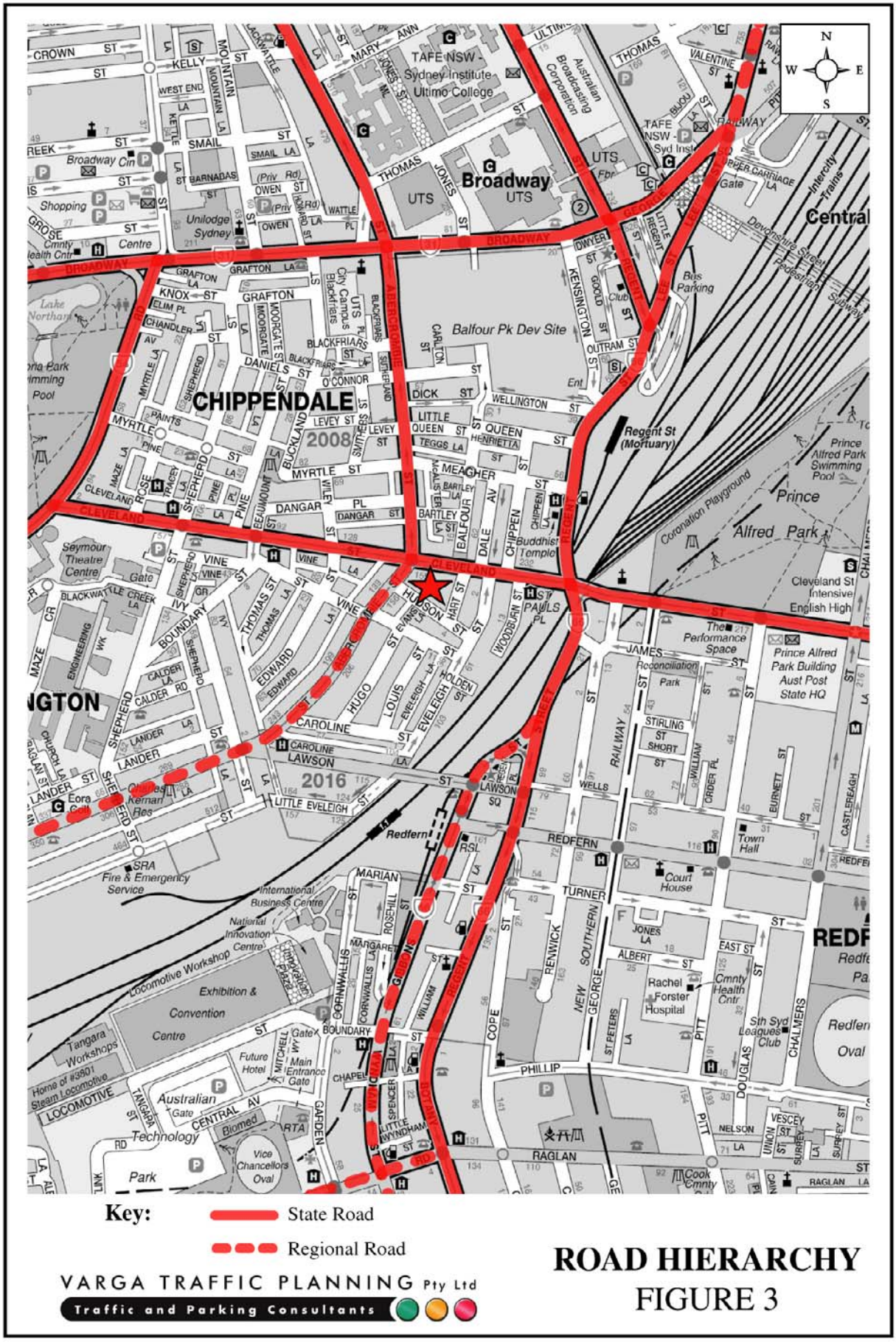
Abercrombie Street (south) is classified by the RTA as a *Regional Road* and typically carries 1 traffic lane in each direction, with kerbside parking permitted on both sides of the road.

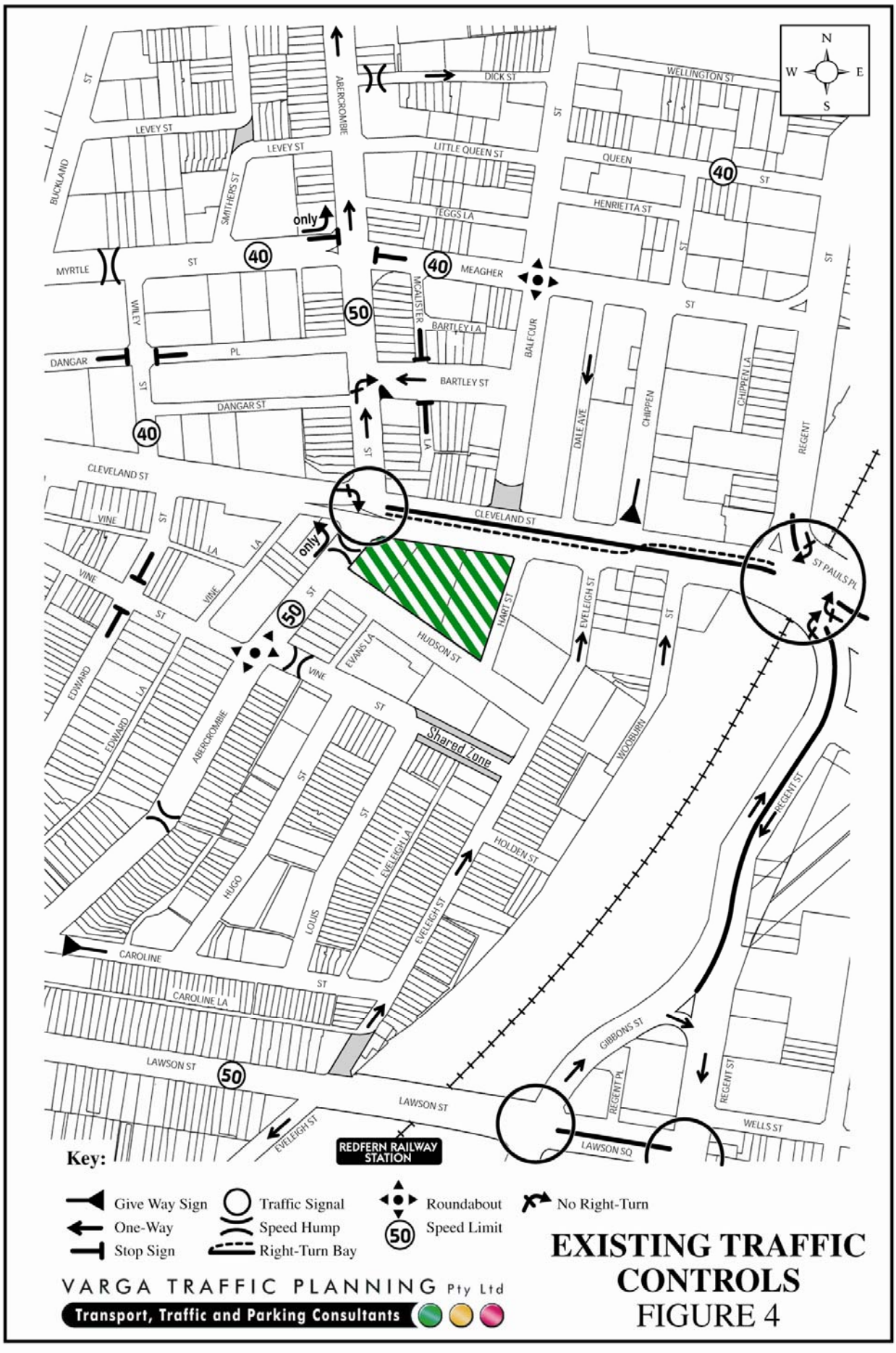
Hart Street and Hudson Street are local, unclassified roads which are primarily used to provide vehicular and pedestrian access to frontage properties. Kerbside parking is generally permitted on both sides of both roads.

Existing Traffic Controls

The existing traffic controls which apply to the road network in the vicinity of the site are illustrated on Figure 4. Key features of those traffic controls are:

- a 60 km/h SPEED LIMIT in Cleveland Street
- a 50 km/h SPEED LIMIT in Abercrombie Street
- a 40 km/h SPEED LIMIT in all other local roads in the vicinity of the site
- TRAFFIC SIGNALS in Cleveland Street at its intersection with Abecrombie Street (vehicular access to/from Abercrombie Street (south) is restricted to left-turn only movements)
- a ROUNDABOUT in Abercrombie Street at its intersection with Vine Street.


CHIPPENDALE
2008
2016
Balfour Pk Dev Site
Broadway
UTS
TAFE NSW - Sydney Institute Ultimo College
Central
Prince Alfred Park
Redfern
REDFERN
Key:
State Road
Regional Road
VARGA TRAFFIC PLANNING Pty Ltd
Traffic and Parking Consultants
ROAD HIERARCHY
FIGURE 3


N
W
E
S
LEVEY ST
LEVEY ST
ABERCROMBIE
DICK ST
WELLINGTON ST
LITTLE QUEEN ST
QUEEN
ST
HENRIETTA ST
TEGGS LA
SMITHERS ST
BUCKLAND
ST
only
MYRTLE
ST
40
MEAGHER
MCALISTER
BARTLEY LA
BALFOUR
50
WILEY
PL
DANGAR
BARTLEY ST
DANGAR ST
DALE AVE
CHIPPEN
CHIPPEN LA
REGENT
CLEVELAND ST
VINE
LA
HART ST
EVELEIGH ST
ST PAULS PL
HUDSON ST
EVANS LA
EDWARD
ABERCROMBIE
Shared Zone
WOOLBURN
HOLDEN ST
REGENT ST
HUGO
LOUIS
EVELEIGH LA
CAROLINE
CAROLINE LA
GIBBONS ST
REGENT PL
WELLS ST
LAWSON ST
LAWSON SQ
REDFERN RAILWAY STATION
Key:
Give Way Sign
One-Way
Stop Sign
Traffic Signal
Speed Hump
Right-Turn Bay
Roundabout
Speed Limit
No Right-Turn
VARGA TRAFFIC PLANNING Pty Ltd
Transport, Traffic and Parking Consultants
EXISTING TRAFFIC CONTROLS
FIGURE 4

Existing Traffic Conditions

An indication of the existing traffic conditions on the road network in the vicinity of the site is provided by detailed peak period traffic surveys undertaken as part of this traffic study. The traffic surveys were undertaken in Cleveland Street, Hart Street, Abercrombie Street and Hudson Street and are reproduced in full in Appendix A. The surveys reveal that:

- two-way traffic flows in Cleveland Street are typically in the order of 3700 vehicles per hour (vph) during commuter peak periods

- traffic flows in Hart Street are minimal, typically less than 10 vph during peak periods

- traffic flows in Hudson Street are also relatively low, typically less than 50 vph during commuter peak periods

- two-way traffic activity in Abecrombie Street (south) is typically in the order of 120 vph.

The results of the peak hour traffic surveys are summarised on Figure 5.

Public Transport

The site is very well served by public transport, being located within easy walking distance of Redfern Station, as well as an extensive range of bus services traversing City Road and Broadway. A map illustrating the location of the site and the available bus and train services is reproduced in the following pages. A schedule of the public transport services available within walking distance of the site is set out in the table below, revealing that:

- the site has ready access to 8 train lines carrying more than 1700 train services per day on weekdays and more than 1100 services on weekends

- there are multiple bus routes available within walking distance of the site which provide more than 500 bus services per day on weekdays and more than 200 services per day on weekends.

PUBLIC TRANSPORT SERVICE

PUBLIC TRANSPORT SERVICES AVAILABLE IN THE VICINITY OF THE SITE						
Train Services (Redfern Station)	**Monday-Friday**		**Weekends & Holidays**			
	In	**Out**	**In**	**Out**		
Waterfall or Cronulla to Bondi Junction	155	155	80	80		
Liverpool or Lidcombe to City Circle via Bankstown	75	80	59	63		
Campbelltown to City circle via Regents park or Granville	205	202	143	147		
Macarthur to City Circle via Airport or Sydenham	12	13	1	2		
Berowra to Parramatta via City	195	196	117	116		
Emu Plains or Richmond to Chatswood	136	133	76	76		
Carlingford to Clyde	25	24	20	20		
Hornsby or Epping to City	82	80	41	41		
Total Train Services	**885**	**883**	**537**	**545**		
Bus Services	**Monday-Friday**		**Saturdays**		**Sundays & Holidays**	
	In	**Out**	**In**	**Out**	**In**	**Out**
305 - Railway Square to Stamford Plaza Hotel	15	15	0	0	0	0
308 - Marrickville Metro to City	19	20	7	7	4	4
309,L09, X09, 310, X10 - Port Botany and Eastgardens to City	129	144	80	83	56	55
352 - Marrickville Metro to Bondi Junction via Surry Hills	26	27	0	0	0	0
370 - Leichhardt to Coogee	56	57	27	27	27	27
10 metrobus	*	*	*	*	*	*
Total Bus Services	**245**	**263**	**114**	**117**	**87**	**86**

**Metrobus Services at 10-15 min frequencies on weekdays and 20min frequencies on weekends and public holidays*

The applicant will actively encourage greater use of public transport services in preference to private vehicles through the following measures:

- the amount of carparking to be provided on the site is *constrained* to discourage private car use by commuters

- carparking will not be provided for the student accommodation component of the development. Students will be actively encouraged to use public transport and/or walk to/from classes etc.

- employees and students will be provided with information detailing the location of Redfern Station and appropriate bus stops, together with public transport service route maps and a service frequency information, with links to 131500.com.au for additional service information.

In summary, it is considered that the site is very well serviced by public transport, with an extensive range of bus and train services being available within easy walking distance of the site. This broad range of public transport services which is available in the vicinity of the site will more than adequately accommodate the needs of the proposed development

Projected Future Traffic Generation

An indication of the traffic generation potential of the proposed development is provided by reference to the Roads & Traffic Authority's publication *Guide To Traffic Generating Developments, Section 3 - Landuse Traffic Generation (October 2002)*. The RTA *Guidelines* are based on extensive surveys of a wide range of landuses, and nominate the following traffic generation rates which are applicable to the development proposal:

Office Premises: 2 peak hour vehicle trips/100m^2 GFA

The RTA Guidelines do not nominate a traffic generation rate for student accommodations, however experience at similar student accommodation developments has found that typically less than 2.5% of students own a car, and that those cars are rarely used during commuter peak periods. In this instance, there will not be any parking provided on the site for student accommodations, and it is therefore reasonable to conclude that the student accommodation component of the development proposal will not generate any significant levels of traffic activity during commuter peak periods.

Application of the above traffic generation rate to the commercial office component of the development proposal yields a traffic generation potential of 138 vph.

However, the traffic generation rate nominated in the RTA *Guidelines* for commercial office premises assumes that carparking is provided on the site on an *unrestrained basis*. If the RTA's traffic generation rate is applied to the *constrained* parking provision of only 34 parking spaces incorporated in the development proposal, the traffic generation potential of the site is expected to be in the order of 26 vph.

That projected future level of traffic activity should however, be offset or *discounted* by the volume of traffic which could reasonably be expected to have been generated by the previous industrial uses of the site in order to determine the *nett increase* in the traffic generation

potential of the site as a consequence of the development proposal. Application of the traffic generation rates nominated in the RTA Guidelines to those former industrial uses yield a traffic generation potential of 14 vph.

Accordingly, the proposed development yields a *nett increase* in the traffic generation potential of the site of 12 vph, as set out in the table below:

Nett increase in Traffic Generation Potential of the Site
As a Consequence of the Development Proposal

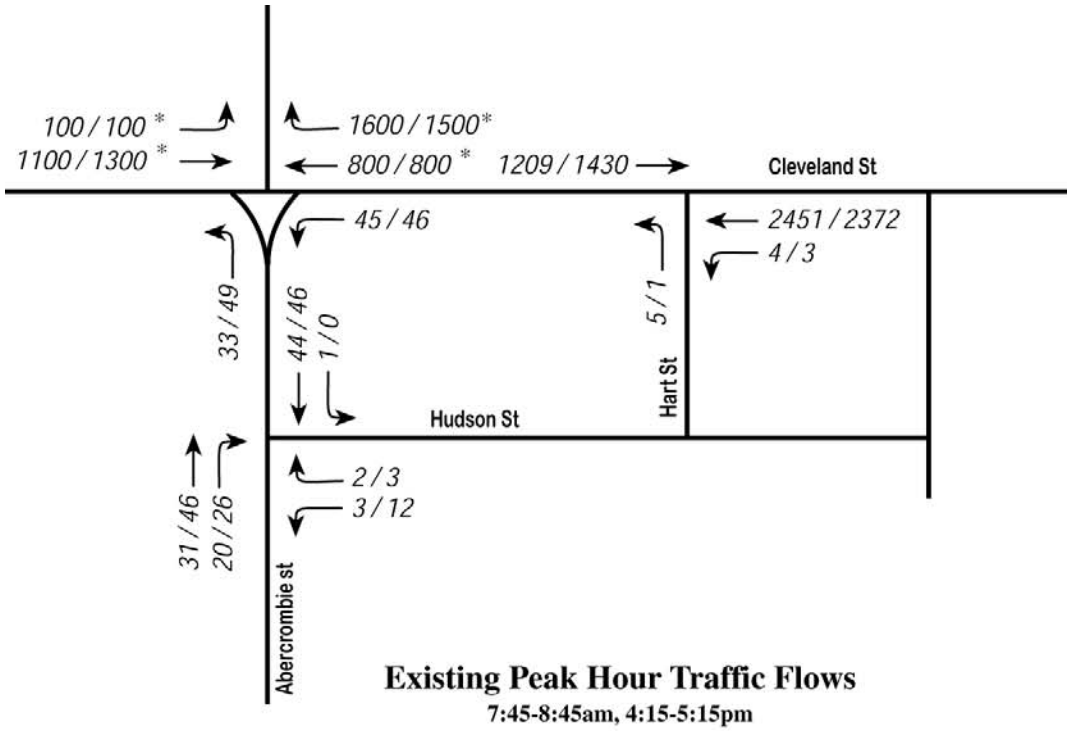
Projected Future Traffic Generation Potential:	26.3 vph
Previous Traffic Generation Potential:	14.4 vph
Nett Increase in Traffic Generation Potential:	**11.9 vph**

Those projected additional traffic flows are summarised in the table below and have been assigned to the adjacent road network as illustrated on Figure 5.

EXISTING & PROJECTED FUTURE TRAFFIC VOLUMES						
	AM PEAK			PM PEAK		
	Existing	Proposed	Nett Change	Existing	Proposed	Nett Change
Cleveland St (East of Hart St)	3664 vph	3670 vph	+6 vph	3805 vph	3808 vph	+3 vph
Cleveland St (west of Hart St)	3665 vph	3668 vph	+3 vph	3803 vph	3807 vph	+4 vph
Abercrombie St (South of Hudson St)	98 vph	101 vph	+3 vph	118 vph	121 vph	+3 vph
Abercrombie St (North of Hudson St)	78 vph	81 vph	+3 vph	95 vph	97 vph	+2 vph
Hudson St (East of Abercrombie St)	26 vph	31 vph	+5 vph	41 vph	46 vph	+5 vph
Hart St (South of Cleveland St)	9 vph	16 vph	+7 vph	4 vph	11 vph	+7 vph

Traffic Assessment

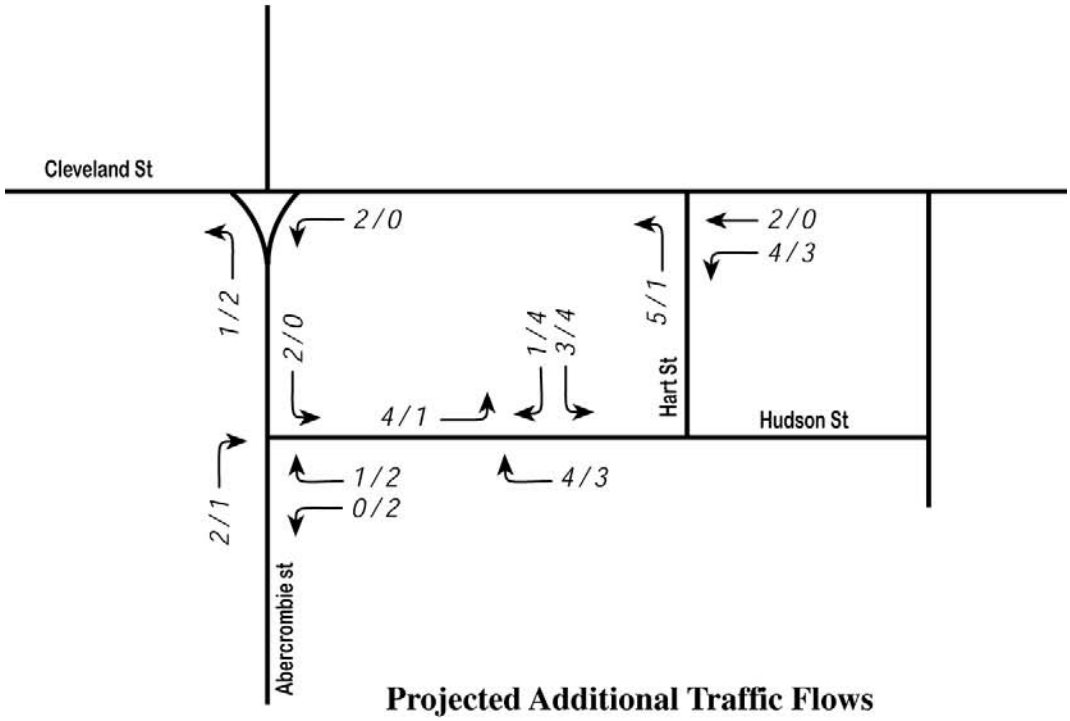
The traffic implications of development proposals primarily concern the effects that any *additional* traffic flows the development may have on the operational performance of the nearby road network. Those effects can be assessed using the INTANAL program as is widely used by the RTA and many LGAs for this purpose. Criteria for evaluating the results of INTANAL analysis are reproduced in the following pages.



Existing Peak Hour Traffic Flows
7:45-8:45am, 4:15-5:15pm

Legend:
AM/PM vehicles per hour

* Estimated traffic volumes



Projected Additional Traffic Flows
as a Consequence of the Development Proposal

TRAFFIC VOLUMES
FIGURE 5

The results of the capacity analysis of the Cleveland Street/Hark Street intersection are summarised in Table 3.1 below, revealing that:

- the intersection currently operates at *Level of Service "A"* with total average vehicle delays in the order of 6 seconds per vehicle

- under the projected additional traffic flows the intersection will continue to operate at existing *Levels of Service "A"* with total average vehicle delays in the order of 6 seconds per vehicle.

The results of the capacity analysis of the Abercrombie Street/Hudson Street intersection are summarised in Table 3.2 below, revealing that:

- the intersection currently operates at *Level of Service "A"* with total average vehicle delays in the order of 4 seconds per vehicle

- under the projected additional traffic flows the intersection will continue to operate at existing *Levels of Service "A"* with total average vehicle delays in the order of 4 seconds per vehicle.

In summary, the foregoing analysis has found that the projected increase in traffic activity is *statistically insignificant* and will clearly not have any unacceptable traffic implications in terms of either road network capacity or traffic-related environmental effects. In particular, it is confirmed that:

- there will be *no change* to existing *Levels of Service* on the adjacent road network when assessed in accordance with the criteria as specified in the RTA *Guidelines*

- there will be no change to the performance of the intersections located around the perimeter of the site, and

- remedial roadworks will not be required as a consequence of the development proposal.

TABLE 3.1 - RESULTS OF INTANAL ANALYSIS OF CLEVELAND ST & HARK ST

Key Indicators		Existing Traffic Demand		Projected Development Traffic Demand	
		AM	**PM**	**AM**	**PM**
Level of Service		A	A	A	A
Degree of Saturation		0.01	0.00	0.02	0.01
Average Vehicle Delay (secs/veh)					
Cleveland Street (west)	T	0.0	0.0	0.0	0.0
Hart St (south)	L	8.1	7.8	8.2	7.9
Cleveland Street (east)	L	3.6	3.6	3.6	3.6
	T	0.0	0.0	0.0	0.0
TOTAL AVERAGE VEHICLE DELAY		**6.1**	**4.7**	**5.9**	**5.6**
		CLE_HARX		CLE_HARP	

TABLE 3.2 - RESULTS OF INTANAL ANALYSIS OF ABERCROMBIE ST & HUDSON ST

Key Indicators		Existing Traffic Demand		Projected Development Traffic Demand	
		AM	**PM**	**AM**	**PM**
Level of Service		A	A	A	A
Degree of Saturation		0.03	0.04	0.03	0.04
Average Vehicle Delay (secs/veh)					
Abercrombie Street (south)	T	0.0	0.0	0.1	0.0
	R	3.8	3.8	3.8	3.8
Hudson Street (east)	L	3.1	3.2	3.1	3.2
	R	4.2	4.3	4.2	4.3
Abercrombie Street (north)	L	2.9	2.9	2.9	2.9
	T	0.0	0.0	0.0	0.0
TOTAL AVERAGE VEHICLE DELAY		**3.8**	**3.7**	**3.7**	**3.7**
		ABE_HUDX		ABE_HUDP	

Criteria for Interpreting Results of Intanal Analysis

1. Level of Service (LOS)

LOS	Traffic Signals and Roundabouts	Give Way and Stop Signs
'A'	Good operation.	Good operation.
'B'	Good with acceptable delays and spare capacity.	Acceptable delays and spare capacity.
'C'	Satisfactory.	Satisfactory but accident study required.
'D'	Operating near capacity.	Near capacity and accident study required.
'E'	At capacity; at signals incidents will cause excessive delays. Roundabouts require other control mode.	At capacity and requires other control mode.
'F'	Unsatisfactory and requires additional capacity.	Unsatisfactory and requires other control mode.

2. Average Vehicle Delay (AVD)

The AVD provides a measure of the operational performance of an intersection as indicated on the table below which relates AVD to LOS. The AVD's listed in the table should be taken as a guide only as longer delays could be tolerated in some locations (ie inner city conditions) and on some roads (ie minor side street intersecting with a major arterial route).

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.

3. Degree of Saturation (DS)

The DS is another measure of the operational performance of individual intersections.

For intersections controlled by traffic signals[1] both queue length and delay increase rapidly as DS approaches 1, and it is usual to attempt to keep DS to less than 0.9. Values of DS in the order of 0.7 generally represent satisfactory intersection operation. When DS exceeds 0.9 queues can be anticipated.

For intersections controlled by a roundabout or GIVE WAY or STOP signs, satisfactory intersection operation is indicated by a DS of 0.8 or less.

[1] *The values of DS for intersections under traffic signal control are only valid for cycle length of 120 secs.*

4. PARKING IMPLICATIONS

Existing Parking Restrictions

The existing kerbside parking restrictions which apply to the road network in the vicinity of the site are illustrated on Figure 6. Key features of those parking restrictions are:

- CLEARWAY restrictions on both sides of Cleveland Street during both peak periods
- full-time NO STOPPING or NO PARKING restrictions which apply to both sides of Cleveland Street
- BUS ZONES on both sides of Cleveland Street at regular intervals
- UNRESTRICTED KERBSIDE PARKING on both sides of Hart Street
- UNRESTRICTED KERBSIDE PARKING on both sides of Hudson Street.

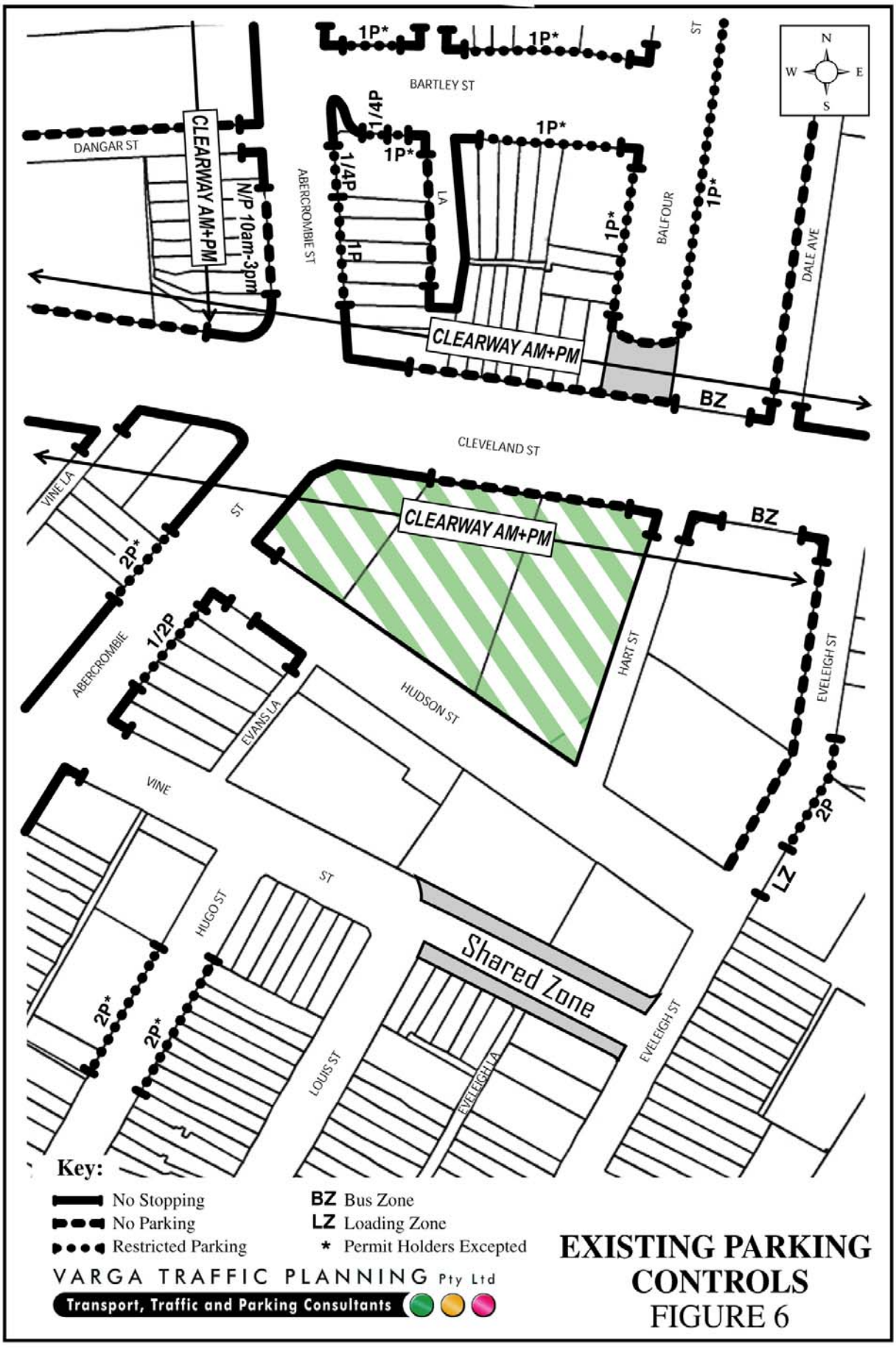
Off-Street Parking Provisions

The off-street parking requirements applicable to the development proposal are specified in Council's *Development Control Plan No. 11 - Transport Guidelines for Development (1996)* in the following terms:

Office & Commercial: 1 space/125m^2

Application of the above parking rates to the development proposal yields a maximum permissible parking provision of 55 parking spaces.

It is pertinent to note however, that the parking rates nominated in DCP should be interpreted as ***maximum*** levels of carparking allowable, and the proposed provision of 34 off-street carparking spaces therefore satisfies Council's parking code requirements.


1P*
1P*
BARTLEY ST
1/4P
1P*
1/4P
1P*
DANGAR ST
CLEARWAY AM+PM
N/P 10am-3pm
ABERCROMBIE ST
LA
1P
1P*
BALFOUR
ST
1P*
DALE AVE
N
W
E
S
CLEARWAY AM+PM
BZ
CLEVELAND ST
VINE LA
ST
CLEARWAY AM+PM
BZ
2P*
ABERCROMBIE
1/2P
EVANS LA
HUDSON ST
HART ST
EVELEIGH ST
VINE
2P
LZ
ST
HUGO ST
Shared Zone
2P*
2P*
LOUIS ST
EVELEIGH LA
EVELEIGH ST
Key:
No Stopping
No Parking
Restricted Parking
BZ Bus Zone
LZ Loading Zone
* Permit Holders Excepted
VARGA TRAFFIC PLANNING Pty Ltd
Transport, Traffic and Parking Consultants
EXISTING PARKING CONTROLS
FIGURE 6

In addition, that proposed off-street parking provision is considered to be acceptable in this instance because:

- the site is located within easy walking distance of both Redfern and Central Railway Stations

- the site is also located within easy walking distance of an *extensive* range of bus services available in nearby Broadway

- the site is also located within easy walking distance of the Broadway Shopping Centre, as well as restaurants and other services such as banks, post office etc.

As noted in the foregoing, car ownership at student accommodations tends to be very low, with typically less than 2.5% of students owning a car. In this instance, it is not proposed to provide any off-street carparking for students, given the close proximity of a number of major tertiary education institutions, as well as public transport services, shops etc.

The geometric design layout of the proposed vehicular access and carparking arrangements have been designed to comply with the requirements as specified in the Standards Australia publication *Parking Facilities Part 1 - Off-Street Carparking AS2890.1 - 2004* in respect of ramp grades and widths, overhead clearances, parking bay dimensions and aisle widths.

In the circumstances, the proposed provision of 34 off-street carparking spaces is considered to be acceptable in this instance, and is recommended for approval.

APPENDIX A

TRAFFIC SURVEY DATA

R.O.A.R. DATA

Reliable, Original & Authentic Results

Ph.88196847, Fax 88196849.
Mobile.0418239019

Client : Varga Traffic Planning
Job No/Name : 2915 REDFERN Hudson St
Day/Date : Thursday 3rd November 2009

PEDS	NORTH	EAST	SOUTH	
Time Per	*Abercrombie*	*Hudson St*	*Abercrombie*	TOT
0700 - 0715	0	4	1	**5**
0715 - 0730	1	2	3	**6**
0730 - 0745	3	5	3	**11**
0745 - 0800	3	6	4	**13**
0800 - 0815	3	6	6	**15**
0815 - 0830	4	6	8	**18**
0830 - 0845	2	6	10	**18**
0845 - 0900	4	6	8	**18**
0900 - 0915	2	2	4	**8**
0915 - 0930	6	3	4	**13**
0930 - 0945	2	9	6	**17**
0945 - 1000	6	4	2	**12**
Per End	**36**	**59**	**59**	**154**

PEDS	NORTH	EAST	SOUTH	
Peak Per	*Abercrombie*	*Hudson St*	*Abercrombie*	TOT
0700 - 0800	7	17	11	**35**
0715 - 0815	10	19	16	**45**
0730 - 0830	13	23	21	**57**
0745 - 0845	12	24	28	**64**
0800 - 0900	13	24	32	**69**
0815 - 0915	12	20	30	**62**
0830 - 0930	14	17	26	**57**
0845 - 0945	14	20	22	**56**
0900 - 1000	16	18	16	**50**
PEAK HR	**14**	**17**	**26**	**57**

Lights	NORTH		EAST		SOUTH		
	Abercrombie		*Hudson St*		*Abercrombie*		
Time Per	T	L	R	L	R	T	TOT
0700 - 0715	7	0	1	0	6	6	**20**
0715 - 0730	8	0	0	0	5	2	**15**
0730 - 0745	7	1	0	1	9	4	**22**
0745 - 0800	11	0	0	0	6	8	**25**
0800 - 0815	11	0	0	0	6	5	**22**
0815 - 0830	9	0	0	3	3	6	**21**
0830 - 0845	13	1	2	0	5	12	**33**
0845 - 0900	17	0	0	0	6	6	**29**
0900 - 0915	16	1	1	1	5	11	**35**
0915 - 0930	7	0	0	5	8	2	**22**
0930 - 0945	14	0	0	2	8	4	**28**
0945 - 1000	11	0	1	0	2	11	**25**
Per End	**131**	**3**	**5**	**12**	**69**	**77**	**297**

Heavies	NORTH		EAST		SOUTH		
	Abercrombie		*Hudson St*		*Abercrombie*		
Time Per	T	L	R	L	R	T	TOT
0700 - 0715	0	0	0	0	0	0	**0**
0715 - 0730	0	0	0	0	0	1	**1**
0730 - 0745	0	0	0	0	0	0	**0**
0745 - 0800	0	0	0	0	0	0	**0**
0800 - 0815	0	0	0	0	0	0	**0**
0815 - 0830	0	0	0	0	0	0	**0**
0830 - 0845	0	0	0	0	0	0	**0**
0845 - 0900	0	0	0	0	0	0	**0**
0900 - 0915	0	0	0	0	0	0	**0**
0915 - 0930	0	0	0	0	0	0	**0**
0930 - 0945	0	0	0	0	0	0	**0**
0945 - 1000	0	0	0	0	0	0	**0**
Per End	**0**	**0**	**0**	**0**	**0**	**1**	**1**

Combined	NORTH		EAST		SOUTH		
	Abercrombie		*Hudson St*		*Abercrombie*		
Time Per	T	L	R	L	R	T	TOT
0700 - 0715	7	0	1	0	6	6	**20**
0715 - 0730	8	0	0	0	5	3	**16**
0730 - 0745	7	1	0	1	9	4	**22**
0745 - 0800	11	0	0	0	6	8	**25**
0800 - 0815	11	0	0	0	6	5	**22**
0815 - 0830	9	0	0	3	3	6	**21**
0830 - 0845	13	1	2	0	5	12	**33**
0845 - 0900	17	0	0	0	6	6	**29**
0900 - 0915	16	1	1	1	5	11	**35**
0915 - 0930	7	0	0	5	8	2	**22**
0930 - 0945	14	0	0	2	8	4	**28**
0945 - 1000	11	0	1	0	2	11	**25**
Per End	**131**	**3**	**5**	**12**	**69**	**78**	**298**

Lights	NORTH		EAST		SOUTH		
	Abercrombie		*Hudson St*		*Abercrombie*		
Peak Per	T	L	R	L	R	T	TOT
0700 - 0800	33	1	1	1	26	20	**82**
0715 - 0815	37	1	0	1	26	19	**84**
0730 - 0830	38	1	0	4	24	23	**90**
0745 - 0845	44	1	2	3	20	31	**101**
0800 - 0900	50	1	2	3	20	29	**105**
0815 - 0915	55	2	3	4	19	35	**118**
0830 - 0930	53	2	3	6	24	31	**119**
0845 - 0945	54	1	1	8	27	23	**114**
0900 - 1000	48	1	2	8	23	28	**110**
PEAK HR	**53**	**2**	**3**	**6**	**24**	**31**	**119**

Heavies	NORTH		EAST		SOUTH		
	Abercrombie		*Hudson St*		*Abercrombie*		
Peak Per	T	L	R	L	R	T	TOT
0700 - 0800	0	0	0	0	0	1	**1**
0715 - 0815	0	0	0	0	0	1	**1**
0730 - 0830	0	0	0	0	0	0	**0**
0745 - 0845	0	0	0	0	0	0	**0**
0800 - 0900	0	0	0	0	0	0	**0**
0815 - 0915	0	0	0	0	0	0	**0**
0830 - 0930	0	0	0	0	0	0	**0**
0845 - 0945	0	0	0	0	0	0	**0**
0900 - 1000	0	0	0	0	0	0	**0**
PEAK HR	**0**	**0**	**0**	**0**	**0**	**0**	**0**

Combined	NORTH		EAST		SOUTH		
	Abercrombie		*Hudson St*		*Abercrombie*		
Peak Per	T	L	R	L	R	T	TOT
0700 - 0800	33	1	1	1	26	21	**83**
0715 - 0815	37	1	0	1	26	20	**85**
0730 - 0830	38	1	0	4	24	23	**90**
0745 - 0845	44	1	2	3	20	31	**101**
0800 - 0900	50	1	2	3	20	29	**105**
0815 - 0915	55	2	3	4	19	35	**118**
0830 - 0930	53	2	3	6	24	31	**119**
0845 - 0945	54	1	1	8	27	23	**114**
0900 - 1000	48	1	2	8	23	28	**110**
PEAK HR	**53**	**2**	**3**	**6**	**24**	**31**	**119**

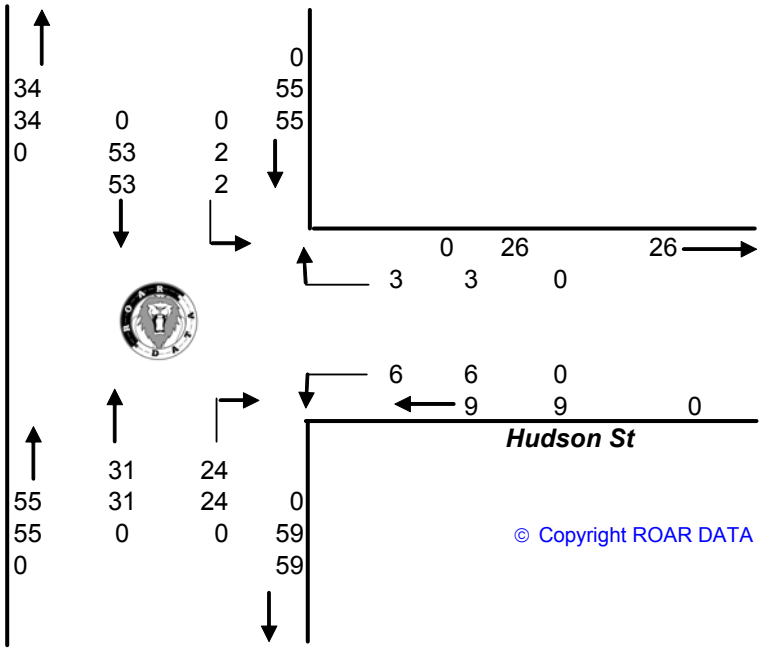
R.O.A.R. DATA
Reliable, Original & Authentic Results
Ph.88196847, Fax 88196849, Mob.0418-239019

Client : Varga Traffic Planning
Job No/Name : 2915 REDFERN Hudson St
Day/Date : Thursday 3rd November 2009

AM PEAK
0830 - 0930

TOTAL VOLUMES FOR COUNT PERIOD

N



R.O.A.R. DATA

Reliable, Original & Authentic Results

Ph.88196847, Fax 88196849.
Mobile.0418239019

Client : Varga Traffic Planning
Job No/Name : 2915 REDFERN Hudson St
Day/Date : Thursday 3rd November 2009

PEDS	NORTH	EAST	SOUTH	
Time Per	Abercrombie St	Hudson St	Abercrombie St	TOT
1530 - 1545	1	3	0	**4**
1545 - 1600	3	5	2	**10**
1600 - 1615	3	5	2	**10**
1615 - 1630	1	4	0	**5**
1630 - 1645	3	7	3	**13**
1645 - 1700	3	6	2	**11**
1700 - 1715	5	9	4	**18**
1715 - 1730	3	7	2	**12**
1730 - 1745	9	11	0	**20**
1745 - 1800	1	4	6	**11**
1800 - 1815	7	10	1	**18**
1815 - 1830	8	4	2	**14**
Per End	**47**	**75**	**24**	**146**

PEDS	NORTH	EAST	SOUTH	
Peak Per	Abercrombie St	Hudson St	Abercrombie St	TOT
1530 - 1630	8	17	4	**29**
1545 - 1645	10	21	7	**38**
1600 - 1700	10	22	7	**39**
1615 - 1715	12	26	9	**47**
1630 - 1730	14	29	11	**54**
1645 - 1745	20	33	8	**61**
1700 - 1800	18	31	12	**61**
1715 - 1815	20	32	9	**61**
1730 - 1830	25	29	9	**63**
PEAK HR	**10**	**21**	**7**	**38**

Lights	NORTH		EAST		SOUTH		
	Abercrombie		Hudson St		Abercrombie		
Time Per	T	L	R	L	R	T	TOT
1530 - 1545	14	0	0	1	1	8	**24**
1545 - 1600	12	0	0	3	1	14	**30**
1600 - 1615	8	1	0	4	3	20	**36**
1615 - 1630	14	0	2	5	4	11	**36**
1630 - 1645	12	0	1	2	11	11	**37**
1645 - 1700	9	0	0	2	4	13	**28**
1700 - 1715	11	0	0	3	7	11	**32**
1715 - 1730	11	0	1	1	2	17	**32**
1730 - 1745	11	0	1	1	2	21	**36**
1745 - 1800	7	0	0	2	4	11	**24**
1800 - 1815	12	0	1	3	7	13	**36**
1815 - 1830	11	0	0	0	1	16	**28**
Per End	**132**	**1**	**6**	**27**	**47**	**166**	**379**

Heavies	NORTH		EAST		SOUTH		
	Abercrombie		Hudson St		Abercrombie		
Time Per	T	L	R	L	R	T	TOT
1530 - 1545	0	0	0	0	0	0	**0**
1545 - 1600	0	0	0	0	0	0	**0**
1600 - 1615	0	0	0	0	0	0	**0**
1615 - 1630	0	0	0	0	0	0	**0**
1630 - 1645	0	0	0	0	0	0	**0**
1645 - 1700	0	0	0	0	0	0	**0**
1700 - 1715	0	0	0	0	0	0	**0**
1715 - 1730	0	0	0	0	0	0	**0**
1730 - 1745	0	0	0	0	0	0	**0**
1745 - 1800	0	0	0	0	0	0	**0**
1800 - 1815	0	0	0	0	0	0	**0**
1815 - 1830	0	0	0	0	0	0	**0**
Per End	**0**	**0**	**0**	**0**	**0**	**0**	**0**

Combined	NORTH		EAST		SOUTH		
	Abercrombie		Hudson St		Abercrombie		
Time Per	T	L	R	L	R	T	TOT
1530 - 1545	14	0	0	1	1	8	**24**
1545 - 1600	12	0	0	3	1	14	**30**
1600 - 1615	8	1	0	4	3	20	**36**
1615 - 1630	14	0	2	5	4	11	**36**
1630 - 1645	12	0	1	2	11	11	**37**
1645 - 1700	9	0	0	2	4	13	**28**
1700 - 1715	11	0	0	3	7	11	**32**
1715 - 1730	11	0	1	1	2	17	**32**
1730 - 1745	11	0	1	1	2	21	**36**
1745 - 1800	7	0	0	2	4	11	**24**
1800 - 1815	12	0	1	3	7	13	**36**
1815 - 1830	11	0	0	0	1	16	**28**
Per End	**132**	**1**	**6**	**27**	**47**	**166**	**379**

Lights	NORTH		EAST		SOUTH		
	Abercrombie		Hudson St		Abercrombie		
Peak Per	T	L	R	L	R	T	TOT
1530 - 1630	48	1	2	13	9	53	**126**
1545 - 1645	46	1	3	14	19	56	**139**
1600 - 1700	43	1	3	13	22	55	**137**
1615 - 1715	46	0	3	12	26	46	**133**
1630 - 1730	43	0	2	8	24	52	**129**
1645 - 1745	42	0	2	7	15	62	**128**
1700 - 1800	40	0	2	7	15	60	**124**
1715 - 1815	41	0	3	7	15	62	**128**
1730 - 1830	41	0	2	6	14	61	**124**
PEAK HR	**46**	**1**	**3**	**14**	**19**	**56**	**139**

Heavies	NORTH		EAST		SOUTH		
	Abercrombie		Hudson St		Abercrombie		
Peak Per	T	L	R	L	R	T	TOT
1530 - 1630	0	0	0	0	0	0	**0**
1545 - 1645	0	0	0	0	0	0	**0**
1600 - 1700	0	0	0	0	0	0	**0**
1615 - 1715	0	0	0	0	0	0	**0**
1630 - 1730	0	0	0	0	0	0	**0**
1645 - 1745	0	0	0	0	0	0	**0**
1700 - 1800	0	0	0	0	0	0	**0**
1715 - 1815	0	0	0	0	0	0	**0**
1730 - 1830	0	0	0	0	0	0	**0**
PEAK HR	**0**	**0**	**0**	**0**	**0**	**0**	**0**

Combined	NORTH		EAST		SOUTH		
	Abercrombie		Hudson St		Abercrombie		
Peak Per	T	L	R	L	R	T	TOT
1530 - 1630	48	1	2	13	9	53	**126**
1545 - 1645	46	1	3	14	19	56	**139**
1600 - 1700	43	1	3	13	22	55	**137**
1615 - 1715	46	0	3	12	26	46	**133**
1630 - 1730	43	0	2	8	24	52	**129**
1645 - 1745	42	0	2	7	15	62	**128**
1700 - 1800	40	0	2	7	15	60	**124**
1715 - 1815	41	0	3	7	15	62	**128**
1730 - 1830	41	0	2	6	14	61	**124**
PEAK HR	**46**	**1**	**3**	**14**	**19**	**56**	**139**

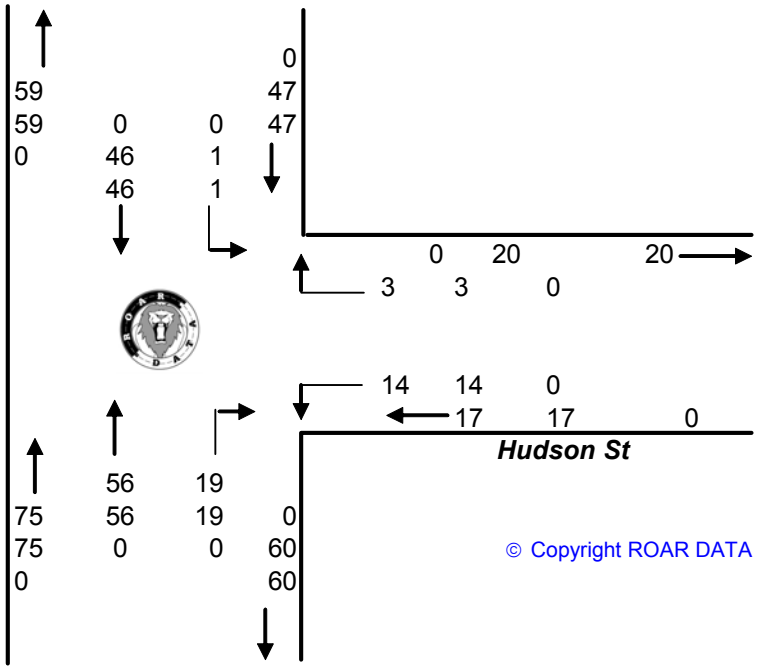
R.O.A.R. DATA
Reliable, Original & Authentic Results
Ph.88196847, Fax 88196849, Mob.0418-239019

Client : Varga Traffic Planning
Job No/Name : 2915 REDFERN Hudson St
Day/Date : Thursday 3rd November 2009

PM PEAK
1545 - 1645

TOTAL VOLUMES FOR COUNT PERIOD

N



R.O.A.R. DATA

Reliable, Original & Authentic Results

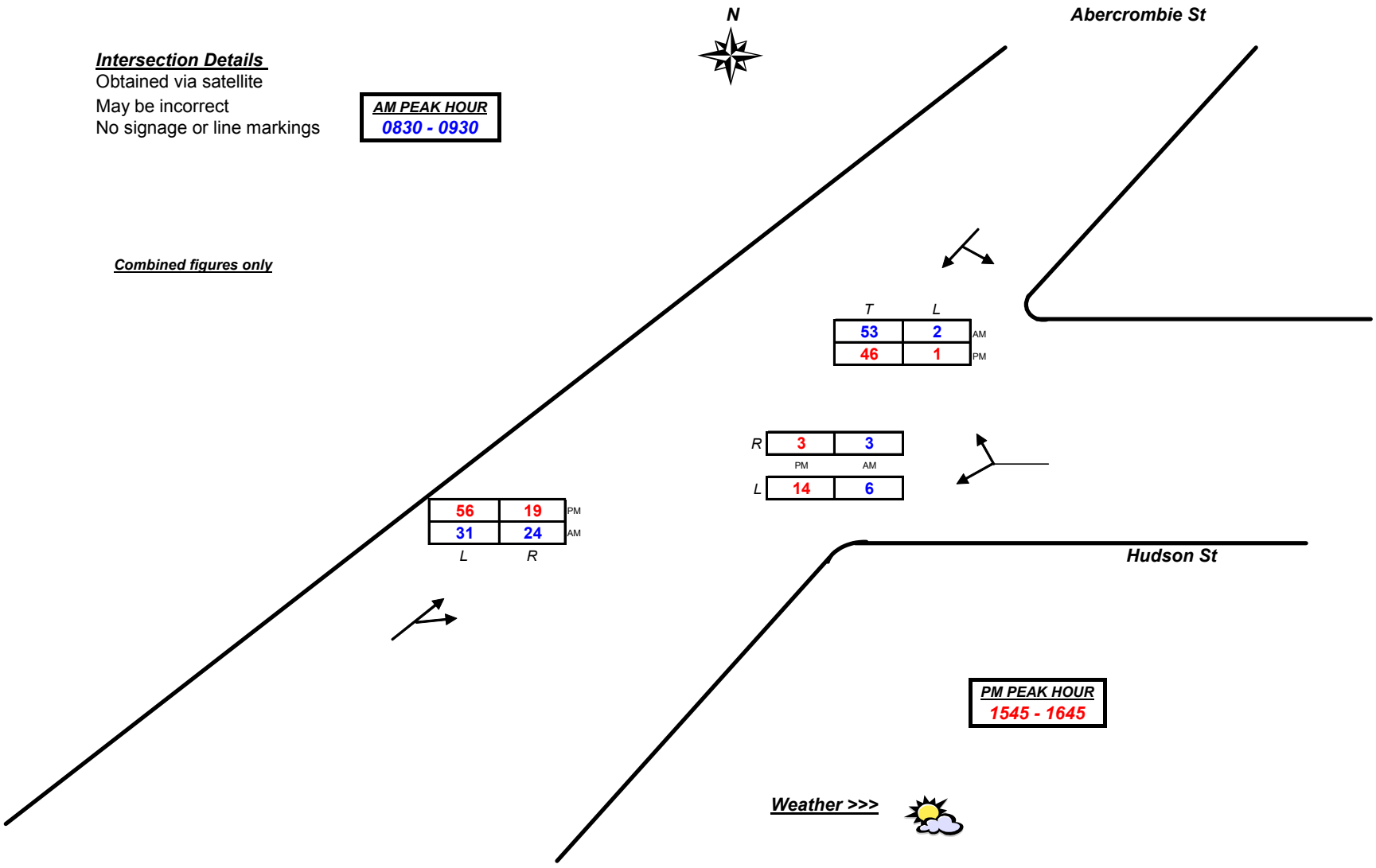
Ph.88196847, Fax 88196849, Mob.0418-239019

Client : Varga Traffic Planning
Job No/Name : 2915 REDFERN Hudson St
Day/Date : Thursday 3rd November 2009

Intersection Details
Obtained via satellite
May be incorrect
No signage or line markings

AM PEAK HOUR
0830 - 0930

Combined figures only



PM PEAK HOUR
1545 - 1645

Weather >>>

R.O.A.R. DATA

Reliable, Original & Authentic Results

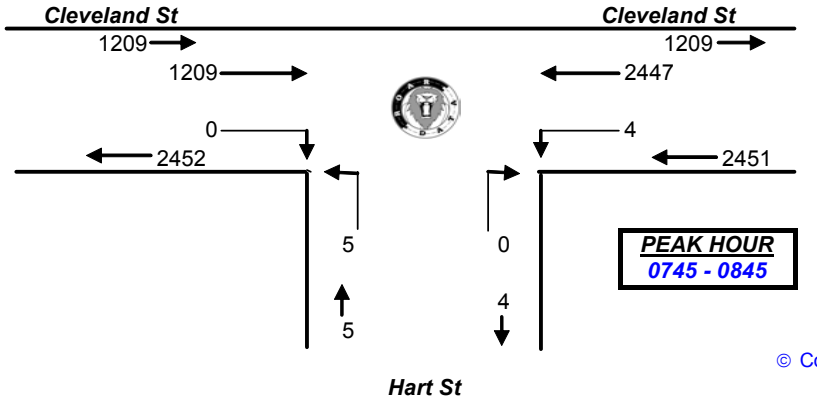
Ph.88196847, Fax 88196849, Mob.0418-239019

Client : Varga Traffic Planning
Job No/Name : 2088 REDFERN Hart St
Day/Date : Tuesday 4th December 2007

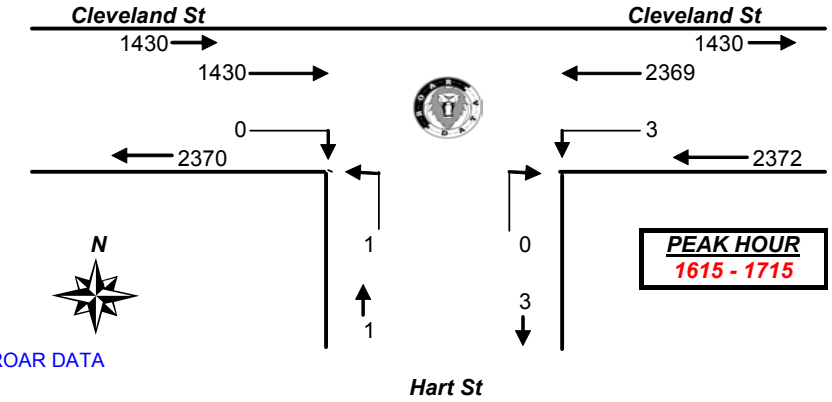
All Vehicles

Time Per	WEST Cleveland St R	WEST Cleveland St T	SOUTH Hart St L	SOUTH Hart St R	EAST Cleveland St T	EAST Cleveland St L	TOTAL
0630 - 0645	0	290	0	0	360	0	**650**
0645 - 0700	0	314	2	0	402	1	**719**
0700 - 0715	0	318	4	0	420	0	**742**
0715 - 0730	0	300	3	0	430	1	**734**
0730 - 0745	0	320	0	0	485	0	**805**
0745 - 0800	0	289	2	0	617	1	**909**
0800 - 0815	0	290	0	0	620	0	**910**
0815 - 0830	0	309	1	0	618	2	**930**
0830 - 0845	0	321	2	0	592	1	**916**
0845 - 0900	0	310	1	0	587	0	**898**
0900 - 0915	0	300	1	0	550	2	**853**
0915 - 0930	0	270	1	0	498	1	**770**
Period End	**0**	**3631**	**17**	**0**	**6179**	**9**	**9836**

Peak Per	WEST Cleveland St R	WEST Cleveland St T	SOUTH Hart St L	SOUTH Hart St R	EAST Cleveland St T	EAST Cleveland St L	TOTAL
0630 - 0730	0	1222	9	0	1612	2	**2845**
0645 - 0745	0	1252	9	0	1737	2	**3000**
0700 - 0800	0	1227	9	0	1952	2	**3190**
0715 - 0815	0	1199	5	0	2152	2	**3358**
0730 - 0830	0	1208	3	0	2340	3	**3554**
0745 - 0845	0	1209	5	0	2447	4	**3665**
0800 - 0900	0	1230	4	0	2417	3	**3654**
0815 - 0915	0	1240	5	0	2347	5	**3597**
0830 - 0930	0	1201	5	0	2227	4	**3437**
PEAK HR	**0**	**1209**	**5**	**0**	**2447**	**4**	**3665**



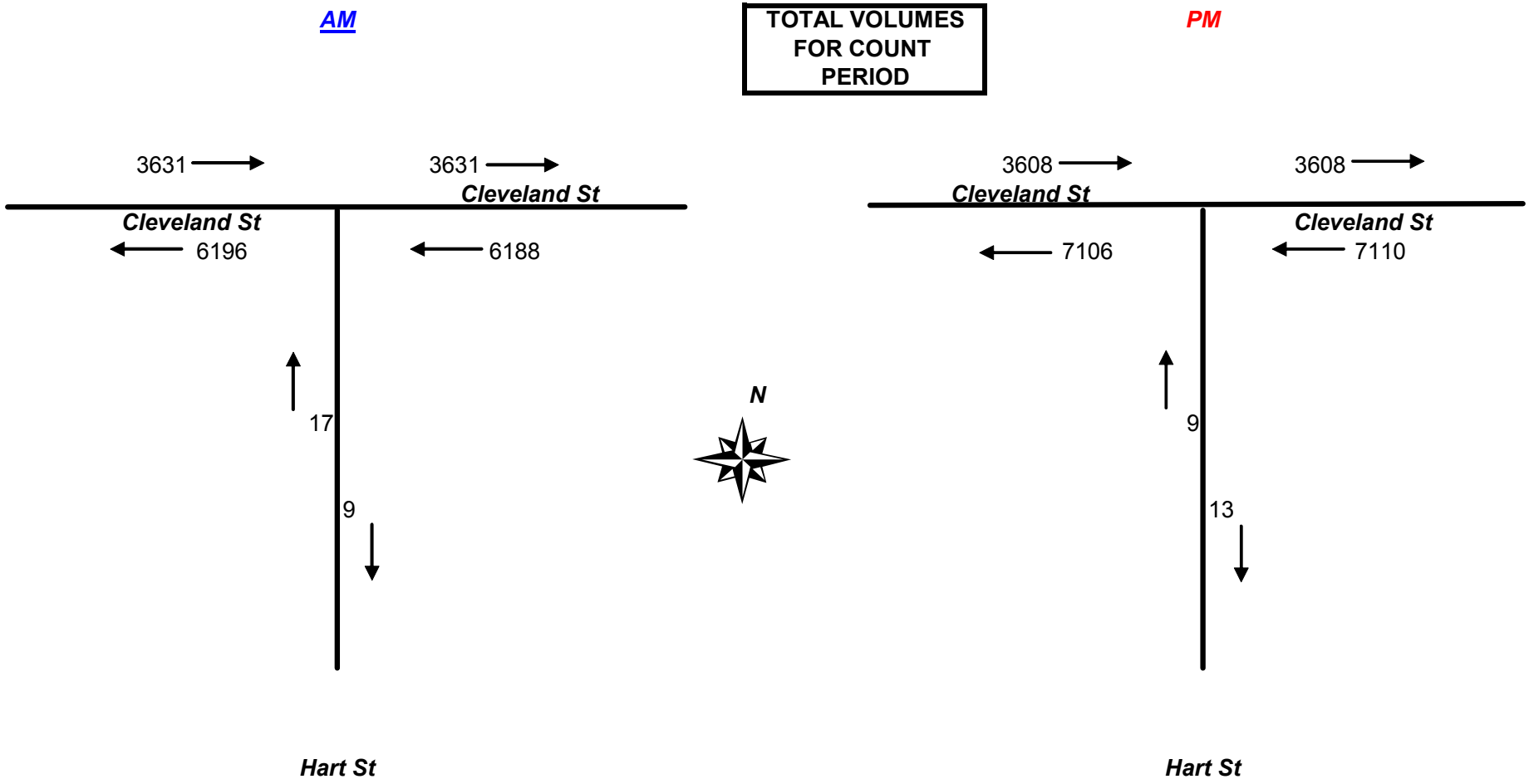
Peak Per	WEST Cleveland St R	WEST Cleveland St T	SOUTH Hart St L	SOUTH Hart St R	EAST Cleveland St T	EAST Cleveland St L	TOTAL
1530 - 1630	0	1180	2	0	2322	4	**3508**
1545 - 1645	0	1255	2	0	2372	3	**3632**
1600 - 1700	0	1380	2	0	2362	2	**3746**
1615 - 1715	0	1430	1	0	2369	3	**3803**
1630 - 1730	0	1374	1	0	2379	3	**3757**
1645 - 1745	0	1327	2	0	2409	4	**3742**
1700 - 1800	0	1198	6	0	2449	5	**3658**
1715 - 1815	0	1124	6	0	2408	5	**3543**
1730 - 1830	0	1054	6	0	2396	6	**3462**
PEAK HR	**0**	**1430**	**1**	**0**	**2369**	**3**	**3803**



R.O.A.R DATA
Reliable, Original & Authentic Results
Ph.88196847, Fax 88196849, Mob.0418-239019

Client : Varga Traffic Planning
Job No/Name : 2088 REDFERN Hart St
Day/Date : Tuesday 4th December 2007

TOTAL VOLUMES FOR COUNT PERIOD



R.O.A.R DATA

Reliable, Original & Authentic Results

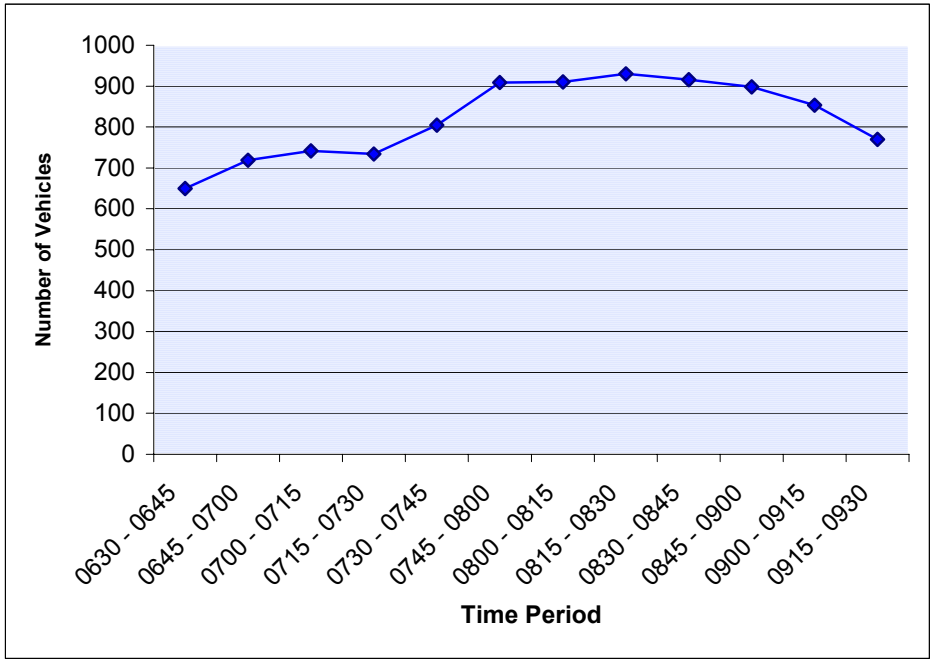
Ph.88196847, Fax 88196849, Mob.0418-239019

Client : Varga Traffic Planning

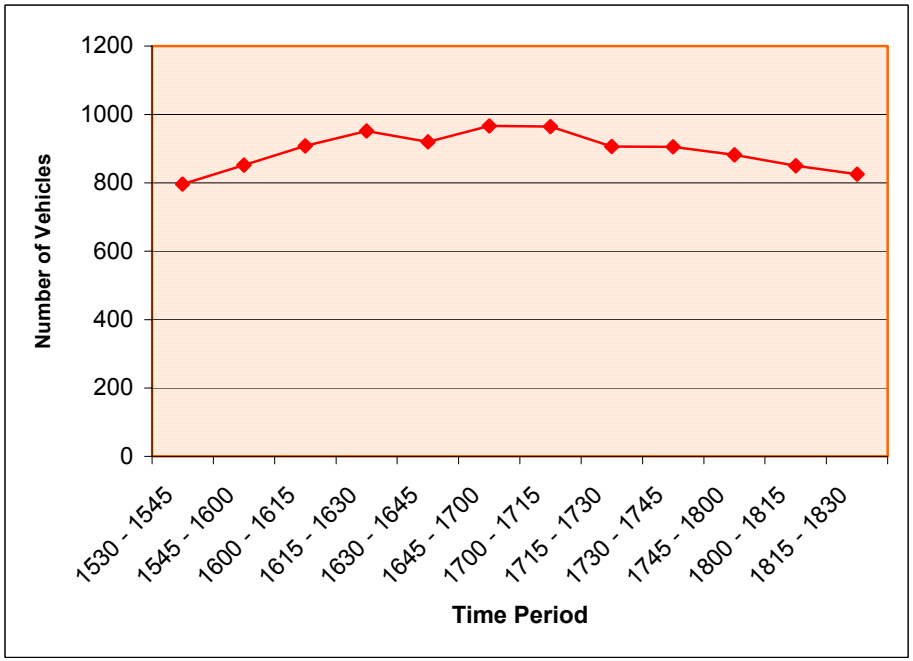
Job No/Name : 2088 REDFERN Hart St

Day/Date : Tuesday 4th December 2007

AM



PM

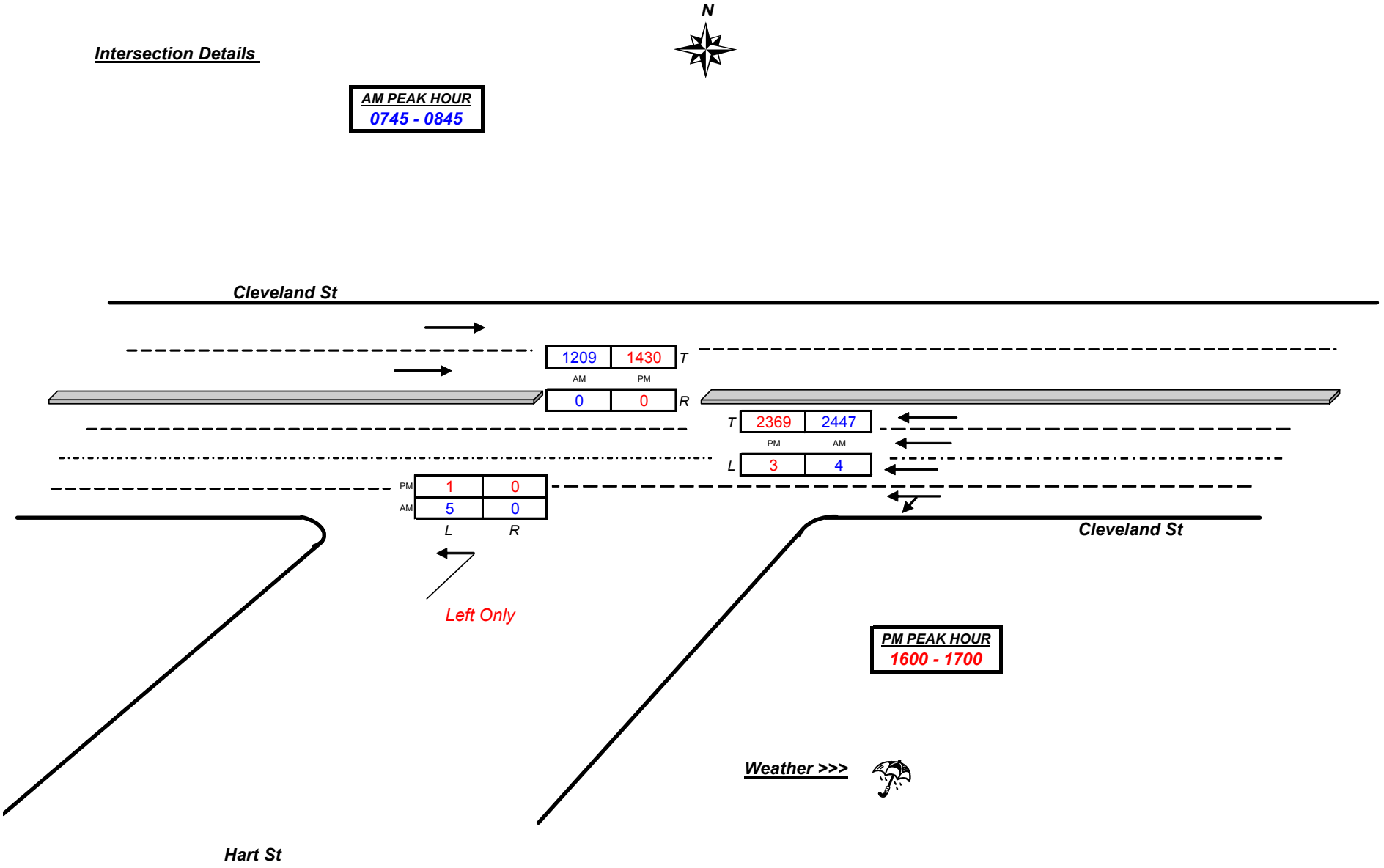


R.O.A.R. DATA
Reliable, Original & Authentic Results
Ph.88196847, Fax 88196849, Mob.0418-239019

Client : Varga Traffic Planning
Job No/Name : 2088 REDFERN Hart St
Day/Date : Tuesday 4th December 2007

Intersection Details

AM PEAK HOUR
0745 - 0845



PM PEAK HOUR
1600 - 1700

Weather >>>

R.O.A.R. DATA

Reliable, Original & Authentic Results

Ph.88196847, Fax 88196849, Mob.0418-239019

Client : Varga Traffic Planning
Job No/Name : 2088 REDFERN Hart St
Day/Date : Tuesday 4th December 2007

Peds	WEST	SOUTH	EAST	
	Cleveland St	*Hart St*	*Cleveland St*	
Time Per	UNCLASSIFIED	UNCLASSIFIED	UNCLASSIFIED	TOT
0630 - 0645	0	8	0	**8**
0645 - 0700	0	0	0	**0**
0700 - 0715	0	0	0	**0**
0715 - 0730	0	0	0	**0**
0730 - 0745	0	3	0	**3**
0745 - 0800	0	4	0	**4**
0800 - 0815	0	10	0	**10**
0815 - 0830	0	11	2	**13**
0830 - 0845	0	8	0	**8**
0845 - 0900	0	7	0	**7**
0900 - 0915	0	6	0	**6**
0915 - 0930	0	2	0	**2**
Period End	**0**	**59**	**2**	**61**

Peds	WEST	SOUTH	EAST	
	Cleveland St	*Hart St*	*Cleveland St*	
Time Per	UNCLASSIFIED	UNCLASSIFIED	UNCLASSIFIED	TOT
1530 - 1545	0	8	0	**8**
1545 - 1600	0	2	0	**2**
1600 - 1615	0	10	0	**10**
1615 - 1630	0	8	0	**8**
1630 - 1645	0	3	0	**3**
1645 - 1700	0	4	0	**4**
1700 - 1715	0	6	0	**6**
1715 - 1730	0	5	0	**5**
1730 - 1745	0	8	2	**10**
1745 - 1800	0	10	0	**10**
1800 - 1815	0	5	0	**5**
1815 - 1830	0	2	0	**2**
Period End	**0**	**71**	**2**	**73**

Peds	WEST	SOUTH	EAST	
	Cleveland St	*Hart St*	*Cleveland St*	
Peak Per	UNCLASSIFIED	UNCLASSIFIED	UNCLASSIFIED	TOT
0630 - 0730	0	8	0	**8**
0645 - 0745	0	3	0	**3**
0700 - 0800	0	7	0	**7**
0715 - 0815	0	17	0	**17**
0730 - 0830	0	28	2	**30**
0745 - 0845	0	33	2	**35**
0800 - 0900	0	36	2	**38**
0815 - 0915	0	32	2	**34**
0830 - 0930	0	23	0	**23**

PEAK HR	0	33	2	35

Peds	WEST	SOUTH	EAST	
	Cleveland St	*Hart St*	*Cleveland St*	
Peak Per	UNCLASSIFIED	UNCLASSIFIED	UNCLASSIFIED	TOT
1530 - 1630	0	28	0	**28**
1545 - 1645	0	23	0	**23**
1600 - 1700	0	25	0	**25**
1615 - 1715	0	21	0	**21**
1630 - 1730	0	18	0	**18**
1645 - 1745	0	23	2	**25**
1700 - 1800	0	29	2	**31**
1715 - 1815	0	28	2	**30**
1730 - 1830	0	25	2	**27**

PEAK HR	0	21	0	21