Environmental Assessment Report

Department of Education
Indooroopilly State School

August 2018

Department of Housing and Public Works

Queensland Government

Document history

Version	Date	Status	Key changes made	Author/s	Reviewer/s
1.0	2/07/2018	Draft	Document development	CH	NW
1.1	03/08/2018	Final	For Issue	NW	

Abbreviations

AHD	Australian Height Datum
ANEF	Australian Noise Exposure Forecast
ARI	Average Recurrence Interval
AS	Australian Standards
ASS	Acid Sulfate Soils
BCA	Building Code of Australia
BCC	Brisbane City Council
CLR	Contaminated Land Register
DES	Department of Environment and Science
DHPW	Department of Housing and Public Works
DoE	Department of Education
DSDMIP	Department of State Development, Manufacturing, Infrastructure and Planning
DTMR	Department of Transport and Main Roads
EMR	Environmental Management Register
EPA	*Environmental Protection Act 1994*
EPBC	*Environmental Protection and Biodiversity Conservation Act 1999* (Cth)
GFA	Gross Floor Area
NCA	*Nature Conservation Act 1992*
PA	*Planning Act 2016*
PR	*Planning Regulation 2017*
PWD	People with Disability
QDC	Queensland Development Code
SEQRP	South East Queensland Regional Plan
SEQ	South East Queensland
SHS	State High School
SPP	State Planning Policy
VMA	*Vegetation Management Act 1999*

Table of Contents

PART A – EXECUTIVE SUMMARY 6

1 Infrastructure Proposal 6

PART B – INTRODUCTION 9

2 Legislative Context 10

2.1 The Planning Act 2016 10

PART C – SITE DETAILS 11

3 Subject Site 11

3.1 Property Snapshot 11

3.2 Ownership and Tenure 11

3.3 Location 11

3.4 Surrounding Land Uses 11

3.5 Easements and Encumbrances 11

3.6 Topography 13

3.7 Socio-economic Profile 13

4 Infrastructure Characteristics 14

4.1 Transport Network 14

4.2 Services 15

PART D – DESIGNATION PROPOSAL 17

5 Proposed Designation 17

5.1 Description under the Planning Regulation 2017 17

5.2 Intent of Designation 17

5.3 Project History 17

5.4 Site Selection 18

5.5 Proposal Description and Details 18

5.6 Designation Process 24

PART E – LOCAL AND STATE PLANNING PROVISIONS 25

6 Planning Assessment 25

6.1 Local Planning Framework 25

6.2 Planning Scheme Provisions 25

6.3 Use Definition 25

6.4 Zoning 26
6.5 Overlays 27

7 State Planning Framework 33
7.1 The Planning Act 2016 33
7.2 State Planning Policy 33
7.3 Regional Planning 38

PART F – ENVIRONMENTAL ASSESSMENT 39

8 Environmental Assessment 39
8.1 Road Infrastructure 39
8.2 Services Infrastructure 45
8.3 Flora and Fauna 48
8.4 Soils and Geology 52
8.5 Heritage and Native Title 54
8.6 Natural Hazards 55
8.7 Socio-economic Impacts 59
8.8 Construction Impacts 59
8.9 Operational Impacts 63

PART G – CONSULTATION 66

9 Consultation Engagement 66
9.1 Stakeholders 66
9.2 Community Engagement Plan 66
9.3 Initial Consultation 67

PART H – CONCLUSION 68

PART I – APPENDICES 69

PART A – EXECUTIVE SUMMARY

1 Infrastructure Proposal

With reference to section 36(3) of the *Planning Act 2016,* the below sets out the matters required as part of the Infrastructure Proposal, and prepared in accordance with the Minister's Guidelines and Rules, Chapter 7—Guidelines for the process for environmental assessment and consultation for making or amending a Ministerial designation.

Matter	Proposal Details	
a) the site description including the location of the premises proposed to be designated;	Real property description:	Lot 285 on SP104042
	Property address:	471 Moggill Road, Indooroopilly QLD 4068
	Registered owner:	The State of Queensland (represented by the Department of Education)
	Tenure:	Freehold
	Site area:	3.196ha
	Google Earth co-ordinates:	27°29'58.81" S; 152°57'56.48" E
b) any existing uses on the premises proposed to be designated;	Lot 285 on SP104042 is currently improved with the existing Indooroopilly State School and associated and supported facilities.	
c) existing uses on adjoining sites;	• Moore Park adjoins the site alongside the northern and western boundaries. • Moggill Road adjoins the site alongside the eastern boundary. • Russell Terrace adjoins the site alongside the southern boundary. • The area is primarily residential with some strip commercial development along Moggill Road.	
d) the type of infrastructure;	6 educational facilities 9 facilities at which an education and care service under the Education and Care Services National Law (Queensland) is operated 10 facilities at which a QEC approved service under the *Education and Care Services Act 2013* is operated	
e) information about the nature, scale and intensity of the infrastructure and each use proposed;	Drawings at: • ***Appendix 4 – General Learning Building – Proposal Plans*** • ***Appendix 5 – Master Plan***	
f) the intended outcomes of the proposed uses on the site;	The Indooroopilly local area has experienced significant growth in the school-aged population and the Indooroopilly State School now requires additional facilities to continue to meet in-catchment enrolment demands in the short-to-medium term. In order to meet expected long term growth, it is proposed to deliver a multi-level Teaching Block that is anticipated to be completed for the start of the 2020 calendar year. Furthermore, in recognition of the site's limited area for expansion and steep terrain, it is also proposed to develop a conceptual Master Plan for the site to enable future enrolment growth and identify any facilities on site requiring	

	renewal. The school currently has a small oval and is essential to maintain to ensure students have access to adequate green space.	
g) any anticipated impacts on the surrounding infrastructure network (both state and local);	Nil. Impacts on surrounding infrastructure will be fully explored in the Environmental Assessment Report (EAR).	
h) a list of the applicable state interests as identified by the infrastructure entity and a statement about how they relate to the infrastructure proposal;	BIODIVERSITY • MSES – Wildlife habitat; Regulated vegetation (essential habitat and intersecting a watercourse)	The site is identified as containing Matters of State Environmental Significance (MSES). An ecological assessment provides advice that the project is unlikely to have a significant impact on MNES or MSES.
	WATER QUALITY	The site is in a water resource catchment. A stormwater management plan will be prepared and included as part of the EAR.
	NATURAL HAZARDS RISK AND RESILIENCE • Flood hazard area – Local Government flood mapping area • Bushfire prone area	The site is mapped within the flood hazard overlay of the *Brisbane City Plan 2014.* A small portion of the south-western corner within the flood planning area (category 4 and 5) and the western boundary within the overland flow flood planning area. No development is proposed in these areas and no impacts are therefore anticipated. The site is also mapped within the Medium and High hazard areas and High hazard buffer area. A Bushfire Hazard Assessment has been prepared and provides recommendations.
	STRATEGIC AIRPORTS AND AVIATION FACILITIES • Wildlife hazard buffer zone	The site is in the 8km wildlife hazard buffer area. Nil impacts are anticipated as the proposed development will not be of a height, emit light, or be an attractor of bird or bat wildlife, that would obstruct the safe movement of aircraft.
	Refer to Appendix 6 – State Interest Trigger Maps	
i) a statement about any relevant regional plans and state development areas that are applicable to the site and how they are relevant to the infrastructure proposal;	The relevant regional plan is the South East Queensland Regional Plan 2017. The site is in the Urban Footprint land use category. The site is not included in a state development area.	
	Refer to Appendix 6 – State Interest Trigger Maps	
j) sufficient information to address the requirements of	The proposed infrastructure meets the criteria in section 36 of the *Planning Act 2016* as the infrastructure will satisfy budgetary commitments for the supply of infrastructure.	

section 36(1) of the Act;	Refer to the Capital Statement 2017-18 at: https://s3.budget.qld.gov.au/budget/papers/3/3-Capital-outlays-by-entity.pdf

Education and Training

Project	Statistical Area	Total Estimated Cost $'000	Expenditure to 30-06-17 $'000	**Budget 2017-18 $'000**	Post 2017-18 $'000
DEPARTMENT OF EDUCATION AND TRAINING					
Property, Plant and Equipment					
Capital Works Program					
Education Capital Works Program					
Indooroopilly State School -	304	2,790		**465**	2,325

k)	a proposed consultation strategy for the proposed designation that has taken into account the level of impact of the infrastructure proposal and that includes a method for consultation with directly affected landowners, adjoining landowners, and identified Native Title parties, differentiated from general public consultation;	***Refer to Part G – Consultation***
l)	any other matter the infrastructure entity considers relevant to the request.	Nil

PART B – INTRODUCTION

In accordance with the requirements of the *Planning Act 2016* (PA), it is proposed to undertake an Infrastructure Designation of land within the Brisbane City Council (BCC) local government area on behalf of the Department of Education (DoE) for the Indooroopilly State School (SS). The proposed designation applies to land located at 471 Moggill Road, Indooroopilly and formerly described as Lot 285 on SP104042.

The DoE has made a funding commitment of over $10 million to deliver a new multi-storey learning facility and establish a full site master plan for the ***Indooroopilly State School*** (SS). The Indooroopilly SS is located at 471 Moggill Road, Indooroopilly and otherwise described as Lot 285 on SP104042. The funding forms part of the *Capital Works 2017-2018* program, where the Queensland Government is committed to delivering fit for purpose learning environments that support educational outcomes.

The Indooroopilly local area has experienced significant growth in the school-aged population over the years and as a result, the Indooroopilly SS requires additional facilities to continue to meet in-catchment enrolment demands in the short-to-medium term. The school therefore requires a new multi-level Learning Centre to be completed in time for the start of the 2020 calendar year.

Furthermore, it is acknowledged the school is on a small site with significant topographical constraints. Retention of the existing sports oval is also critical to ensure students have adequate access to play areas. The designation therefore seeks to include a conceptual master plan for the school to enable future enrolment growth and identify any facilities on site requiring renewal.

For the purposes of this designation, the Indooroopilly SS proposes the following scope of works:

- immediate delivery of a General Learning Building, which includes:
  - new four (4) storey General Learning Precinct consisting of 16 General Learning Area (GLA) spaces; and
  - new associated play spaces and related support spaces (i.e. suitable PWD amenities).
- full site master plan which accommodates for future growth:
  - refurbishment of existing accommodation buildings;
  - demolition of existing accommodation buildings which are restricting buildability of the site; and
  - development of new accommodation buildings which meet future student enrolment needs whilst seeking to efficiently utilise the space available within the site.

The proposed scope of works at the Indooroopilly SS are intended to future proof the school while providing facilities that improve the amenity of the Indooroopilly SS consistent with current standards and sited with consideration of the functionality of the buildings, and connection with existing and planned future buildings whilst having appropriate consideration to the existing topographical conditions on the site.

Building and Asset Services' (BAS) Town Planning Unit has prepared this Environmental Assessment Report (EAR) to provide information in the assessment of the proposed Ministerial designation of land for community infrastructure.

2 Legislative Context

2.1 The Planning Act 2016

A list of infrastructure is set out in Schedule 5 of the *Planning Regulation 2017* (PR).

The PA prescribes the way in which a designation can be undertaken. Chapter 2, Part 5 of the PA (refer **Appendix 1**) prescribes that a Minister, before designating land for infrastructure, must be satisfied that for development the subject of the proposed designation:

- the infrastructure will satisfy statutory requirements, or budgetary commitments, for the supply of the infrastructure; or
- there is or will be a need for the efficient and timely supply of the infrastructure.

One way in which the requirements for adequate environmental assessment and public consultation may be met is for the assessment of the proposal to be carried out in accordance with the guidelines made by the chief executive under the PA, section 36(3). The applicable guideline is the *Minister's Guidelines and Rules* (July 2017) and is available at https://www.statedevelopment.qld.gov.au/). In particular, Chapter 7—Guidelines for the process for environmental assessment and consultation for making or amending a Ministerial designation outlines the five-step process which includes:

1. Planning and Preparation;
2. Minister's Acknowledgement;
3. Draft Environmental Assessment Report;
4. Consultation and State Interest Review; and
5. Finalise Environmental Assessment.

It is noted that BAS has held pre-lodgement discussions with the Department of State Development, Manufacturing, Infrastructure and Planning (DSDMIP) regarding an alternative designation process to that described above. It is recognised the proposed development is considered 'low risk' and as such a streamlined approach has been agreed and includes:

1. Pre-lodgement Meeting;
2. Environmental Assessment Report;
3. Consultation and State Interest Review; and
4. Final Assessment and Minister Decision.

The EAR has been drafted in accordance with the Chapter 7 of the *Minister's Guidelines and Rules* and has been prepared to generally align with Step 2 of the alternative designation process.

The effect of a Ministerial designation is that the use of the site for the described community infrastructure and services may proceed despite the local government's planning scheme.

This designation will be undertaken in accordance with Chapter 2, Part 5 of the PA.

PART C – SITE DETAILS

3 Subject Site

3.1 Property Snapshot

Site Overview	
Street Address	471 Moggill Road, Indooroopilly
Real Property Description	Lot 285 on SP104042
Site Area	3.196 ha
Local Government Authority	Brisbane City Council
Current Land Use	Educational Establishment
Regional Plan	South East Queensland Regional Plan 2017

3.2 Ownership and Tenure

The allotment is freehold and owned by the State of Queensland (represented by the Department of Education).

3.3 Location

The site is located within the Brisbane City Council local government area. As illustrated in Figure 1 and Figure 2, the site consists of a single allotment of 3.196 hectares and currently improved with the Indooroopilly SS, which from DoE records was established in 1889.

The school has street frontages to Russell Street (195m), Moggill Road (120m), and Taringa Parade (50m). Vehicular access is via Russell Terrace, with two secondary crossovers for service vehicles to the oval and hall also located on Russell Street. There is a crossover on Moggill Road which provides access to the sports courts, and a driveway on Taringa Parade with access to the swimming pool.

The school oval adjoins Witton Creek and Moore Park.

3.4 Surrounding Land Uses

The site is located approximately 9km south-east of the Brisbane CBD and within 600m of Indooroopilly Shopping Centre. The site is bound by Moore Park, Taringa Parade, Moggill Road and Russell Terrace, and the western Freeway is 100m to the west. The area is characterised by character homes on single allotments, as well as strip commercial development along Moggill Road.

3.5 Easements and Encumbrances

There are no easements burdening the site, however rights and interests are reserved to the Crown by Deed of Grant No. 40030014. A copy of the Certificate of Title, Survey Plan and Smart Map is in **Appendix 3** for reference.

Figure 1. Site Aerial Source: DSDMIP SARA

Figure 2. Site Context Source: DSDMIP SARA

3.6 Topography

The subject site has a fall of approximately 17m across the site. The western boundary is the lowest point on the site at 18m AHD and increases to the primary location of buildings at the eastern portion of the site to 45m AHD.

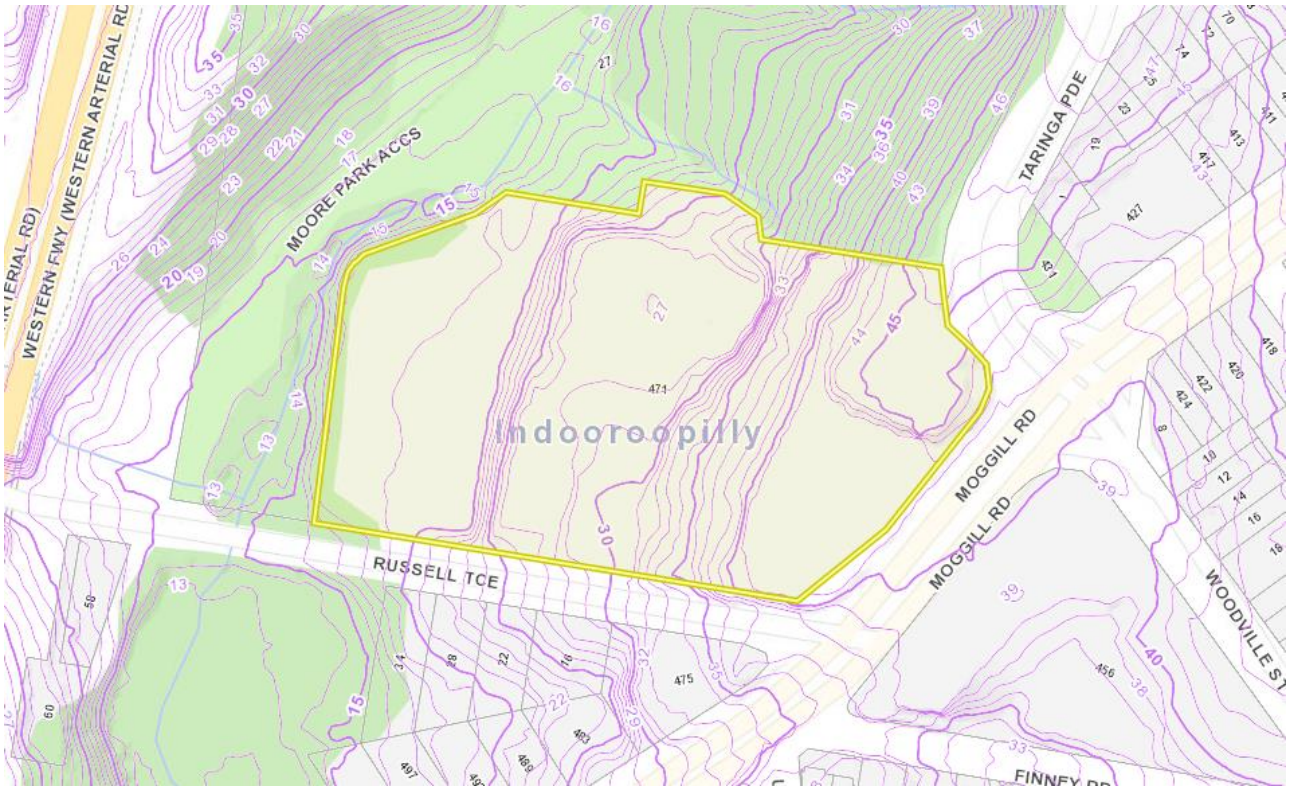


Figure 3. Contour Plan (2009) Source: BCC eBIMAP

A contour and detail survey of the development area is included in **Appendix 4** for reference.

3.7 Socio-economic Profile

3.7.1 Brisbane City Council Local Government Area Profile

Brisbane is a City and Local Government Area (LGA) in the south-east corner of Queensland, Australia. It is the State capital of Queensland and the most populous LGA in the country. Neighbouring GLAs include Moreton Bay, Redland, Logan, Ipswich and Somerset.

The Brisbane LGA has a resident population of approximately 1,131,155 persons (at 2016).

3.7.2 Indooroopilly Profile

At 2016, the resident population for Indooroopilly (state suburb) was 12,242 persons. The median age of people in Indooroopilly was 30 years. Children aged 0 - 14 years made up 14.5% of the population and people aged 65 years and over made up 11.3% of the population.

Of the families in Indooroopilly, 44.2% were couple families with children, 38.7% were couple families without children and 12.9% were one parent families.

In Indooroopilly, 39.9% of people were attending an educational institution. Of these, 15.7% were in primary school, 15.6% in secondary school and 50.0% in a tertiary or technical institution.

4 Infrastructure Characteristics

The below provides a description of the existing infrastructure characteristics relating to the subject site. Further discussion on potential impacts and mitigation measures from the proposed development are discussed in further detail in Part F – Environmental Assessment.

4.1 Transport Network

4.1.1 Existing Road Network

The site is bound by Russell Terrace to the south, Moggill Road to the east and Taringa Parade to the north-east. The school also includes one small internal carpark at the formal entry to the school on Russell Terrace. A number of crossovers exist on Russell Terrace, Moggill Road and Taringa Parade for maintenance purposes.

There are no on site pick up / drop off facilities or coach areas. Visitor parking and pick up/ drop off areas are located within the Russell Terrace and Taringa Parade road reserve. There is also an area within Moore Park Access that is used for parking and set down / pick up.

The below provides a summary of the key roads surrounding the site:

Road Name	Hierarchy	Cross-section	Speed Limit
Moggill Road	Arterial Road	4 lanes divided	60km/hr School Zone – 40km/hr
Russell Terrace	District Road	2 lanes divided	60km/hr School Zone – 40km/hr
Taringa Parade	District Road	2 lanes divided	50km/hr School Zone – 40km/hr
Woodville Street	District Road	2 lanes divided	50km/hr

The below provides a summary of the key intersections surrounding the site:

ID	Hierarchy	Control
Intersection 1	Moggill Road/ Russell Terrace	Traffic Signals
Intersection 2	Moggill Road/ Taringa Parade/ Woodville Street	Traffic Signals

4.1.2 Existing Public Transport Network

The site has access to a number of inbound and outbound bus services. In particular, the following services are available during school operation times:

Route	Servicing	Weekday Frequency
425	Chapel Hill, Indooroopilly, Toowong, City	Peak – 30 mins Off-peak – 60 mins
427/ 428	Chapel Hill, Indooroopilly, University of Queensland	Peak – 150 mins Off-peak – 60 mins
430	Fig Tree Pocket, Kenmore, Indooroopilly, Cultural Centre, City	60 mins
432	Kenmore, Indooroopilly, University of Queensland	Peak – 10 mins Off-peak – 25 mins

433	Kenmore South, Chapel Hill, Indooroopilly, Toowong, City	Peak – 35 mins Off-peak – 60 mins
435	Brookfield, Kenmore Hills, Kenmore, Chapel Hill, Indooroopilly, Toowong, Cultural Centre, City	Peak – 20 mins Off-peak – 60 mins
444	Moggill, Bellbowrie, Pinjarra Hills, Kenmore, Indooroopilly, Toowong, City	10-15 mins
445	Fig Tree Pocket, Lone Pine, Chapel Hill, Indooroopilly, Toowong, City	Peak – 30 mins Off-peak – 60 mins
453	Mount Ommaney, Jindalee, Indooroopilly, Toowong, City	Peak – 15 mins Off-peak – 30 mins
454	Riverhills, Mount Ommaney, Indooroopilly, Toowong, City	Peak – 20 mins Off-peak – 30 mins
460	Heathwood, Forest Lake, Richlands, Mount Ommaney, Indooroopilly, Toowong, City	Peak – 15 mins Off-peak – 30 mins
468	Indooroopilly, Sinnamon Park, Seventeen Mile Rocks, Oxley	60 mins

Further to the above bus services the Indooroopilly train station is also located approximately 1km walking distance from the school.

4.1.3 Existing Active Transport Network

The school is located within a well-established urban network and as such, it benefits from access to an existing comprehensive active transport network. Typically, all roads within 800m of the subject site (i.e. 10-minute walking distance) have a concrete footpath on at least one side. Importantly, there are existing paths along all frontages to the subject site.

To assist those pedestrians wanting to cross roads in proximity to the subject site, it is noted that there are:

- signalised crossings at the Moggill Road / Russell Terrace and the Moggill Road/ Taringa Parade/ Woodville Street intersections; and
- children's crossings located on Russell Terrace and Taringa Parade.

The school also provides four (4) areas for bicycle parking, accommodating for approximately 48 bicycle parking spaces. The bicycle rack areas are located adjoining the tennis courts (2 areas), Block D and Block C.

4.2 Services

4.2.1 Water Infrastructure

With reference to Council's eBIMAP mapping system the school has access to water infrastructure, via a 100mm connection on Russell Terrace to the trunk main, a a 600mm connection located along the eastern frontage of the site on Moggill Road and a 50mm connection within the Taringa Parade road reserve.

Hydrants are located in Russell Terrace and Taringa Parade. Refer to **Appendix 10** for a copy of the service infrastructure plans.

4.2.2 Sewer Infrastructure

The existing school buildings are serviced by a Queensland Urban Utilities (QUU) sewer property connection in the south east corner of the site.

Reference should be made to **Appendix 10** for a copy of the service infrastructure plans.

4.2.3 Stormwater Infrastructure

Existing site stormwater flows towards the front of the site into a gully outlet headwall discharging to Witton Creek. It is proposed that stormwater runoff from the proposed development will also be discharged to Witton Creek. Refer to **Appendix 10** for a copy of the service infrastructure plans.

4.2.4 Electricity Infrastructure

The existing site supply to the school is via powerlines from Russell Terrace and Taringa Parade Street. Refer to **Appendix 10** for a copy of the service infrastructure plans.

4.2.5 Telecommunications Infrastructure

The existing Network Centre is located in the Administration Building and will be the connection point for backbone data services to the proposed new facilities. NBN is available in Russell Terrace and Moggill Road. Refer to **Appendix 10** for a copy of the service infrastructure plans.

PART D – DESIGNATION PROPOSAL

5 Proposed Designation

5.1 Description under the Planning Regulation 2017

The proposal seeks to designate the site as follows:

Indooroopilly State School

471 Moggill Road, Indooroopilly

Lot 285 on SP104042

Pursuant to Chapter 2, Part 5 of the PA, it is proposed to designate the land described above for infrastructure. Ministerial designation is proposed in order to facilitate the efficient allocation of resources and enable the timely supply of the community infrastructure. The proposed community infrastructure is best described in the *Planning Regulation 2017*, Schedule 5, Part 2 as:

6	***educational facilities***
9	***facilities at which an education and care service under the Education and Care Services National Law (Queensland) is operated***
10	***facilities at which a QEC approved service under the Education and Care Services Act 2013 is operated***

5.2 Intent of Designation

The designation affirms the existing use of the site as an educational establishment, and will facilitate the immediate planned works at the school and future planned developments on the site consistent with the designation purpose.

Educational and community facilities are defined as community infrastructure under Schedule 5 of the *Planning Regulation 2017*, being assets necessary to support the community and for the public benefit. The proposed community infrastructure will facilitate the efficient and timely supply of infrastructure; and satisfy statutory requirements and budgetary commitments of the State for the supply of community infrastructure.

5.3 Project History

The Indooroopilly local area has experienced significant growth in the school-aged population and Indooroopilly SS requires additional facilities to continue to meet in-catchment enrolment demand in the short-to-medium term.

In order to meet expected long term growth, Capital Works Planning has proposed to deliver a multi-storey learning facility. Based on current population growth forecasts this facility is required to be completed for the start of school in the 2020 calendar year.

Further to the immediate delivery of the multi-storey learning facility, the DoE is also proposing to undertake a conceptual master plan for the school. Given the school is located on a small and steep site, the purpose of the master plan will assist the school to enable future enrolment growth and identify any existing facilities on site requiring renewal.

5.4 Site Selection

The site is heavily congested, and located on a steep slope. The school currently has a small oval and the provision to maintain adequate green space is required to meet the number of students enrolled at the school. The Brisbane City Council is proposing to upgrade the drop and go zone along Taringa Parade with the project being delivered by the Council and funded by the Australian Government.

Due to the limited available building platforms, it is proposed to use existing hardstand areas and building pads. A full staged masterplan has been developed and is discussed in section 5.5 below.

On the basis of the above, the location of the new building was considered the most appropriate location for the proposed development.

5.5 Proposal Description and Details

The proposed development at Indooroopilly SS includes the following scope of works is proposed:

- immediate delivery of a General Learning Building, which includes:
  - new four (4) storey General Learning Precinct consisting of 16 General Learning Area (GLA) spaces; and
  - new associated play spaces and related support spaces (i.e. suitable PWD amenities).
- full site master plan which accommodates for future growth:
  - refurbishment of existing accommodation buildings;
  - demolition of existing accommodation buildings which are restricting buildability of the site; and
  - development of new accommodation buildings which meet future student enrolment needs whilst seeking to efficiently utilise the space available within the site.

5.5.1 School Population

At present, the school has a student enrolment capacity (SEC) to accommodate 1,152 students and a built capacity (BLT) to accommodate for 1,272 students.

Based on DoE forecasts the proposed new General Learning Building, when fully developed, will provide for an approximate SEC of 1,440 students and BLT of 1,590 students.

With regards to the future development stages associated with the master plan, DoE forecasts note an ultimate school population that will provide for an approximate SEC of 1,464 and BLT of 1,616 students to meet the population growth demands for the school into the future.

It is noted the DoE references the SEC when considering the number of students a school can optimally accommodate within existing learning spaces. These learning spaces are generally designed with a larger capacity (being the BLT) to ensure that any unforeseen or increase in students for a particular year can still accommodate enrolments where necessary.

Where student enrolments exceed the SEC then the DoE will seek to investigate opportunities for new infrastructure to accommodate the increase in student population growth.

5.5.2 Master Plan

The Indooroopilly SS has a combination of modular, hire and relocatable buildings to cater for the student population. The intention of the master plan is to remove these temporary buildings in stages whilst minimising disruption for the school when decanting from these facilities.

While the master plan focusses on delivering more teaching spaces, consideration has been made to include the provision of a new Hall (with classroom/ music spaces), Administration and Library building (which are currently undersized) and basement carparking (which will provide compliant PWD carparking and lift access). Access and covered walkways were also addressed to ensure an accessible path of travel between the high and low sides of the campus.

As a small site it is also critical for the School to maintain and gain more open play space where possible. As such, the proposed new developments provide undercover play spaces which increases the covered area of play space while removing aged demountable buildings (with these areas also being converted back to play spaces for the students).

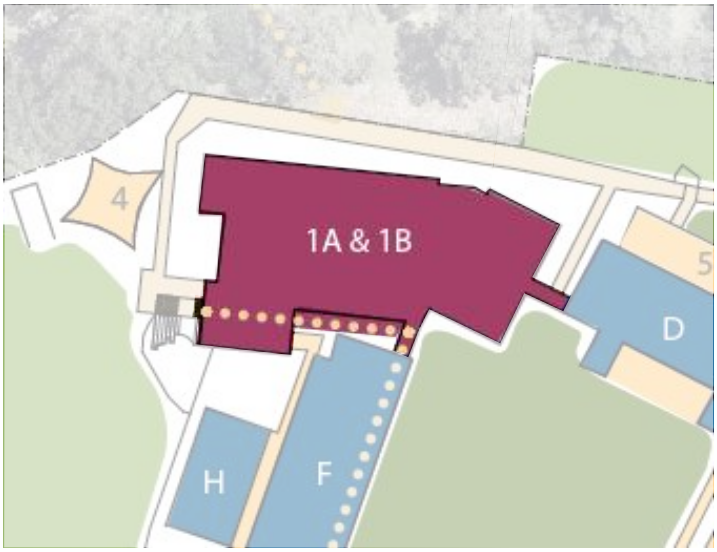
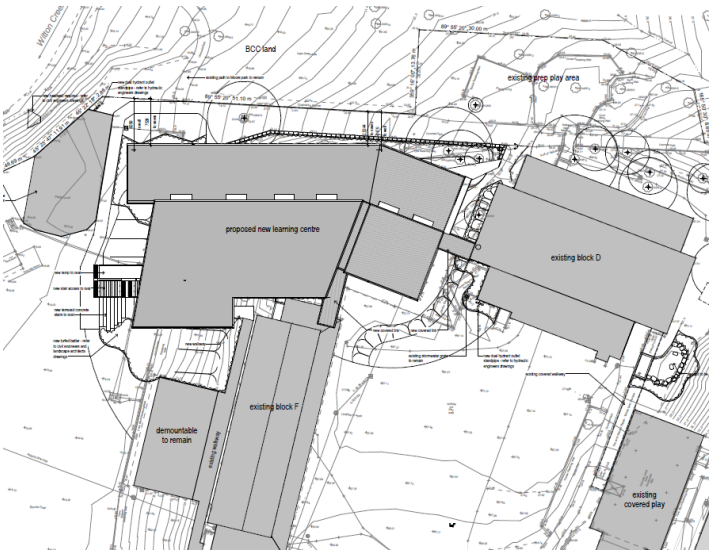
A copy of the master plan is included in **Appendix 6** for reference.

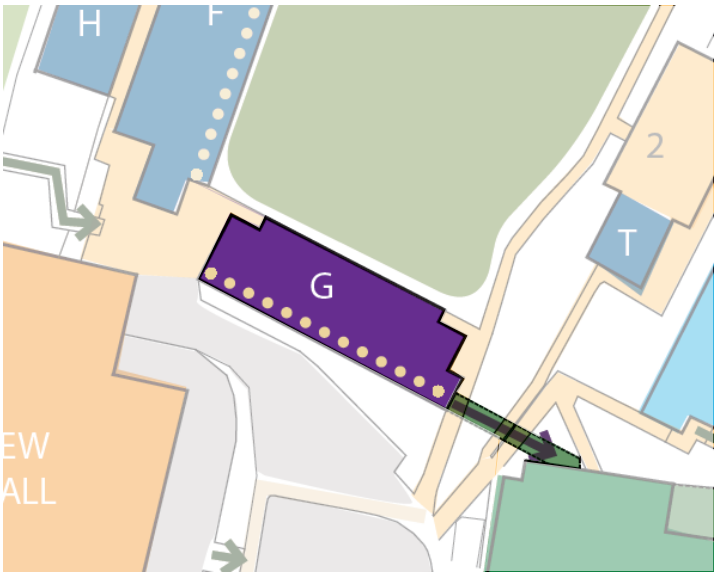
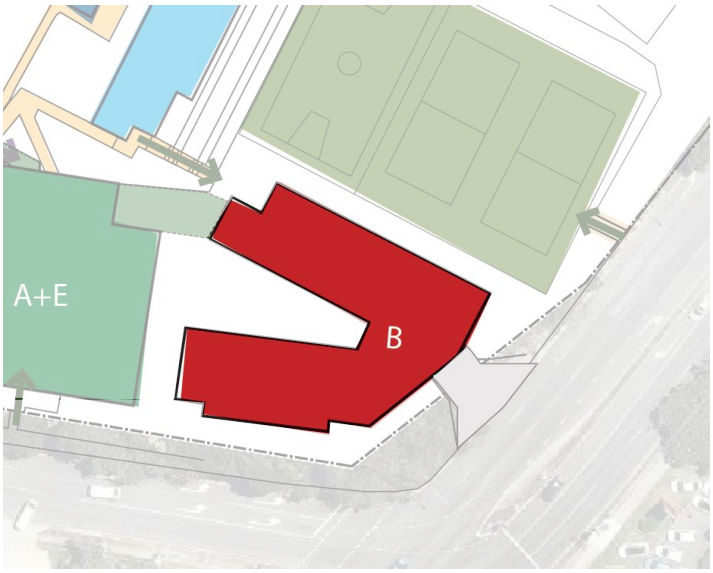
Concept Master Plan

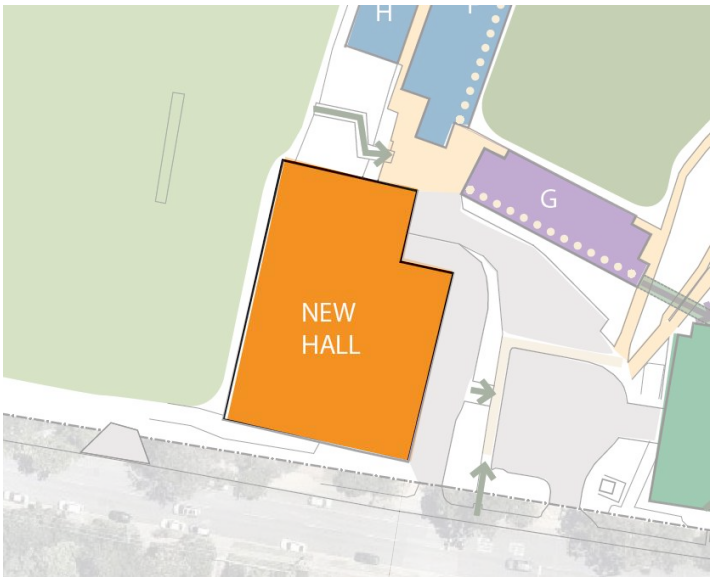
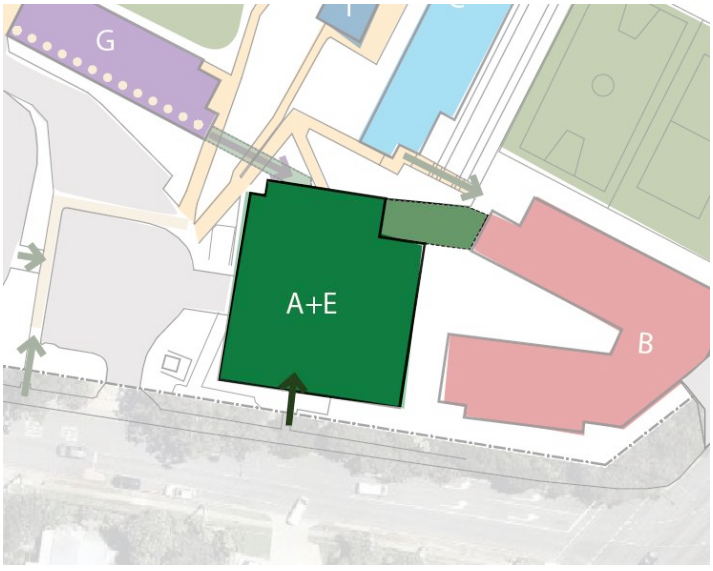
Legend

- Pedestrian
- Covered Walkways
- Covered Areas
- Driveway/Uncovered Parking
- Existing Buildings
- Refurbish Existing Building
- Stage 1A & Stage 1B New Build (top 2 levels infilled for Stage 1 & bottom 2 levels infilled for Stage 2)
- Possible future development (3 storeys including undercroft)
- Possible future development (2 storeys - non teaching spaces with basement carpark)
- Possible future development (3 storeys)
- upgrade existing stairs/ramp to be compliant with current standards
- new elevated walkway

The below provides a brief summary of each of the proposed stages of development relating to the master plan.

Stage	Master Plan Stage
Stage 1A and 1B – New General Learning Building The initial two stages of the master plan includes the immediate delivery of a four storey multi-storey General Learning Building which provides for 16 GLA spaces. Stage 1A will remove the existing 4 space demountable building and provide 12 new learning spaces. This results in an overall increase of eight (8) additional GLAs. Stage 1B involves the infill of the bottom two (2) levels of the Building to provide four (4) additional GLAs. Due to the undulating site, the building appears as a two storey building from Singleton oval, while appearing as a four storey building from the lower oval. Given the topographical issues to this portion of the site, the primary focus of the building is to connect students at a number of levels. Through the use of a lift and matching existing building levels, the building provides DDA access to the lower oval, up to Singleton oval and through to the first floor levels of Block D and Block F. Providing views through to the bushland and surrounding play areas was also an important consideration for the building design. It is noted that staff require adequate supervision through to the Prep play area of Block D as well as maintaining view lines down to the lower oval. The placement of outdoor learning areas to the south-western edge of the building achieves this, and provides covered learning areas for classroom activities as well as a spectator area for views down to the main oval. The bulk of the new building has been broken up by using a mixture of face brick, rendered block, painted block, perforated and galvanised screening and metal cladding. A copy of the proposal plans for the General Learning Building is included in **Appendix 5** for reference.	 

Stage	Master Plan Stage
Stage 3 – Block G The proposed 'Block G' currently consists of two (2) modular buildings which will be removed to provide for a new three storey General Learning Building which will enclose the courtyard area and connect back with a lift to Block A. Overall, this stage will provide for a total increase of three (3) GLA spaces, which is made up of a total of six (6) new learning spaces from the new Building and loss of three (3) spaces from removal of the modular buildings. The building also includes an undercroft area to the ground floor which provides additional covered play areas.	
Stage 4 – Block B The proposed 'Block B' currently provides learning spaces for Years 5 and 6 and the Uniform Shop. It is noted the classrooms are undersized and future development of the site will look to re-develop Block B and the small music block (to the north) to provide a new two storey General Learning and Uniform Shop Building. Overall, this stage is a like-for-like upgrade and provides six (6) learning spaces which essentially provides larger classrooms, breakout spaces and storage spaces. The new building footprint could extend to the tennis courts if additional space is required. **Stage 5A and 5B – Block B and removal of demountable building** This stage involves the potential infill to the undercroft area of the proposed 'Block B', and the removal of an existing demountable building to the north of the site, adjoining the Dental Clinic. Overall, this stage will provide for a total increase of three (3) GLA spaces, which is made up of a total of five (5) new learning spaces from the infill and loss of two (2) spaces from removal of the demountable building. The demolition of the demountable building therefore provides additional open space/ play area for the school.	

Stage	Master Plan Stage
New Hall The existing Hall is currently undersized, and is unable to fit the school population within the current space. The proposed new 'Hall' will involve demolition of an existing demountable building to accommodate a new three storey Hall that includes: • ground level: full netball/ basketball court, stage, amenities, storage, lift/stairs and entry foyer; • undercroft level: three (3) GLAs with storage spaces, one (1) music room and lift/ stairs; and • oval level: relocated grounds keepers facilities and covered play area. The proposal will provide a total increase of one (1) GLA space, which is made up of a total of four (4) new learning spaces from the Hall and loss of three (3) spaces from removal of the demountable building. It is noted the works associated with the proposed Hall do not form part of any stage of the master plan and will instead be reliant on available funding. The Hall aims to provide upgraded facilities which provide a larger footprint to accommodate the school population and provide improved recreational facilities.	
New Administration and Library The existing Administration and Library Blocks are outdated and inadequate in size. The proposed new building seeks to combine the two buildings to provide a consolidated two storey building. The proposal will not increase the number of learning areas, and will instead remove three (3) GLAs from demolition of the existing Buildings. It is noted the works associated with the new Administration and Library do not form part of any stage of the master plan and will instead be reliant on available funding. The building aims to provide upgraded facilities which provide improved staff accommodation facilities and additional parking spaces.	

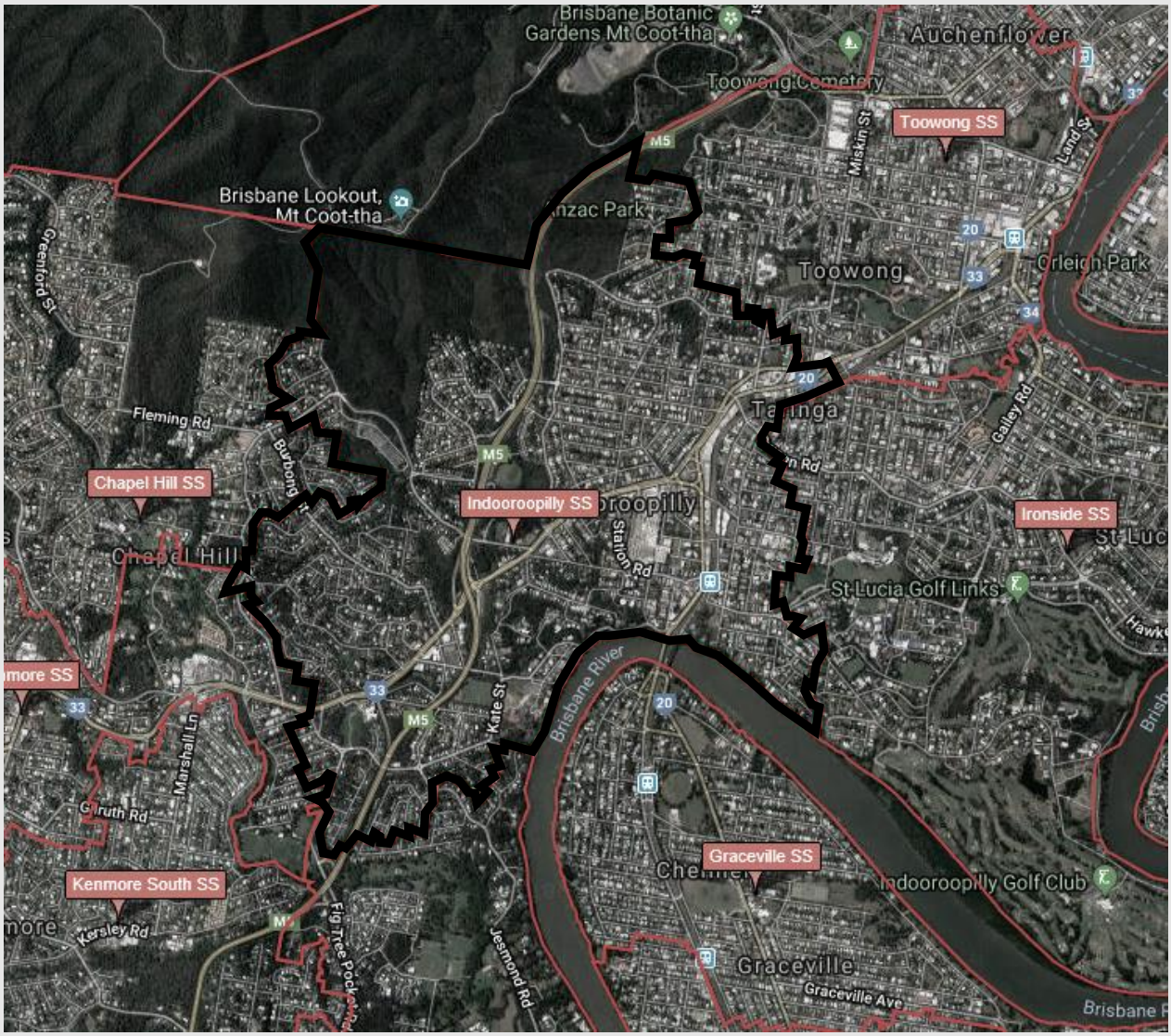
5.5.3 Hours of Operation

The school will continue to operate normal school hours, being 8am-4pm with ancillary office and extracurricular activities.

5.5.4 School Catchment Area

The Indooroopilly catchment is typically the suburb of Indooroopilly, as well as portions of Toowong, Taringa, Kenmore and Chapel Hill. The current catchment area is not proposed to change.

School Catchment Area



Source: DoE

Legend

School Catchment Areas

Indooroopilly SS Catchment Area

5.5.5 Vehicle and Bicycle Parking

Vehicle access to the school is currently limited to 30 car spaces in the front car park restricted by a boom gate, and service / maintenance vehicles only. The school currently does not have any short term on-site car parking or pick up / drop off facilities. All parking and bus services are located within road reserve of Russell Terrace. No changes to this arrangement are proposed at the school.

5.5.6 Pedestrian Facilities

Numerous pedestrian paths, covering the full verge width, are provided along the direct frontages and along all roads in proximity of the subject site. Pedestrian crossings are via controlled intersections at Taring Parade/ Moggill Road intersection, and Russell Terrace / Moggill Road intersection.

As such, the existing network is considered to provide safe and direct pedestrian access to the school.

5.6 Designation Process

In accordance with the alternative designation process as agreed with DSDMIP, this EAR has been prepared with the intention to support the consultation and state interest review stage being undertaken with those stakeholders identified in Part G – Consultation of this report. Section 9.2 also includes an approved Community Engagement Plan in which this Infrastructure Designation Proposal will follow.

Although an alternative process, this EAR has been drafted in accordance with the Chapter 7 of the *Minister's Guidelines and Rules*.

Once information gathered as part of this stage is collated, the DSDMIP will undertake a final assessment of the proposed development before consideration by the Minister for State Development, Manufacturing, Infrastructure and Planning.

PART E – LOCAL AND STATE PLANNING PROVISIONS

6 Planning Assessment

In terms of development under the PA, the designation is proposed to be undertaken in accordance with Chapter 2, Part 5 of the Act. The effect of the designation, if made, is that the use of the site for the designated infrastructure and service will be exempt from the local government's planning scheme.

In relation to any building works, these will be accepted development in accordance with Schedule 7, Part 1, item 2 of the PR.

6.1 Local Planning Framework

Where land is not designated for infrastructure, any development involving a material change of use should have regard to the requirements of the relevant planning scheme. Whilst the intended designation will result in development being exempt from assessment against the planning scheme, consideration has still been given to its relevant provisions.

The *Brisbane City Plan 2014* (Planning Scheme) commenced on 30 June 2014 and is the relevant planning scheme for the site. The current version is v10.00/2018, which took effect on 29 June 2018.

6.2 Planning Scheme Provisions

The below table provides a summary of the key planning scheme provisions relevant to the site.

Planning scheme information	
Planning scheme	*Brisbane City Plan 2014*
Area classification	CF5 Community facilities zone (Education purposes)
Local area plan	Toowong—Indooroopilly district neighbourhood plan
Overlays	• Airport environs overlay • Bicycle network overlay • Biodiversity areas overlay • Bushfire overlay • Critical infrastructure and movement network overlay • Flood overlay • Industrial amenity overlay • Potential and actual acid sulphate soils overlay • Road hierarchy overlay • Streetscape hierarchy overlay • Transport air quality corridor overlay • Transport noise corridor overlay • Waterway corridors overlay

6.3 Use Definition

With reference to the Planning Scheme, Schedule 1 Definitions, the proposal for a new building within an established school is classified under 'Educational Establishment' and defined below.

Educational Establishment: *means the use of premises for—*

(a) training and instruction to impart knowledge and develop skills; or

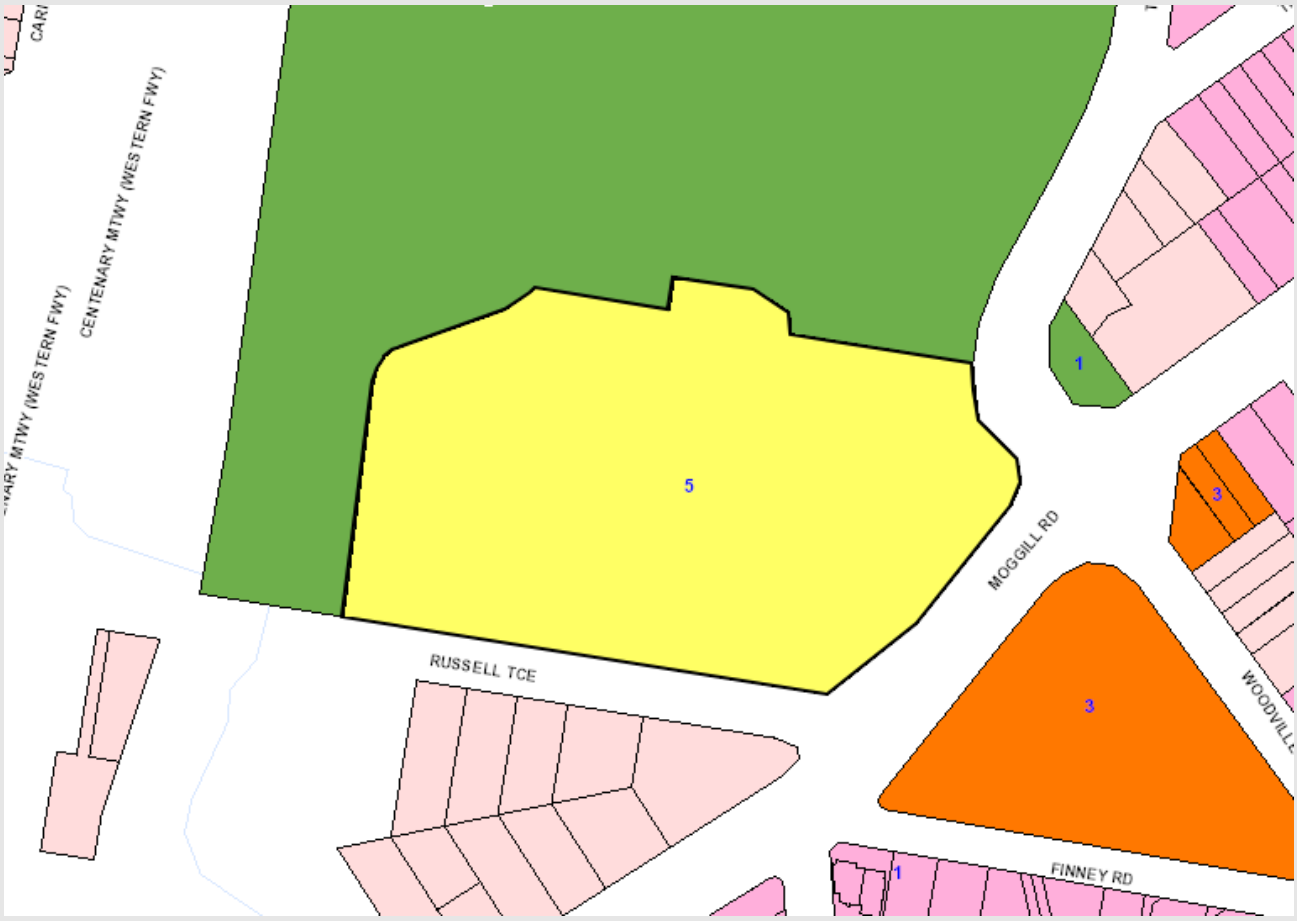
(b) student accommodation, before or after school care, or vacation care, if the use is ancillary to the use in paragraph (a).

In accordance with Table SC1.1.2.B – Defined activity groups, an Educational Establishment is listed under the Community Facilities – Education Purposes under the Planning Scheme.

6.4 Zoning

Under Part 6 of the Planning Scheme the subject site is identified within the CF5 Community Facilities (Education Purpose) Zone, as indicated in the Figure 8 below.

Planning Scheme – Zoning



Source: Brisbane City Plan

Legend

Zones:
- LDR Low density residential
- CR1 Character residential (Character)
- CR2 Character residential (Infill housing)
- LMR1 Low-medium density residential (2 storey mix)
- LMR2 Low-medium density residential (2 or 3 storey mix)
- LMR3 Low-medium density residential (Up to 3 storeys)
- MDR Medium density residential
- HDR1 High density residential (Up to 8 storeys)
- HDR2 High density residential (Up to 15 storeys)
- TA Tourist accommodation
- NC Neighbourhood centre
- DC1 District centre (District)
- DC2 District centre (Corridor)
- MC Major centre
- PC1 Principal centre (City centre)
- PC2 Principal centre (Regional centre)
- LII Low impact industry
- IN1 General industry A
- IN2 General industry B
- IN3 General industry C
- SI Special industry
- II Industry investigation
- SR Sport and recreation
- SR1 Sport and recreation (Local)
- SR2 Sport and recreation (District)
- SR3 Sport and recreation (Metropolitan)
- OS Open space
- OS1 Open space (Local)
- OS2 Open space (District)
- OS3 Open space (Metropolitan)
- EM Environmental management
- CN Conservation
- CN1 Conservation (Local)
- CN2 Conservation (District)
- CN3 Conservation (Metropolitan)
- EC Emerging community
- EI Extractive industry
- MU1 Mixed use (Inner city)
- MU2 Mixed use (Centre frame)
- MU3 Mixed use (Corridor)
- RR Rural residential
- RU Rural
- T Township
- Refer to Part 10 of the planning scheme

Community facilities:
- CF1 Major health care
- CF2 Major sports venue
- CF3 Cemetery
- CF4 Community purposes
- CF5 Education purposes
- CF6 Emergency services
- CF7 Health care purposes

Specialised centre:
- SC1 Major education and research facility
- SC2 Entertainment and conference centre
- SC3 Brisbane Markets
- SC4 Large format retail
- SC5 Mixed industry and business
- SC6 Marina

Special purpose:
- SP1 Defence
- SP2 Detention facility
- SP3 Transport infrastructure
- SP4 Utility services
- SP5 Airport
- SP6 Port

The purpose of the Community facilities zone code is to provide for community related activities and facilities whether under public or private ownership. These may include the provision of municipal services, public utilities, government installations, hospitals and schools, transport and telecommunication networks and community infrastructure of an artistic, social or cultural nature.

The following overall outcomes are to be achieved by development in the Community Facilities zone:

(a) Development contributes to the city being well served with community buildings, facilities, spaces and activities meeting the diversity of community needs.

(b) Development provides for both privately owned community facilities and community facilities that are owned or operated by federal, state or local government.

(c) Development that limits the ongoing operation and expansion of an existing community facility or prejudices the establishment of a new community facility appropriate to the relevant zone precinct is not accommodated.

(d) Development in a particular zone precinct is predominantly for community facilities that are envisaged in that zone precinct, unless an appropriate adaptation of the premises for another community facility use can be demonstrated.

The Ipswich SS is an existing State government educational establishment with the proposed works consistent in scale, height and bulk of development at the school. The proposed master planned development does not include a reconfiguration component and will not prejudice the established use of the site, and is in keeping with the purpose and character of the facility and community needs.

The location of the proposed works is well separated from adjacent detached dwellings and will be appropriately attenuated to further minimise potential impacts to amenity.

The new development will utilise existing established urban infrastructure on the site.

6.4.1 Local Plan

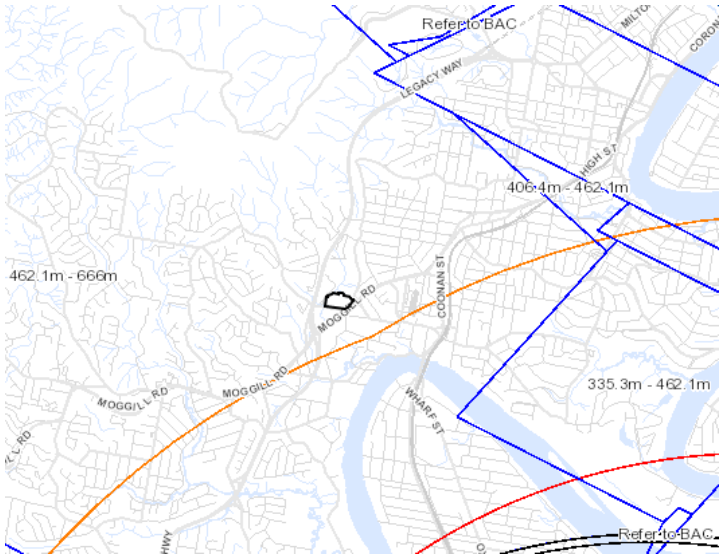
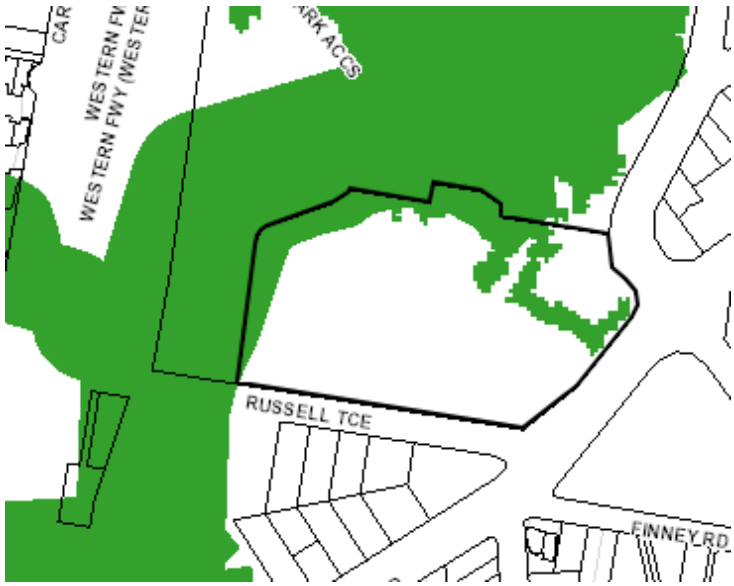
The site is identified as being within the *Toowong—Indooroopilly district neighbourhood plan* under the City Plan.

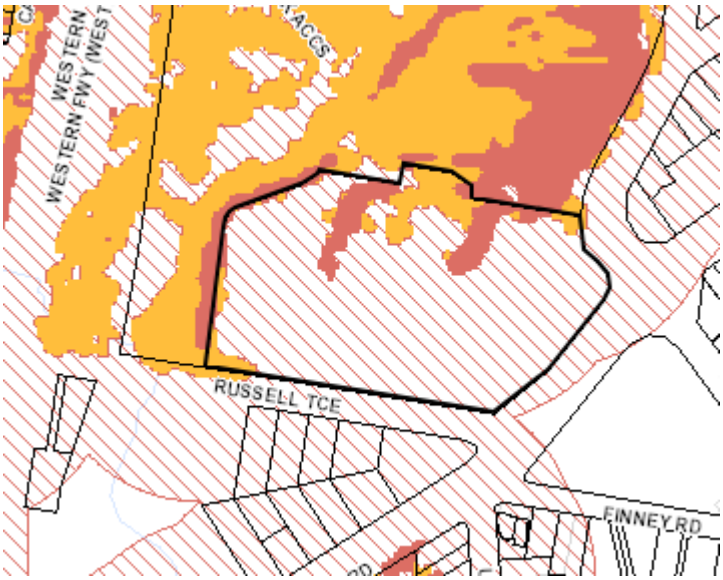
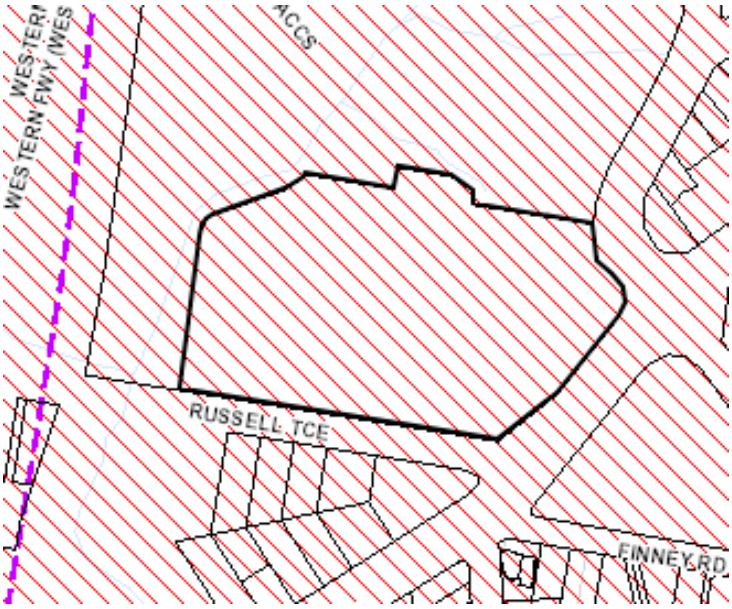
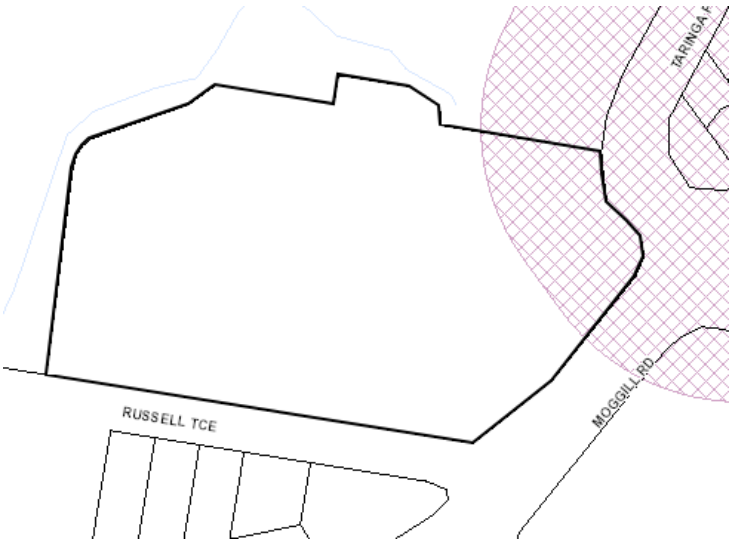
The site is not in a specific precinct of this neighbourhood plan and therefore no additional provisions apply to future development on this site as a result of its inclusion.

6.5 Overlays

The planning scheme identifies physical constraints affecting development through the inclusion of overlays. Where a site is affected by a Council constraint, additional development limitations may be placed over the property/s by the Planning Scheme.

It is noted that the site is affected by the following overlays:

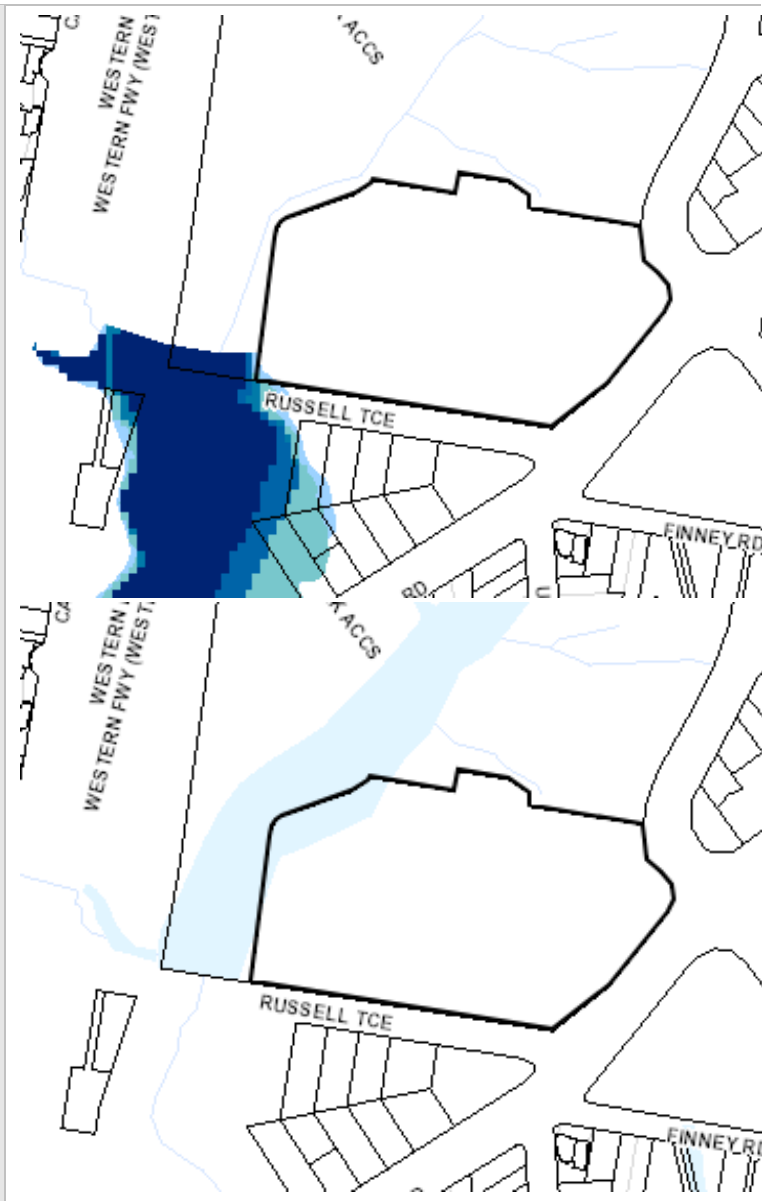
Overlay	Overlay map
Airport Environs The site is identified within the: • Procedures for Air Navigation Surfaces (PANS); and • Bird and Bat Strike zone (Distance from Airport 3-8km)	
Bicycle network overlay The site is identified within the: • Moggill Road is identified as a primary cycle route; • Russell Terrace is identified as a secondary and local cycle route; and • Taringa Parade is identified as a secondary cycle route.	
Biodiversity areas overlay Parts of the site are mapped as being affected by high ecological significance. This is generally related to Witton Creek at the base of the school and adjoining Moore Park.	

Bushfire overlay • The site is identified in the Medium and High hazard areas and medium and high hazard buffer areas.	
Critical Infrastructure and Movement Network • The site is mapped within the critical infrastructure and movement planning area.	
Industrial Amenity Overlay The north-eastern corner of the site is mapped as being affected by the industrial amenity investigation area. The site's inclusion is a result of the existing fuel station (Freedom Fuels) located on Moggill Road north of the site.	

Flood Hazard overlay

A small portion of the south-western corner of the site is mapped within the:

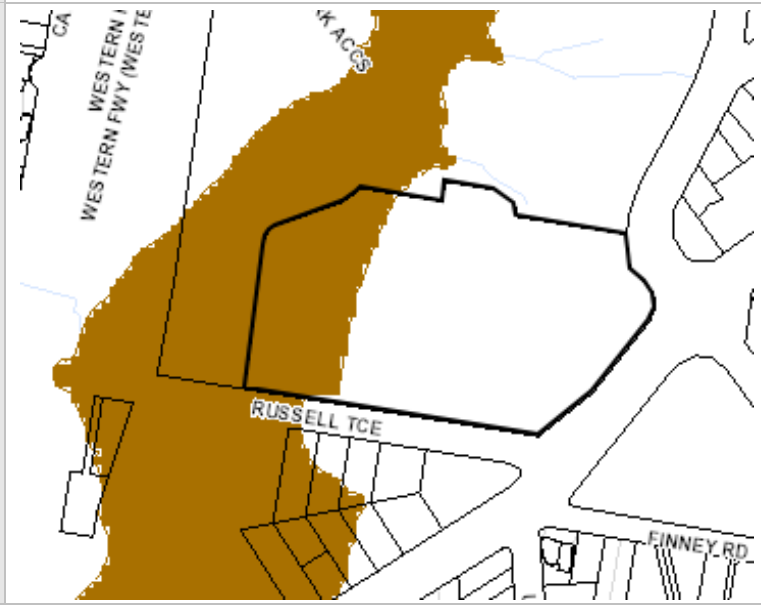
- Creek/ Waterway flood planning area (sub- category 4 and 5); and
- Overland flow flood planning area.



Potential and actual acid sulphate soils overlay

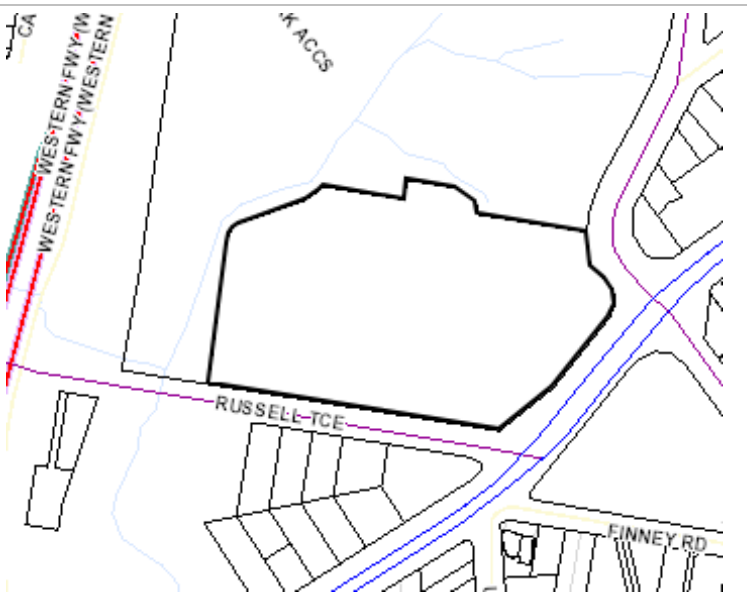
The lower portion, being the western side, of the site is mapped as being affected by land above 5m AHD and below 20m AHD.

This area is currently occupied by the school sporting oval.



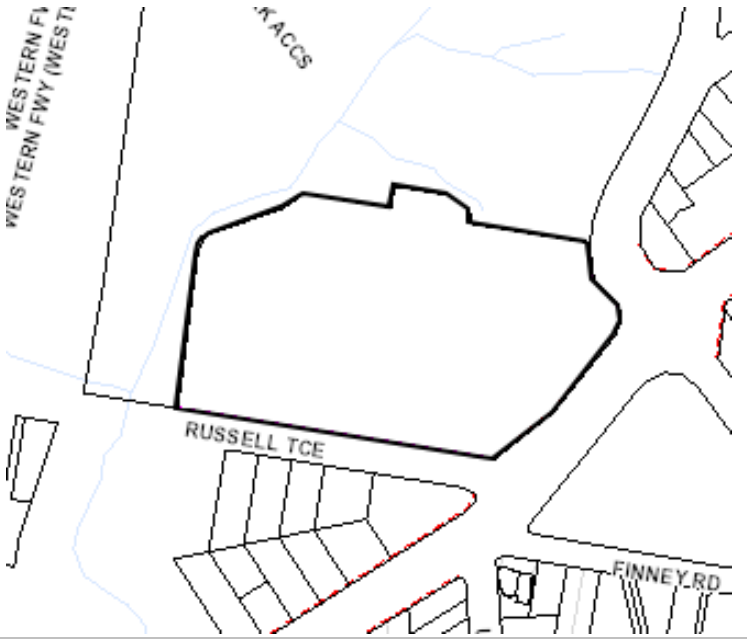
Road Hierarchy

- The site has frontage to Moggill Road, which is identified as an Arterial Road
- Russell Terrace and Taringa Parade are both identified as District Roads.



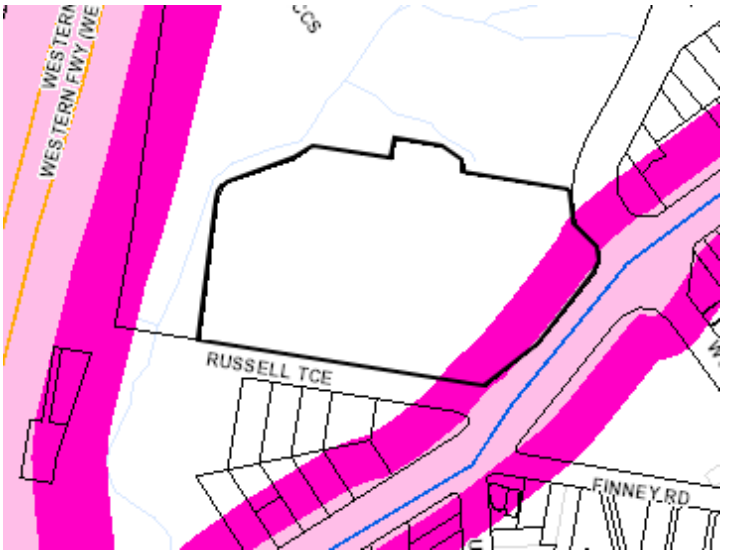
Streetscape Hierarchy

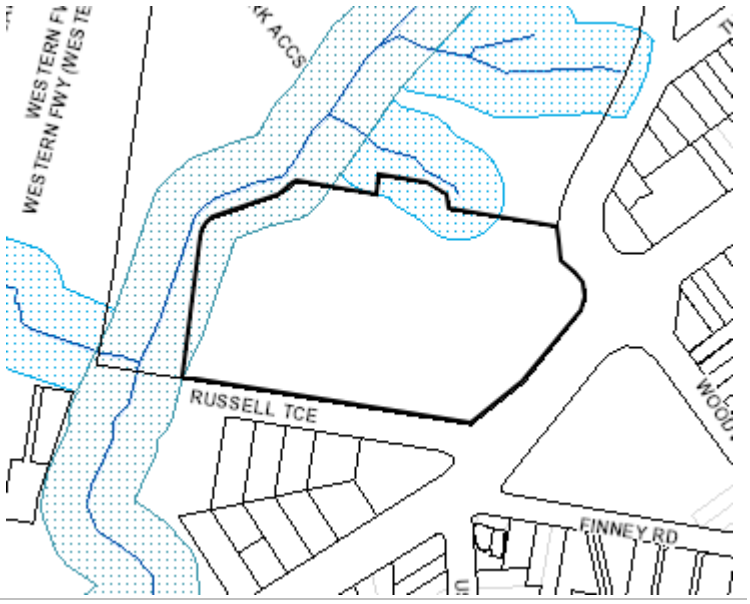
- Moggill Road street frontage is classified as sub tropical boulevard – out of centre; and
- Russell Terrace and Taringa Parade are classified as Neighbourhood Street – Major.



Transport air quality corridor overlay
The eastern boundary of the school, alongside Moggill Road, is identified within:

- transport air quality corridor – transport air quality A and B.



Transport noise corridor overlay • The site is identified as being within the Noise Corridor – Brisbane and State Designated Noise Corridor – State Controlled Road (Mandatory Area).	
Waterway corridors overlay Witton Creek runs along the western and a small portion of the northern boundaries of the site and therefore included as containing: • a citywide and local waterway corridor and waterway centreline.	

7 State Planning Framework

7.1 The Planning Act 2016

Under Schedule 2 of the PA, a state interest means an interest that the Minister considers—

- affects an economic or environmental interest of the state or a part of the state' or
- affects the interest of ensuring that the purpose of the Act is achieved.

The State Planning Policy (SPP) is the overarching document which promotes the state's interests in land use planning and development. Under section 8(4) (a) of the PA the SPP has effect throughout Queensland and sits above regional plans and planning schemes in the hierarchy of planning instruments.

7.2 State Planning Policy

The SPP applies to the extent relevant when designating premises for infrastructure. When making or amending a designation, the Planning Minister must have regard to the relevant parts of the SPP as shown in the table below.

Application of the SPP	Who is responsible	Parts of the SPP that are applicable, to the extent relevant						
		Part A, B & C	Part D	Part E: State interest policies	Part E: Assessment benchmarks	Part F	Part G: Appendix 1	Part G: Appendix 2
Designating premises for infrastructure	State and local government	✓	✓	✓	✓	✓	✓	✓

Consideration of how the proposal meets the relevant parts of the SPP are discussed in further detail below:

7.2.1 The Guiding Principles

OUTCOME FOCUSED

Clearly focus on the delivery of outcomes

- *Plans and development outcomes integrate and balance the economic, environmental and social needs of current and future generations in order to achieve ecological sustainability.*
- *Plans express clear performance outcomes for development, supported by a range of acceptable outcomes, where possible.*
- *Innovative and flexible approaches to design and development are supported and encouraged when consistent with a plan's strategic intent.*
- *Decision making ensures that, where acceptable, when outcomes are satisfied by development, then the relevant performance outcome is taken to be satisfied in full. Performance outcomes may still be satisfied, even though an associated acceptable outcome is not met.*
- *Plans and development outcomes support stated objectives, needs and aspirations of the community at the state, regional and local level.*

The proposal seeks to designate the site for the purposes of delivering improved educational facilities for the school. The designation considers economic, environmental and social needs of current and future generations through the delivery of the infrastructure.

INTEGRATED

Reinforce the role of local planning schemes as the integrated, comprehensive statement of land use policy and development intentions for a local area

- *Plans coordinate and integrate land use policy for a local area by considering:*
  - *— international agreements, such as the UNESCO world heritage listing of the Great Barrier Reef and Ramsar Convention*
  - *—national, state, regional and local matters, to the extent relevant.*
- *Plans integrate land use, resource management and infrastructure needs and considerations.*
- *Plans support a 15 year supply of land for development.*
- *The zoning of land reflects and responds to the characteristics of the land that constrain its use.*
- *Overlays should be compatible with and not operate either individually or cumulatively to prevent or restrict land from being used for the purpose for which it has been zoned.*
- *Plans include a performance-based assessment of development against a clear hierarchy of policies linked to the achievement of realistic and long-term strategic planning.*

Not applicable as the proposal is for an Infrastructure Designation and not for plan making.

EFFICIENT

Support the efficient determination of appropriate development

- *Plans and assessment processes result in development outcomes that are certain, responsive and performance-based.*
- *Plans regulate development only to the extent necessary to address potential impacts. When applied, plans adopt the lowest appropriate level of assessment required to efficiently and effectively address those impacts.*
- *The level of assessment for development is proportionate to the potential impacts and level of risk of the development being regulated and a plan's strategic intent and purpose of the relevant zone, local plan and/or precinct, for instance development that is:*
  - *—minor, low-risk and that is encouraged or contemplated in a zone should be identified as accepted development*
  - *— consistent and in accordance with the broad intent of a zone and able to be assessed against assessment benchmarks, should be identified as code assessable development*
  - *— contrary to the intent of a zone, requires public input or is unforeseen by a planning scheme, should be identified as impact assessable development and assessed against a broader range of matters.*

The proposal seeks to designate the site for the purposes of providing improved educational facilities at Indooroopilly SS. The designation forwards the efficient and timely delivery of infrastructure while ensuring that subsequent works on the site can proceed without assessment against the *Brisbane City Plan 2014.*

POSITIVE

Enable positive responses to change, challenges and opportunities

- *Contemporary information, challenges and community needs and aspirations are reflected through up-to-date plans.*

- *Evidence and objectively assessed needs form a basis for planning that uses the best available knowledge.*
- *Plans are written using clear, concise and positive language to describe what outcomes are sought, required or encouraged in a particular location, rather than what is to be avoided, prevented or discouraged.*
- *Community health and wellbeing, and resilience and adaptability to change (including economic change, social change, and climate change adaptation and mitigation), are promoted in plans and development outcomes.*
- *Plans adopt a performance-based approach to development assessment to allow for innovation and flexibility in how development in a local area can be achieved.*
- *Plans are drafted to ensure that development is assessed on its individual merits.*

Not applicable as the proposal is for an Infrastructure Designation and not for plan making.

ACCOUNTABLE

Promote confidence in the planning system through plans and decisions that are transparent and accountable

- *Plans and development outcomes reflect balanced community views and aspirations based on a clear understanding of the importance of the community's involvement in plan making.*
- *Plans resolve competing state and local interests through using an evidence-based approach, which balances community needs, views and aspirations.*
- *Reasonable, logical and fair development decisions are supported by clear and transparent planning schemes.*
- *Plans only seek to regulate land use and planning outcomes and do not address matters regulated outside of the planning system, for instance building work regulated under the Building Act 1975 (unless permitted).*
- *Obtaining access to planning information is simple and direct, capitalising on opportunities presented by information technology.*

The infrastructure designation process is proposed in accordance with Chapter 2 of the PA. Development of plans and assessment of impacts has had due consideration to relevant state and local plans and mapping and consultation with relevant State agency stakeholders, political representatives, local government and the community will occur as part of this process.

7.2.2 State Interest Statements

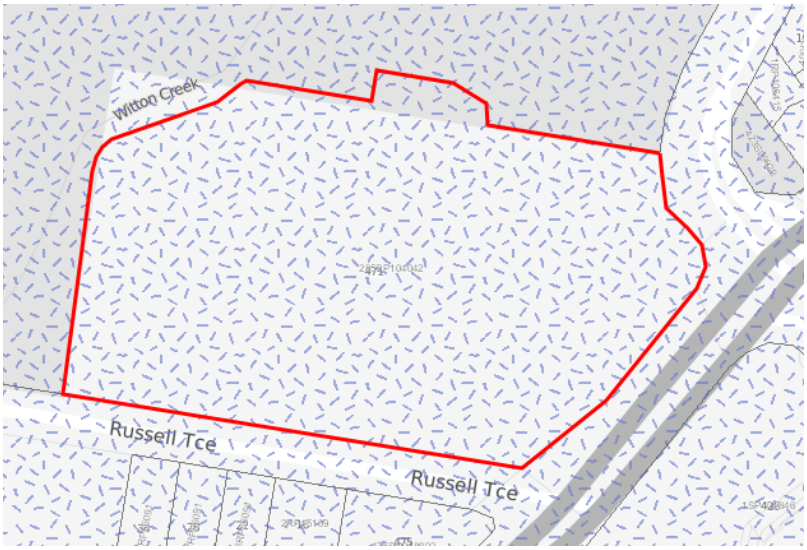
The following table lists the State interests contained in the SPP relevant to the subject site.

State Planning Policy	Applicability
Planning for Liveable Communities and Housing	
Liveable Communities	N/A
Housing Supply and Diversity	N/A
Planning for Economic Growth	
Agriculture	N/A
Development and Construction	N/A
Mining and Extractive Resources	N/A
Tourism	N/A

Planning for the Environment and Heritage	
Biodiversity	Yes
Coastal Environment	N/A
Cultural Heritage	N/A
Water Quality	Yes
Planning for Safety and Resilience to Hazards	
Emissions and Hazardous Activities	N/A
Natural Hazards Risk and Resilience	Yes
Planning for Infrastructure	
Energy and Water Supply	N/A
Infrastructure Integration	N/A
Transport Infrastructure	N/A
Strategic Airports and Aviation Facilities	Yes
Strategic Ports	N/A

7.2.3 SPP Interactive Mapping System

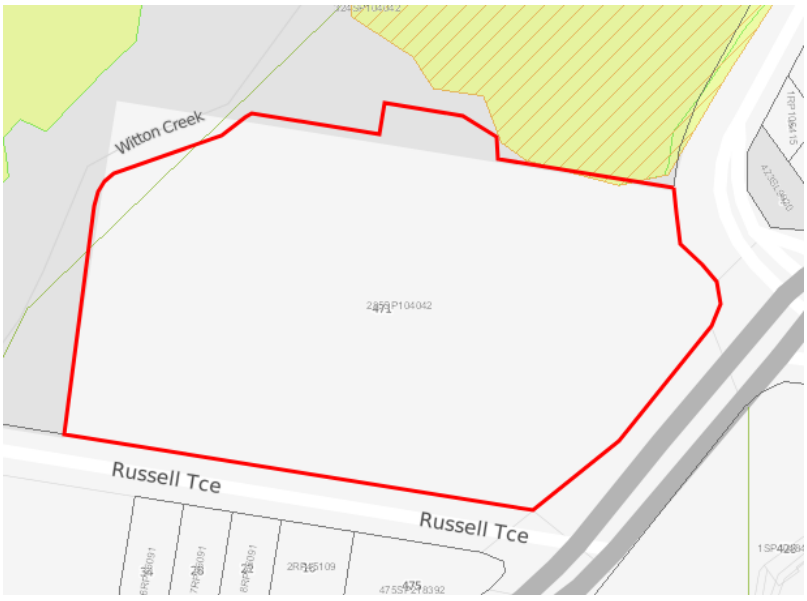
Relevant state interests as identified in section 7.2.2 are further described in the following table, as obtained from the SPP Interactive Mapping System:

State Interest	Mapping Layer
Water Quality The site is within the water resource catchments and reference should be made with the SPP, including the SPP Code: Water Quality. A site-based stormwater management plan has been prepared and is provided in **Appendix 11.**	

Biodiversity

The site is mapped within the Matters of State Environmental Significance (MSES) – for wildlife habitat and Regulated vegetation (essential habitat and intersecting a watercourse).

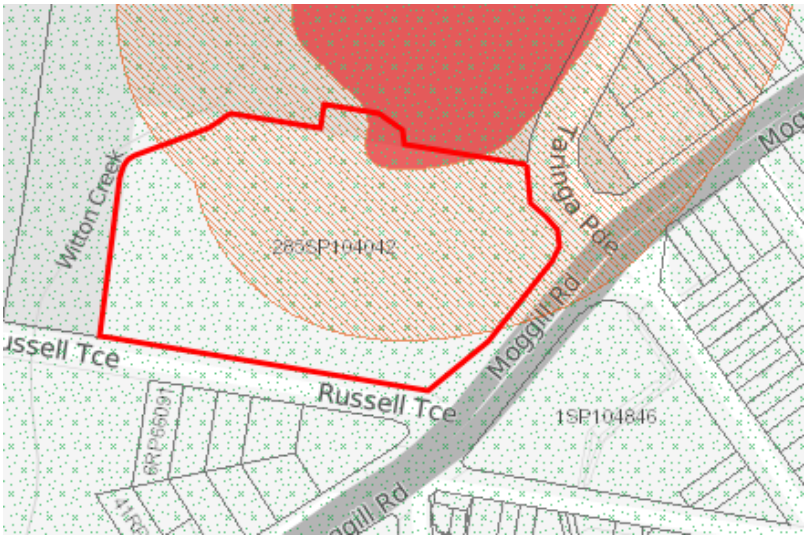
Potential impacts to the biodiversity values have been considered within an Ecological Assessment of the site, refer **Appendix 9**. It provides an assessment that the project is unlikely to have a significant impact on any MNES or MSES.



Natural Hazards Risk and Resilience

With reference to the Planning Scheme, a small portion of the south-west corner of the site is within the flood planning area (category 4 and 5) and the western boundary within the overland flow flood planning area. Development is not proposed in these areas and no impacts are anticipated.

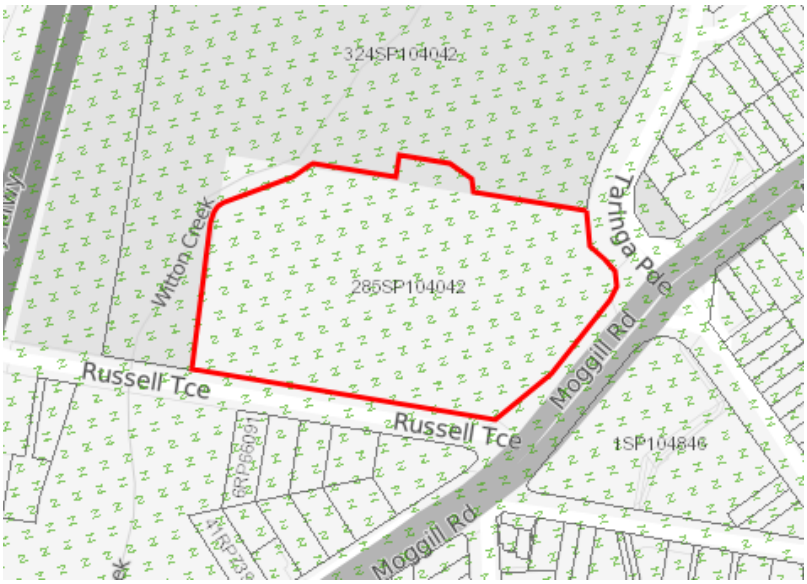
The site is also mapped within the Medium and High hazard areas and medium and High hazard buffer areas. A Bushfire Hazard Assessment has been prepared and provides a recommendation, refer **Appendix 10**.



Strategic Airports and Aviation Facilities

The site is in the 8km wildlife hazard buffer area.

Nil impacts are anticipated as the proposed development will not be of a height, emit light, or be an attractor of bird or bat wildlife, that would obstruct the safe movement of aircraft.



7.2.4 Stormwater Management Design Objectives

Information on how the proposal meets the SPP stormwater management design objectives is discussed further in Part F – Environmental Assessment.

7.3 Regional Planning

The site is included within the Urban Footprint of the *South East Queensland Regional Plan 2017*.

The Urban Footprint identifies land within which the region's urban development needs to 2041 can be accommodated in a way consistent with the goals, elements and strategies of *ShapingSEQ*.

The Urban Footprint identifies land that can meet the Region's urban development needs seeks to incorporate the full range of urban uses including housing, industry, business, infrastructure, community facilities and other integral components of well-planned urban environments, such as local areas for sport and recreation and urban open space.

The Indooroopilly SS and proposed scope of works are considered consistent with the intent of the Regional Plan, providing additional community infrastructure that supports the existing and future residential community.

Regional Plan – Urban Footprint

Source: DSDMIP SARA

Legend

- Site Boundary
- Urban Footprint

PART F – ENVIRONMENTAL ASSESSMENT

8 Environmental Assessment

Before designating land for infrastructure, the Minister must be satisfied that adequate environmental assessment, including adequate consultation, has been carried out in relation to the development that is subject to the designation.

The environmental assessment must have regard to—

- all planning instruments that relate to the premises; and
- any assessment benchmarks, other than in planning instruments, that relate to the development that is the subject of the designation or amendment; and
- if the premises are in a State development area under the *State Development Act*—any approved development scheme for the premises under that Act; and
- if the premises are in a priority development area under the *Economic Development Act 2012*—any development scheme for the priority development area under that Act; and
- any properly made submissions made as part of the consultation carried out under section 37; and
- the written submissions of any local government.

This section of the Report provides an environmental assessment of impacts the development or use may generate, and ways in which those environmental impacts are being managed or mitigated. Regard is given to natural and physical resources, as well as short and long term effects and impacts on the environment and community from both the construction and operational phase of the proposal. The range of matters considered includes:

- infrastructure, traffic and transport;
- flora and fauna;
- soils and geology;
- conservation and heritage values;
- natural resources and hazards; and
- health, safety, amenity and social impacts.

Reference should also be made to Part E – Local and State Planning Provisions with regards to mapping relevant to the subject site.

8.1 Road Infrastructure

8.1.1 Site Access and Traffic

Context

The site is not in proximity to a state-controlled road. Under the Planning Scheme the site has frontage to a number of roads, which are all classified as Arterial and District roads.

The school has primary road frontage to Russell Terrace, with secondary frontages to Moggill Road and Taringa Parade. Each frontage includes one or more crossovers, generally limited

access for servicing and maintenance. The main entry and only car park to the school is accessed via Russell Terrace, and contains a boom gate to a restricted car park area with 30 spaces.

Site investigations of the school note:

- traffic demands generated by the school appeared to be more evenly spread across the morning peak period than those generated in the afternoon peak period;
- some parents walked their children to and from the site after parking on Taringa Parade, Russell Terrace and Moore Park (via the internal access road and rear entry to the school);
- parents dropped off and picked up children predominately from drop and go zones on Taringa Parade and Russell Terrace;
- Russell Terrace was particularly congested in the morning with both commuter and school related traffic, resulting in queues extended from Moggill Road back to the Centenary Motorway overpass (over 300m);
- in the afternoon, traffic demands generated by the subject site were highest between approximately 2:50pm and 3:20pm (school finishes at 3:00pm) with traffic demands reducing significantly after this time;
- the drop and go zone on Taringa Parade was particularly congested during the afternoon pick-up peak period with queues sometimes extending back to Moggill Parade; and
- Moore Park was more heavily used by parents during the afternoon peak period.

Proposal

A traffic report has been prepared and included in **Appendix 12** and notes the following:

- operational analysis has been undertaken at the following intersections to determine the potential impact of proposed expansion related traffic:
  - Intersection 1 – Moggill Road/ Russell Terrace; and
  - Intersection 2 – Moggill Road/ Taringa Parade/ Woodville Street.
- the assessment considers potential development related traffic impacts during:
  - 2018 base year (when traffic survey data was captured);
  - 2020 future year (assumed year of opening for proposed expansion Stages 1A and 1B);
  - 2030 future year (assumed 10 years post opening for the proposed expansion Stages 1A and 1B);
  - 2025 future year (assumed year of opening for proposed expansion Stages 2 to 5); and
  - 2035 future year (assumed 10 years post opening for the proposed expansion Stages 2 to 5).
- future year background traffic volumes was estimated based on applying growth rates to surveyed traffic volumes and a review of existing and expected development accessed by each road, which notes:
  - Moggill Road and Woodville Street: 1% p.a.; and
  - Russell Terrace and Taringa Parade: 0.5% p.a.
- 60:40 in:out split for the morning peak and 40:60 in:out split in the afternoon peak periods has been adopted and results show an expected overall increase to traffic generation by 315 trips in the morning peak (189 in and 126 out) and 307 trips in the afternoon peak (123 in and 184 out), which is broken down to:
  - Stages 1A and 1B – 236 trips morning peak (142 in and 94 out) and 230 trips in the afternoon peak (92 in and 138 out) periods; and

  - Stages 2 – 5 – 79 trips morning peak (47 in and 31 out) and 77 trips in the afternoon peak (31 in and 46 out) periods.
- a SIDRA analysis was conducted for Intersection 1 based on the development scenario years and notes:
  - the intersection is currently performing beyond the acceptable performance threshold for a signalised intersection and upgrades are currently required at the intersection.
  - results indicate the expansion is likely to have a relatively minor impact on intersection operations and as such, no upgrades are considered to be required to mitigate development impacts associated with the Stage 1A and 1B expansions.
- a SIDRA analysis was also conducted for Intersection 2 based on the development scenario years and notes:
  - the intersection is currently performing beyond the acceptable performance threshold for a signalised intersection and upgrades are currently required at the intersection.
  - results indicate the Stage 1A and 1B expansion is likely to somewhat impact intersection operations and as such, intersection upgrades have been identified to mitigate expansion related impacts (i.e. upgrades which are expected to result in the intersection performing no worse with the proposed expansion).
  - the upgrade identified involves allowing through movements from the existing left turn only lane on the southwest intersection approach.
  - based on reviews of existing intersection operations, it is believed the through movement from this lane may have been banned due to cars queuing back onto Moggill Road from the school's existing drop and go zone on Taringa Parade.
  - the proposed Council upgrades to the existing drop and go zone on Taringa Parade are expected to resolve or significantly reduce the likelihood of queues reaching Moggill Road and the proposed upgrade to allow through movements is therefore not expected to significantly impact safety.
- with reference to the proposed intersection upgrade to Intersection 2, a SIDRA analysis was then conducted based on the development scenario years and notes:

  results indicate the upgraded intersection configuration will improve operational performance during AM peak periods.
  - whilst the upgrade does not fully offset Stage 1A and 1B expansion related impacts during the PM school peak period, it is important to note that the road/ commuter peak is the critical PM peak period (i.e. intersection performance is worse during the PM road peak).
  - the proposed expansion is expected to typically generate minimal, if any traffic demands during the PM road peak period (i.e. the expansion traffic will largely be confined to the school peak).
  - results indicate that the Stage 1A and 1B expansion is likely to have a relatively minor impact on intersection operations notwithstanding the proposed Intersection 2 upgrade.

Furthermore, it is noted the school also operates an Active School Travel Program every Wednesday. The purpose of the Program is to encourage walking, public transport, bike or car pooling to the school. Statistics obtained from the school note that approximately 52% of students partake in the Program and its implementation assists with alleviating traffic concerns.

Actions and Recommendations

On completion of the drop and go zone to Taringa Parade, the DoE to upgrade the left lane (i.e. line marking) on Moggill Road to allow for through movements.

On completion of the General Learning Building, the school to develop and implement a travel demand management plan (TDMP) with the aim to limit development related traffic impacts. The TDMP should have consideration of options including:

- monitor pick-up/ drop-off demands on Russell Terrace, Taringa Parade and in Moore Park and based on these observations, encourage parents to use the less congested location/s;
- encourage use of active (i.e. introduce additional days to the Active School Travel Program) and public transport modes;
- require students in particular grades to be dropped off or picked up from specific locations to assist with the distribution of traffic;
- encourage parents/ guardians to pick-up students15-20 minutes after school finishes instead of immediately after classes finish for the day (e.g. stagger pick-up / drop-off times);
- undertake surveys to understand if there is sufficient demand for school bus service/s and implement service/s if there is sufficient demand; and
- stagger school start and/or end times.

8.1.2 Car Parking and Setdown Areas

Context

The site currently provides a total of approximately 30 car parking spaces for staff only, and is accessed via a controlled access (boom gate) from Russell Terrace. Within this car park there is up to 15 additional informal car parking spaces. Due to the site constraints, this is the only formal car park, with other parking occurring in the road reserve or at Moore Park.

The school does not provide any dedicated formal setdown spaces within the school grounds. The pick-up and drop-off of students occurs through three (3) areas around the school, being Russell Terrace, Taringa Parade and Moore Park (via Russell Terrace).

Site investigations of the school note:

- Russell Terrace was very congested in the morning noting that school and road peak periods overlap.
- although congestion in proximity to school set-down/ pick-up areas is not ideal, observations note there was no significant operational or safety issues;
- during the afternoon school peak period, student pick-up on Russell Terrace operated relatively efficiently with less students picked up from Russell Terrace compared to Taringa Parade;
- during the morning school peak period, the Taringa Parade set-down/ pick-up area operated relatively efficiently with no significant operational or safety issues associated with student set-down observed;
- during the afternoon school peak period, a large number of students were collected from the Taringa Parade set-down/ pick-up area which resulted in queues on Taringa Parade extending back onto Moggill Road, impacting transport network safety and efficiency;
- a number of parents performed U-turns on Taringa Parade after using the set-down/pick-up area impacting transport network safety and efficiency; and
- Moore Park was used by a number of parents for set-down/ pick-up during both the morning and afternoon peak periods and although busy, no significant operational or safety issues were observed.

Proposal

It is re-iterated that the school site is limited in size and does not have sufficient space to accommodate for car parking areas without compromising existing built infrastructure or green/ open play areas. Although the provision of school infrastructure is considered the priority, car parking areas will be provided (i.e. integrated within new developments) where possible.

With regards to car parking, it is noted:

- the existing staff car parking area will remain unchanged and will continue to provide for approximately 30 car parking spaces;
- with reference to Council's Transport, Access, Parking and Servicing (TAPS) Planning Scheme Policy (PSP), an additional 14 car parking spaces (11 staff and 3 visitor) is required based on the proposed master plan and will be delivered as part of the future upgrade of the Administration and Library Building, with an additional 14 car parking spaces proposed to the basement level;

With respect to setdown areas, again it is noted the school does not have sufficient space to accommodate these areas within the school site. The existing road reserves will therefore continue to operate as the setdown areas for student pick-up and drop-offs. The traffic assessment (refer **Appendix 12**) notes the following

- the Department of Transport and Main Roads (TMR), 'Planning for Safe Transport Infrastructure at Schools' (PSTIS), 2011 guideline recommends that 20% of the short term (i.e. visitor) parking supply should be provided as drop and go bays;
- the proposed expansion only requires one (1) additional visitor bay and additional drop and go bays are not considered warranted;
- initial reviews of the Council proposed upgrade to the Taringa Parade drop and go zone note the design is likely to significantly improve the number of setdown spaces available for pick-up/ drop-offs and accommodate for the additional demands associated with the expansion.
- notwithstanding this, improvement to the operation of the Taringa Parade drop and go zone during the afternoon school peak period could be further improved with the implementation of a TDMP.

Actions and Recommendations

As identified on the master plan for the future redevelopment of the Administration and Library Building, the DoE will ensure future designs of the facility includes the additional 14 car parking spaces as required under Council's TAPS PSP.

The DoE will undertake reviews of the finalised Council 'drop and go' zone proposal plans once available and where necessary, update traffic/ parking assessments to ensure the setdown spaces are sufficient to support school population numbers.

The operation of the Taringa Parade set-down/ pick-up area during the afternoon school peak period should also look to implement a TMDP to further improve traffic and parking at the school.

8.1.3 Public Transport Infrastructure

Context

The use of public transport is a preferred travel mode and highly encouraged by the school, for students, staff and visitors.

The school has access to two (2) bus stops within 50m distance of the site, and located at the site's frontage alongside Moggill Road. These bus stops provide numerous inbound and outbound services which provides connections between the western suburbs to Brisbane City.

Proposal

Information obtained from the school and from site investigations note that only a small proportion of students utilise bus services to, and from, the school. The use of vehicles as the preferred mode of travel is particularly relevant for primary schools as parents generally want supervision of their children to and from the school grounds.

Given the above, the traffic assessment notes that the additional student enrolments are therefore not considered significant enough to have an impact on the existing public transport modes.

Actions and Recommendations

The school is not a significant user of public transport services and it is therefore not anticipated the development triggers the need for any modifications to the existing public transport network or public transport services.

8.1.4 Active Transport Infrastructure

Context

The subject site is located within a well-established urban network and as such, benefits from access to an existing comprehensive active transport network. Typically, all roads within 800m of the subject site (i.e. 10-minute walking distance) have a concrete footpath on at least one side. Importantly, there are existing paths along all frontages to the subject site.

To assist pedestrians crossing roads in proximity to the subject site, it is noted there are:

- signalised crossings at the Moggill Road / Russell Terrace and the Moggill Road / Taringa Parade / Woodville Street intersections; and
- children's crossings located on Russell Terrace and Taringa Parade.

The school also provides four (4) areas for bicycle parking, accommodating for approximately 48 spaces. The bicycle rack areas are located adjoining the tennis courts (2 areas), Block D and Block C and easily accessible from the school access points off Russell Terrace and Taringa Parade.

Proposal

With reference to the traffic assessment in **Appendix 12**, it is noted the footpath on the eastern side of Russell Terrace, in proximity to the Moore Park driveway access is narrow and becomes congested during school peak periods due to the high number of pedestrian movements. Given this, some pedestrians were observed to walk along the Russell Terrace roadway as there was no dedicated pedestrian path connecting the footpath on the eastern side of Russell Terrace towards the Moore Park driveway access. This results in potential safety and movement issues to both pedestrians and vehicles and should be addressed as part of future works associated with the master plan.

With regards to the provision of bicycle parking spaces, it is noted the TAPS PSP only requires space allocation for students above Grade 4. As the school caters for students in prep to grade 6, an assessment has been assumed based on the additional enrolments as part of Grades 5 and 6.

The total number of bicycle spaces required as part of the master plan equates to an additional 23 spaces. Although the proposed works associated with the master plan notes the need for an additional 23 bicycle spaces, information provided by the school notes the existing bicycle storage spaces (which currently provides for 48 bicycle spaces) are underutilised and has capacity for additional users. As such, it is recommended the school continue monitoring bicycle user demands as the school population increases and where necessary, provide additional spaces as part of the ongoing works associated with the master plan.

Actions and Recommendations

The DoE, as part of future funding works associated with the master plan, will seek to undertake the following works to improve safety issues associated with existing arrangements:

- widen the existing footpath on the eastern side of Russell Terrace, in proximity to the Moore Park driveway.
- provide a dedicated pedestrian path, connecting the footpath on the eastern side Russell Terrace to Moore Park in proximity to the Moore Park driveway access.

The School will also continue monitoring bicycle users and where warranted, provide additional spaces to meet demands as necessary.

8.2 Services Infrastructure

8.2.1 Water Infrastructure

Context

The school has access to water infrastructure via a 100mm connection on Russell Terrace to the trunk main (600mm connection along Moggill Road). A 50mm connection is also included in the Taringa Parade road reserve. Hydrants are located in Russell Terrace and Taringa Parade.

Proposal

As the proposed building is internal to the site, no changes are proposed to the existing water connection.

Future master planning of the site will require investigations into the water infrastructure to determine whether any upgrades are required.

Actions and Recommendations

The adequacy, capability and location of the existing water infrastructure to service the proposed development will be confirmed prior to the construction phase.

8.2.2 Sewer Infrastructure

Context

The existing school buildings are serviced by a Queensland Urban Utilities (QUU) sewer property connection in the south east corner of the site.

Proposal

As the proposed building is internal to the site, no changes are proposed to the existing sewer connection.

Future master planning of the site will require investigations into the sewer infrastructure to determine whether any upgrades are required.

Actions and Recommendations

The adequacy, capability and location of the existing sewer infrastructure to service the proposed development will be confirmed prior to the construction phase.

8.2.3 Stormwater Infrastructure

Context

The existing site stormwater flows towards the front of the site into a gully outlet headwall, which then discharges into Witton Creek. The proposed development results in an increase to impervious area and addressing potential stormwater impacts on the site requires appropriate consideration.

Proposal

A Stormwater Management Plan is included in **Appendix 12** and notes the following with regards to the proposed development:

- for completion of each individual stage, stormwater quality treatment is not a requirement;
- the proposed General Learning Building proposes to install new stormwater pipes from the building to convey stormwater to discharge into Witton Creek;
- notwithstanding the above, for completion of the master plan a stormwater quality treatment system needs to be provided, with the size of the system to be determined during detailed design and through use of appropriate methods (i.e. MUSIC modelling); and
- the existing stormwater inlets and pipes in the vicinity of the proposed new building and the astro turf play area are heavily blocked with leaves and debris and the school confirms the area is subject to ponding during previous heavy rainfall events.
- stormwater detention will not be required as the site is within close proximity to the creek and will be discharging directly to the creek along the western boundary of the site.

Actions and Recommendations

The proposed development shall incorporate the stormwater management measures as summarised above and as described in the Stormwater Management Plan in **Appendix 12**. As a summary the following recommendations are noted in the Plan:

- the design of the stormwater drainage system is required as part of the ultimate master plan and should be designed in accordance with the local council infrastructure design guidelines and the Queensland Urban Drainage Manual (QUDM);
- roof water from the proposed General Learning Building is to be captured in gutters and piped to the existing roof water drainage system and designed by a qualified hydraulic engineer;
- all stormwater pits and pipes must be cleaned to the outlets to prevent future ponding and blockages;
- where overland flow and ponding issue continue after cleaning of outlets then the DoE, as part of future programs of work, will investigate the provision of additional stormwater pits to ensure sufficient runoff capture during heavy rainfall events;
- a suitable drainage system is to be provided behind any proposed retaining wall; and
- water proofing of any retaining walls and structures shall be designed in accordance with the Architect's details.

8.2.4 Electricity Infrastructure

Context

The existing site supply to the school is via an underground connection. The main switchboard to the site is an external stainless steel enclosure located within the Administration Block.

Proposal

The existing pad-mounted transformer is 750kVA (supplying up to 1043A per phase) and is considered adequate for the existing and proposed building load. A new conduit run will be required from the existing electrical pit to the south of Block F to the new building.

The proposed General Learning Building's maximum demand is estimated to be in the order of 200A/phase over the 4 levels of the building accommodating general lighting, power and air-conditioning. This is based on 100VA/m2 for air-conditioned space, and 15VA/m2 for service areas. This estimated maximum demand includes allowance for future enclosure of Levels 0 and 1 and their associated air-conditioning load.

Therefore the estimated site maximum demand, inclusive of the new building, is 576A/phase and the existing site supply infrastructure is considered able to support the new Learning Centre and no power supply infrastructure upgrades are required.

Future master planning of the site will require investigations into the electrical infrastructure to determine whether any upgrades are required.

Actions and Recommendations

The adequacy, capability and location of the existing electricity infrastructure to service the proposed development will be confirmed with Energex prior to the construction phase.

8.2.5 Telecommunications Infrastructure

Context

The existing Communications Centre of Network is located in the telecommunications room within Block C. The existing infrastructure has sufficient spare capacity to accommodate any new connections.

Proposal

The existing infrastructure will generally remain in its current state and be utilised for connection to the new building where possible. Some new conduits and hard surface cutting will be required to connect the new building to the existing pit and pipe infrastructure.

A new conduit run will be required from the existing communications pit south of Block F to the new building. This main conduit pathway will run north-south on the western side of the 'Singleton' courtyard along the front of Block F.

Future master planning of the site will require investigations into the communications infrastructure to determine whether any upgrades are required.

Actions and Recommendations

The adequacy, capability and location of the existing telecommunications infrastructure to service the proposed development will be confirmed prior to the construction phase.

8.3 Flora and Fauna

8.3.1 Vegetation Management Act 1999

Context

Vegetation clearing is predominantly regulated under the *Vegetation Management Act 1999* (VMA) and the PA. A development permit is required to clear where the clearing is not exempt clearing work through the *Planning Regulation 2017*, or where it cannot be carried out under a self-assessable vegetation clearing code or an area management plan under the VMA.

Many routine vegetation management activities can be carried out as exempt clearing work listed in the *Planning Regulation 2017*, or through an self-assessable vegetation clearing code or an area management plan (AMP). The need for a development approval depends on the type of vegetation; the land tenure of the land (e.g. freehold or Indigenous land); the location, extent and purpose of the proposed clearing; and who is proposing to do the clearing (e.g. state government body, landholder).

Proposal

The Department of Environment and Science (DES) regulated vegetation management mapping shows the entire site free of remnant vegetation (refer to **Appendix 7**).

The State Regional Ecosystem mapping identifies the vegetation within the proposed development footprint area as non-remnant (including the 14 native trees required for removal), but with a patch of remnant RE 12.11.5 occurring in Moore Park on the northern boundary of the school site. A small patch of remnant RE 12.3.11 also occurs along Witton Creek in Moore Park, within the 100m buffer to the proposed development footprint.

As the site is not mapped as containing areas of remnant or regrowth vegetation the removal of vegetation to accommodate the proposed development is therefore considered “operational works” under the PA. Operational works carried out by or on behalf of a public sector entity authorised under State law to carry out the work is exempt development (PA Section 232 (2)) as prescribed under Schedule 4 of the *Planning Regulation 2017*) and therefore development approval is not required for these activities.

Actions and Recommendations

Vegetation that is not required to be cleared for the proposed development should be protected from construction impacts in accordance with the *AS 4970-2009 Protection of Trees on Development Sites*. In particular, it is recommended that trees are felled away from vegetation to be retained to avoid unnecessary impacts on retained vegetation and landscape plantings should include use of native trees and shrubs to mitigate the loss of feeding resources associated with the native trees cleared for the proposed development.

8.3.2 Environmental Protection and Biodiversity Conservation Act 1999

Context

The purpose of the *Environment Protection and Biodiversity Conservation Act 1999* (the EPBC Act) is to ensure the protection and management of nationally and internationally important flora, fauna, ecological communities and heritage places as defined in the EPBC Act.

The assessment of significant impacts of an action on matters of national environmental significance (MNES) protected under the EPBC Act is prescribed by a variety of policy statements that provide guidelines for the assessment of impact significance (e.g. Commonwealth of Australia 2003, 2013, 2015a, b). Furthermore, the assessment of the significance of impacts of an action on matters of state environmental significance (MSES) protected under various statutes is prescribed by the Queensland Environmental Offsets Policy Significant Residual Impact Guideline (State of Queensland 2014).

Proposal

The EPBC Protected Matters Report (refer **Appendix 8**) identified the following two threatened ecological communities that may occur on or close to the site:

- Coastal Swamp Oak (Casuarina glauca) Forest of New South Wales and South East Queensland ecological community; and
- Lowland Rainforest of Subtropical Australia.

Furthermore, the EPBC Protected Matters Report also identifies 16 flora species listed as threatened species, 31 terrestrial vertebrate fauna species and one insect species listed as threatened species and 25 fauna species listed as migratory species under the EPBC Act that may occur in the study area.

With reference to the Ecological Assessment in **Appendix 14** the proposed General Learning Building requires removal of 14 trees which provides potential seasonal foraging resources for fauna, including seasonally for Grey-headed Flying-fox and possibly rarely for Swift Parrot. However the number of trees proposed to be cleared is not significant and the magnitude of the impact is therefore considered very small. When assessed against the criteria for the assessment of impact significance prescribed by the relevant guidelines for MNES and MSES, the proposal is highly unlikely to result in a significant impact on any fauna species listed as threatened, near threatened or migratory under the EPBC Act.

Actions and Recommendations

Ensure a qualified and experienced fauna spotter-catcher is present to check vegetation for arboreal fauna, and safely remove any fauna immediately prior to vegetation clearing, releasing any captured fauna nearby but outside the works area. If the fauna spotter discovers any animal breeding activity in the clearing area, the clearing would need to occur under a Damage Mitigation Permit issued by DES, which may be held either by the fauna spotter, clearing contractor or DoE.

8.3.3 Nature Conservation Act 1992

Context

The *Nature Conservation Act 1992* (NCA) protects all plants that are native to Australia. The *Nature Conservation (Wildlife Management) Regulation 2006* regulates the clearing of protected plants in Queensland.

Proposal

The NCA Wildlife Online database (refer **Appendix 8**) identifies two flora species listed as threatened or near threatened, five terrestrial vertebrate fauna species, five species listed as threatened or near threatened and seven migratory species within a 2km radius of the study area.

Furthermore, the DES Protected Plants Flora Survey Trigger Map notes the site is a 'high risk' area under the Protected Plants Flora Survey Trigger Map (refer to **Appendix 6**). To meet the obligations of the site's inclusion within the 'high risk' area a flora survey was undertaken and covered the proposed development area as well as a buffer area of 100m around the perimeter of the proposed development area and prepared in accordance with the Flora Survey Guidelines – Protected Plants (EHP, 2016a).

The field survey as detailed in the Ecological Assessment in **Appendix 14** notes the following:

- one near threatened flora species is located just outside of the proposed clearing footprint area of the General Learning Building;
- a group of three individuals of Eucalyptus curtisii (Plunkett Mallee) appears to have been planted as part of rehabilitation plantings at the edge of a footpath between Taringa Parade and the patch of remnant bushland north of the school and comprise two trees with broken stems, 1.5 m and 4 m tall respectively, and a low shrub 0.5 m high;
- these individuals are located approximately 110m from the proposed development footprint and outside the school grounds and as they are planted specimens they are not 'in the wild' and therefore not considered under the NCA;
- the field survey determined that:
  - no other threatened or near threatened species are likely to occur within the impact area based on the type and condition of the vegetation communities present.
  - no active animal breeding places in any of the trees proposed to be cleared and as all the trees are relatively young, none of them are hollow-bearing since their trunks have not reached a size capable of forming hollows.
  - the principal habitat values that these trees provide are largely restricted to food resources for birds and mammals such as flowers, nectar and invertebrates.
  - one potential animal breeding place located close to the proposed development is an arboreal termite nest with an excavated tunnel located in a tree and birds (i.e. Sacred Kingfisher or Forest Kingfisher) may use the cavity excavated into this nest as a nest site during their breeding season that may extend from August to March.

Actions and Recommendations

The Flora Survey Guidelines – Protected Plants (State of Queensland 2016a) stipulate that, where no EVNT species are identified within the clearing "impact" area (which includes the 100m buffer) within a mapped 'high risk' area, an exempt clearing notification form is required to be submitted to DES for any vegetation clearing within a mapped high risk area.

Trees and other vegetation to be removed should be confirmed and inspected for hollows and nests by a suitably qualified person prior to clearing. If hollows, nests or other potential breeding places are present, they must be assessed by a suitably qualified person to determine if they are breeding places in accordance with the NCA. If any breeding places are located within the development footprint a Species Management Plan (SMP) must be approved by DES prior to impacting on the breeding place. Mitigation measures such as the establishment of nest boxes (or other relevant measures) prior to tree clearing may also be required under the SMP.

Immediately prior to removal, vegetation should be inspected for fauna. If fauna is present vegetation clearing should cease and fauna should be allowed to move out of the vegetation clearing area of its own accord and further advice should be sought from a licensed fauna spotter.

8.3.4 Protected and Vulnerable Areas

Context

The map of referable wetlands is a statewide regulatory map under the *Environmental Protection Regulation 2008*. It identifies the location of wetland protection areas (WPA) in Great Barrier Reef (GBR) catchments and also identifies wetlands of high ecological significance (HES) and general ecological significance (GES) across the state.

Proposal

With reference to the relevant state interest trigger maps in **Appendix 6**, the site is not mapped as 'Fish Habitat', 'Waterways for Waterway Barrier Works' or 'Referable Wetlands' under the *Fisheries Act 1994* or the *Environmental Protection Act 1994*.

Furthermore, the Ecological Assessment in **Appendix 14** notes that no watercourse occurs within the school grounds. Wilton Creek is a minor watercourse which flows past the western boundary of the school grounds. No wetland areas of High Environmental Significance or General Ecological Significance occur within or adjacent to the school grounds.

Actions and Recommendations

No further actions or recommendations are considered necessary.

8.3.5 Koala Conservation

Context

The *State Government Supported Community Infrastructure Koala Conservation Policy 2017* (The Policy) regulates the planning and delivery of all Queensland Government supported infrastructure projects, as listed under Schedule 5 of the *Planning Regulation 2017*, and applies to land within the South East Queensland Koala Protection Area (SEQKPA) which result in:

- the clearing of native vegetation that will result in a total cleared area of less than 500m^2;
- a new building and any reasonably associated infrastructure with a total development footprint of less than 500m^2;
- an extension to an existing building and any reasonably associated infrastructure if the extension results in a total development footprint of less than 500m^2;
- extracting gravel, rock or sand from an area of less than 5,000m^2; and
- excavating or filling an area of less than 5,000m^2.

Where a proposed development is located within the SEQKPA and meets any of the above criteria, then a Koala Self-Assessable Management Plan needs to be prepared.

Proposal

The proposal relates to State government infrastructure and involve works with a total development footprint greater than 500m^2. As such, the development is regulated by the *State Government Supported Infrastructure Koala Conservation Policy 2017*, and a Koala Self-Assessable Management Plan has been prepared and included in **Appendix 16**.

The intended outcomes of the Koala Conservation Policy has been appropriately addressed in the Management Plan. Furthermore, the Management Plan also takes into consideration the koala habitat and connectivity values identified and has been specifically developed for the site and proposed development.

Actions and Recommendations

The Management Plan must be considered in all relevant phases of the project and a copy of the document provided to relevant personnel involved in the project including project managers, principal design consultants, landscape architects and construction contractors.

To ensure adequate records are kept of the implementation of these management strategies, reference should be made to Section 4of the Management Plan. The DoE will ensure the Project Manager is responsible in ensuring accurate records are maintained and updated as necessary.

8.3.6 Invasive Species

Context

The *Queensland Biosecurity Act 2014* refers to 'Designated Biosecurity Matter' which includes pest plants and animals. These are further classified as either 'Prohibited' or 'Restricted':

- Prohibited Matter is biosecurity matter not currently present or known to be present in Queensland. It is prohibited because it may have a significant adverse effect on a biosecurity consideration if it did enter Queensland.
- Restricted Matter is biosecurity matter found in Queensland that may have adverse effects on biosecurity consideration if conditions or restrictions under the Act were not imposed.

Prohibited Plants are listed in Schedule 1 Part 3 and Prohibited Animals are listed in Schedule 1 Part 4 of the *Biosecurity Act 2014*. Restricted Plants and Restricted Animals are also listed in Schedule 2 Part 2 of the *Biosecurity Act 2014*.

Proposal

The EPBC Protected Matters Report as included in **Appendix 7** identified invasive fauna and invasive flora species within 1km radius of the site. It is noted the school site is well maintained and therefore unlikely that any declared species will be present on the site.

Actions and Recommendations

Prior to works commencing on site, the DoE will ensure the Contractor undertakes a site inspection to confirm presence of any pest plants and/ or animals. If found, these will be removed in accordance with legislative requirements.

8.4 Soils and Geology

8.4.1 Geotechnical Conditions

Context

Investigations into the ground conditions are required prior to any development works on the site. The investigations should be carried out to establish the nature and type of subsurface material at the site to allow engineering assessment of site classification (AS2870); earthworks recommendations; rock excavatability; groundwater control; and suitable foundation types.

Proposal

A preliminary geotechnical report has been undertaken with a focus on the immediate build for the school, being the proposed multi-storey learning facility. Items raised as part of the preliminary assessment include:

- in-situ soils have been flagged to not be used as structural fill;
- the top of any batter should be at least “H” batter height from any existing buildings;
- due to the presence of trees, and removal of an existing building, the site classification has been nominated as a “P”;
- the soil reactivity, under normal moisture conditions has been nominated as a Class S;
- given the subsurface conditions encountered and expected magnitude of building loads, it is recommended that all footings be founded in the dense to very dense gravel or weathered rock;
- given the natural batter of the existing slopes behind building F, it is anticipated retention in the form of a cantilevered bored pier retaining wall will be required to ensure construction activities can still be carried out; and
- the requirements for ASS testing will be confirmed by a geotechnical engineer prior to the detailed design stage of this proposed development.

The requirements and parameters within the geotechnical investigation will be further investigated and incorporated as detailed design progresses for the proposed development.

Furthermore, future stages of development as part of the master plan will also undertake appropriate geotechnical investigations to inform ground conditions and building requirements.

Actions and Recommendations

The DoE will ensure the Contractor, as part of detailed design, prepares a final geotechnical investigation that confirms the ground conditions and informs building requirements.

The DoE will also ensure future development as part of the master plan undertakes appropriate geotechnical investigations to inform ground conditions and building requirements.

8.4.2 Erosion Risk

Context

The release of sediments or other contaminants to water is an offence under the *Environmental Protection Act 1994*. All activities that expose soil have the potential to result in release of sediment to waterways or stormwater systems.

Proposal

To minimise the risk of releasing sediment (and other contaminants) to waters during construction and to the meet the General Environmental Duty under the *Environmental Protection Act 1994*, a site erosion and sediment control plan (ESCP) is to be prepared in accordance with the IECA Best Practice Erosion and Sediment Control prior to commencing construction.

Actions and Recommendations

The DoE will ensure the Contractor prepares an ESCP that addresses the erosion risks identified for the site, and that the Plan is implemented and monitored throughout the construction phase for the proposed development. It is important to install and maintain appropriate sediment controls during site earthworks to minimise the flow of sediment into Witton Creek, particularly during potential heavy rainfall events.

8.4.3 Acid Sulfate Soils

Context

The western portion of the site, where the existing playing fields are located, is identified as being subject to acid sulfate soils. With reference to Council's Planning Scheme Overlays, the site is mapped as being affected by land above 5m AHD and below 20m AHD.

Proposal

As noted in section 8.4.1 of this Report, a preliminary geotechnical investigation has been undertaken and recommends the requirements for ASS testing be confirmed by a geotechnical engineer prior to the detailed design stage of development relating to Indooroopilly SS.

Actions and Recommendations

The DoE will ensure the requirements for ASS testing are confirmed by a suitable qualified geotechnical engineer prior to the detailed design stage of development relating to the multi-storey learning facility and master plan.

If potential or actual ASS is identified on the site, an ASS investigation should be carried out and managed in accordance with an ASS management plan. Should development works involve the removal of 100m^3 or more; or filling of 500m^3 or more of the material with an average depth off >0.5m, then the SPP State Interest – Water Quality will be triggered.

8.4.4 Contaminated Land

Context

With reference to **Appendix 9**, the site is not listed on the Environmental Management Register (EMR) or Contaminated Land Register (CLR).

Proposal

The proposal will not involve any EMR activities nor involve uses which could contaminate the land.

Actions and Recommendations

No further actions or recommendations are considered necessary.

8.5 Heritage and Native Title

8.5.1 Historical Heritage

Context

The site is not listed on the Local or State Heritage register. A search of the Australian Government's Australian Heritage Places indicated that the site is not listed on the database.

Proposal

As no heritage values exist on site the proposed development will have no further impacts.

Actions and Recommendations

No further actions or recommendations are considered necessary.

8.5.2 Cultural Heritage

Context

The *Aboriginal Cultural Heritage Act 2003* (ACHA) requires that a person must exercise Due Diligence and reasonable precaution before undertaking an activity which may harm Aboriginal Cultural Heritage. The ACHA – Duty of Care Guidelines (the Guidelines) was gazetted in April 2004 to provide guidance on actions required to demonstrate compliance with this Act.

Proposal

Search results from the Department of Aboriginal and Torres Strait Islander Partnership (DATSIP) cultural heritage database shows no records of indigenous cultural heritage within 1km of school site. It should be noted that the absence of recorded Aboriginal cultural heritage places reflects a lack of previous cultural heritage surveys of the area. Therefore, the search is not likely to reflect a true picture of the Aboriginal cultural heritage values of the area.

The proposed development is to be located within an area subject to previous clearing. Therefore, the nature of the activity is likely to be classified as 'area previously subject to significant disturbance' – Category 4, under the ACHA, Section 28 Duty of Care Guidelines. Subject to measures set out in paragraph 5.6-5.12 under Category 4 of the Duty of Care Guide lines, the proposed activates can proceed without further cultural heritage assessment.

Actions and Recommendations

No further actions or recommendations are considered necessary.

However it should be noted that any Aboriginal cultural heritage, if found, is protected under the ACHA even if DES has not recorded it. Contract documents should include provisions for works to cease and the relevant Aboriginal Party to be contacted if evidence of Aboriginal cultural heritage is encountered during site works.

8.5.3 Native Title

Context

Native title recognises the traditional rights and interests to land and waters of Aboriginal and Torres Strait Islander people in accordance with the *Native Title Act 1993*.

Proposal

The proposed development will require confirmation of native title prior to works proceeding.

Actions and Recommendations

The DoE will ensure Native Title is undertaken and confirmed prior to construction.

8.6 Natural Hazards

8.6.1 Flooding

Context

The site is mapped within the Creek/ Waterway flood planning area (subcategory 4 and 5) and overland flow flood planning area. The area identified is towards the southern and western portions of the site, which currently contains the school ovals and playing fields.

Proposal

The proposed development, and master plan, does not locate any school infrastructure within the identified flood planning areas and no flood impacts are therefore anticipated.

Furthermore, the Witton Creek Stormwater Management Plan Technical Report as prepared and published by Council notes the modified peak water levels (m AHD) indicates the 100-year ARI at RL17.0m AHD (WT470). Based on the 100-year ARI of RL17.0m AHD and 500mm freeboard to habitable floor level, a minimum level of RL17.5 is required.

With regards to the proposed multi-storey learning facility, the lowest floor level is designed at RL20.3 and is at a suitable freeboard level.

Actions and Recommendations

Future infrastructure works as part of the master plan will have appropriate consideration to the 100-year ARI level and ensure design of buildings meets the acceptable freeboard levels.

8.6.2 Bushfire

Context

The site is identified within the Planning Scheme under the medium and high hazard areas and high impact buffer areas. Furthermore, the site is also included within the State Planning Policy bushfire hazard mapping for high bushfire hazard and potential impact buffer areas.

In particular the potential bushfire hazards associated with the site include:

- the fire danger season in South-East Queensland, with the worst fire weather conditions experienced through wind conditions from the north. The fire danger is represented through:
  - Fire Danger Index (FDI) values – which represent the chance of a fire starting, its rate of spread, its intensity and the difficulty of its suppression, according to various combinations of air temperature, relative humidity, wind speed and both the long and short-term drought effects. The severe fire weather map accessed on the 'rediportal' indicates the 5% annual exceedance probability FDI for the site is 55.
  - Fire danger ratings (FDR) – which is based on the forecast weather conditions, (i.e. FDI, and advice about the level of bushfire threat on a day). An FDI of 55 is commensurate with a very high to severe FDR and will be associated with hot, dry and windy conditions.
- the fire history of the site, although it is noted there was no widespread evidence of charring on standing trees or fallen timber in the bushfire hazard area north of the site (this does not mean the bushfire hazard area is not subject to fire but suggests a fire in this area is unlikely).
- the likely direction of bushfire attack, which is to the high bushfire hazard area to the north; and
- the potential bushfire hazard from adjacent land uses, which includes:
  - surrounding residential and commercial development (medium density) and open space (parkland) which are not considered a bushfire hazard to the proposed development.
  - potential prescribed burning by Council in Moore Park which are carefully planned and controlled and except for temporary nuisance from smoke and increased traffic, are unlikely to have any significant negative impacts on the proposed development.

Proposal

A Bushfire Management Plan has been prepared and included in **Appendix 15**. The Plan has considered the bushfire hazard of the site as a whole, and recommends a number of mitigation

measures for implementation to ensure compliance with the relevant performance outcomes sought under the Bushfire overlay code and the SPP draft model bushfire hazard overlay code.

The following table provides a summary of the relevant bushfire mitigation measures required for implementation for Indooroopilly SS.

Action	Purpose
Building access/ egress and escape routes	Building access/ egress points and escape routes will be in areas which have a maximum potential radiant heat exposure level of < 10kW/m^2.
Emergency assembly area	Part of the existing oval is > 100m from the bushfire hazard area adjoining the northern boundary of the site and will provide an appropriate emergency assembly area.
Building design and construction	Proposed buildings will meet the fire resistance and safe access/ egress requirements specified in the NCC (volume 1) and will afford occupants with a refuge from bushfire attack under most fire weather conditions. Proposed fencing and retaining walls in the potential impact buffer area will be constructed with fire resistant materials.
Hydrants	Fire-fighter water supply and hydrants will be supplied in accordance with Central South-East Queensland Distributor-Retailer Authority, QUU (incorporating Water Services Association of Australia) standards or the Queensland Fire and Emergency Services guideline Fire Hydrant and Vehicle Access Guidelines. Where there are differences the higher design criteria or performance outcome should prevail. Hydrants will be in positions that have a maximum potential radiant heat exposure level of < 10kW/m^2 and enable fire services to access water safely, effectively and efficiently. No point of a proposed building will be > 120m from a hydrant. Hydrants will be identified with marker posts so that they can be located at all hours.
Vehicle access requirements	Private-access driveways will be designed and constructed in general accordance with Road design requirements for emergency vehicle access in the Bushfire overlay code and will meet the following design criteria: • minimum formed width of 4m; • minimum vertical clearance of 4m to overhanging obstructions and 5m to overhanging power lines; • minimum surface rating of 15 tonnes; • all weather pavement. The vehicle access/ egress to the site is via existing public roads which provide multiple escape routes.
Landscaping	Landscaping around buildings will not exacerbate bushfire hazard on the site and will consist of hard and soft areas including footpaths, playing surfaces, landscaped gardens and lawn. Gardens will not be planted between proposed buildings and the bushfire hazard area adjoining the north boundary of the site. Plantings in gardens will favour species with high moisture content, high salt content and low levels of fine fuel and/or oil content - *Living with the Environment in the Pine Rivers Shire* (Bowden 1999) provides a useful list of plant species which meet these criteria.
Emergency management planning	The existing emergency response plan for Indooroopilly SS will be updated to address a bushfire emergency and changes to site conditions.

The plan below illustrates the recommendations as noted above.

Bushfire Mitigation Plan

Source: LEC

Legend

		Radiant Heat Contour Intervals	
	Site Boundary	< 10kW/m²	> 30m – 100m
	Direction of Downward Slope	10–12.5kW/m²	25m – 30m
	Contour (2m)	12.5–19kW/m²	18m – 25m
	High Bushfire Hazard	19–29kW/m²	12m – 18m
	Escape Route	29–40kW/m²	18m – 25m
E	Emergency Assembly Area	> 40kW/m²	18m – 25m

Actions and Recommendations

The DoE will ensure development at Indooroopilly SS has consideration to the recommendations as identified in the Bushfire Management Plan.

It is noted the total actions in the mitigation plan will ultimately reduce the risk of bushfire hazards to a tolerable level. Where development does not comply with the required mitigation measures then further assessment from a suitably qualified bushfire consultant will be required to provide appropriate alternative recommendations that ensures development addresses the bushfire risks.

8.6.3 Landslip

Context

The site is not mapped as affected by landslip.

Proposal

The proposal for the multi-storey learning facility will involve some earthworks to accommodate the proposed new facilities however will not result in the creation of any potential landslip areas over the site. Furthermore, the design of the proposed multi-storey learning centre has had appropriate consideration to the fall over the site and includes design elements such as suspended walkways, retention walls, significant sub structure and terracing to address the changes in levels.

Actions and Recommendations

No further actions or recommendations are considered necessary.

8.7 Socio-economic Impacts

8.7.1 Socio-economic Profile

Context

Consideration should be given to the social and economic impacts from the proposed development, which includes matters such as employment opportunities, access to services, quality of education and the demographics profile.

Proposal

The Indooroopilly SS will continue to provide positive socio-economic impacts, including:

- continued long-term educational and associated (i.e. trades) employment opportunities;
- investment of over $10 million for the immediate delivery of the learning centre, and additional funding for future master plan works, and the associated benefits to the economy;
- improved educational facilities that meets the projected population growth;
- meeting the demographic profile and providing the community with access to educational services; and
- focus on delivering quality education, with a curriculum that caters for the varied needs and skills of students.

Actions and Recommendations

No further actions or recommendations are considered necessary.

8.8 Construction Impacts

8.8.1 Construction Management

Context

During development and construction it is essential to minimise impacts on students, staff, neighbouring residents and the general public. Consideration for the planning of construction works within an operating school environment is paramount.

Proposal

A Construction Environmental Management Plan (CEMP) is to be prepared for the development. The plan will include at a minimum default noise standards detailed in the *Environmental Protection Act 1994*, dust mitigation methods, waste control and erosion and sediment control plans.

Actions and Recommendations

The DoE will ensure a CEMP is prepared during detailed design and that the Contractor implements and acts in accordance with the Plan during construction.

8.8.2 Hours of Construction Operation

Context

The site is located in an urban area and construction activities should be within appropriate hours to avoid impacts to nearby residences.

Proposal

Unless otherwise approved in any development approvals and/ or statutory permits, works must comply as a minimum with default noise standard detailed in the *Environmental Protection Act 1994* including:

- on a business day or Saturday, before 6.30am or after 6.30pm; or
- on any other day, at any time.

Actions and Recommendations

The DoE will ensure the default noise standards are included as part of the Contractor's CEMP.

8.8.3 Traffic

Context

Traffic associated with construction activities will likely require access via Russell Terrace, Moore Park Access, Moggill Road, and Taringa Parade and may create a nuisance to nearby residences and amenity.

Proposal

With regards to the construction of the multi-storey learning facility, the existing Russell Terrace access point will be used for site access across the lower oval and towards the development site. As a functioning school site it is essential for construction related activities ensure the areas surrounding the proposed building site are kept clean and safe for school users.

Furthermore, access to the proposed development site is across the existing sports oval, which is also used for access to the existing temporary learning buildings. It is therefore essential for construction related activities to also provide suitable access between the existing temporary learning buildings and the rest of the school. Measures to achieve this includes the use of traffic control, safety fencing and signage.

Future development as part of the master plan will have appropriate consideration to the development site area prior to confirming the most relevant site access point. The existing road

networks surrounding the school are all considered appropriate for construction access to utilise for each stage of development which progresses as part of the proposed master plan.

Actions and Recommendations

The DoE and Contractor will provide confirmation on access locations points for the proposed multi-storey learning facility as part of the CEMP. Subsequent stages as part of the master plan will also require the Contractor to confirm appropriate access location points.

With reference to section 8.8.2, the DoE will also ensure the hours of construction operation are included as part of the Contractor's CEMP.

8.8.4 Air Quality

Context

Construction activities may cause air quality impacts (i.e. dust) to nearby properties.

Proposal

Potential air quality impacts will be treated with water and/ or appropriate procedures to limit the likelihood of discomfort to any students, staff and neighbouring personnel.

Actions and Recommendations

The DoE will ensure appropriate air quality management procedures are included as part of the Contractor's CEMP.

8.8.5 Noise

Context

The school is within an existing residential area, andmay result in potential noise impacts from construction vehicles and development activities.

Proposal

Potential noise impacts during the construction stage will be identified during detailed design and appropriate mitigation measures included to ensure noise is minimised where possible. As noted in section 8.8.2, DoE will ensure the hours of construction operation are included as part of the CEMP and adhered to by the Contractor.

Actions and Recommendations

With reference to section 8.8.2, DoE will ensure the hours of construction operation are included as part of the Contractor's CEMP.

8.8.6 Light

Context

Potential lighting impacts from construction activities to neighbouring properties needs consideration.

Proposal

Unless otherwise approved, construction hours will be limited to the days and hours as specified under the *Environmental Protection Act 1994*, and listed in section 8.8.2 of this Report.

Given the proposed operation times for construction, the proposed works is unlikely to generate any adverse lighting impacts.

Actions and Recommendations

No further actions or recommendations are considered necessary.

8.8.7 Hazardous Materials

Context

According to the Built Environment Materials Information Register (BEMIR) records, cement based asbestos has been 'confirmed' and 'assumed' at Indooroopilly SS.

Proposal

The proposed development will require the demolition of existing built infrastructure on the site which may contain asbestos. In accordance with DET's Asbestos Management Plan requirements the demolition will need to be carried out when there are no pupils or staff present at the school.

Actions and Recommendations

Development activities which involves demolition of existing structures will be subject to a hazardous materials survey to identify the presence of asbestos, lead or other materials hazardous to human health. Where such materials are identified, demolition and removal is to be undertaken by a suitably licenced contractor.

8.8.8 Waste

Context

Construction waste and hazardous materials must be appropriately disposed of during construction activities to avoid impacts to the surrounding built and natural environment.

Proposal

Any regulated waste generated during construction will be handled and disposed of appropriately and in accordance with the requirements of the *Environmental Protection Act 1994*.

Actions and Recommendations

It is unlikely the activity will generate any regulated waste. Waste that will be generated by the proposed development is to be confirmed during the planning and design stage. Waste management facilities are to be designed and provided, or modified (if existing), in conjunction with a waste management plan if necessary.

8.9 Operational Impacts

8.9.1 Traffic

Context

Traffic associated with the school has potential to cause impacts to the continuing operation of the road network, in addition to nearby properties and amenity.

Proposal

The existing site access from Russell Terrace will be used for site access across the lower oval – the Contractor will be responsible for reinstating any disrupted turf as part of the works.

The proposed site is a functioning school site. Therefore the contractor needs to ensure that the areas surrounding the proposed building site are kept clean and safe for school users. Access to the proposed building site is across the existing sports oval. This oval is also used for access to the existing temporary learning buildings. The contractor will need to provide suitable safe access between the existing temporary learning buildings and the rest of the school. This may be by the use of traffic control, safety fencing and signage, which is to be discussed with and approved by the School Principal. A temporary pedestrian path needs to be provided for pedestrians by the Contractor to maintain access for parents and students through the park.

Actions and Recommendations

Initial enquires have been held with BCC on whether it would be possible to utilise the area of Moore Park adjacent to the school for siting the temporary site huts and construction access. No further actions or recommendations are considered necessary.

8.9.2 Air Quality

Context

The existing school does not produce any emissions, gasses or negative air quality impacts.

The eastern boundary of the site is within the transport air quality corridor overlay under the Planning Scheme.

Proposal

The proposed scope of works is for educational uses which aims to provide improved learning facilities for the school population. The proposal will not result in any emissions, gasses or negative air quality impacts.

The eastern boundary of the school is within the transport air quality corridor, relating to vehicle movements associated with Moggill Road. With reference to the proposed master plan, Block B (which forms part of Stage 4 and Stage 5A) is identified as being affected by this overlay. As Block B is not part of the immediate build for the school, the intention is for DoE to undertake appropriate air quality assessments at the time this stage of development progresses to detailed design.

Actions and Recommendations

The DoE will ensure an air quality assessment will be prepared and considered as part of detailed design for the future proposed Block B, and prepared in accordance with Schedule 6, section 6.2 Air quality planning scheme policy of Council's planning scheme.

8.9.3 Noise

Context

With respect to noise, anticipated impacts to, and from the school, includes:

- road traffic noise levels from surrounding road networks, in particular Moggill Road/ Taringa Parade to the east, Russell Terrace to the south and Centenary Motorway to the west;
- Moore Park (to the northern and western boundaries) is not considered sensitive to normal noise emissions from the school;
- a shopping centre opposite the site to the east of Moggill Road, which is not considered sensitive to normal noise emissions from the school; and
- the residential properties to the south of Russell Terrace have the potential to be sensitive to noise emissions from the school.

Proposal

An Acoustic Report has been prepared and included in **Appendix 17**. With respect to the potential noise impacts as described above, ambient noise measurements over a 6-day period was undertaken to determine the levels of road traffic and ambient noise in the area. The location of the monitoring points focussed on:

- ML1 – adjoining the swimming pool alongside Moggill Road; and
- ML2 – the development site of the proposed multi-storey learning centre..

The levels measured at ML1 are heavily influenced by the proximity of Moggill Road and are not indicative of the traffic noise levels across the site, and instead more reflective of potential noise levels to be experienced at Block B and Block C at the school.

The levels at ML2 are from deeper within the site and are indicative of the minimum levels relating to the development site, residential properties to the south of Russell Terrace and the remainder of development as part of the master plan.

Overall it is considered development relating to the school will not have any noise impacts to the external environment. However it is recognised the acoustic impacts from the external road networks is likely to impact on the school and a number of treatments is proposed to ensure learning environments are not compromised.

Actions and Recommendations

With reference to the Acoustic Report the following recommendations should be considered for development relating to the master plan:

- mechanical plant and equipment should ensure compliance with the decibel (dB) levels as specified in the *Environmental Protection Act 1994*, and where necessary, reduce noise through use of low noise level treatments such as low sound power level equipment, silencers, acoustic enclosures, noise barriers and vibration isolation systems;
- development within the eastern portion of the site, affected by noise from Moggill Road, will require acoustic design to facades. It is likely the façade/s will need to be closed, and mechanical ventilation to be considered as part of building design; and
- the upper area (courts and swimming pool) outdoor areas are affected by traffic noise levels, and development should undertake further acoustic investigations to incorporate noise amelioration measures that reduces impacts to outdoor learning environments.

8.9.4 Light

Context

The Indooroopilly SS operates during normal business hours, with school operating from 8:30am until 2:40pm and office hours from 7:30am until 3:30pm.

Proposal

New lighting will be provided to new buildings and upgraded when needed. The proposal is not considered to result in the generation of adverse lighting impacts. Lighting will be provided to the facility, including the parking area, in accordance with the applicable Australian Standards.

Actions and Recommendations

No further actions or recommendations are considered necessary.

8.9.5 Safety and Security

Context

All schools require appropriate safety and security measures and should be prepared in accordance with DoE's *Security Design Requirements*. The design of the Security System will address the functional, installation and technical upgrade and expandability requirements that provides for future proofing, flexibility and expandability.

Proposal

The Indooroopilly SS has a security risk rating of 'Medium'. Measures included in the cost plan for physical and electronic security include crimsafe to door viewing panels, striker plates to all external doors, crimsafe to any windows that are within 900mm of a door, Jalousie windows which are supplied with bars 100mm apart, sliding gates to enclose the toilet areas.

Actions and Recommendations

The DoE and relevant school stakeholders will confirm appropriate physical and/ electronic security measures for inclusion within the cost plan for the proposed scope of works and ensure it is prepared in accordance with DoE's *Security Design Requirements* for a 'Medium' risk site.

PART G – CONSULTATION

9 Consultation Engagement

9.1 Stakeholders

The stakeholders relevant for consultation with regards to the proposed designation includes:

Affected Parties

- Brisbane City Council.

State Government Departments

- DSDMIP, representing relevant State Agencies.

Elected Representatives

- Councillor Julian Simmonds (Walter Taylor Ward) – Brisbane City Council;
- Mr Michael Berkman MP – State Electoral District of Indooroopilly; and
- Hon Jane Prentice MP – Federal Electoral Division of Ryan.

Stakeholders

- Directly affected and adjoining property landowners; and
- Surrounding residents.

Native Title Party

- Turrbal People

School Representatives

- Principal – Indooroopilly State School

9.2 Community Engagement Plan

The following community engagement plan has been adopted as part of this Infrastructure Designation process.

Activity	Description	Stakeholder Group	Actions
Prior to public notification			
Email	Email seeking advice about infrastructure requirements.	Brisbane City Council	Email
Meeting	On stakeholder request, organise meeting to present project and discuss matters of interest—in particular impacts on local government infrastructure.	Brisbane City Council	Meet if requested.
During public notification			
Public notice	Place public notice in local newspaper	Broader community	Prepare and book public notice

Street signage	Place street signage to Russell Terrace and Taringa Parade.	Broader community	Prepare and erect public notice signage to street
Update web content	Update DSDIMP web page with information about the Infrastructure Designation proposal, including the EAR and details about the engagement process.	Broader community	Prepare content update Publish content update
Letters to stakeholders	Prepare letters that outline the Infrastructure Designation proposal and the engagement process. Distribute the letters.	Affected parties and stakeholders	Prepare letter Distribute
Email address and telephone contact	Email: infrastructuredesignation@dsdmip.qld.gov.au Phone: 1300 967 433 Submissions during public notification can be made online or by infrastructuredesignation@dsdmip.qld.gov.au	Affected parties, stakeholders and broader community	Publish contact information in relevant public notices and letters

9.3 Initial Consultation

Prior to the commencement of the Infrastructure Designation, the DoE and key Mount Gravatt SHS representatives undertook initial consultation activities with:

Stakeholder Group	Date	Description
Brisbane City Council	16/04/2018	• Provide email correspondence to BCC with information on Infrastructure Designation Proposal;
	10/05/2018	• Correspondence received from BCC; and • EAR addresses issues as identified in correspondence.
DSDMIP	29/05/2018	• Pre-lodgement meeting to discuss proposal; • Confirm school capacity and technical reporting requirements (i.e. traffic); • Confirm relevant stakeholder groups and consultation strategy;
Indooroopilly SHS Principal, Business Manager and Infrastructure Officer, Principal Consultant, DoE Planning Officer, DoE Project Coordinator, DoE infrastructure advisor, and Project Manager (Project Steering Committee)	16/03/2018 10/05/2018	• Preliminary discussions on capacity needs, facility and service requirements, design issues; and • Development of the project brief and schematic design project proposal.
	01/06/2018 02/08/2018	• Consultation on contract documentation stage; • Review and updates to contract documentation; and • Endorsement of contract documentation.

PART H – CONCLUSION

This EAR has been prepared by BAS, on behalf of the DoE, seeking an Infrastructure Designation of land for the Indooroopilly SS, located at 471 Moggill Road, Indooroopilly and otherwise described as Lot 285 on SP104042.

The PA prescribes the way in which a designation can be undertaken. Chapter 2, Part 5 of the PA prescribes that a Minister, before designating land for infrastructure, must be satisfied that for development the subject of the proposed designation:

- the infrastructure will satisfy statutory requirements, or budgetary commitments, for the supply of the infrastructure; or
- there is or will be a need for the efficient and timely supply of the infrastructure.

Educational and community facilities are defined as community infrastructure under Schedule 5, Part 2 of the *Planning Regulation 2017*, being assets necessary to support the community and for the public benefit. The proposed designation as part of this proposal is therefore best described as:

6	***educational facilities***
9	***facilities at which an education and care service under the Education and Care Services National Law (Queensland) is operated***
10	***facilities at which a QEC approved service under the Education and Care Services Act 2013 is operated***

The designation affirms the existing use of the site as an educational establishment, and will facilitate the immediate planned works at the school and future planned developments on the site consistent with the designation purpose. The proposed infrastructure will facilitate the efficient and timely supply of infrastructure; and satisfy statutory requirements and budgetary commitments of the State for the supply of community infrastructure.

The assessment provided within the EAR provides key details with respect to the Indooroopilly SS, and has undertaken an assessment of the proposed infrastructure against the relevant statutory frameworks, incorporating local and state assessment criteria and Commonwealth legislation.

PART I – APPENDICES

The following is a list of appendices to this Environmental Assessment Report:

Appendix 1	Extracts from the *Planning Act 2016*
Appendix 2	Designation Flowchart
Appendix 3	Property Information
Appendix 4	Contour and Detail Survey
Appendix 5	General Learning Building – Proposal Plans
Appendix 6	Master Plan
Appendix 7	State Interest Trigger Mapping
Appendix 8	EPBC Protected Matters Report & NCA Wildlife Online Report
Appendix 9	CLR & EMR Search
Appendix 10	Service Infrastructure Plans
Appendix 11	BCC FloodWise Property Report
Appendix 12	Stormwater Management Plan
Appendix 13	Traffic Impact Assessment
Appendix 14	Ecological Assessment Report
Appendix 15	Bushfire Assessment
Appendix 16	Koala Self-Assessable Management Plan
Appendix 17	Acoustic Assessment

Appendix 1

Extracts from Planning Act 2016

Department of Housing and Public Works

Queensland Government

Part 5 Designation of premises for development of infrastructure

35 What is a designation

(1) A ***designation*** is a decision of the Minister, or a local government, (a ***designator***) that identifies premises for the development of 1 or more types of infrastructure that are prescribed by regulation.

(2) A designation may include requirements about any or all of the following—

(a) works for the infrastructure (the height, shape, bulk, landscaping, or location of works, for example);

(b) the use of premises, for example—

(i) vehicular and pedestrian access to, and circulation on, premises; and

(ii) operating times for the use; and

(iii) ancillary uses;

(c) lessening the impact of the works or use (environmental management procedures, for example).

(3) The chief executive may, by notice, require a local government to include a matter in subsection (2) in a designation made by the local government.

Note—

For the effect of a designation on the categorisation of development, see section 44(6)(b).

36 Criteria for making or amending designations

(1) To make a designation, a designator must be satisfied that—

(a) the infrastructure will satisfy statutory requirements, or budgetary commitments, for the supply of the infrastructure; or

Authorised by the Parliamentary Counsel

(b) there is or will be a need for the efficient and timely supply of the infrastructure.

(2) To make or amend a designation, if the designator is the Minister, the Minister must also be satisfied that adequate environmental assessment, including adequate consultation, has been carried out in relation to the development that is the subject of the designation or amendment.

(3) The Minister may, in guidelines prescribed by regulation, set out the process for the environmental assessment and consultation.

(4) The Minister is taken to be satisfied of the matters in subsection (2) if the process in the guidelines is followed.

(5) However, the Minister may be satisfied of the matters in another way.

(6) Sections 10 and 11 apply to the making or amendment of the guidelines as if the guidelines were a State planning policy.

(7) To make or amend a designation, a designator must have regard to—

(a) all planning instruments that relate to the premises; and

(b) any assessment benchmarks, other than in planning instruments, that relate to the development that is the subject of the designation or amendment; and

(c) if the premises are in a State development area under the State Development Act—any approved development scheme for the premises under that Act; and

(ca) if the premises are in a priority development area under the *Economic Development Act 2012*—any development scheme for the priority development area under that Act; and

(d) any properly made submissions made as part of the consultation carried out under section 37; and

(e) the written submissions of any local government.

Authorised by the Parliamentary Counsel

37 Process for making or amending designation

(1) This section is about the process for—

(a) making a designation for premises; or

(b) amending a designation for premises, including by amending—

(i) the area of the premises; or

(ii) the type of infrastructure for which the premises were designated.

(2) If the Minister proposes to make or amend a designation, the Minister must give notice of the proposal to the affected parties.

(3) However, the Minister need not give the notice to an owner of premises if—

(a) a notice has already been given to the owner as part of the consultation for an assessment under section 36(2); or

(b) the Minister can not notify the owner after making reasonable efforts.

(4) The notice must invite the affected parties to make submissions about the proposal to the Minister within a period of at least 15 business days after the notice is given.

(5) If, after considering any properly made submissions, the Minister decides not to proceed with the proposal, the Minister must give a decision notice to the affected parties.

(6) If a local government proposes to make or amend a designation, the local government must follow the process in the designation process rules, before the local government makes or amends the designation.

(7) Sections 10 and 11 apply to the making or amendment of the designation process rules as if the designation process rules were a State planning policy.

(8) In this section—

Authorised by the Parliamentary Counsel

designation process rules means rules made by the Minister and prescribed by regulation.

38 Process after making or amending designation

(1) If, after considering any properly made submissions, the designator decides to make or amend a designation, the designator must publish a gazette notice that states—

(a) that the designation has been made or amended; and

(b) a description of the designated premises; and

(c) the type of infrastructure for which the premises were designated; and

(d) for an amendment—the nature of the amendment.

(2) The designator must give the following things to each affected party and the chief executive—

(a) a copy of the gazette notice;

(b) a notice of any requirements included in the designation under section 35(2);

(c) a notice of how the designator dealt with any properly made submissions.

39 Duration of designation

(1) A designation stops having effect on the day (the ***end day***) that is 6 years after the designation starts to have effect, unless—

(a) on the end day—

(i) a public sector entity owns, or has an easement for the same purpose as the designation over, the designated premises; or

(ii) another entity owns, or has an easement over, the designated premises and construction of the infrastructure for which the premises were designated started before the end day; or

Authorised by the Parliamentary Counsel

(b) before the end day—

(i) a public sector entity gave a notice of intention to resume the designated premises under the Acquisition Act, section 7; or

(ii) a public sector entity signed an agreement to take designated premises under the Acquisition Act or to otherwise buy the premises; or

(iii) the designator complies with subsection (3).

(2) The designator may extend the duration of a designation, for up to 6 years, by publishing a gazette notice about the extension before the designation stops having effect.

(3) The designator must give notice of the extension of the designation to—

(a) if the Minister is the designator—each of the affected parties and the chief executive; or

(b) if a local government is the designator—the owner of the premises and the chief executive.

(4) If a public sector entity discontinues proceedings to resume designated premises, either before or after the end day, the designation stops having effect on the day when the proceedings are discontinued.

40 Repealing designation—designator

(1) A designator may repeal a designation made by the designator by publishing a gazette notice that states—

(a) that the designation is repealed; and

(b) a description of the designated premises; and

(c) the type of infrastructure for which the premises were designated; and

(d) the reasons for the repeal.

(2) The designator must give a copy of the notice to—

Authorised by the Parliamentary Counsel

(a) if the Minister is the designator—each of the affected parties and the chief executive; or

(b) if a local government is the designator—the owner of the premises and the chief executive.

(3) Any development started under the designation may be completed as if the designation had not been repealed.

(4) Subject to any requirements under section 35(2), a use of the premises that is the natural and ordinary consequence of the development is taken to be a lawful use.

41 Repealing designation—owner's request

(1) An owner of an interest in designated premises may request a designator to repeal a designation made by the designator on the basis that the designation is causing the owner hardship.

(2) Subsection (1) does not apply if—

(a) the premises are subject to an easement for the infrastructure for which the premises are designated; or

(b) the designation also applies to other premises and relates to a land corridor for the infrastructure; or

(c) the premises are a road.

(3) The request must be in writing, and contain any information that the guidelines made under section 36(3) require.

(4) The designator must, within 40 business days after receiving the request—

(a) repeal the designation, using the process under section 40; or

(b) decide to refuse the request; or

(c) decide to take other action that the designator considers appropriate in the circumstances.

(5) The designator must, within 5 business days after making a decision under subsection (4)(b) or (c), give a decision notice to the owner.

Authorised by the Parliamentary Counsel

42 Noting designation in planning scheme

(1) This section applies if a local government—

(a) makes, amends, extends or repeals a designation; or

(b) receives a notice about the Minister making, amending, extending or repealing a designation.

(2) The local government must include a note about the making, amendment, extension or repeal in—

(a) the local government's planning scheme; and

(b) any planning scheme that the local government makes before the designation stops having effect.

(3) The note must—

(a) identify the premises that were designated; and

(b) describe the type of infrastructure for which the premises were designated; and

(c) state the day when the designation, amendment, extension or repeal started to have effect.

(4) The local government must include the note in the planning scheme in a way that ensures the other provisions of the scheme that apply to the designated premises remain effective.

(5) To remove any doubt, it is declared that—

(a) the note is not an amendment of a planning scheme; and

(b) a designation is taken to be part of a planning scheme; and

(c) a designation is not the only way that a planning scheme may identify infrastructure; and

(d) a designation does not affect the provisions of a planning scheme that apply to designated premises, even after the designation stops having effect.

Authorised by the Parliamentary Counsel

Appendix 2

Designation Flowchart

Indicative process

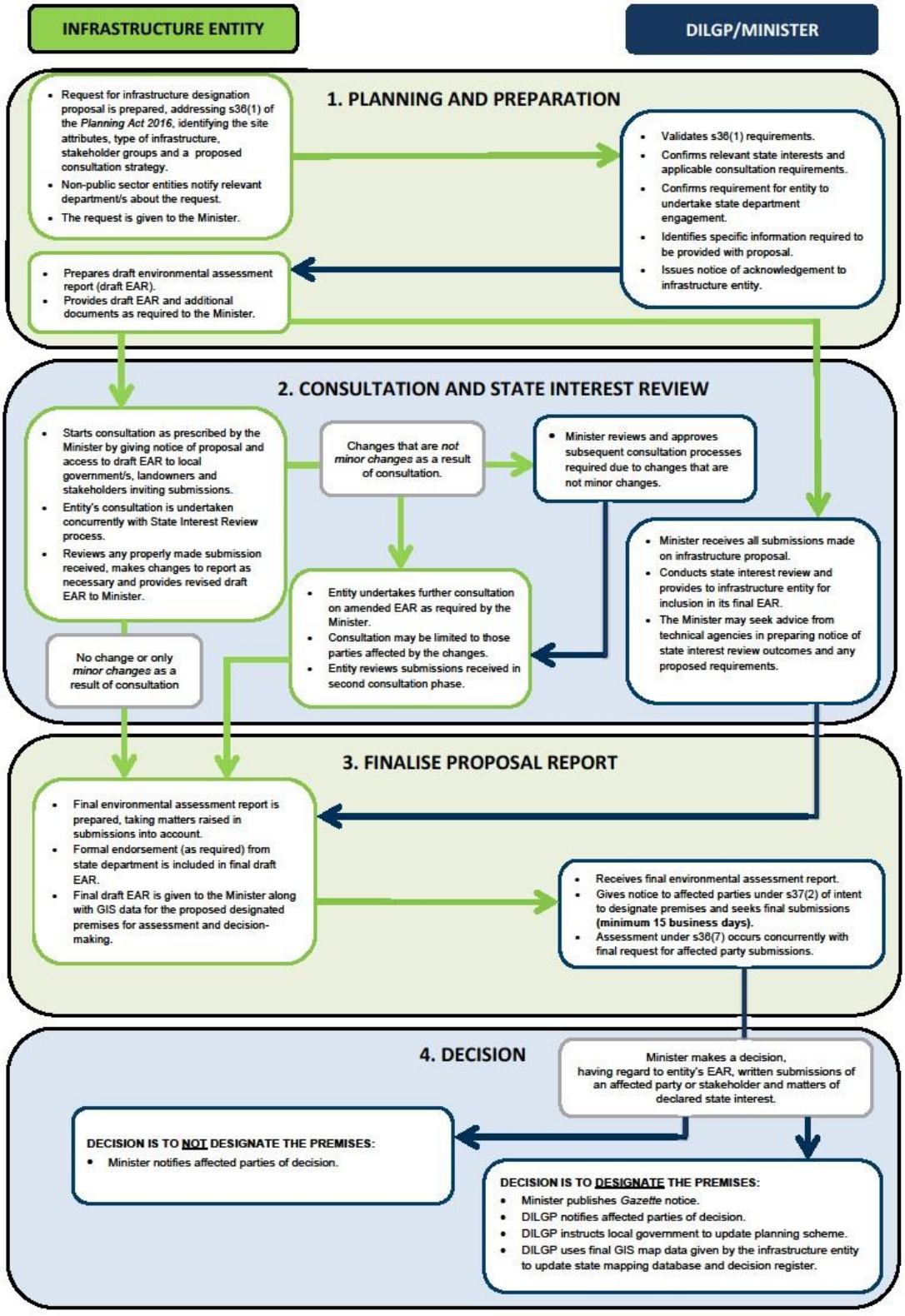


Figure 3: Flow chart of the ministerial designation process under the MGR

Appendix 3

Property Information

CURRENT TITLE SEARCH

NATURAL RESOURCES, MINES AND ENERGY, QUEENSLAND

Request No: 28093210
Search Date: 01/03/2018 15:25 **Title Reference: 50806859**
Date Created: 06/04/2010

Previous Title: 40059911

REGISTERED OWNER

Dealing No: 713156857 06/04/2010

THE STATE OF QUEENSLAND
(REPRESENTED BY DEPARTMENT OF EDUCATION AND TRAINING)

ESTATE AND LAND

Estate in Fee Simple

LOT 285 SURVEY PLAN 104042
Local Government: BRISBANE CITY

EASEMENTS, ENCUMBRANCES AND INTERESTS

1. Rights and interests reserved to the Crown by
Deed of Grant No. 40030014 (Lot 285 on CP SL7201)

ADMINISTRATIVE ADVICES - NIL
UNREGISTERED DEALINGS - NIL

CERTIFICATE OF TITLE ISSUED - No

Corrections have occurred - Refer to Historical Search

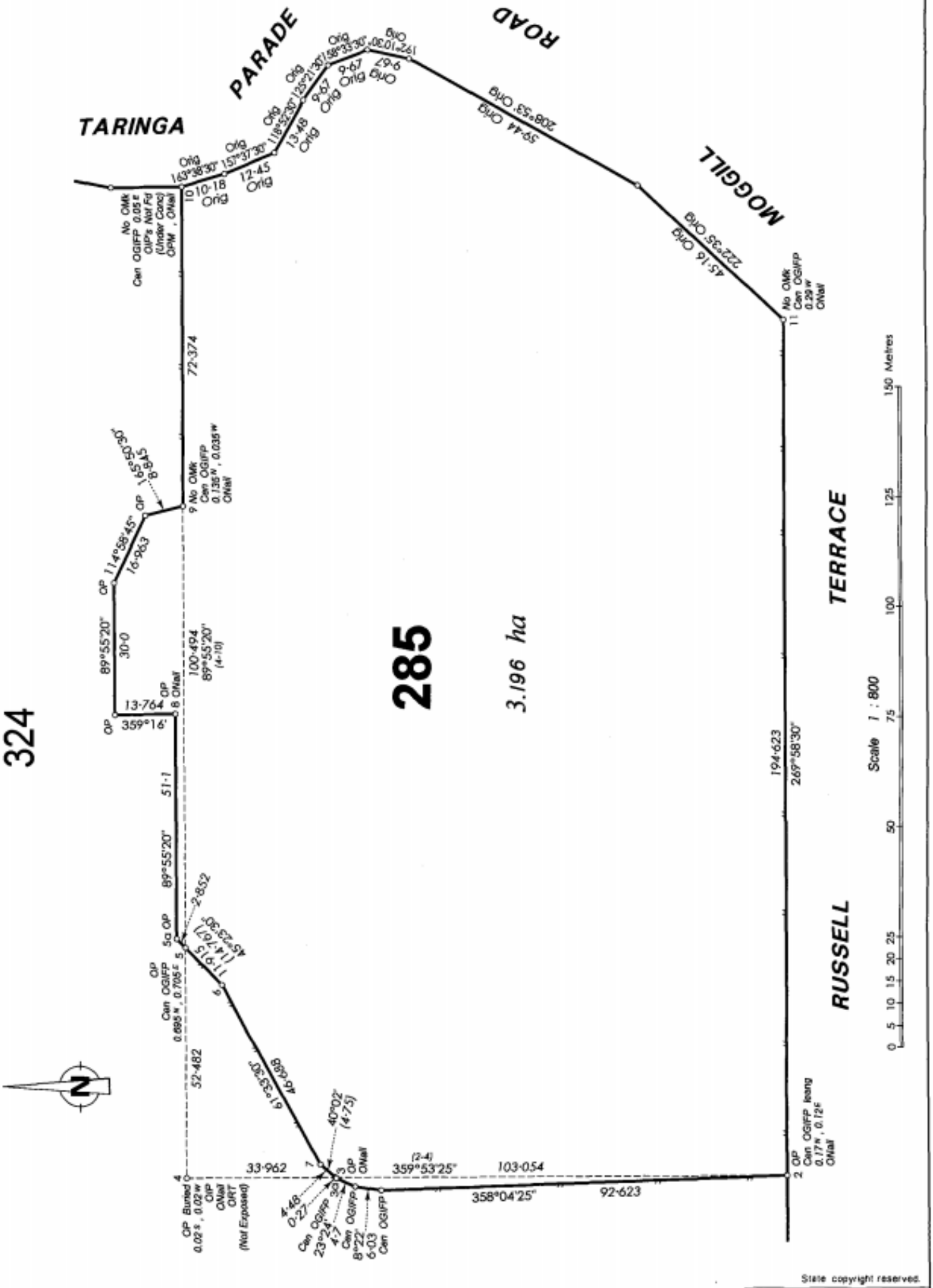
** End of Current Title Search **

COPYRIGHT THE STATE OF QUEENSLAND (NATURAL RESOURCES, MINES AND ENERGY) [2018]
Requested By: SMIS .

Land Title Act 1994 ; Land Act 1994
Form 21A Version 1

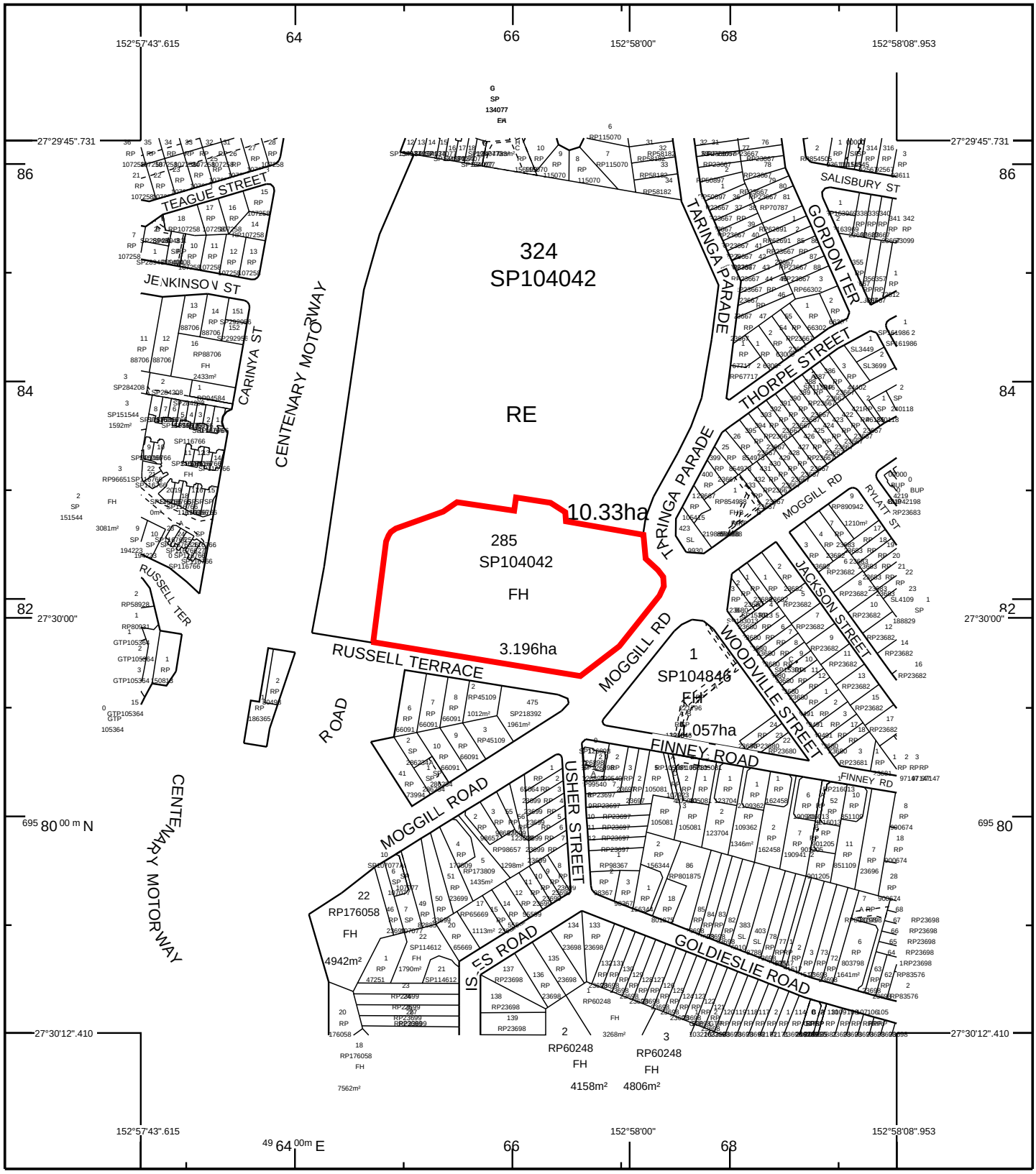
ADDITIONAL SHEET

Sheet 2 of 2



State copyright reserved.

Insert Plan Number SP104042



STANDARD MAP NUMBER
9443-22232

0 100 200 300 400 500 m

HORIZONTAL DATUM:GDA94 ZONE:56 SCALE 1 : 5000

MAP WINDOW POSITION & NEAREST LOCATION

152°57'56".284
27°29'59".070
INDOOROOPILLY
1.52 KM

SUBJECT PARCEL DESCRIPTION

DCDB

Lot/Plan	285/SP104042
Area/Volume	3.196ha
Tenure	FREEHOLD
Local Government	BRISBANE CITY
Locality	INDOOROOPILLY
Segment/Parcel	13664/112

CLIENT SERVICE STANDARDS

PRINTED (dd/mm/yyyy) 01/03/2018

DCDB 28/02/2018

Users of the information recorded in this document (the Information) accept all responsibility and risk associated with the use of the Information and should seek independent professional advice in relation to dealings with property.

Despite Department of Natural Resources and Mines(DNRM)'s best efforts, DNRM makes no representations or warranties in relation to the Information, and, to the extent permitted by law, exclude or limit all warranties relating to correctness, accuracy, reliability, completeness or currency and all liability for any direct, indirect and consequential costs, losses, damages and expenses incurred in any way (including but not limited to that arising from negligence) in connection with any use of or reliance on the Information

For further information on SmartMap products visit http://nrw.qld.gov.au/property/mapping/blinmap

SmartMap

An External Product of SmartMap Information Services

Based upon an extraction from the Digital Cadastral Data Base

Queensland Government

(c) The State of Queensland, (Department of Natural Resources and Mines) 2018.

GDA

Appendix 4

Contour + Detail Survey

Department of Housing and Public Works

Queensland Government

Lot 324
SP104042

Lot 285
SP104042

Witton Creek

Long Grass and open bushland

Open Grass Area

Playground

Chainwire Fence

Concrete Path

Cricket Nets

Sports Oval

2 Level Building

3 Storey Class Block

Covered Concrete Area

Toilet Block

Shed

Artificial turf
Play Area

Timber Retaining Wall

Concrete Block Retaining Wall

Rendered Concrete Block Retaining Wall

Brick Retaining Wall

Rock Retaining Wall

Gabion Retaining Wall

Timber Bollard

Concrete Bollard

Concrete Kerb

Concrete Apron

Concrete Area

Concrete Staircase 19 Risers

Concrete Staircase 16 Risers

Concrete Ramp

Stairs

Raised Timber Deck Walkway

Timber Handrail

Steel Handrail

Steel Balustrade

Concrete Balustrade

Aluminium Balustrade

Aluminium Fence

Chainwire Fence

Timber Fence

Colorbond Fence

Colorbond Roof

Roof Awning

Balcony

Gutter

Downpipe

Overland Flow Channel

Highway Approved Roundabout

Highway Approved Roundabout Splitter Island

Highway Approved Roundabout Central Island

Highway Approved Roundabout Apron

Highway Approved Roundabout Kerb

Highway Approved Roundabout Footpath

Highway Approved Roundabout Concrete Path

Highway Approved Roundabout Concrete Kerb

Highway Approved Roundabout Concrete Gutter

Highway Approved Roundabout Concrete Median

Highway Approved Roundabout Concrete Island

Highway Approved Roundabout Concrete Splitter Island

Highway Approved Roundabout Concrete Roundabout

Highway Approved Roundabout Concrete Roundabout Apron

Highway Approved Roundabout Concrete Roundabout Kerb

Highway Approved Roundabout Concrete Roundabout Gutter

Highway Approved Roundabout Concrete Roundabout Median

Highway Approved Roundabout Concrete Roundabout Island

Highway Approved Roundabout Concrete Roundabout Splitter Island

Highway Approved Roundabout Concrete Roundabout Roundabout

Highway Approved Roundabout Concrete Roundabout Roundabout Apron

Highway Approved Roundabout Concrete Roundabout Roundabout Kerb

Highway Approved Roundabout Concrete Roundabout Roundabout Gutter

Highway Approved Roundabout Concrete Roundabout Roundabout Median

Highway Approved Roundabout Concrete Roundabout Roundabout Island

Highway Approved Roundabout Concrete Roundabout Roundabout Splitter Island

Highway Approved Roundabout Concrete Roundabout Roundabout Roundabout

Highway Approved Roundabout Concrete Roundabout Roundabout Roundabout Apron

Highway Approved Roundabout Concrete Roundabout Roundabout Roundabout Kerb

Highway Approved Roundabout Concrete Roundabout Roundabout Roundabout Gutter

Highway Approved Roundabout Concrete Roundabout Roundabout Roundabout Median

Highway Approved Roundabout Concrete Roundabout Roundabout Roundabout Island

Highway Approved Roundabout Concrete Roundabout Roundabout Roundabout Splitter Island

Highway Approved Roundabout Concrete Roundabout

RUSSELL TERRACE

Lot 285
SP104042

2 Level Building

Sports Oval

Approx line only

Drainage line by service trench evdent on ground

Temporary Site Fence

Caretakers Shed

Gymnasium

Class Room

Paved Area

Concrete Area

Concrete Path

Concrete Footpath

Concrete Vehicle Crossover

Concrete Retaining Wall

Stone Retaining Wall

Timber Retaining Wall

Garden Bed

Bitumen Driveway

Concrete Lunch Area Supervised Shd

Concrete Ramp

Concrete Stairs

Concrete Stairs To Oval

Raised Timber Stairs

Concrete Elevated Deck

Concrete Access Ramp

Concrete Balcony Slab

Covered Walkway

Covered Walkway to Classrooms

Timber Retaining Wall at Kiss Rail

Concrete Planter

Concrete Planter Box

Concrete Block Retaining Wall

Conc Block Retaining Wall

Concrete Planter Box

Concrete Planter Box at Ground Level

Concrete Planter Box at First Floor

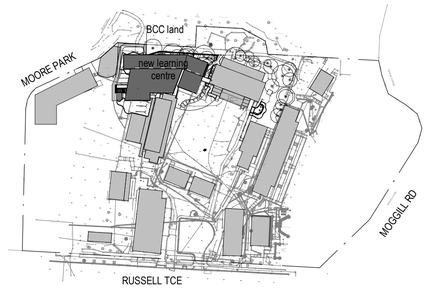
Concrete Planter Box at Ground Level

Concrete Planter Box at Ground Level

Concrete Planter Box at Ground Level

Appendix 5

Proposal Plans - Multi-storey Learning Centre



1 Locality Plan
SCALE @ A1 1 : 2000

DRAWING LIST

000	COVER SHEET	
100	SITE PLAN	
180	DEMOLITION PLAN	
200	GENERAL ARRANGEMENT PLAN	LEVEL 0 - OVAL
201	GENERAL ARRANGEMENT PLAN	LEVEL 1 - UNDERCROFT
202	GENERAL ARRANGEMENT PLAN	LEVEL 2 - COURTYARD LEVEL
203	GENERAL ARRANGEMENT PLAN	LEVEL 3 - FIRST FLOOR
210	ROOF PLAN	
300	ELEVATIONS	SHEET 1
301	ELEVATIONS	SHEET 2
400	SECTIONS	SHEET 1
900	PERSPECTIVES	SHEET 1
901	PERSPECTIVES	SHEET 2

NOTES:
* All services shall be concealed in walls or ducts and must be confirmed with architect if not on drawings.
* Drawings shall be read in conjunction with all materials, finishes, fixtures and fittings schedules and Room Data Sheets.
* The drawings and specifications/schedules shall be considered complementary, and any work and/or materials absent from one but present or implied in the other shall be furnished as if they were present in both.
* All work must comply with QDC legislation, National Construction Code, Australian
Standards, and all other relevant by laws and authority requirements. No work shall be
undertaken prior to approval by a registered Certifier.
* Waterproofing of wet areas to be constructed in accordance with AS3740 and NCC BCA Volume 1 Section F1.7
* All work practices must be safe for workers and visitors on the site and the general public.
* During construction, any adjacent structures shall not be damaged or compromised in any way.
* Contractor shall carry out a dilapidation survey of adjoining structures prior to commencement of work
* Contractor to maintain a copy of the Ministerial Designation on site at all times and adhere to all conditions.
* Contractor to arrange all inspections by structural engineer or certifier as required. Inspection certificates or notices to be sent to the superintendent upon completion.
* Plumbing to be carried by a licensed plumber and in accordance with the requirement of local authorities. The contractor shall be responsible for all permits and approvals.
* All products to be installed to manufacturers' requirements for suitable exposure levels. If contractor is aware of any descrepancies between the manufactures recommendations and architects documents - contractor to advise the architect and superintendent.
* Stair construction and balustrades to comply with DET guidelines and AS1428.1.
* Contractor to provide all form 16s requested by Certifier at completion of construction.
* All rubbish, excess building materials and debris to be removed from site prior to handover.
* If in doubt, ask!

PART J:
* Combined roof and ceiling construction must equal or exceed total R value of R3.6 in accordance with NCC BCA 2016 Section J
*Total R value of wall construction to equal or exceed R3.3 in accordance with NCC BCA 2016 Section 3.12.1.4

ACOUSTIC ABSORPTION REQUIRED:
Category M (Moderate) to all rooms as per DET Guidelines
To achieve an ambient sound level of 40 to 45 dB(A) and a reverberation time of maximum 0.6 seconds.
* Carpet (minimum NRC 0.5)
* Ceiling (minimum NRC 0.5 for rooms with carpet & NRC0.7 for rooms with vinyl)
* Walls - no absorption required
* Vinyl - non sound absorbing

ACOUSTIC ISOLATION REQUIRED:
Category M (moderate) as per DET Guidelines to all classrooms:
* Rw 45 required from adjoining rooms (including walls, ceiling, doors and view panels including joints and seals).
• Rw 25 required from adjoining internal circulation corridors and from external areas including roof rain noise.

Category H (high) as per DET Guidelines to all staff room and meeting room:
* Rw 45 – from adjoining rooms (including walls, ceiling, doors and view panels including joints and seals)
* Rw 30 – from adjoining internal circulation corridors and from external areas including roof rain noise.

PHYSICAL SECURITY REQUIRED:
Category D as per DET Guidelines
Windows: Equal to:
· Aluminium frame - equal to Jalousie louvres
· Steel security mesh with anti-tamper screws covering to glass within 900mm of door handles
· Window handles fixed centrally
Internal Doors:
- Quality 45mm solid core doors in aluminium frame - refer to room data sheets for viewing panel requirements
External Entry Doors:
Equal to –
45mm double leaf solid core with:
· Heavy duty anti tamper hinges
· Quality lock with dead latch with internal lever action handle openable from the inside at all times
· Steel striker plate cover fitted (e.g. Boyd)
· Where glass viewing panel is installed, cover glass with steel security mesh secured with anti tamper screws

KO AND CO ARCHITECTURE

KO&CoArchitecture Pty Ltd
5/99 Musgrave Road Red Hill Q 4059 | PO Box 490 Red Hill Q 4059
| P: 07 3367 1878
E: mail@koandcompany.com.au | W: koandcompany.com.au

Copyright. The concepts and information contained in this document are the copyright of KO&CoArchitecture Pty Ltd. Using or copying the information in whole or in part without written permission from KO&CoArchitecture Pty Ltd constitutes an infringement of copyright.
Do not scale from drawings. Dimensions are to be checked on site prior to commencement of work. Discrepancies to be brought to the attention of the author.

REV	DATE	ISSUE	DRAWN	CHECK
A	23.05.19	SDPP SUBMISSION	RN	KO

PROJECT
INDOOROOPILLY STATE SCHOOL

NEW LEARNING CENTRE

471 MOGGILL ROAD, INDOOROOPILLY

CLIENT
DET DEPARTMENT OF EDUCATION AND TRAINING

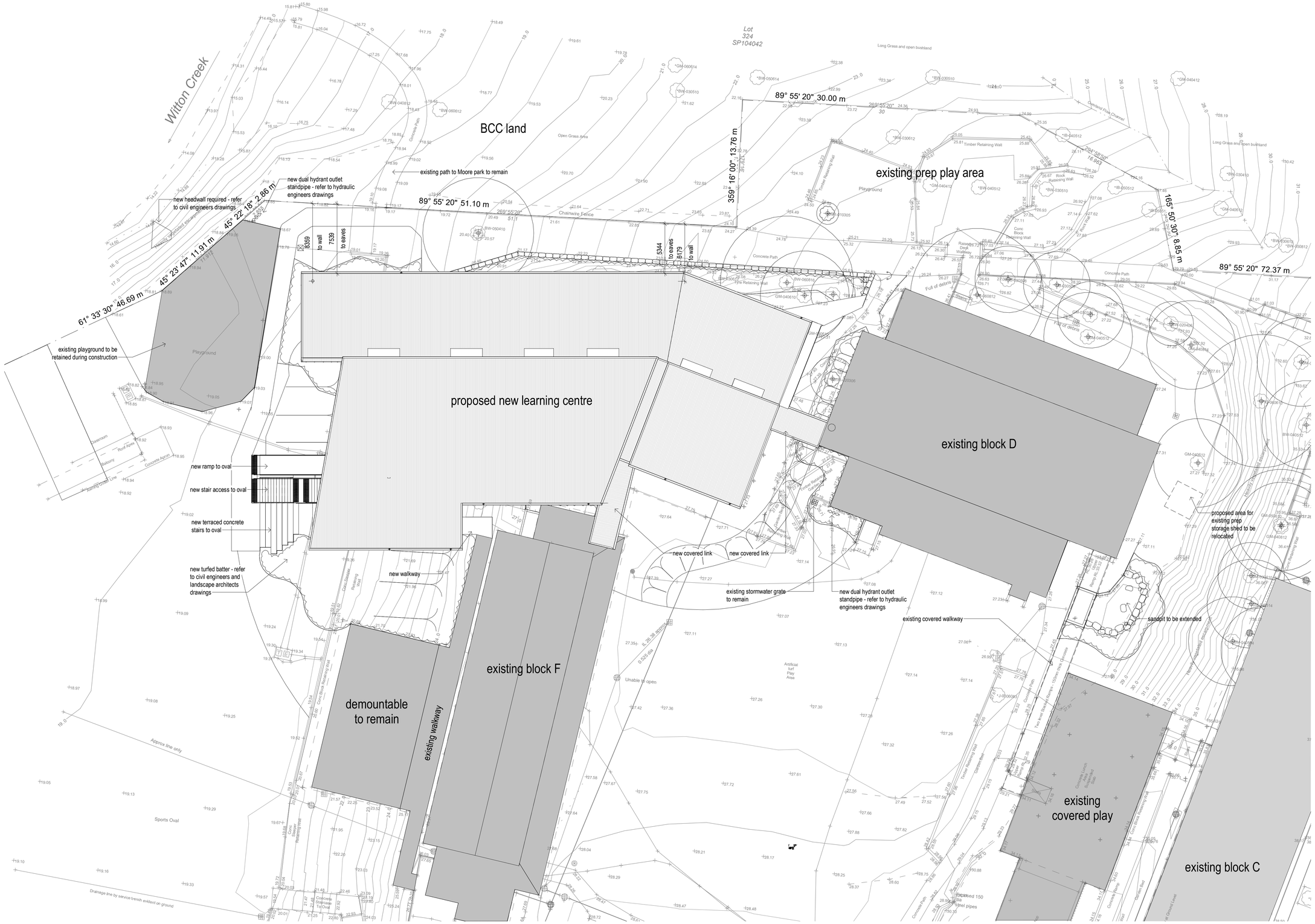
DRAWING NAME
COVER SHEET

100mm LINE @ A1 — 10mm — scale : As indicated

at plot 1:1 **A1**

PHASE	DWG No.	REV.
SD	000	A

PRELIMINARY


Witton Creek
BCC land
Lot 324 SP104042
89° 55' 20" 30.00 m
269° 55' 20" 30
359° 16' 00" 13.76 m
89° 55' 20" 51.10 m
269° 55' 20" 51.1
existing path to Moore park to remain
new dual hydrant outlet standpipe - refer to hydraulic engineers drawings
new headwall required - refer to civil engineers drawings
45° 22' 18" 2.86 m
45° 23' 47" 11.91 m
61° 33' 30" 46.69 m
existing playground to be retained during construction
Playground
existing prep play area
Timber Retaining Wall
Chainwire Fence
Concrete Path
Open Grass Area
Long Grass and open bushland
Overland Flow Channel
Rock Retaining Wall
Raised Deck Walkway
Conc Block Retaining Wall
Tree Retaining Wall
Concrete Ramp
Two Hour Shared Entrance - 150mm thick Concrete
Timber Retaining Wall
Concrete Path
Concrete Kerb
Concrete Path
Concrete Ramp
Timber Retaining Wall
Concrete Path
Concrete Kerb Retaining Wall

PRELIMINARY

DEMOLITION NOTES

1. Contractor to conduct inspection for dilapidation report prior to commencement of construction
2. All demolition work is to be carried out in accordance with as 2601.
3. **Refer to services drawings for extension and demolition of existing services.**
4. A sign is to be displayed immediately outside the work area noting that this is a construction site and advising on restriction of access and protective footwear requirements.
5. Contractor to inform the client immediately if any hazardous materials or conditions are found on site excluding that which may be outlined when apparent.
6. Contractor to allow for the demolition and removal of indicated elements as shown on plan including: existing walls, roof, soffit, doors, partitions, windows, wet areas, tile bedding, toilets, basins, showers, floor treatment.
7. Refer to services documentation for scope of works regarding demolition of services.
8. A sign is to be displayed immediately outside the work area noting that this is a construction site and advising on restriction of access and protective footwear requirements.
9. Contractor to inform architect immediately if any hazardous materials or conditions are found on site excluding that which may be outlined when apparent. the architect does not warrant this site to be free from hazardous materials or conditions.
10. Contractor to repair any astro turf from the oval which has been disturbed during construction.
11. Contractor is to cap all services as noted in consultants documentation.
12. Redivert stormwater around building - refer to civil engineers drawings.

NOTE: ALL EXISTING SERVICES ARE TO BE DIVERTED AROUND NEW BUILDING FOOTPRINT - REFER TO SERVICES DRAWINGS

DEMOLITION LEGEND

TE	existing tree to remain and be protected during construction
TR	remove existing tree

Demolish existing stairs & all associated substructure

Entire building to be demolished, refer to note 6

Indicate area that does not form part of the refurbishment works

Artificial grass required to be removed, contractor to allow to replace astro turf

Oval to be reinstated by contractor once construction is completed

Cricket nets & slab to be demolished

Existing suspended slab and all associated substructure to be removed - refer to structural drawings for more information

Demolish existing gardens & all associated substructure

Witton Creek

SP104042

Long Grass and open bushland

boundary line

existing concrete council path to remain

contractor to make good boundary path once construction is completed

Chainwire Fence

Hazardly replastered escarpment

EXISTING PREP PLAY AREA to remain

Timber Retaining Wall

Rock Retaining Wall

Concrete Block Retaining Wall

Overland Flow Channel

Concrete Path

Open Grass Area

Playground

cricket nets & slab to be demolished

demolish sandpit and associated structures

remove water tanks - refer to hydraulic engineers drawings

refer to civil engineer's drawings for extent of cut and fill required for new building

demolish existing shed. Contractor to allow for new site shed to match existing (new shed located beside Block D prior to construction commencing)

Contractor to allow for the demolition and removal of all building elements including but not limited to: existing walls, roof, soffit, doors, partitions, windows, wet areas, tile bedding, toilets, basins, showers, floor treatment.

Important note: building contains asbestos - refer to asbestos register

BLOCK D to remain

Covered Concrete Area

existing sewer inspection chambers to remain and be protected (heights of lids to be lifted to suit new levels - refer to hydraulic drawings

demolish existing sewer inspection chamber

existing stormwater inspection chamber to remain and be protected (unsurveyed)

existing gully pit to be protected (and reconnected to new stormwater drainage)

remove existing drinking fountain and salvage for School reuse - cap all services

existing masonry columns to remain and be cut back - refer structural drawings. Separate roof over to be demolished.

roof above walkway to be demolished

roof to Block F above stairs to be partly demolished to allow for new walkway structure

existing spring hydrant made redundant - refer hydraulic engineers dwgs

existing stormwater pipe to be grout filled - refer civil engineers dwgs

cut back extent of suspended slab & all substructure - refer to structural drawings

artificial grass required to be removed to install new work & batter. Contractor to allow to replace astro turf

demolish existing garden beds and all associated substructures

existing stairs to be protected and remain operational during construction

proposed area for new prep shed (to be completed prior to construction of new build)

existing sandpit to be extended/refurbished as part of new works

playground to be protected and remain operational during construction

demolish existing stairs and all associated substructure

refer to electrical engineers drawings for relocation of existing pits

demolish existing garden beds and all associated substructures

remove section of elevated walkway - all sub structure is to remain

existing stairs to be protected and remain operational during construction

outline of new building shown dashed

cut back existing roof (refer to roof demolition plan

existing pathway to remain - new footpath to be flush with existing

existing walkway to remain

oval to be reinstated by contractor once construction is completed

demountable to remain

BLOCK F to remain

2 Level Building

Lot 285 SP104042

new conduit connections & trenching required along Block F - refer to electrical engineers drawings. Astro turf to be replaced following completion of electrical works

refer to electrical engineers drawings for cutting and reinstatement of existing concrete surfaces

Approx line only

Sports Oval

Stairs

Concrete Path

Paved Area

Concrete Area

Boundary Wall

Concrete Block Retaining Wall

Stone Block Retaining Wall

Concrete Retaining Wall

Timber Retaining Wall

Rock Retaining Wall

Toilet Block

Tennis Court

Tennis Court Retaining Wall

Boundary Fence

Concrete Kerb

Concrete Channel

Concrete Fence

Cantilever Balcony Slab

Twin Wood Bollard Fence - 150mm thick Concrete

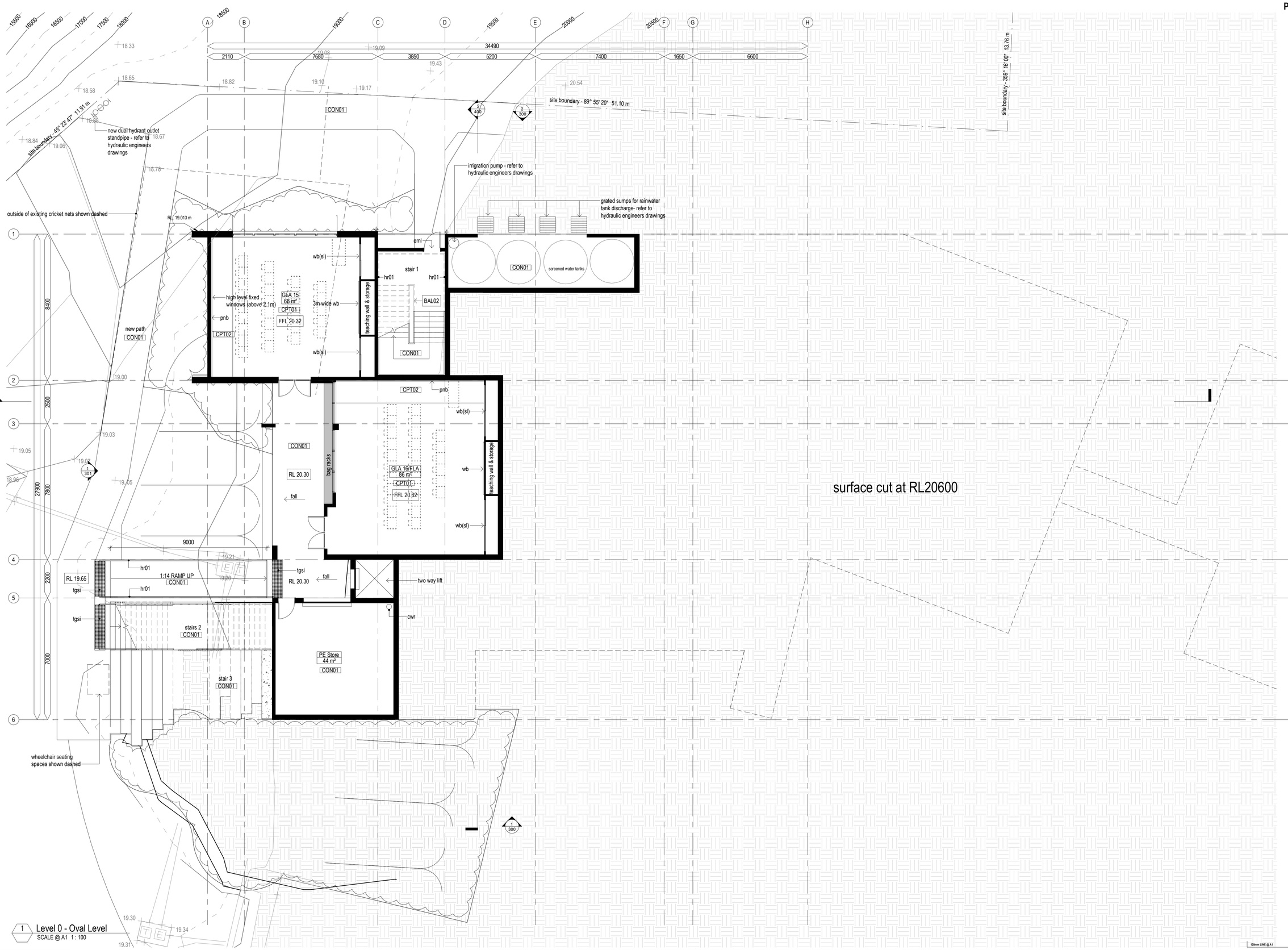
Concrete Kerb Mountable Slab

Concrete Pipe

Timber Retaining Wall

Timber Retaining Wall

Timber Retaining Wall



1 Level 0 - Oval Level
SCALE @ A1 1 : 100

PRELIMINARY

LEGEND

- L1 W13 — window number - refer to schedule
- L1 D01 — door number - refer to schedule
- FFL TIM02 — floor finish & finished floor level
- LIN01 — wall/lining/balustrade/trellis type - refer to elevations and sections
- grated inlet pit - refer to civil engineers drawings

ABBREVIATIONS

ac	Future AC condenser location
b	Bollard
bal01	1100mm high galvanised steel balustrade
bal02	1100mm high galvanised steel balustrade with 700mm & 900mm high handrails
col	Concrete column, paint finish
cr	Comms Riser
cwr	Cold water riser
df	Drinking fountain (refer hydraulic dwgs)
dr	Hydraulic dropper
dp	Downpipe
df	Drinking Fountain
df(d)	Drinking Fountain - DDA compliant
er	Electrical riser
eml	Electrical magnetic lock to fire rated doors (FRL -/60/30)
epr	Electrical pipework riser
fe	Wall mounted fire extinguisher
fip	Fire indicator panel
fw	Floor waste
gr1	Grab rail - ambulant compliant
gr2	Grab rail - PWD compliant
go	Grated outlet
hb	Hand basin
hc	Hose cock
hgo	Heelguard outlets
hr	Hydraulic riser
hr01	Handrail (700mm & 900mm high)
hw	Hot water system
mw	Microwave, supplied by client
pnb	Pinboard
ph	Wall mounted phone
ptd	Paper towel dispenser
oh	Overhead shelving
ow	operable wall, 2400mm high with pinable surfaces above and below wb (both sides)
sb(e)	Electrical switchboard
sb(m)	Mechanical switchboard
scr01	Preforated aluminium screen
scr02	Full height aluminium batten screen
scr03	Preforated aluminium gates
sd	Soap dispenser
shr	PWD compliant shower
sk	Sink
sst	Structural steel (galvanised steel)
swd	Stormwater dropper
td	Tundish
te	Existing tree to remain & be protected
th	Localised door threshold (AS1428.1 compliant)
wb	Whiteboard (refer to plan for sizes)
wb(sl)	Whiteboard sliding doors
wc01	Standard Toilet
wc02	Ambulant compliant Toilet
wc03	PWD compliant toilet

FLOOR FINISHES

Codes to be read in conjunction with
SDPP Materials and Finishes Board

AT	Astro turf as specified by landscape architect
COL	Concrete column
CON01	Broom finished concrete
CON02	Coloured concrete
CON03	Exposed aggregate concrete
CON-EX	Existing concrete to remain
CPT01	Carpet tiles - type 1
CPT02	Carpet tiles - type 2
EPX01	Epoxy flooring
SJ	Saw joint - refer structural dwgs
SSF01	Vinyl flooring (R10 slip resistance)
SSF02	Vinyl flooring (R9 slip resistance)
TIM01	Timber decking to match existing
TGSI	Tactile Indicators
TURF	Turf - refer to landscape architects drawings

BMS SYSTEM

High level louvres on Level 3 to be opened via electrical actuators with a bush putton system to each classroom on this level.
BMS system to have a rain & humidity sensor over ride.

TERMITE MANAGEMENT

Termite treatment to be carried out in accordance with AS 3660.1-2000 Builder to provide certificates of installation in accordance with NCC BCA and must confirm preferred system with superintendent prior to selection or installation. **No chemical treated termite barriers will be accepted (as per DET guidelines).**

100mm LINE @ A1 — 10mm — scale : 1 : 100

KO&CoArchitecture Pty Ltd
5/99 Musgrave Road Red Hill Q 4059 | PO Box 490 Red Hill Q 4059
| P: 07 3367 1878
E: mail@koandcompany.com.au | W: koandcompany.com.au

Copyright. The concepts and information contained in this document are the copyright of KO&CoArchitecture Pty Ltd. Using or copying the information in whole or in part without written permission from KO&CoArchitecture Pty Ltd constitutes an infringement of copyright.
Do not scale from drawings. Dimensions are to be checked on site prior to commencement of work. Discrepancies to be brought to the attention of the author.

REV	DATE	ISSUE	DRAWN	CHECK
A	18.04.19	PRELIMINARY ISSUE TO QS & CLIENT	RN	LB
B	18.04.27	PRELIMINARY ISSUE TO CONSULTANTS	RN	LB
C	19.04.16	ISSUE TO STRUCTURAL ENGINEER	RN	LB
D	09.05.19	ISSUE TO CONSULTANTS	RN	LB
E	21.05.19	ISSUE TO PROJECT MANAGER	RN	LB
F	23.05.19	DET SDPP 9m1 REVIEW	RN	LB
G	25.05.19	SDPP SUBMISSION	RN	KO

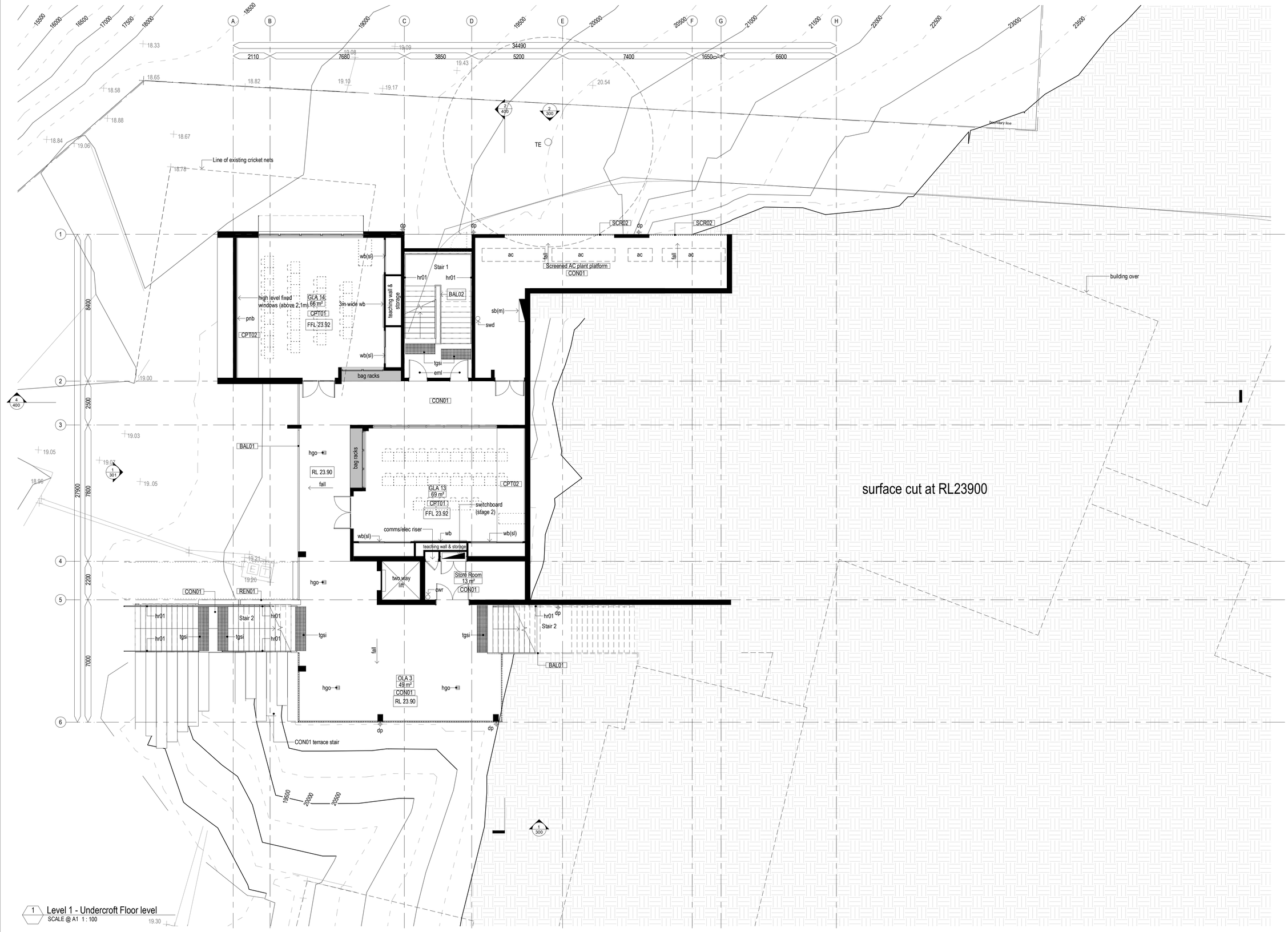
PROJECT
INDOOROOPILLY STATE SCHOOL
NEW LEARNING CENTRE
471 MOGGILL ROAD, INDOOROOPILLY

CLIENT
DET DEPARTMENT OF EDUCATION AND TRAINING

DRAWING NAME
GENERAL ARRANGEMENT PLAN
LEVEL 0 - OVAL

at size A1

PHASE	DWG No.	REV.
SD	200	G



PRELIMINARY

LEGEND

LI w13	window number - refer to schedule
LI d01	door number - refer to schedule
FFL TIM02	floor finish & finished floor level
LND1	wall/lining/balustrade/trellis type - refer to elevations and sections
	grated inlet pit - refer to civil engineers drawings

ABBREVIATIONS

ac	Future AC condenser location
b	Bollard
bal01	1100mm high galvanised steel balustrade
bal02	1100mm high galvanised steel balustrade with 700mm & 900mm high handrails
col	Concrete column, paint finish
cr	Comms Riser
cwr	Cold water riser
df	Drinking fountain (refer hydraulic dwgs)
dr	Hydraulic dropper
dp	Downpipe
df	Drinking Fountain
df(d)	Drinking Fountain - DDA compliant
er	Electrical riser
eml	Electrical magnetic lock to fire rated doors (FRL -/60/30)
epr	Electrical pipework riser
fe	Wall mounted fire extinguisher
fip	Fire indicator panel
fw	Floor waste
gr1	Grab rail - ambulant compliant
gr2	Grab rail - PWD compliant
go	Grated outlet
hb	Hand basin
hc	Hose cock
hgo	Heelguard outlets
hr	Hydraulic riser
hr01	Handrail (700mm & 900mm high)
hw	Hot water system
mw	Microwave, supplied by client
pnb	Pinboard
ph	Wall mounted phone
ptd	Paper towel dispenser
oh	Overhead shelving
ow	operable wall, 2400mm high with pinable surfaces above and below wb (both sides)
sb(e)	Electrical switchboard
sb(m)	Mechanical switchboard
scr01	Preforated aluminium screen
scr02	Full height aluminium batten screen
scr03	Preforated aluminium gates
sd	Soap dispenser
shr	PWD compliant shower
sk	Sink
sst	Structural steel (galvanised steel)
swd	Stormwater dropper
td	Tundish
te	Existing tree to remain & be protected
th	Localised door threshold (AS1428.1 compliant)
wb	Whiteboard (refer to plan for sizes)
wb(sl)	Whiteboard sliding doors
wc01	Standard Toilet
wc02	Ambulant compliant Toilet
wc03	PWD compliant toilet

FLOOR FINISHES

Codes to be read in conjunction with
SDPP Materials and Finishes Board

AT	Astro turf as specified by landscape architect
COL	Concrete column
CON01	Broom finished concrete
CON02	Coloured concrete
CON03	Exposed aggregate concrete
CON-EX	Existing concrete to remain
CPT01	Carpet tiles - type 1
CPT02	Carpet tiles - type 2
EPX01	Epoxy flooring
SJ	Saw joint - refer structural dwgs
SSF01	Vinyl flooring (R10 slip resistance)
SSF02	Vinyl flooring (R9 slip resistance)
TIM01	Timber decking to match existing
TGSI	Tactile Indicators
TURF	Turf - refer to landscape architects drawings

BMS SYSTEM

High level louvres on Level 3 to be opened via electrical actuators with a bush putton system to each classroom on this level.
BMS system to have a rain & humidity sensor over ride.

TERMITE MANAGEMENT

Termite treatment to be carried out in accordance with AS 3660.1-2000 Builder to provide certificates of installation in accordance with NCC BCA and must confirm preferred system with superintendent prior to selection or installation. **No chemical treated termite barriers will be accepted (as per DET guidelines).**

KO&CoArchitecture Pty Ltd
5/99 Musgrave Road Red Hill Q 4059 | PO Box 490 Red Hill Q 4059
| P: 07 3367 1878
E: mail@koandcompany.com.au | W: koandcompany.com.au

Copyright: The concepts and information contained in this document are the copyright of KO&CoArchitecture Pty Ltd. Using or copying the information in whole or in part without written permission from KO&CoArchitecture Pty Ltd constitutes an infringement of copyright.
Do not scale from drawings. Dimensions are to be checked on site prior to commencement of work. Discrepancies to be brought to the attention of the author.

REV	DATE	ISSUE	DRAWN	CHECK
A	18.04.18	PRELIMINARY ISSUE TO QS & CLIENT	RN	LB
B	18.04.27	PRELIMINARY ISSUE TO CONSULTANTS	RN	LB
C	18.04.18	ISSUE TO STRUCTURAL ENGINEER	RN	LB
D	09.05.18	ISSUE TO CONSULTANTS	RN	LB
E	21.05.18	ISSUE TO PROJECT MANAGER	RN	LB
F	23.05.18	DET SDPP 90% REVIEW	RN	LB
G	25.05.18	SDPP SUBMISSION	RN	KO

PROJECT
INDOOROOPILLY STATE SCHOOL
NEW LEARNING CENTRE
471 MOGGILL ROAD, INDOOROOPILLY

CLIENT
DET DEPARTMENT OF EDUCATION AND TRAINING

DRAWING NAME
GENERAL ARRANGEMENT PLAN
LEVEL 1 - UNDERCROFT

100mm LINE @ A1 — 10mm — scale : 1 : 100

at plot 11 **A1**

PHASE	DWG No.	REV.
SD	201	G

PRELIMINARY

LEGEND

- LL / w01 — window number - refer to schedule
- LL / d01 — door number - refer to schedule
- FFL / TIM02 — floor finish & finished floor level
- LIN01 — wall/lining/balustrade/trellis type - refer to elevations and sections
- grated inlet pit - refer to civil engineers drawings

ABBREVIATIONS

ac	Future AC condenser location
b	Bollard
bal01	1100mm high galvanised steel balustrade
bal02	1100mm high galvanised steel balustrade with 700mm & 900mm high handrails
col	Concrete column, paint finish
cr	Comms Riser
cwr	Cold water riser
df	Drinking fountain (refer hydraulic dwgs)
dr	Hydraulic dropper
dp	Downpipe
df	Drinking Fountain
df(d)	Drinking Fountain - DDA compliant
er	Electrical riser
eml	Electrical magnetic lock to fire rated doors (FRL -/60/30)
epr	Electrical pipework riser
fe	Wall mounted fire extinguisher
fip	Fire indicator panel
fw	Floor waste
gr1	Grab rail - ambulant compliant
gr2	Grab rail - PWD compliant
go	Grated outlet
hb	Hand basin
hc	Hose cock
hgo	Heelguard outlets
hr	Hydraulic riser
hr01	Handrail (700mm & 900mm high)
hw	Hot water system
mw	Microwave, supplied by client
pnb	Pinboard
ph	Wall mounted phone
ptd	Paper towel dispenser
oh	Overhead shelving
ow	operable wall, 2400mm high with pinable surfaces above and below wb (both sides)
sb(e)	Electrical switchboard
sb(m)	Mechanical switchboard
scr01	Preforated aluminium screen
scr02	Full height aluminium batten screen
scr03	Preforated aluminium gates
sd	Soap dispenser
shr	PWD compliant shower
sk	Sink
sst	Structural steel (galvanised steel)
swd	Stormwater dropper
td	Tundish
te	Existing tree to remain & be protected
th	Localised door threshold (AS1428.1 compliant)
wb	Whiteboard (refer to plan for sizes)
wb(sl)	Whiteboard sliding doors
wc01	Standard Toilet
wc02	Ambulant compliant Toilet
wc03	PWD compliant toilet

FLOOR FINISHES

Codes to be read in conjunction with ***SDPP Materials and Finishes Board***

AT	Astro turf as specified by landscape architect
COL	Concrete column
CON01	Broom finished concrete
CON02	Coloured concrete
CON03	Exposed aggregate concrete
CON-EX	Existing concrete to remain
CPT01	Carpet tiles - type 1
CPT02	Carpet tiles - type 2
EPX01	Epoxy flooring
SJ	Saw joint - refer structural dwgs
SSF01	Vinyl flooring (R10 slip resistance)
SSF02	Vinyl flooring (R9 slip resistance)
TIM01	Timber decking to match existing
TGSI	Tactile Indicators
TURF	Turf - refer to landscape architects drawings

BMS SYSTEM

High level louvres on Level 3 to be opened via electrical actuators with a bush button system to each classroom on this level.
BMS system to have a rain & humidity sensor over ride.

TERMITE MANAGEMENT

Termite treatment to be carried out in accordance with AS 3660.1-2000 Builder to provide certificates of installation in accordance with NCC BCA and must confirm preferred system with superintendent prior to selection or installation. **No chemical treated termite barriers will be accepted (as per DET guidelines).**

1 Level 2 - Ground Floor
SCALE @ A1 1 : 100

KO&CoArchitecture Pty Ltd
5/99 Musgrave Road Red Hill Q 4059 | PO Box 490 Red Hill Q 4059
| P: 07 3367 1878
E: mail@koandcompany.com.au | W: koandcompany.com.au

Copyright The concepts and information contained in this document are the copyright of KO&CoArchitecture Pty Ltd. Using or copying the information in whole or in part without written permission from KO&CoArchitecture Pty Ltd constitutes an infringement of copyright.
Do not scale from drawings. Dimensions are to be checked on site prior to commencement of work. Discrepancies to be brought to the attention of the author.

REV	DATE	ISSUE	DRAWN	CHECK
A	16.04.18	PRELIMINARY ISSUE TO QS & CLIENT	RN	LB
B	16.04.27	PRELIMINARY ISSUE TO CONSULTANTS	RN	LB
C	30.04.18	ISSUE TO STRUCTURAL ENGINEER	RN	LB
D	16.05.18	ISSUE TO CONSULTANTS	RN	LB
E	21.05.18	ISSUE TO PROJECT MANAGER	RN	LB
F	23.05.18	DET SDPP 90% REVIEW	RN	LB
G	25.05.18	SDPP SUBMISSION	RN	KO

100mm LINE @ A1 — 10mm — scale : 1 : 100

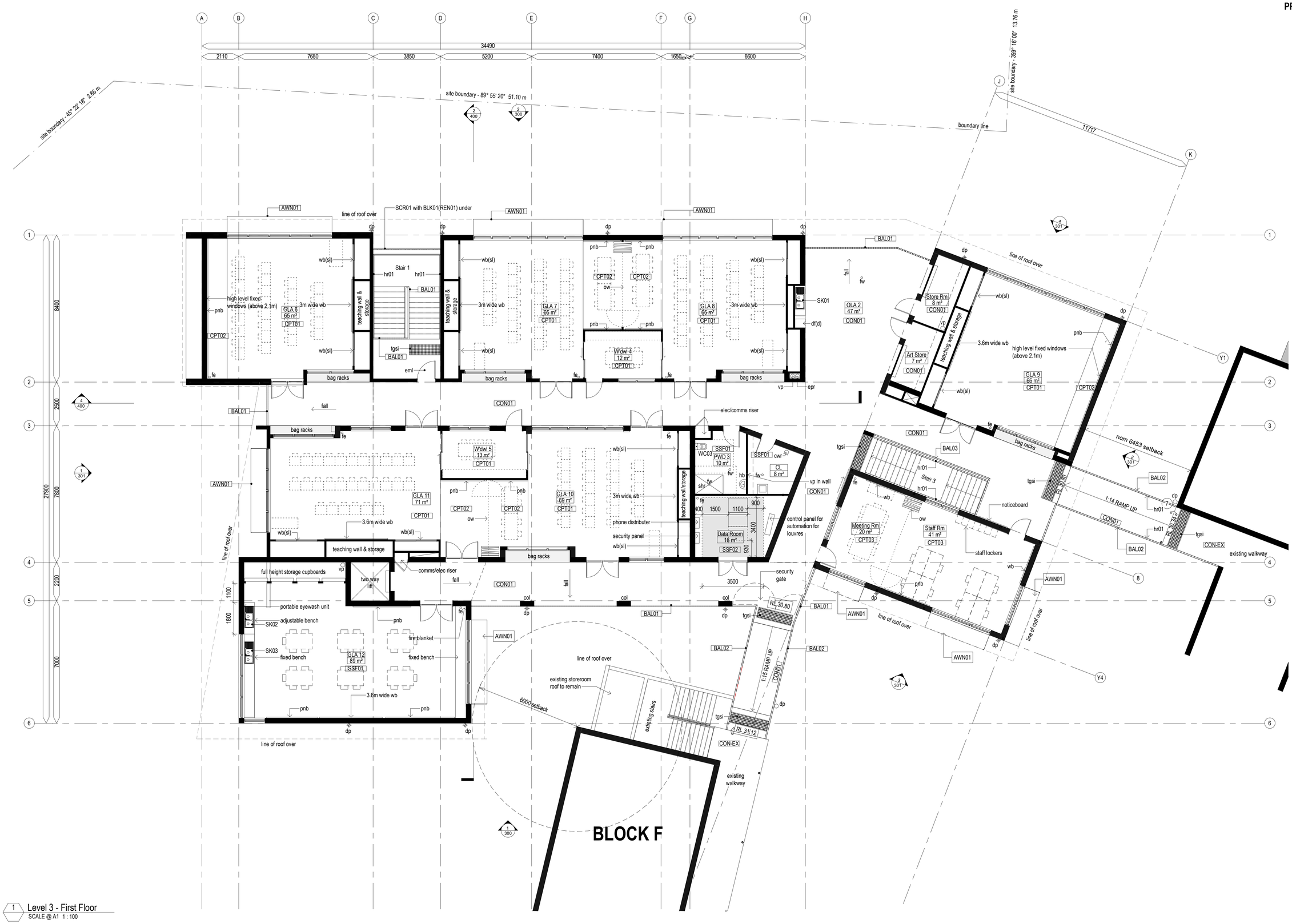
PROJECT
INDOOROOPILLY STATE SCHOOL
NEW LEARNING CENTRE
471 MOGGILL ROAD, INDOOROOPILLY

CLIENT
DET DEPARTMENT OF EDUCATION AND TRAINING

DRAWING NAME
GENERAL ARRANGEMENT PLAN
LEVEL 2 - COURTYARD LEVEL

at size 1:1 **A1**

PHASE	DWG No.	REV.
SD	202	G



1 Level 3 - First Floor
SCALE @ A1 1 : 100

LEGEND

PRELIMINARY

- window number - refer to schedule
- door number - refer to schedule
- floor finish & finished floor level
- wall/lining/balustrade/trellis type - refer to elevations and sections
- grated inlet pit - refer to civil engineers drawings

ABBREVIATIONS

ac	Future AC condenser location
b	Bollard
bal01	1100mm high galvanised steel balustrade
bal02	1100mm high galvanised steel balustrade with 700mm & 900mm high handrails
col	Concrete column, paint finish
cr	Comms Riser
cwr	Cold water riser
df	Drinking fountain (refer hydraulic dwgs)
dr	Hydraulic dropper
dp	Downpipe
df	Drinking Fountain
df(d)	Drinking Fountain - DDA compliant
er	Electrical riser
eml	Electrical magnetic lock to fire rated doors (FRL -/60/30)
epr	Electrical pipework riser
fe	Wall mounted fire extinguisher
fip	Fire indicator panel
fw	Floor waste
gr1	Grab rail - ambulant compliant
gr2	Grab rail - PWD compliant
go	Grated outlet
hb	Hand basin
hc	Hose cock
hgo	Heelguard outlets
hr	Hydraulic riser
hr01	Handrail (700mm & 900mm high)
hw	Hot water system
mw	Microwave, supplied by client
pnb	Pinboard
ph	Wall mounted phone
ptd	Paper towel dispenser
oh	Overhead shelving
ow	operable wall, 2400mm high with pinable surfaces above and below wb (both sides)
sb(e)	Electrical switchboard
sb(m)	Mechanical switchboard
scr01	Preforated aluminium screen
scr02	Full height aluminium batten screen
scr03	Preforated aluminium gates
sd	Soap dispenser
shr	PWD compliant shower
sk	Sink
sst	Structural steel (galvanised steel)
swd	Stormwater dropper
td	Tundish
te	Existing tree to remain & be protected
th	Localised door threshold (AS1428.1 compliant)
wb	Whiteboard (refer to plan for sizes)
wb(sl)	Whiteboard sliding doors
wc01	Standard Toilet
wc02	Ambulant compliant Toilet
wc03	PWD compliant toilet

FLOOR FINISHES

Codes to be read in conjunction with ***SDPP Materials and Finishes Board***

AT	Astro turf as specified by landscape architect
COL	Concrete column
CON01	Broom finished concrete
CON02	Coloured concrete
CON03	Exposed aggregate concrete
CON-EX	Existing concrete to remain
CPT01	Carpet tiles - type 1
CPT02	Carpet tiles - type 2
EPX01	Epoxy flooring
SJ	Saw joint - refer structural dwgs
SSF01	Vinyl flooring (R10 slip resistance)
SSF02	Vinyl flooring (R9 slip resistance)
TIM01	Timber decking to match existing
TGSI	Tactile Indicators
TURF	Turf - refer to landscape architects drawings

BMS SYSTEM

High level louvres on Level 3 to be opened via electrical actuators with a bush putton system to each classroom on this level.
BMS system to have a rain & humidity sensor over ride.

TERMITE MANAGEMENT

Termite treatment to be carried out in accordance with AS 3660.1-2000 Builder to provide certificates of installation in accordance with NCC BCA and must confirm preferred system with superintendent prior to selection or installation. **No chemical treated termite barriers will be accepted (as per DET guidelines).**

KO&CoArchitecture Pty Ltd
5/99 Musgrave Road Red Hill Q 4059 | PO Box 490 Red Hill Q 4059
| P: 07 3367 1878
E: mail@koandcompany.com.au | W: koandcompany.com.au

Copyright: The concepts and information contained in this document are the copyright of KO&CoArchitecture Pty Ltd. Using or copying the information in whole or in part without written permission from KO&CoArchitecture Pty Ltd constitutes an infringement of copyright.
Do not scale from drawings. Dimensions are to be checked on site prior to commencement of work. Discrepancies to be brought to the attention of the author.

REV	DATE	ISSUE	DRAWN	CHECK
A	18.04.18	PRELIMINARY ISSUE TO QS & CLIENT	RN	LB
B	18.04.27	PRELIMINARY ISSUE TO CONSULTANTS	RN	LB
C	30.04.18	ISSUE TO STRUCTURAL ENGINEER	RN	LB
D	09.05.18	ISSUE TO CONSULTANTS	RN	LB
E	21.05.18	ISSUE TO PROJECT MANAGER	RN	LB
F	23.05.18	DET SDPP 90% REVIEW	RN	LB
G	25.05.18	SDPP SUBMISSION	RN	KO

100mm LINE @ A1 — 10mm — scale : 1 : 100

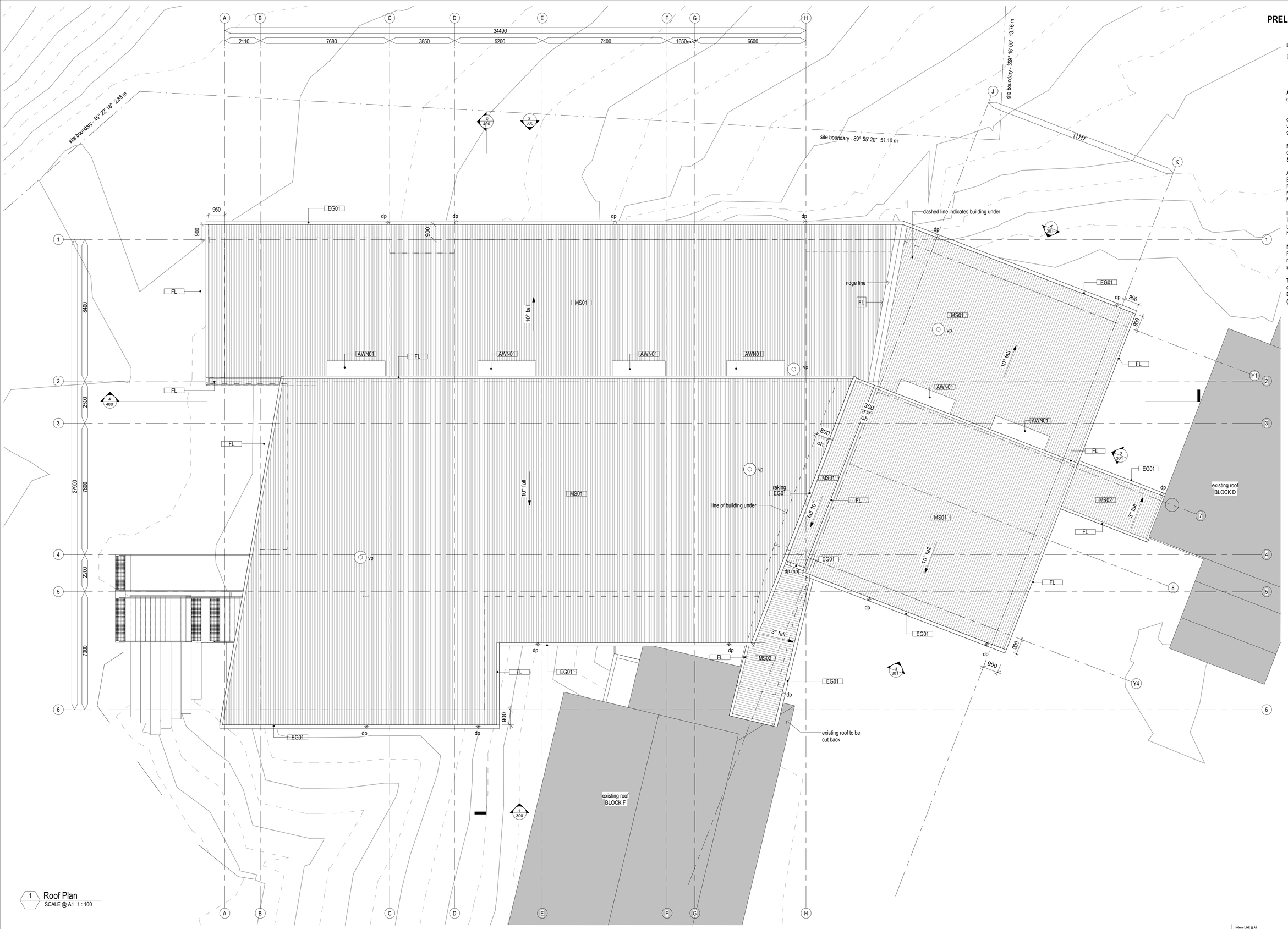
PROJECT
INDOOROOPILLY STATE SCHOOL
NEW LEARNING CENTRE
471 MOGGILL ROAD, INDOOROOPILLY

CLIENT
DET DEPARTMENT OF EDUCATION AND TRAINING

DRAWING NAME
GENERAL ARRANGEMENT PLAN
LEVEL 3 - FIRST FLOOR

at size 1:1 **A1**

PHASE	DWG No.	REV.
SD	203	G



1 Roof Plan
SCALE @ A1 1 : 100

PRELIMINARY

LEGEND

MS-01	roof material - refer to material and finishes schedule
L1 in T3	window number - refer to schedule

ABBREVIATIONS

dp	Downpipe
	All downpipes connected to stormwater line
dp(s)	Downpipe & spreader
vp	Vent pipe with decktite
sp	Spitter

ROOFING AND RAINWATER GOODS
Codes to be read in conjunction with ***SDPP Materials and Finishes Board***

AWN01	Awning
EG01	Eaves gutter
FL	Folded Colorbond flashing
MS01	Metal sheet roofing
MS02	Insulated metal sheet roofing

INSULATION TO ROOF AND CEILING
Total R value of roof and ceiling construction to equal or exceed R4.2 in accordance with NCC BCA 2016 Section J

NOTES
Roof dimensions do not include eaves gutter - refer to hydraulic engineers drawings for type and size

These drawings are to be read in conjunction with the consultants drawings, DET standards and Room Data Sheets (RDS).

KO&CoArchitecture Pty Ltd
5/99 Musgrave Road Red Hill Q 4059 | PO Box 490 Red Hill Q 4059
| P: 07 3367 1878
E: mail@koandcompany.com.au | W: koandcompany.com.au

Copyright. The concepts and information contained in this document are the copyright of KO&CoArchitecture Pty Ltd. Using or copying the information in whole or in part without written permission from KO&CoArchitecture Pty Ltd constitutes an infringement of copyright.
Do not scale from drawings. Dimensions are to be checked on site prior to commencement of work. Discrepancies to be brought to the attention of the author.

REV	DATE	ISSUE	DRAWN	CHECK
A	09.05.18	ISSUE TO CONSULTANTS	RN	LB
B	21.05.18	ISSUE TO PROJECT MANAGER	RN	LB
C	23.05.18	DET SDPP 90% REVIEW	RN	LB
D	24.05.18	ROOF REVISIONS	RN	LB
E	25.05.18	SDPP SUBMISSION	RN	KO

100mm LINE @ A1 — 10mm — scale: 1 : 100

PROJECT
INDOOROOPILLY STATE SCHOOL
NEW LEARNING CENTRE
471 MOGGILL ROAD, INDOOROOPILLY

CLIENT
DET DEPARTMENT OF EDUCATION AND TRAINING

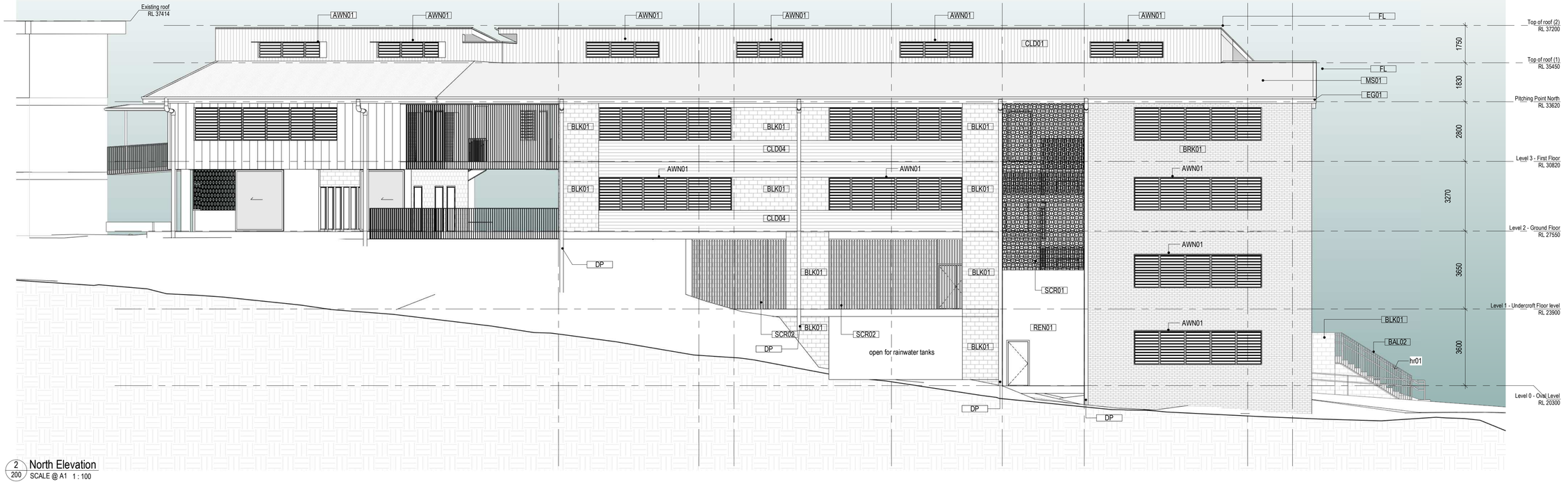
DRAWING NAME
ROOF PLAN

at plot 1:1 **A1**

PHASE	DWG No.	REV.
SD	210	E

PRELIMINARY

1 / 200 South Elevation
SCALE @ A1 1 : 100



2 / 200 North Elevation
SCALE @ A1 1 : 100

LEGEND

window number

door number

ABBREVIATIONS
Codes to be read in conjunction with
SDPP Materials and Finishes Board

acv	Acoustic ventilators, refer mechanical drawings
col	painted concrete column
dp	Downpipe
dp(s)	Downpipe with spreader
eg	Eaves Gutter
exh	Mechanical grille
hr	700mm & 900mm high handrail
sst	Structural steel (galvanised)

EXTERNAL MATERIALS LEGEND
Codes to be read in conjunction with
SDPP Materials and Finishes Board

AWN01	Insulated awning
BAL01	1100mm high galvanised steel balustrade
BAL02	1100mm high galvanised steel balustrade with 700mm & 900mm high handrails
BAL03	Full height painted steel screen
BLK01	Painted blockwork
BRK01	Face brick, anti graffiti finish
BRK02	Face brick with 10% gloss brick feature, anti graffiti finish
CLD01	Metal sheet cladding type 1
CLD02	Metal sheet cladding type 2
CLD03	9mm FC - Axon sheet cladding 400mm wide groove
CLD04	Metal sheet cladding type 3
CON01	Concrete
DP	Downpipe
DP(s)	Downpipe with spreader
DPC	Damp proof course
EG	Eaves gutter
FL	Folded metal flashing
MS01	Metal roof sheeting
MS02	Insulated roof panel
REN01	Rendered blockwork
RW	Retaining wall
SCR01	Perforated aluminium screening
SCR02	Powdercoated aluminium full height battens with 50% opening for ventilation
SCR03	Powdercoated aluminium batten screen

KO&CoArchitecture Pty Ltd
5/99 Musgrave Road Red Hill Q 4059 | PO Box 490 Red Hill Q 4059
| P: 07 3367 1878
E: mail@koandcompany.com.au | W: koandcompany.com.au

Copyright The concepts and information contained in this document are the copyright of KO&CoArchitecture Pty Ltd. Using or copying the information in whole or in part without written permission from KO&CoArchitecture Pty Ltd constitutes an infringement of copyright.

Do not scale from drawings. Dimensions are to be checked on site prior to commencement of work. Discrepancies to be brought to the attention of the author.

REV	DATE	ISSUE	DRAWN	CHECK
A	09.05.18	ISSUE TO CONSULTANTS	RN	LB
B	21.05.18	ISSUE TO PROJECT MANAGER	RN	LB
C	23.05.18	DET SDPP 90% REVIEW	RN	LB
D	25.05.18	SDPP SUBMISSION	RN	KO

PROJECT
INDOOROOPILLY STATE SCHOOL
NEW LEARNING CENTRE
471 MOGGILL ROAD, INDOOROOPILLY

CLIENT
DET DEPARTMENT OF EDUCATION AND TRAINING

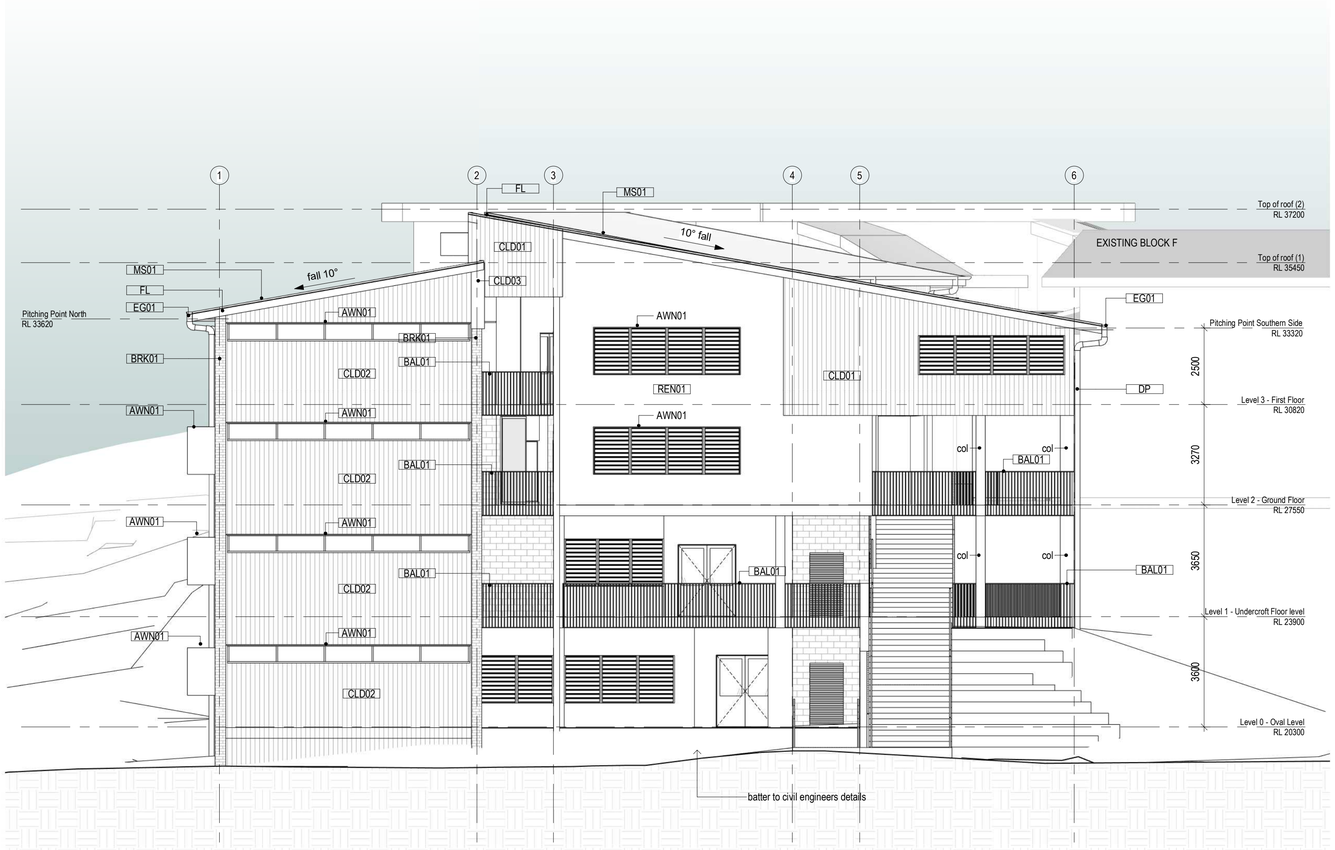
DRAWING NAME
ELEVATIONS
SHEET 1

100mm LINE @ A1 — 10mm — scale : 1 : 100

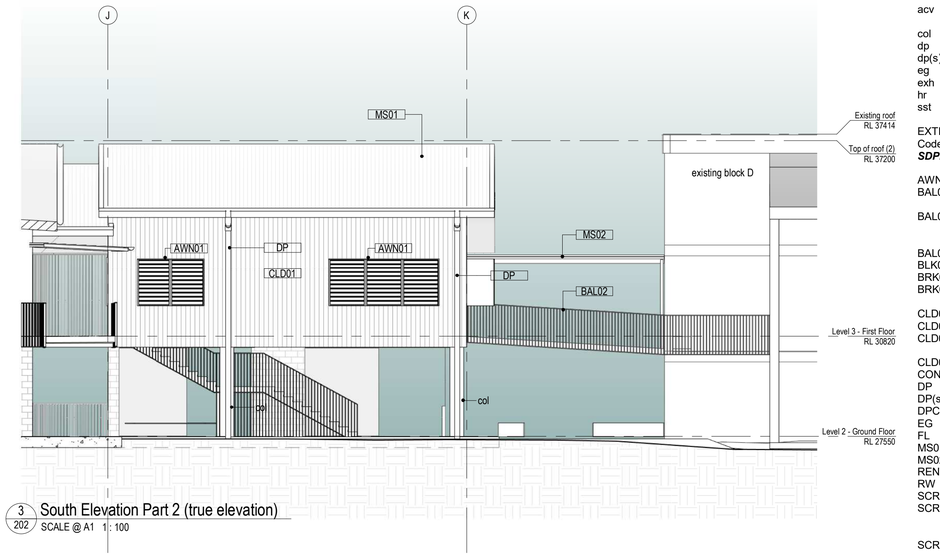
at size 1:1 **A1**

PHASE	DWG No.	REV.
SD	300	D

PRELIMINARY



3 / 202 South Elevation Part 2 (true elevation)
SCALE @ A1 1 : 100



LEGEND

L1 w13 — window number

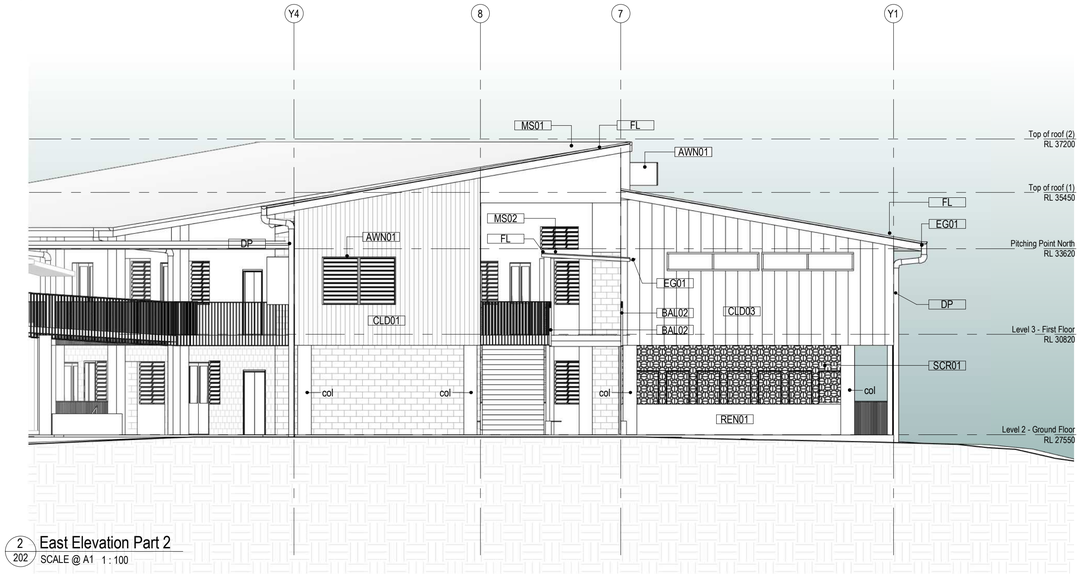
L1 d01 — door number

ABBREVIATIONS
Codes to be read in conjunction with
SDPP Materials and Finishes Board

acv	Acoustic ventilators, refer mechanical drawings
col	painted concrete column
dp	Downpipe
dp(s)	Downpipe with spreader
eg	Eaves Gutter
exh	Mechanical grille
hr	700mm & 900mm high handrail
sst	Structural steel (galvanised)

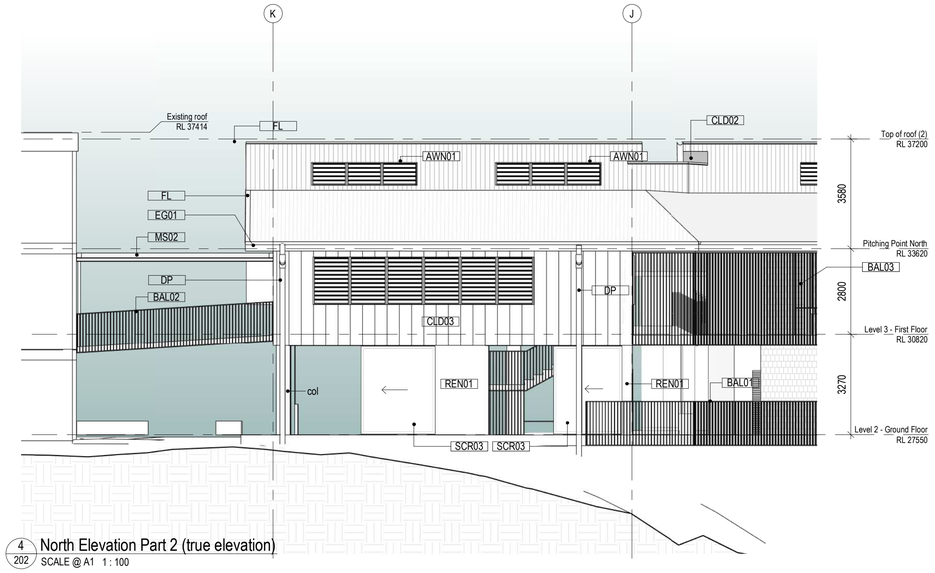
EXTERNAL MATERIALS LEGEND
Codes to be read in conjunction with
SDPP Materials and Finishes Board

AWN01	Insulated awning
BAL01	1100mm high galvanised steel balustrade
BAL02	1100mm high galvanised steel balustrade with 700mm & 900mm high handrails
BAL03	Full height painted steel screen
BLK01	Painted blockwork
BRK01	Face brick, anti graffiti finish
BRK02	Face brick with 10% gloss brick feature, anti graffiti finish
CLD01	Metal sheet cladding type 1
CLD02	Metal sheet cladding type 2
CLD03	9mm FC - Axon sheet cladding 400mm wide groove
CLD04	Metal sheet cladding type 3
CON01	Concrete
DP	Downpipe
DP(s)	Downpipe with spreader
DPC	Damp proof course
EG	Eaves gutter
FL	Folded metal flashing
MS01	Metal roof sheeting
MS02	Insulated roof panel
REN01	Rendered blockwork
RW	Retaining wall
SCR01	Perforated aluminium screening
SCR02	Powdercoated aluminium full height battens with 50% opening for ventilation
SCR03	Powdercoated aluminium batten screen



1 / 200 West Elevation
SCALE @ A1 1 : 100

2 / 202 East Elevation Part 2
SCALE @ A1 1 : 100



4 / 202 North Elevation Part 2 (true elevation)
SCALE @ A1 1 : 100

KO AND CO ARCHITECTURE

KO&CoArchitecture Pty Ltd
5/99 Musgrave Road Red Hill Q 4059 | PO Box 490 Red Hill Q 4059
| P: 07 3367 1878
E: mail@koandcompany.com.au | W: koandcompany.com.au

Copyright The concepts and information contained in this document are the copyright of KO&CoArchitecture Pty Ltd. Using or copying the information in whole or in part without written permission from KO&CoArchitecture Pty Ltd constitutes an infringement of copyright.

Do not scale from drawings. Dimensions are to be checked on site prior to commencement of work. Discrepancies to be brought to the attention of the author.

REV	DATE	ISSUE	DRAWN	CHECK
A	09.05.18	ISSUE TO CONSULTANTS	RN	LB
B	21.05.18	ISSUE TO PROJECT MANAGER	RN	LB
C	23.05.18	DET SDPP 90% REVIEW	RN	LB
D	25.05.18	SDPP SUBMISSION	RN	KO

100mm LINE @ A1 — 10mm — scale : 1 : 100

PROJECT
INDOOROOPILLY STATE SCHOOL

NEW LEARNING CENTRE

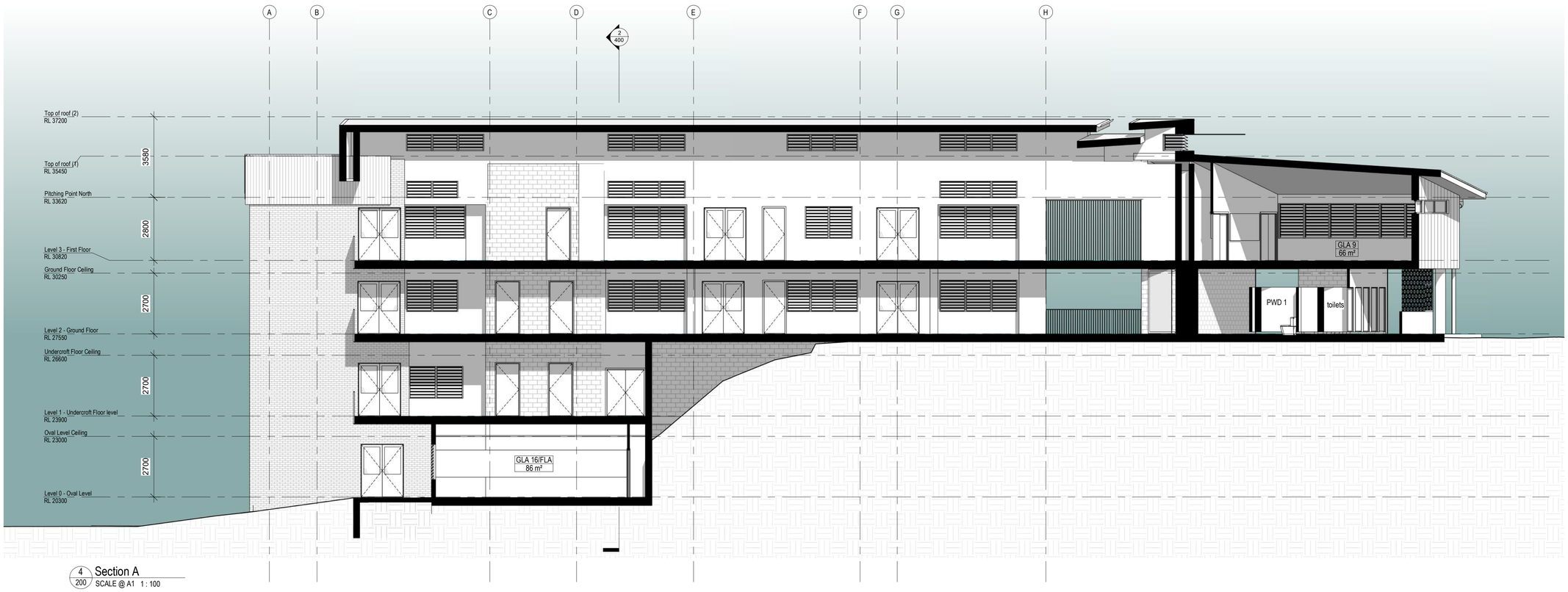
471 MOGGILL ROAD, INDOOROOPILLY

CLIENT
DET DEPARTMENT OF EDUCATION AND TRAINING

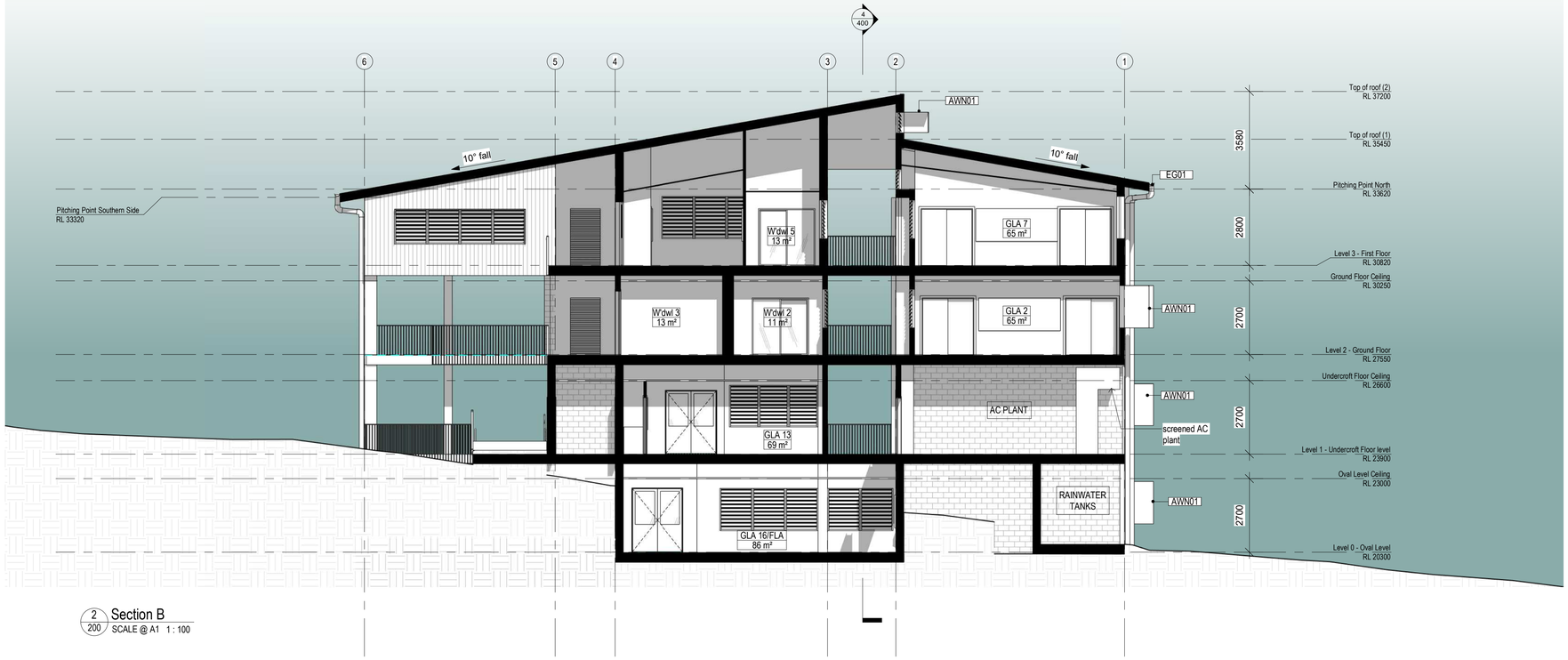
DRAWING NAME
ELEVATIONS
SHEET 2

at size 1:1 **A1**

PHASE	DWG No.	REV.
SD	301	D



4 / 200 Section A
SCALE @ A1 1 : 100



2 / 200 Section B
SCALE @ A1 1 : 100

PRELIMINARY

LEGEND

LT1 / w13 window number

LT1 / d01 door number

ABBREVIATIONS
Codes to be read in conjunction with
SDPP Materials and Finishes Board

acv	Acoustic ventilators, refer mechanical drawings
col	painted concrete column
dp	Downpipe
dp(s)	Downpipe with spreader
eg	Eaves Gutter
exh	Mechanical grille
hr	700mm & 900mm high handrail
ngl	Natural Ground Line
sst	Structural steel (galvanised)

EXTERNAL MATERIALS LEGEND
Codes to be read in conjunction with
SDPP Materials and Finishes Board

AWN01	Insulated awning
BAL01	1100mm high galvanised steel balustrade
BAL02	1100mm high galvanised steel balustrade with 700mm & 900mm high handrails
BLK01	Painted blockwork
BRK01	Face brick, anti graffiti finish
BRK02	Face brick with 10% gloss brick feature, anti graffiti finish
CLD01	Metal sheet cladding type 1
CLD02	Metal sheet cladding type 1
CLD03	9mm FC - Axon sheet cladding 400mm wide groove
CON01	Concrete
DP	Downpipe
DP(s)	Downpipe with spreader
DPC	Damp proof course
EG	Eaves gutter
FL	Folded metal flashing
MS01	Metal roof sheeting
MS02	Insulated roof panel
REN01	Rendered blockwork
RW	Retaining wall
SCR01	Perforated aluminium screening
SK01	Skirting type 1
SK02	Skirting type 2

KO AND CO ARCHITECTURE

KO&CoArchitecture Pty Ltd
5/99 Musgrave Road Red Hill Q 4059 | PO Box 490 Red Hill Q 4059
| P: 07 3367 1878
E: mail@koandcompany.com.au | W: koandcompany.com.au

Copyright The concepts and information contained in this document are the copyright of KO&CoArchitecture Pty Ltd. Using or copying the information in whole or in part without written permission from KO&CoArchitecture Pty Ltd constitutes an infringement of copyright.

Do not scale from drawings. Dimensions are to be checked on site prior to commencement of work. Discrepancies to be brought to the attention of the author.

REV	DATE	ISSUE	DRAWN	CHECK
A	21.05.18	ISSUE TO PROJECT MANAGER	RN	LB
B	23.05.18	DET SDPP RFI'S REVIEW	RN	LB
C	25.05.18	SDPP SUBMISSION	RN	KO

PROJECT
INDOOROOPILLY STATE SCHOOL
NEW LEARNING CENTRE
471 MOGGILL ROAD, INDOOROOPILLY

CLIENT
DET DEPARTMENT OF EDUCATION AND TRAINING

DRAWING NAME
SECTIONS
SHEET 1

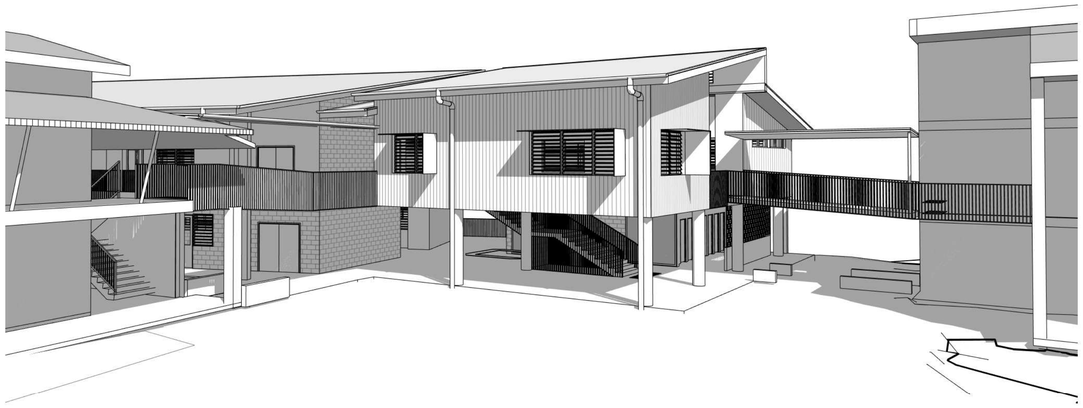
100mm LINE @ A1 10mm scale : 1 : 100

at size 1:1

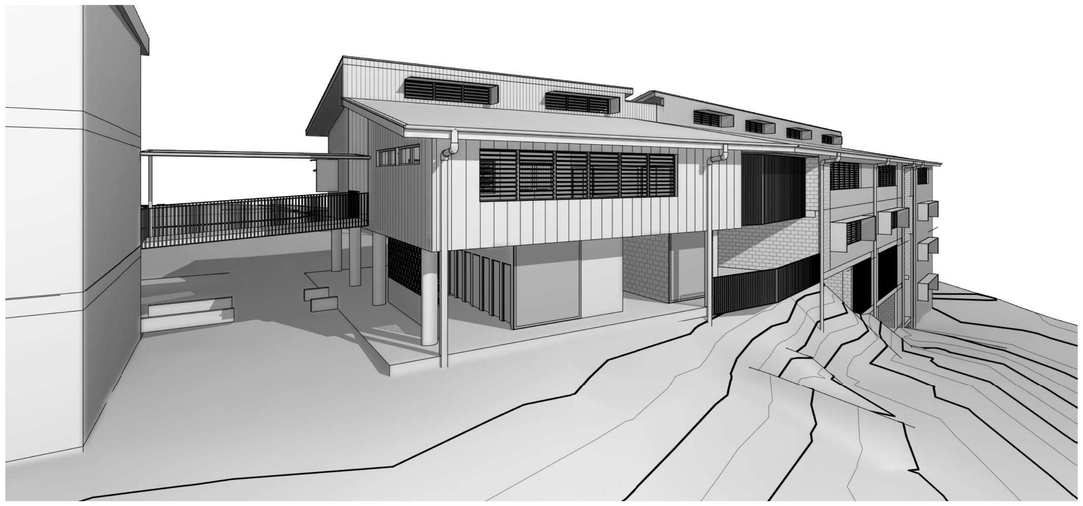
PHASE	DWG No.	REV.
SD	400	C

A1

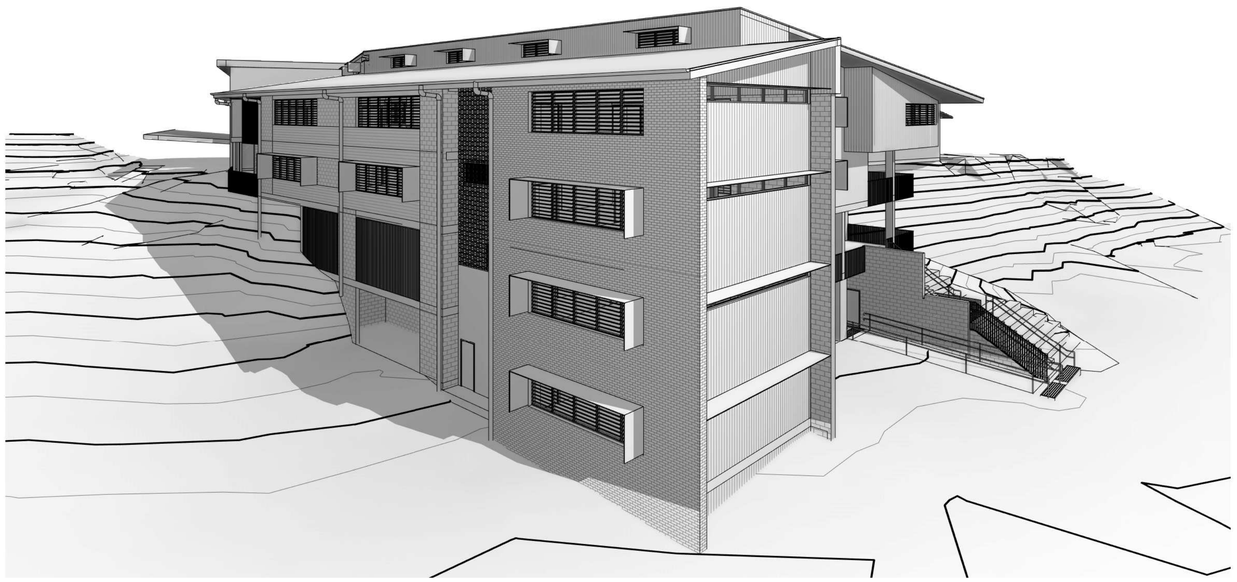
3D Perspective - Oval View



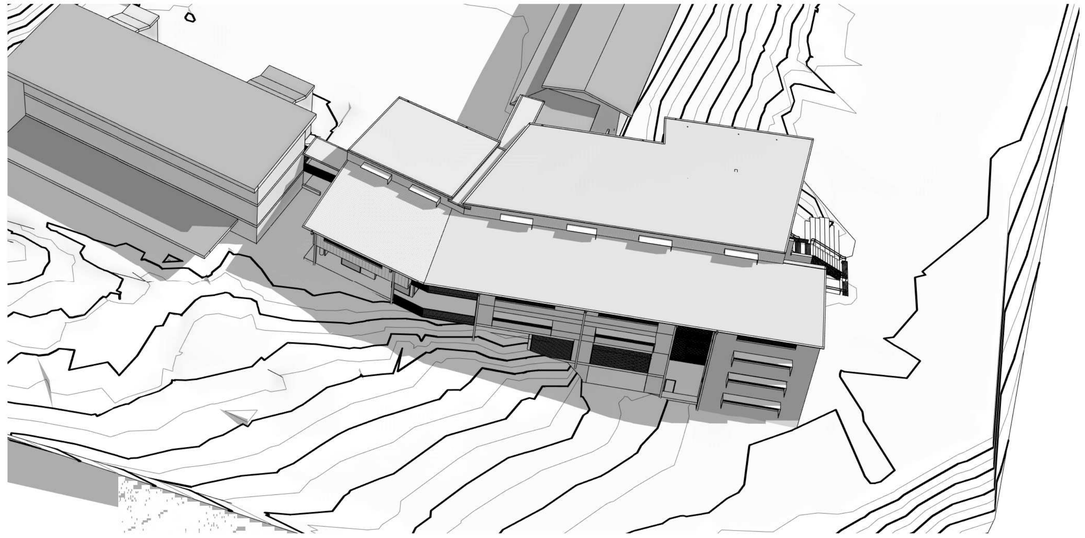
3D Perspective - Courtyard View



3D Perspective - North Eastern View



3D Perspective - North Western Corner



3D Perspective - Roof

KO AND CO ARCHITECTURE

KO&CoArchitecture Pty Ltd
5/99 Musgrave Road Red Hill Q 4059 | PO Box 490 Red Hill Q 4059
| P: 07 3367 1878
E: mail@koandcompany.com.au | W: koandcompany.com.au

Copyright: The concepts and information contained in this document are the copyright of KO&CoArchitecture Pty Ltd. Using or copying the information in whole or in part without written permission from KO&CoArchitecture Pty Ltd constitutes an infringement of copyright.

Do not scale from drawings. Dimensions are to be checked on site prior to commencement of work. Discrepancies to be brought to the attention of the author.

REV	DATE	ISSUE	DRAWN	CHECK
A	16.04.27	PRELIMINARY ISSUE TO CONSULTANTS	RN	LB
B	09.05.18	ISSUE TO CONSULTANTS	RN	LB
C	21.05.18	ISSUE TO PROJECT MANAGER	RN	LB
D	23.05.18	DET SDPP 90% REVIEW	RN	LB
E	25.05.18	SDPP SUBMISSION	RN	KO

PROJECT
INDOOROOPILLY STATE SCHOOL

NEW LEARNING CENTRE

471 MOGGILL ROAD, INDOOROOPILLY

CLIENT
DET DEPARTMENT OF EDUCATION AND TRAINING

DRAWING NAME
PERSPECTIVES
SHEET 1

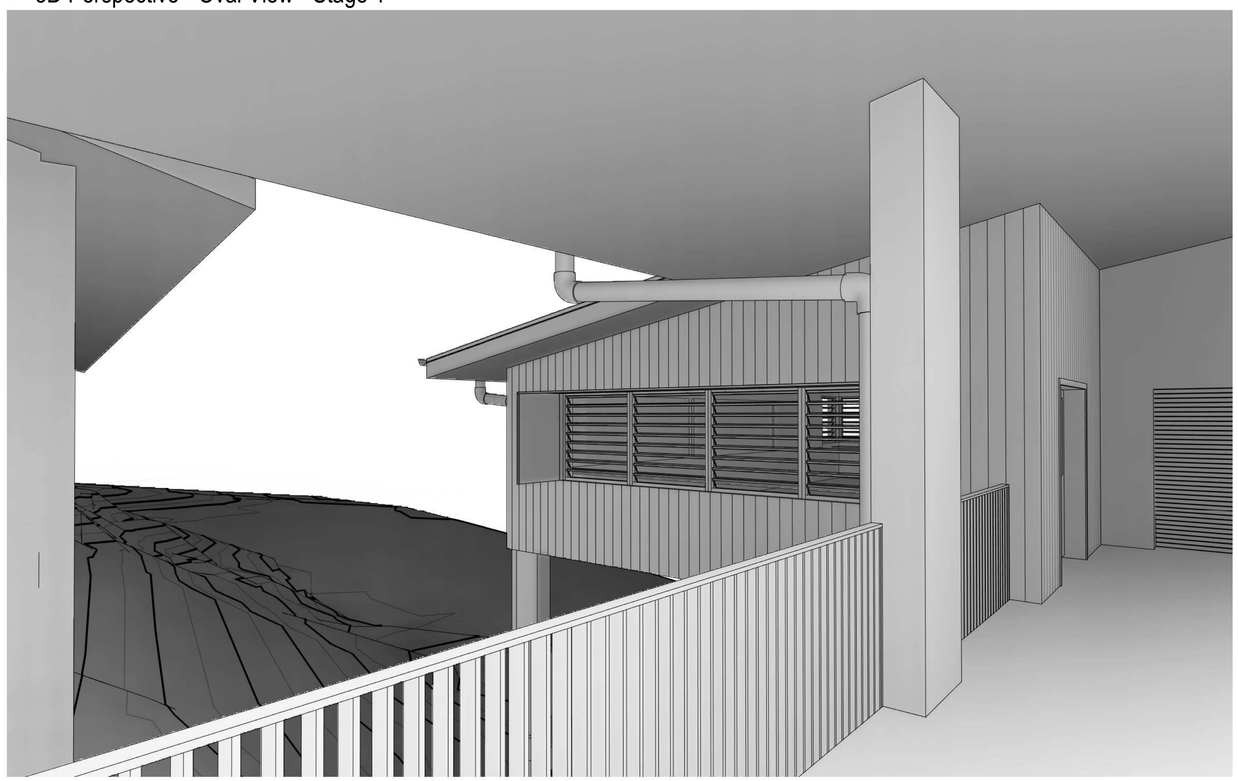
100mm LINE @ A1 | 10mm | scale :

at plot 1:1 **A1**

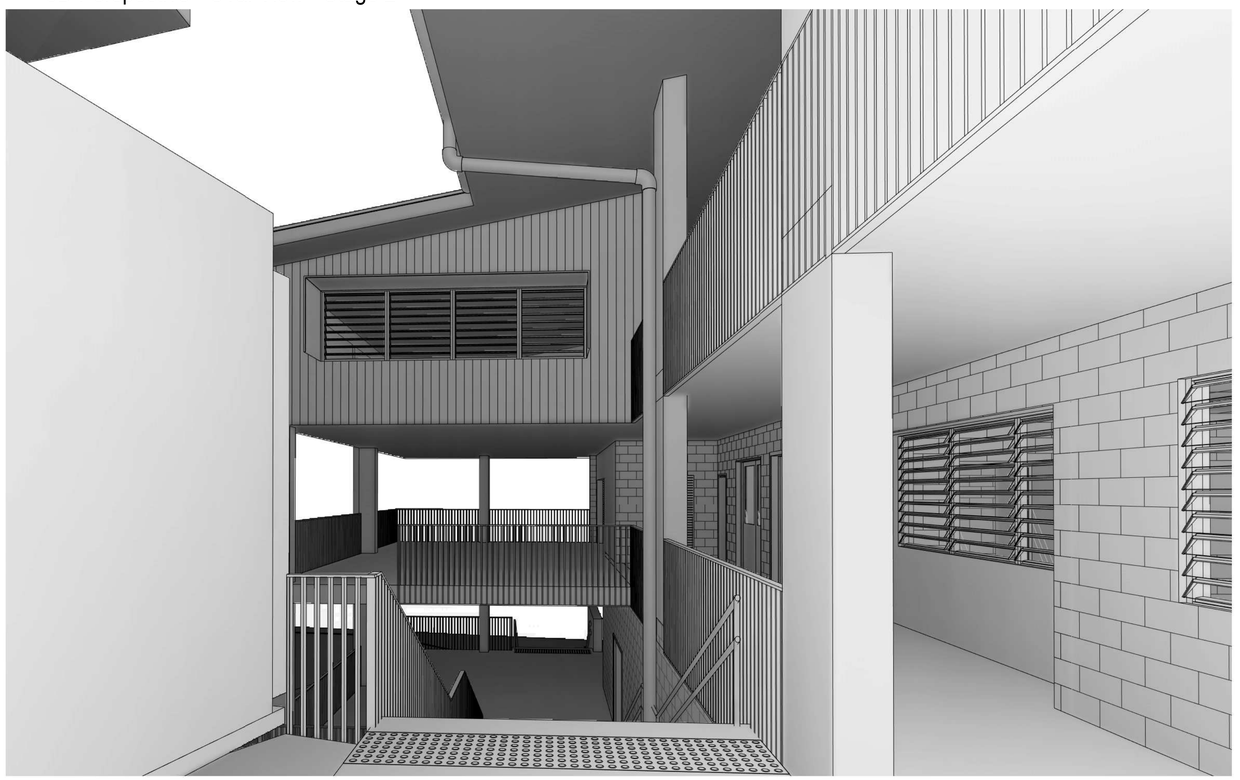
PHASE	DWG No.	REV.
SD	900	E

3D Perspective - Oval View - Stage 1

3D Perspective - Oval View - Stage 2



3D Perspective - View from Level 3 corridor to lower Oval



3D Perspective - View from Singleton Oval to lower Oval

KO AND CO ARCHITECTURE

KO&CoArchitecture Pty Ltd
5/99 Musgrave Road Red Hill Q 4059 | PO Box 490 Red Hill Q 4059
| P: 07 3367 1878
E: mail@koandcompany.com.au | W: koandcompany.com.au

Copyright: The concepts and information contained in this document are the copyright of KO&CoArchitecture Pty Ltd. Using or copying the information in whole or in part without written permission from KO&CoArchitecture Pty Ltd constitutes an infringement of copyright.

Do not scale from drawings. Dimensions are to be checked on site prior to commencement of work. Discrepancies to be brought to the attention of the author.

REV	DATE	ISSUE	DRAWN	CHECK
A	09.05.18	ISSUE TO CONSULTANTS	RN	LB
B	23.05.18	DET SDPP 90% REVIEW	RN	LB
C	25.05.18	SDPP SUBMISSION	RN	KO

PROJECT
INDOOROOPILLY STATE SCHOOL

NEW LEARNING CENTRE

471 MOGGILL ROAD, INDOOROOPILLY

CLIENT
DET DEPARTMENT OF EDUCATION AND TRAINING

DRAWING NAME
PERSPECTIVES
SHEET 2

100mm LINE @ A1 — 10mm — scale :

at plot 11 **A1**

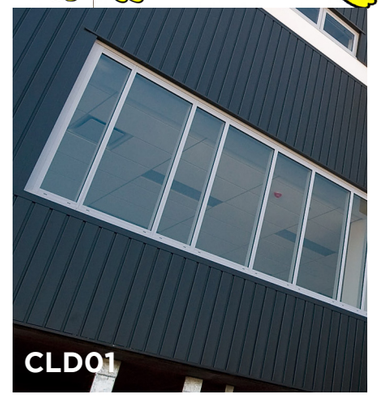
PHASE	DWG No.	REV.
SD	901	C

Jalousie louvres

BRK02

LIN02

CLD03



EPOXY

CLD01, EG & FL

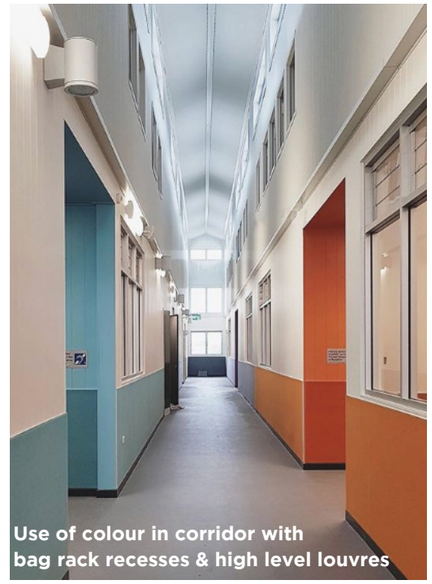
CPT01

CPT02

PNB02

PNB01

PNB03



LM02

LM01

LIN03

SSF01

EPOXY

CLD02

CLD02, MS01 + MS02

CPT02

CPT02

LEGEND

AWN01	Heka Hood Awning - Monument
BRK01	Face brick, anti-graffiti finish Austral 'Regal Tan'
BRK02	Face brick with 10% gloss brick Austral 'Camilla' range
CLD01	Stramit Premier 300 metal sheeting (running vertically) Colour: Monument (matt finish)
CLD02	Stramit Longspan (running vertically) Colour: Surfmist
CLD03	9mm Fibre cement cladding, painted Syon Axon 400mm wide grove
CPT01	Carpet tiles - Ontera Danxia Summit - SUM20 119 Pyrite
CPT02	Feature Carpet tiles - Ontera Colour Connect - Tropics Blue, Kiwi Pulp, Sunset Scape
EG, FL	Eaves gutters, flashings & facias Colorbond Monument
EPOXY	Hychem Epoxy Flooring (R11 slip rating) (Oriental Blue & Lime Green)
LIN01	9mm Fibre Cement Sheeting (internal walls generally)
LIN02	9mm Syon Axon Smooth 133mm fibre cement
LIN03	Armstrong wall vinyl 'wallflex' Colour: Alabaster
LM01	(cupboards under teaching whiteboard) Laminex Charcoal
LM02	Compact Laminate benches & toilet partitions Lamicolor - C6062WR Vesuvio
PNB01	Autex Vertiface Simba
PNB02	Autex Vertiface Lime
PNB03	Autex Vertiface Azure
MS01	Stramit Longspan Colour: Surfmist
MS02	Insulated Roofing Panel Colour: Surfmist
REN01	Rendered blockwork
SCR01	Perforated powdercoated screening
SCR02	Air Conditioning screening Aluminium battens (full height)
SCR03	Full height painted steel screening
SOFFITS	Corrugated Colorbond Surfmist
SSF01	Vinyl - R10 slip rating Armstrong Accolade Safe 'Opal Grey'

KO AND CO ARCHITECTURE

INDOOROOPILLY STATE SCHOOL - NEW LEARNING CENTRE

SDPP - Preliminary Finishes Board

[May 2018]

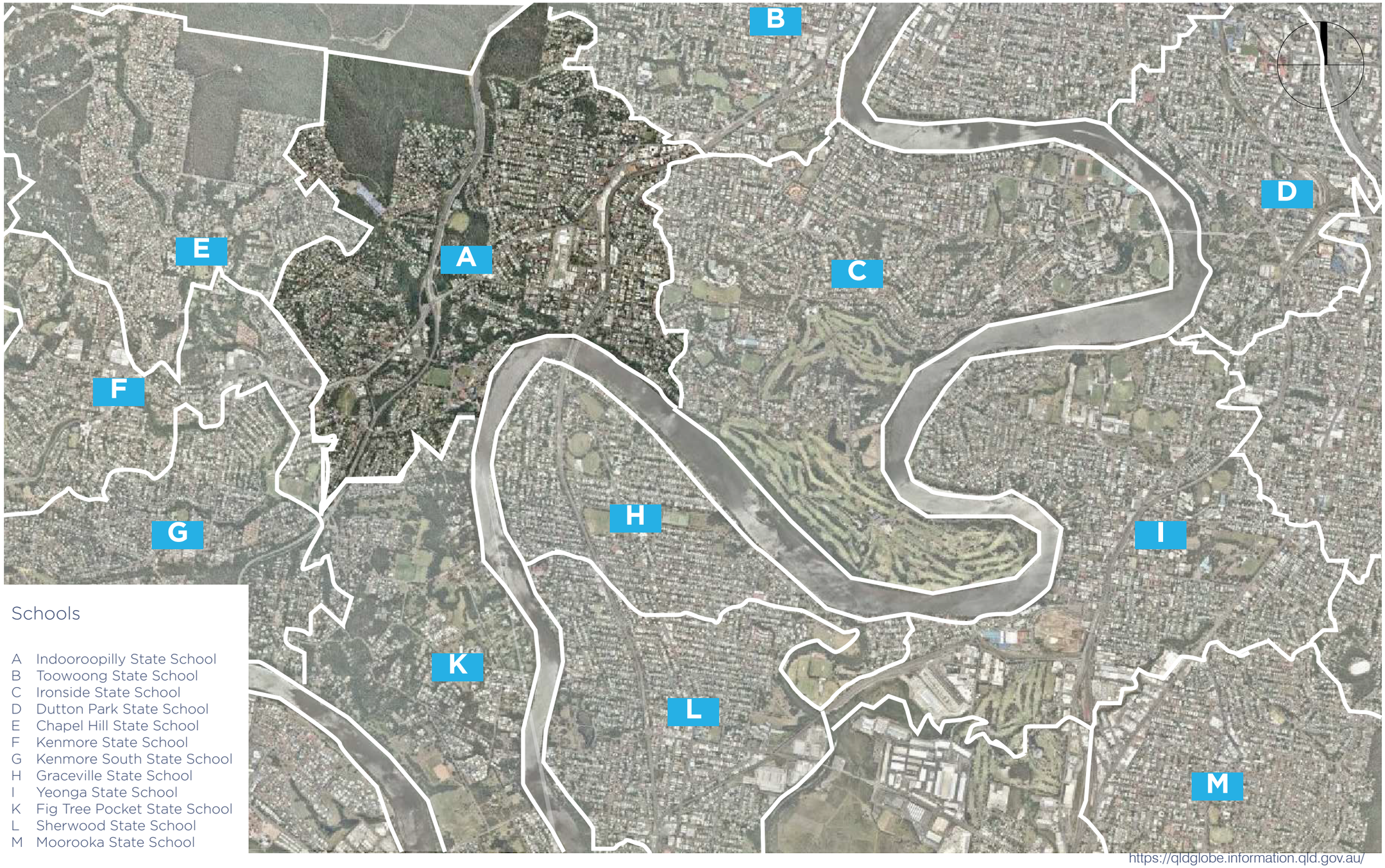
Appendix 6

Master Plan

Department of Housing and Public Works

Queensland Government

1.1 Master Planning - Indooroopilly State School
Location Plan



Schools

A Indooroopilly State School
B Toowoong State School
C Ironside State School
D Dutton Park State School
E Chapel Hill State School
F Kenmore State School
G Kenmore South State School
H Graceville State School
I Yeonga State School
K Fig Tree Pocket State School
L Sherwood State School
M Moorooka State School

https://qldglobe.information.qld.gov.au/

Master Plan Concept Plan - Surrounding Schools - 1:30000

1.2 Master Planning - Indooroopilly State School
Existing Site Plan

http://maps.au.nearmap.com/

Master Plan Map - Indooroopilly SS - 1:1000

2.1 Master Planning - Indooroopilly State School Concept Plan

Buildings

A + E	New administration & library building with basement carparking
B	General Learning, uniform shop + toilets
C	General Learning, toilets + CON
D	General Learning
F	General Learning
G	General Learning with undercroft
H	General Learning
HALL	Full sized basketball/ netball, Stage, Music Room & General Learning
T	Canteen
1A	General Learning
1B	(Bottom Infill of 2 levels)
2	Undercover Area
3	Pool & Amenities
4	Covered Play Area
5	Covered Prep Area

Enrolment Capacity

Staging Proposal:

Current Capacity: 1,152

Stage 1A of new build: 1,344

Stage 1B of new build: 1,440

Masterplan Complete: 1,464

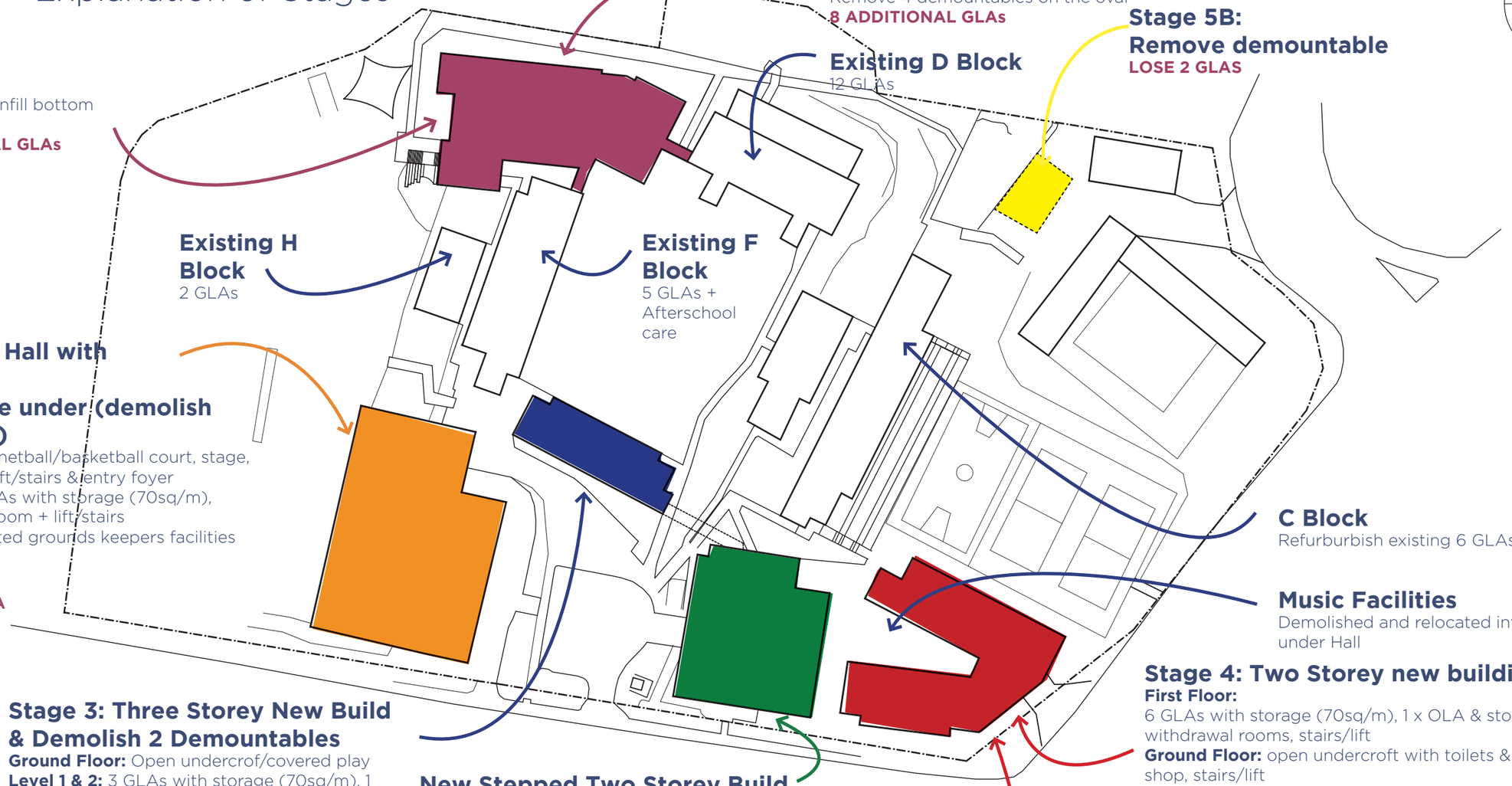
Legend

- Pedestrian
- Covered Walkways
- Covered Areas
- Driveway/Uncovered Parking
- Existing Buildings
- Refurbish Existing Building
- Stage 1A & Stage 1B New Build (top 2 levels infilled for Stage 1 & bottom 2 levels infilled for Stage 2)
- Possible future development (3 storeys including undercroft)
- Possible future development (2 storeys - non teaching spaces with basement carpark)
- Possible future development (3 storeys)
- upgrade existing stairs/ramp to be compliant with current standards
- new elevated walkway

Concept Plan 1:1000

August 2018

Master Planning - Indooroopilly State School
Explanation of Stages



Stage 1A:
11 new classrooms & 1 FLA
Remove 4 demountables on the oval
8 ADDITIONAL GLAs

Stage 1B:
4 new GLAs (infill bottom two levels)
4 ADDITIONAL GLAs

Existing D Block
12 GLAs

Stage 5B:
Remove demountable
LOSE 2 GLAS

Existing H Block
2 GLAs

Existing F Block
5 GLAs + Afterschool care

Stage 2: New Hall with classrooms/ music/storage under (demolish demountable)
Ground Floor: Full netball/basketball court, stage, amenitie, storage, lift/stairs & entry foyer
Undercroft: 3 x GLAs with storage (70sq/m), 1 x 90sq/m music room + lift/stairs
Oval Level: Relocated grounds keepers facilities

+ covered play area
1 ADDITIONAL GLA

C Block
Refurburbish existing 6 GLAs

Music Facilities
Demolished and relocated into & under Hall

Stage 4: Two Storey new building
First Floor:
6 GLAs with storage (70sq/m), 1 x OLA & storage, 3x withdrawal rooms, stairs/lift
Ground Floor: open undercroft with toilets & uniform shop, stairs/lift

Existing Block B to be demolished = 6 undersized classrooms with no storage, toilets & unfirom shop
NO ADDITIONAL GLAs GAINED

Stage 3: Three Storey New Build & Demolish 2 Demountables
Ground Floor: Open undercrof/covered play
Level 1 & 2: 3 GLAs with storage (70sq/m), 1 withdrawal space + lift/stairs
Can accomodate 6 GLAs in total
3 ADDITIONAL GLAs

New Stepped Two Storey Build
Non teaching space :
New Administration and Library Building (no classrooms)
Demolish Block A & Block E (lose 3 classrooms)
Basement carparking: 14 carpark basement carparkts (including two PWD carparks with access to lift and stairs)
LOSE 3 GLAS

Stage 5A: Infill to Block B undercroft
Ground Floor: open undercroft with toilets & uniform toilets, stairs/lift & 5 new GLAs (demountable is removed as part of this stage)
3 ADDITIONAL GLAs

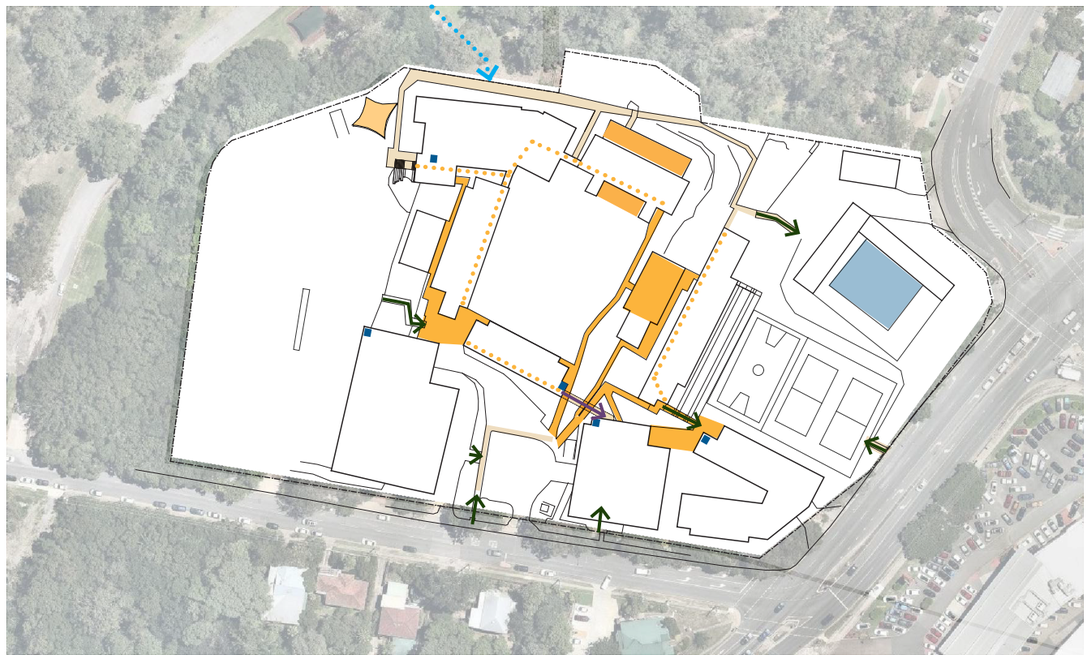
Junior Platform Classroom numbers (after Stage 3 is completely infilled):
NEW BUILDING = 16 GLAs
H BLOCK = 2 GLAs
BLOCK F = 5 GLAs + Afterschool care
BLOCK D = 12 GLAs
Stage 3 = 6 GLAS
HALL = 3 GLAs + music facilities
Junior Platform = 44 GLAS in total

Senior Platform Classroom numbers (after Stage 5):
New classroom numbers = First Floor replaces the same classroom numbers as Block B but adds an OLA, lift and 3 withdrawal rooms
Classroom Numbers:
STAGE 4 B BLOCK = 6 GLAs (First Floor infill only)
C BLOCK = 6 GLAs
STAGE 5 B BLOCK = 5 GLAs (Ground floor Infill)
Senior Platform = 17 GLAs in total (if 3 GLAs are lost with the demolition of Block E)

2.2 Master Planning - Indooroopilly State School Landscape Plan

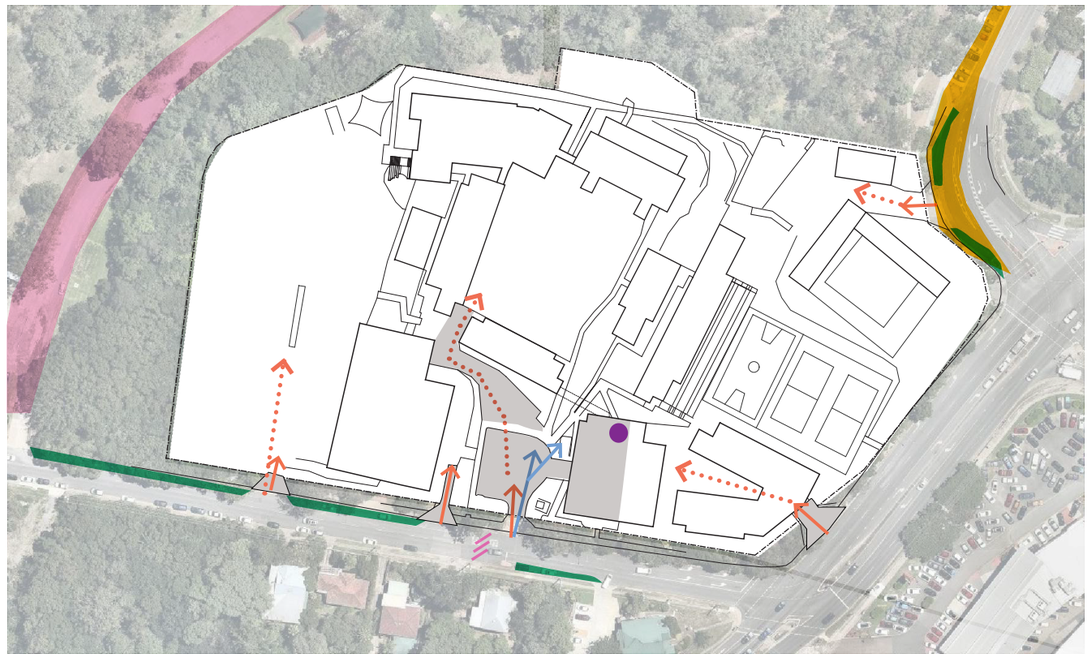
Landscape Plan 1:1000

2.3 Master Planning - Indooroopilly State School
Circulation (Access, Wayfinding & Movement) Overlay



Circulation

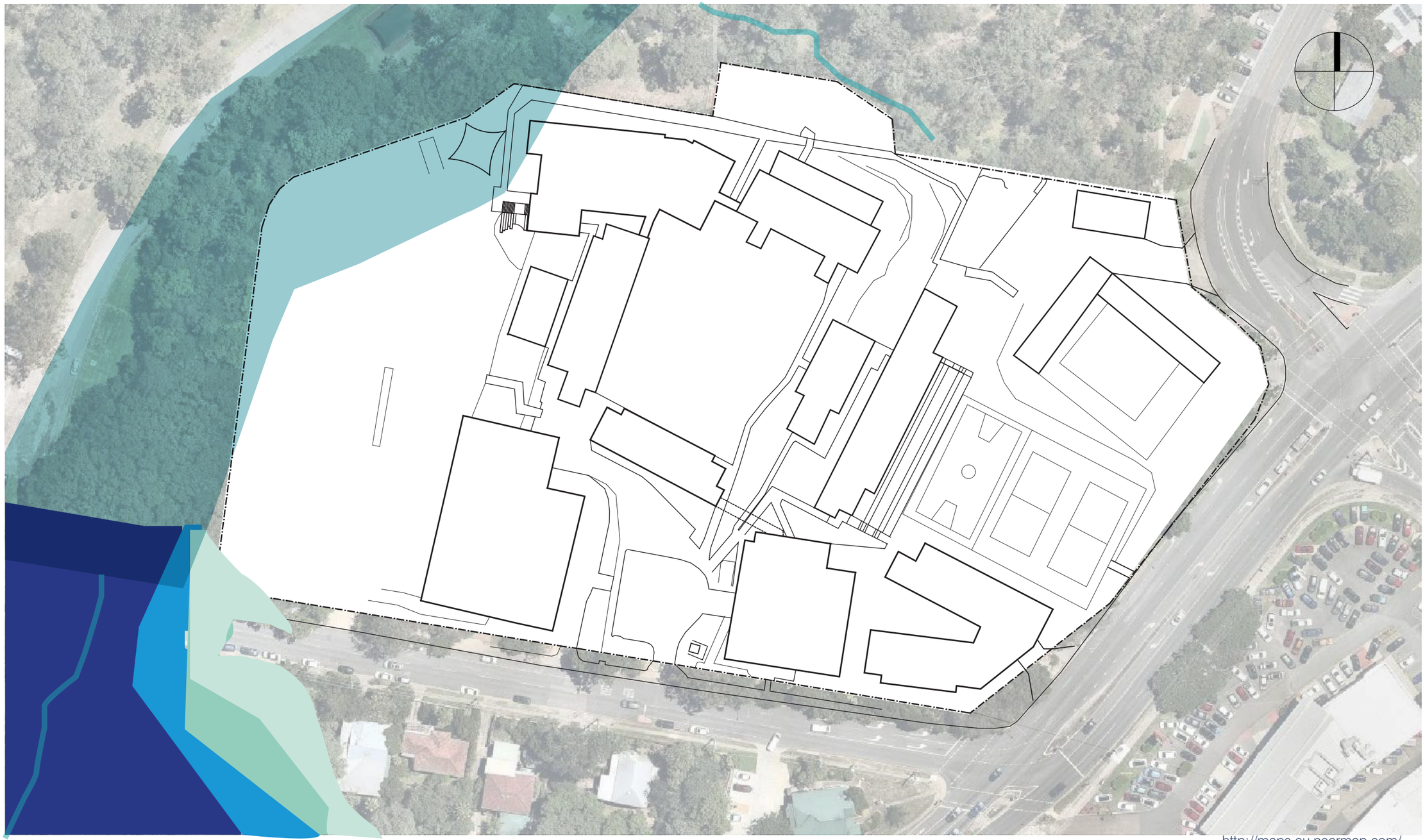
- Pedestrian Pathways
- Covered Walkways or Area
- Walkway covered by building overhang
- Pedestrian entry through Moore Park
- upgrade eixsting stair/ramp to comply with current standards
- elevated walkway
- lift service for building



Vehicular Movement

- Vehicular Access
- Driveway/Uncovered Parking
- Ambulance access
- Bin collection & Canteen deliveries
- Drop & go zones
- Lollipop crossing
- Upgrade to Taringa Pde by BCC (extent to be confirmed)
- Informal offsite parking for staff in Moore Park
- Compliant PWD carpark located in basement carpark

2.4 Master Planning - Indooroopilly State School
Civil (Topography & Flooding) Overlay



Civil Overlay - 1:1000

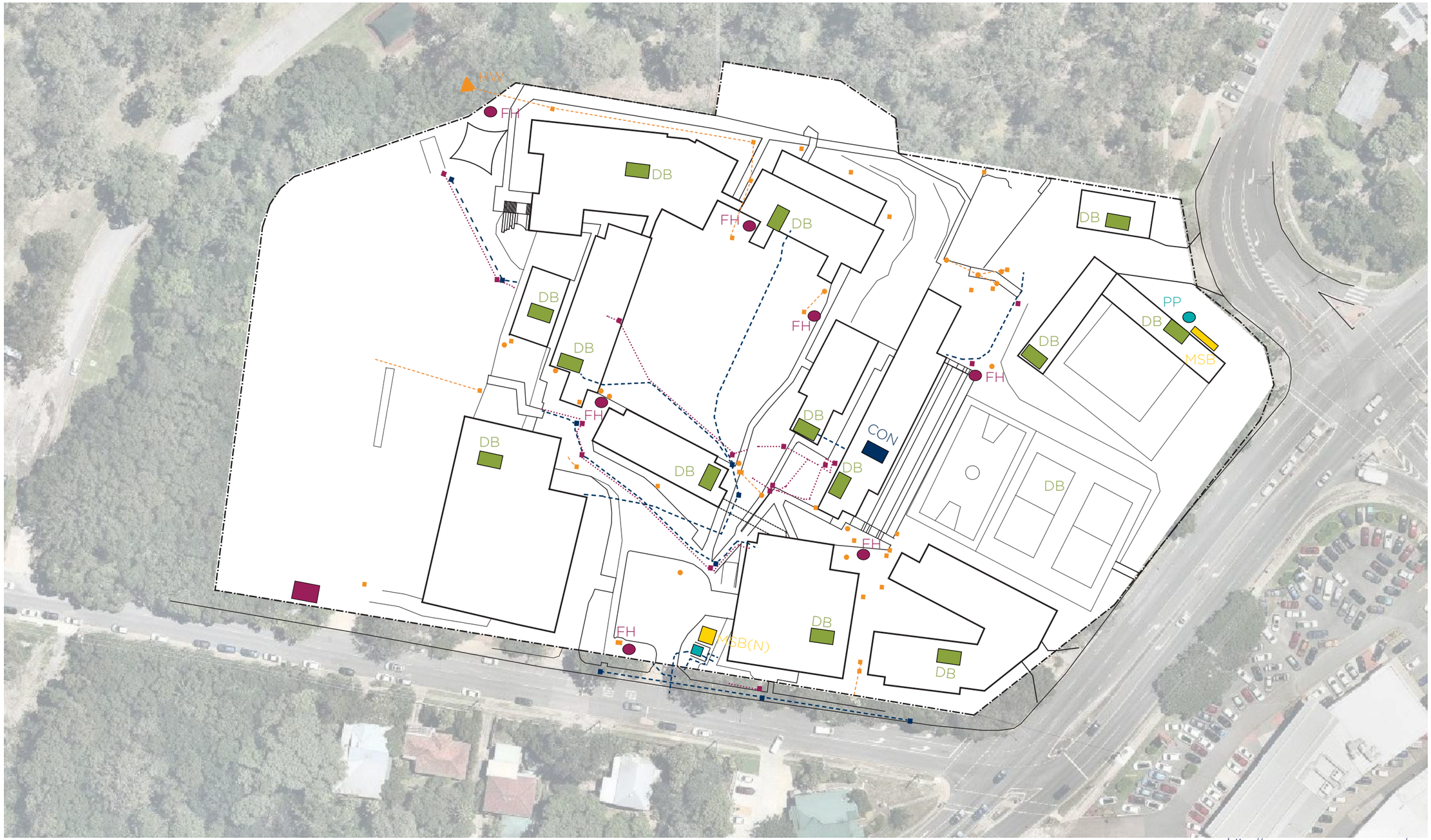
Legend

- Overland Flow
- Flood (subcategory 4 & 5)

http://maps.au.nearmap.com/

There is no BCC flood planning area that applies to the proposed development site – the figure above (adapted from the BCC City Plan 2014 Interactive Mapping) shows the extent of the creek/waterway flood planning area & overland flow in relation to the site. The Witton Creek Stormwater Management Plan Technical Report prepared and published by BCC has been obtained for the site (refer to civil and structural report attached as an Appendix). The modified peak water levels (AHD obtained from the report) indicated 100-year ARI of RL17.0m AHD (WT470) which does not impact the development site. Based on the 100-year ARI of RL17.0m AHD and 500mm free board to habitable floor level, the minimum level is RL17.5. The lowest floor level proposed for Stage 1A & 1B is RL20.3 (Level 0) which provides suitable freeboard.

2.5 Master Planning - Indooroopilly State School
Services (Mechanical, Electrical, Hydraulics, Stormwater) Overlay



http://maps.au.nearmap.com/

FH Fire Hydrant
Fire Booster
Existing 750kVA Transformer
DB Existing Distribution Switchboard
MSB Existing Site Main Switchboard
MSB(N) New Site Main Switchboard

PP Property Pole
CON Centre of Network

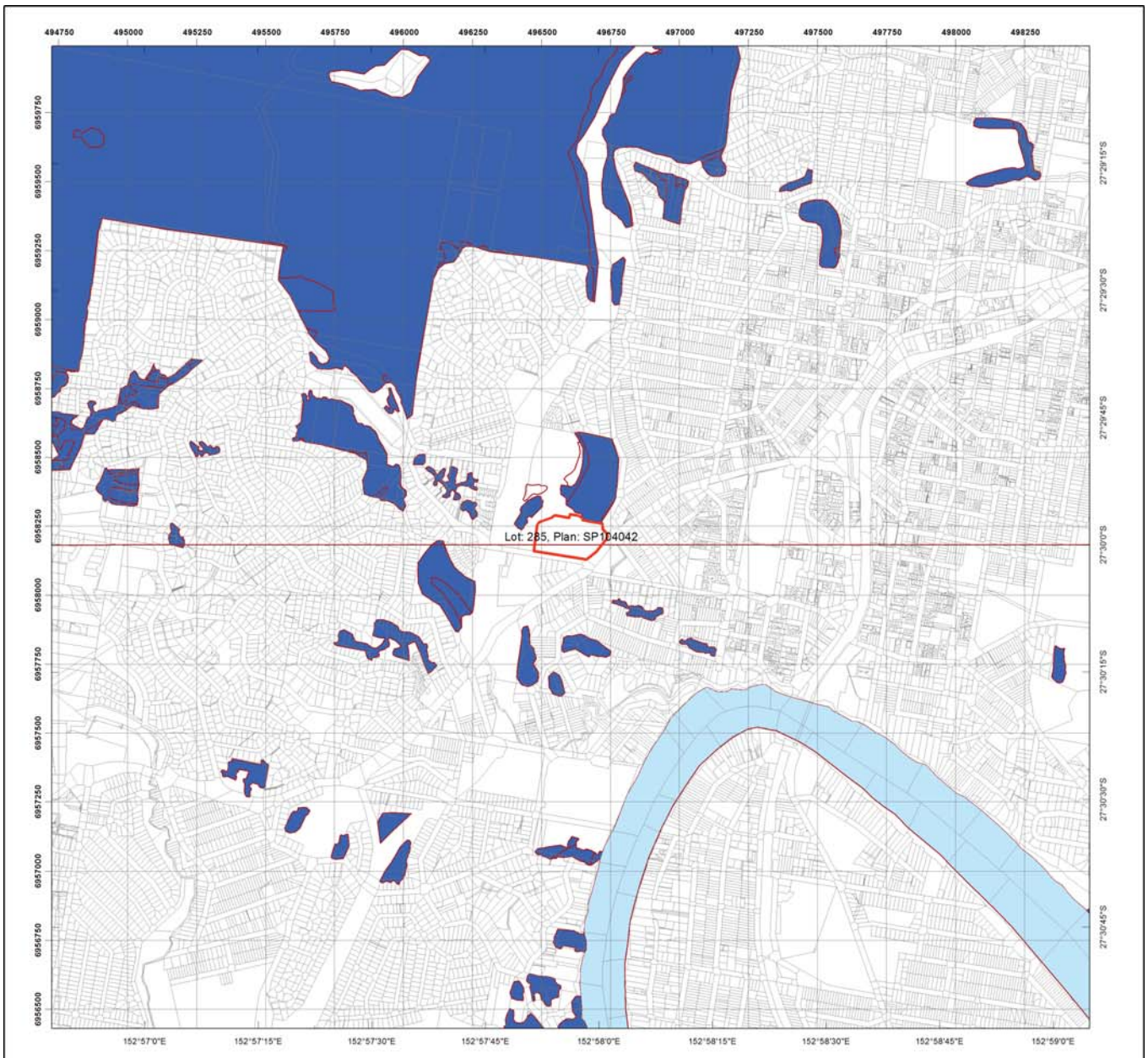
Telstra Infastructure
Stormwater Infastructure
Electrical Infastructure
HW New headwall & rock scour protection to discharge stormwater to Witton Creek

Appendix 7

State Interest Trigger Maps

Department of Housing and Public Works

Queensland Government

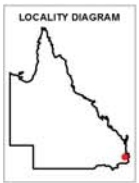


Proposed Regulated Vegetation Management Map

Please note, the Government has proposed changes to the Category C and Category R areas which are shown on this map. For more information on these changes, please refer to the Department's website.

Legend

- Lot and Plan
- Category A area (Vegetation offsets/compliance notices/VDecs)
- Category B area (Remnant vegetation)
- Category C area (High-value regrowth vegetation)
- Category R area (Reef regrowth watercourse vegetation)
- Category X area (Exempt clearing work on Freehold, Indigenous and Leasehold land)
- Proposed Category C (Proposed high-value regrowth)
- Proposed Category R (Proposed reef regrowth watercourse vegetation)
- Water
- Area not categorised
- Cadastral line
  Property boundaries shown are provided as a locational aid only

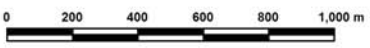


Disclaimer:
While every care is taken to ensure the accuracy of this product, the Department of Natural Resources, Mines and Energy makes no representations or warranties about its accuracy, reliability, completeness or suitability for any particular purpose and disclaims all responsibility and all liability (including without limitation, liability in negligence) for all expenses, losses, damages (including indirect or consequential damage) and costs which you might incurr as a result of the product being inaccurate or incomplete in any way and for any reason.

Additional information required for the assessment of vegetation values is provided in the accompanying "Vegetation Management Supporting map". For further information go to the web site: www.dnrme.qld.gov.au or contact the Department of Natural Resources, Mines and Energy.

Digital data for the proposed regulated vegetation management map is available from the Queensland Spatial Portal at http://www.information.qld.gov.au/

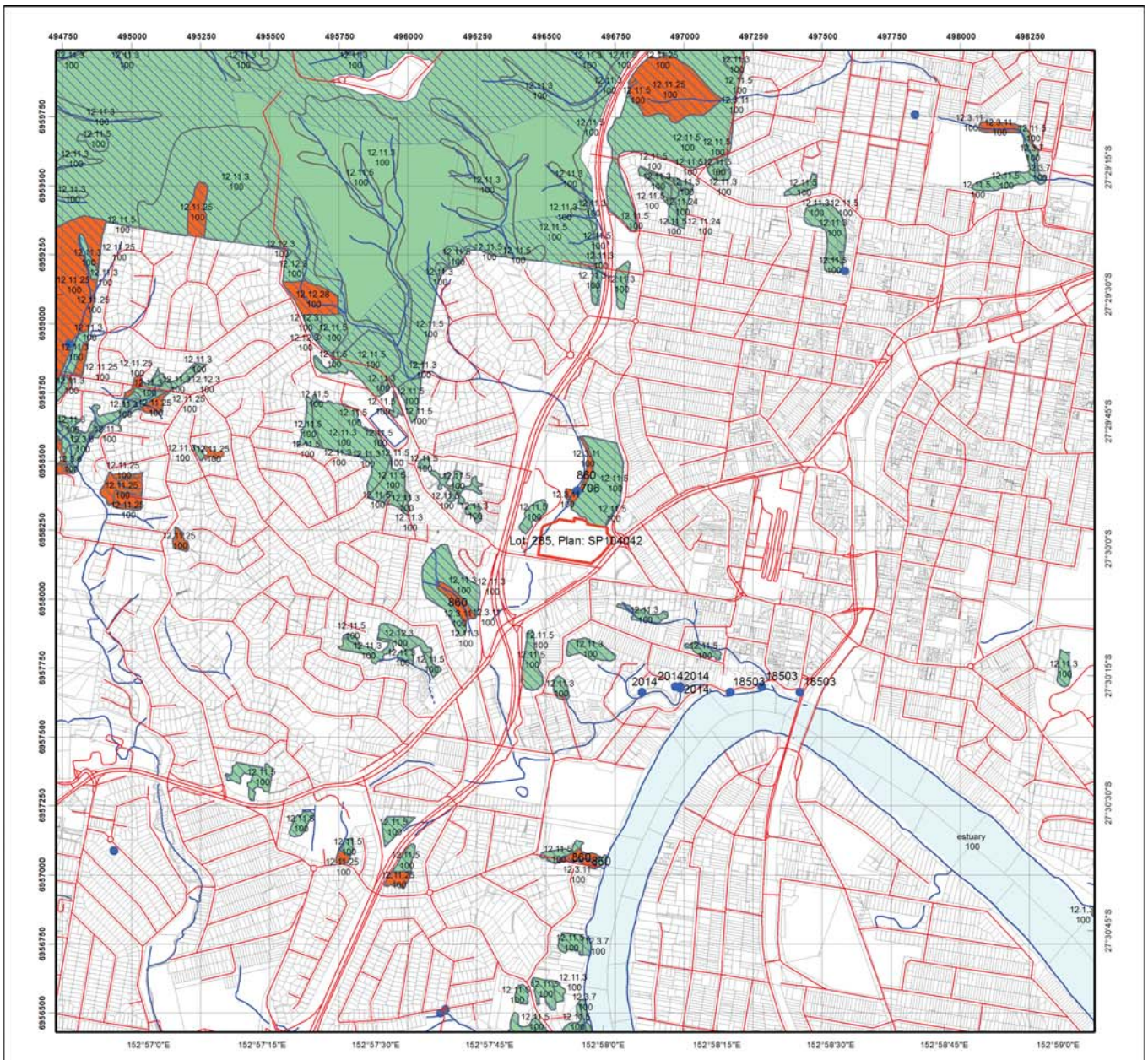
This map is updated on a monthly basis to ensure new PMAVs are included as they are approved.



Queensland Government

This product is projected into:
GDA 1994 MGA Zone 56

© The State of Queensland (Department of Natural Resources, Mines and Energy), 2018



Proposed Vegetation Management Supporting Map

Please note that proposed Category C is shown in the same colours as existing areas of Category C

Legend

- Lot and Plan
- Category A or B area containing endangered regional ecosystems
- Category A or B area containing of concern regional ecosystems
- Category A or B area that is a least concern regional ecosystem
- Category A or B area under Section 20AH
  These areas are edged in yellow and filled with the remnant RE Status
- Category C or proposed Category C area containing endangered regional ecosystems
- Category C or proposed Category C area containing of concern regional ecosystems
- Category C or proposed Category C area that is a least concern regional ecosystem
- Category C area under Section 20AI
  These areas are edged in purple and filled with the remnant RE Status
- Non Remnant
- Water
- Wetland on the vegetation management wetlands map
- Proposed essential habitat
- Essential habitat record
- Watercourses and drainage features on the vegetation management watercourse and drainage features map
  (Stream order shown as black number against stream where available)
- Roads
- National Parks, State Forest and other reserves
- Cadastral line
  Property boundaries shown are provided as a locational aid only

LOCALITY DIAGRAM

N

0 140 280 420 560 700 m

This product is projected into:
GDA 1994 MGA Zone 56

Labels for proposed essential habitat are centred on the area of enquiry.

Regional ecosystem linework has been compiled at a scale of 1:100 000, except in designated areas where a compilation scale of 1:50 000 is available. Linework should be used as a guide only. The positional accuracy of RE data mapped at a scale of 1:100 000 is +/- 100 metres.

Disclaimer:
While every care is taken to ensure the accuracy of this product, the Department of Natural Resources, Mines and Energy makes no representations or warranties about its accuracy, reliability, completeness or suitability for any particular purpose and disclaims all responsibility and all liability (including without limitation, liability in negligence) for all expenses, losses, damages (including indirect or consequential damage) and costs which you might incurr as a result of the product being inaccurate or incomplete in any way and for any reason.

Additional information may be required for the purposes of land clearing or assessment of a regional ecosystem map or PMAV applications. For further information go to the web site: www.dnrme.qld.gov.au or contact the Department of Natural Resources, Mines and Energy.

Digital data for the vegetation management watercourse and drainage feature map, proposed vegetation management wetlands map, proposed essential habitat map and the proposed vegetation management regional ecosystem map are available from the Queensland Spatial Portal at http://www.information.qld.gov.au/

Queensland Government

© The State of Queensland (Department of Natural Resources, Mines and Energy), 2018

12/04/2018 16:59:03
Lot: 285 Plan: SP104042

Protected Plants Flora Survey Trigger Map

Legend

- Lot and Plan
- High risk area
- Cadastral line
  Property boundaries shown are provided as a locational aid only
- Freeways / motorways / highways
- Secondary roads / streets

N

0 40 80 120 160 200 m

This product is projected into:
GDA 1994 Queensland Albers

This map shows areas where particular provisions of the Nature Conservation Act 1992 apply to the clearing of protected plants.

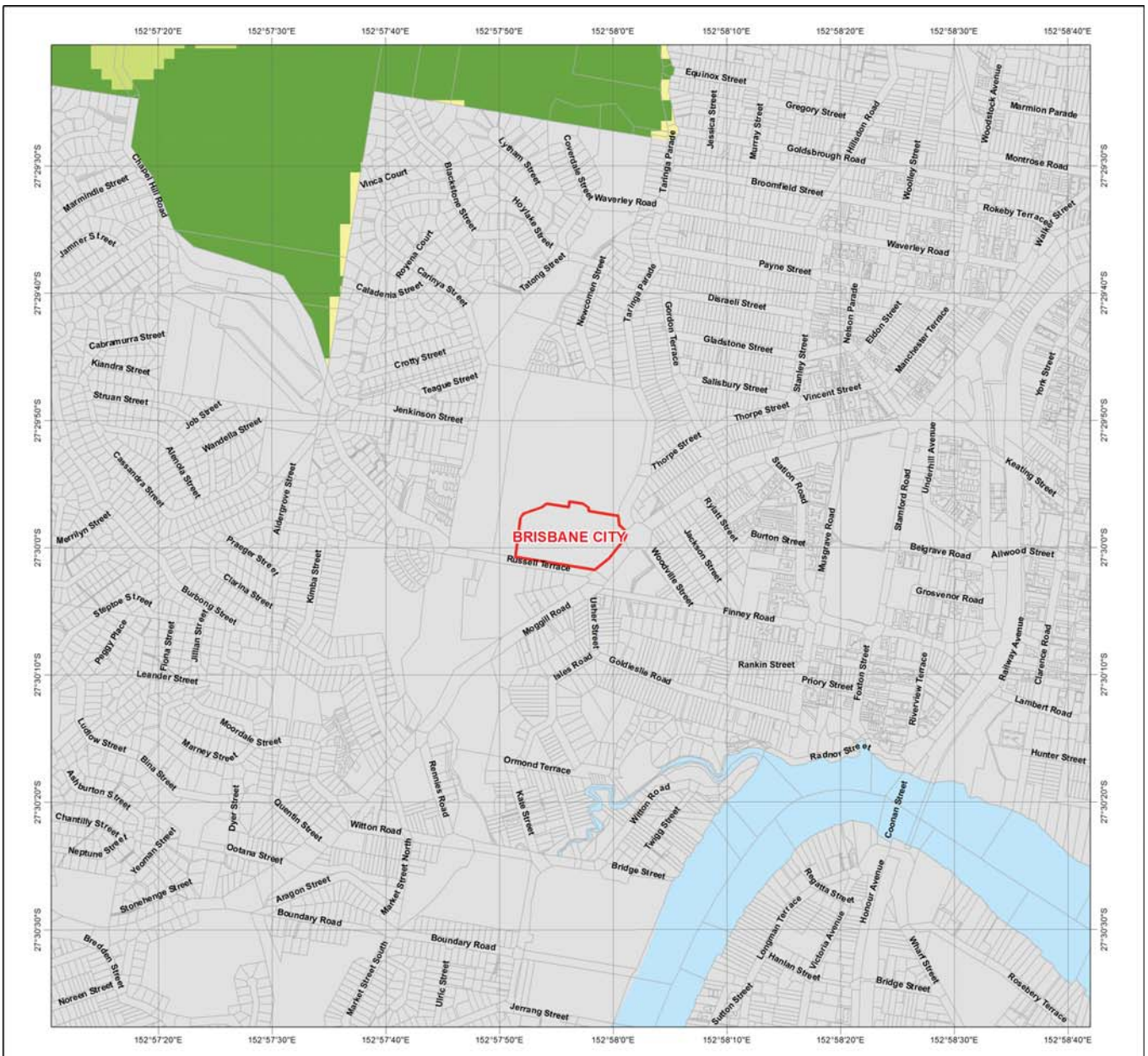
This map is produced at a scale relevant to the size of the area selected and should be printed as A4 size in portrait orientation.

For further information or assistance with interpretation of this product, please contact the Department of Environment and Science at palm@ehp.qld.gov.au

Disclaimer:
While every care is taken to ensure the accuracy of the data used to generate this product, the Queensland Government makes no representations or warranties about its accuracy, reliability, completeness or suitability for any particular purpose and disclaim all responsibility and all liability (including without limitation, liability in negligence) for all expenses, losses, damages (including indirect or consequential damages) and costs which might be incurred as a consequence of reliance on the data, or as a result of the data being inaccurate or incomplete in any way and for any reason.

© The State of Queensland (Department of Environment and Science), 2018

Queensland Government



Koala Habitat in South East Queensland

Lot and Plan

Koala SPP - Habitat Values

Bushland Habitat
- High Value Bushland
- Medium Value Bushland
- Low Value Bushland

Suitable for Rehabilitation
- High Value Rehabilitation
- Medium Value Rehabilitation
- Low Value Rehabilitation

Other Areas of Value
- High Value Other
- Medium Value Other
- Low Value Other
- Generally not suitable
- Water

South East Queensland Koala Habitat Values western SEQ
- Bushland Habitat
- Suitable for rehabilitation
- Other areas of value
- Generally not suitable
- Water
- Cadastral Boundaries
- Local Government Boundaries

0 130 260 390 520 650 m

This product is projected into GDA 1994 MGA Zone 56

While every care is taken to ensure the accuracy of this data, the State of Queensland makes no representations or warranties about its accuracy, reliability, completeness or suitability for any particular purpose and disclaims all responsibility and all liability (including without limitation, liability in negligence) for all expenses, losses, damages (including indirect or consequential damage) and costs which you might incur as a result of the data being inaccurate or incomplete in any way and for any reason. Due to varying sources of data, spatial locations may not coincide when overlaid.

In consideration of the State permitting use of this data you acknowledge and agree that the State gives no warranty in relation to the data (including accuracy, reliability, completeness, currency or suitability) and accepts no liability (including without limitation, liability in negligence) for any loss, damage or costs (including consequential damage) relating to any use of the data. Data must not be used for direct marketing or be used in breach of the privacy laws.

Based on or contains data provided by the State of Queensland 2010.

Note - These maps are not regulatory. Regulatory maps and requirements can be downloaded from the DES website. Further information in relation to regulatory requirements for development and planning activities should be sought from the relevant Local Government Authority or the Department of Environment and Science.

© The State of Queensland, 2018

Queensland Government

Map of Referable Wetlands
Wetland Protection Areas

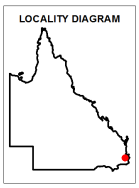
Lot and Plan

Cadastral Boundary

Wetland Protection Areas

Wetland

Trigger Area



N

Note:
This map shows the location of wetland protection areas which are defined under the Environmental Protection Regulation 2008. Within wetland protection areas, certain types of development involving high impact earthworks are made assessable under Schedule 3 of the Sustainable Planning Regulation 2009.

The Department of State Development, Manufacturing, Infrastructure and Planning is the State Assessment Referral Agency (SARA) under Schedule 7 of the Sustainable Planning Regulation 2009 for assessable development involving high impact earthworks within wetland protection areas. The Department of Environment and Science is a technical agency.

The policy outcome and assessment criteria for assessing these applications are described in the State Development Assessment Provisions (SDAP) *Module 11: Wetlands and wild rivers.*

This map is produced at a scale relevant to the size of the lot on plan identified and should be printed at A4 size in portrait orientation. Consideration of the effects of mapped scale is necessary when interpreting data at a large scale.

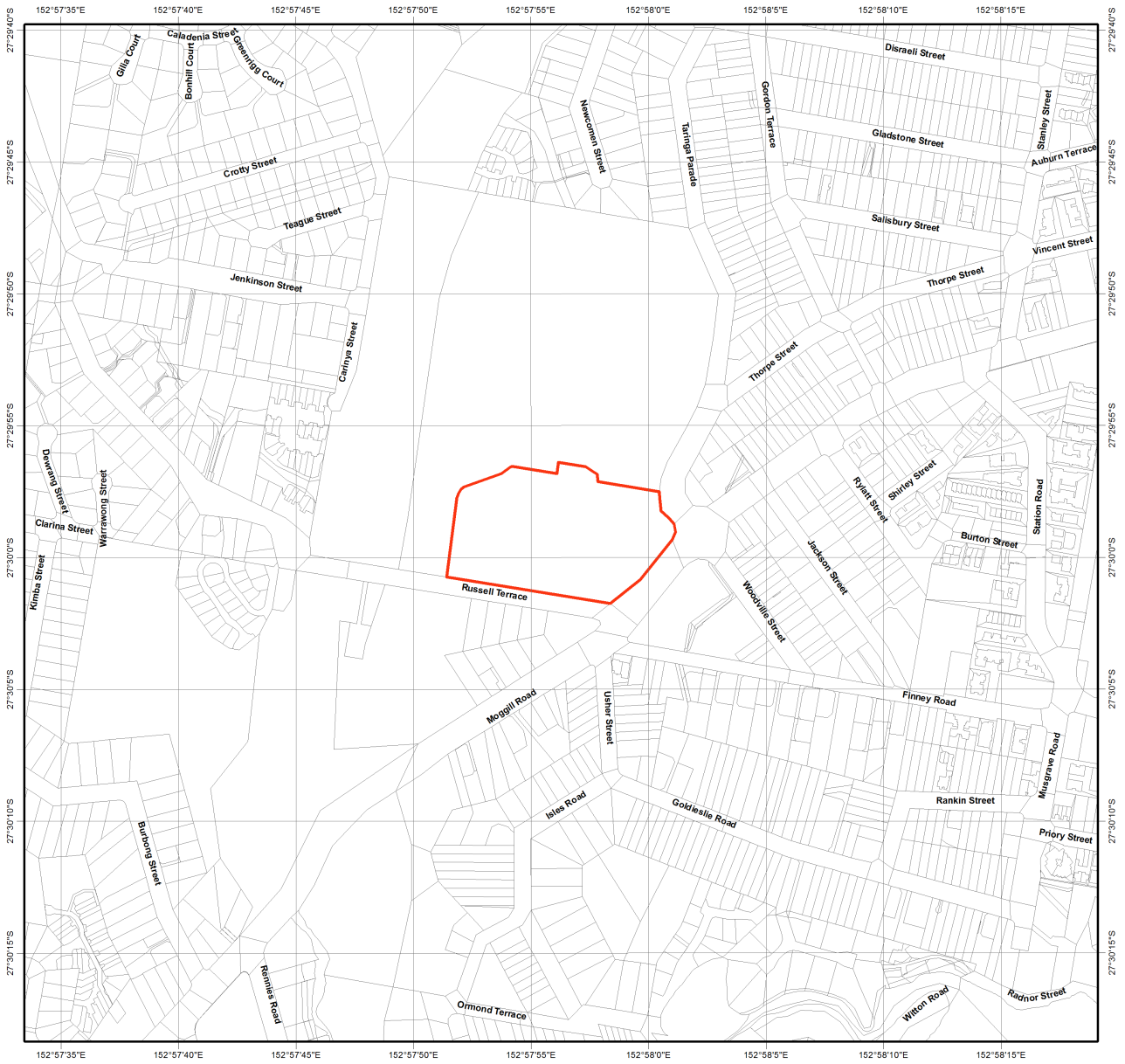
For further information or assistance with interpretation of this product, please contact the Department of Environment and Science, email planning.support@des.qld.gov.au.

0 60 120 180 240 300 m

This product is projected into GDA 1994 MGA Zone 56

© The State of Queensland, 2018

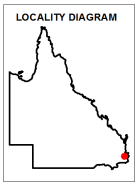
Queensland Government



Map of Referable Wetlands for the Environmental Protection Act 1994

Lot and Plan
Cadastral Boundary
HES Wetland
GES Wetland

LOCALITY DIAGRAM



N

Note:
This map shows the location of wetlands on the Map of Referable Wetlands which are defined under the Environmental Protection Regulation 2008.

Wetlands are assessed for ecological significance using the environmental values for wetlands in section 81A of the Environmental Protection Regulation 2008. Wetlands are considered either High Ecological Significance (HES) or of General Ecological Significance (GES) for the purposes of the environmental values.

This map is produced at a scale relevant to the size of the lot on plan identified and should be printed at A4 size in portrait orientation. Consideration of the effects of mapped scale is necessary when interpreting data at a large scale.

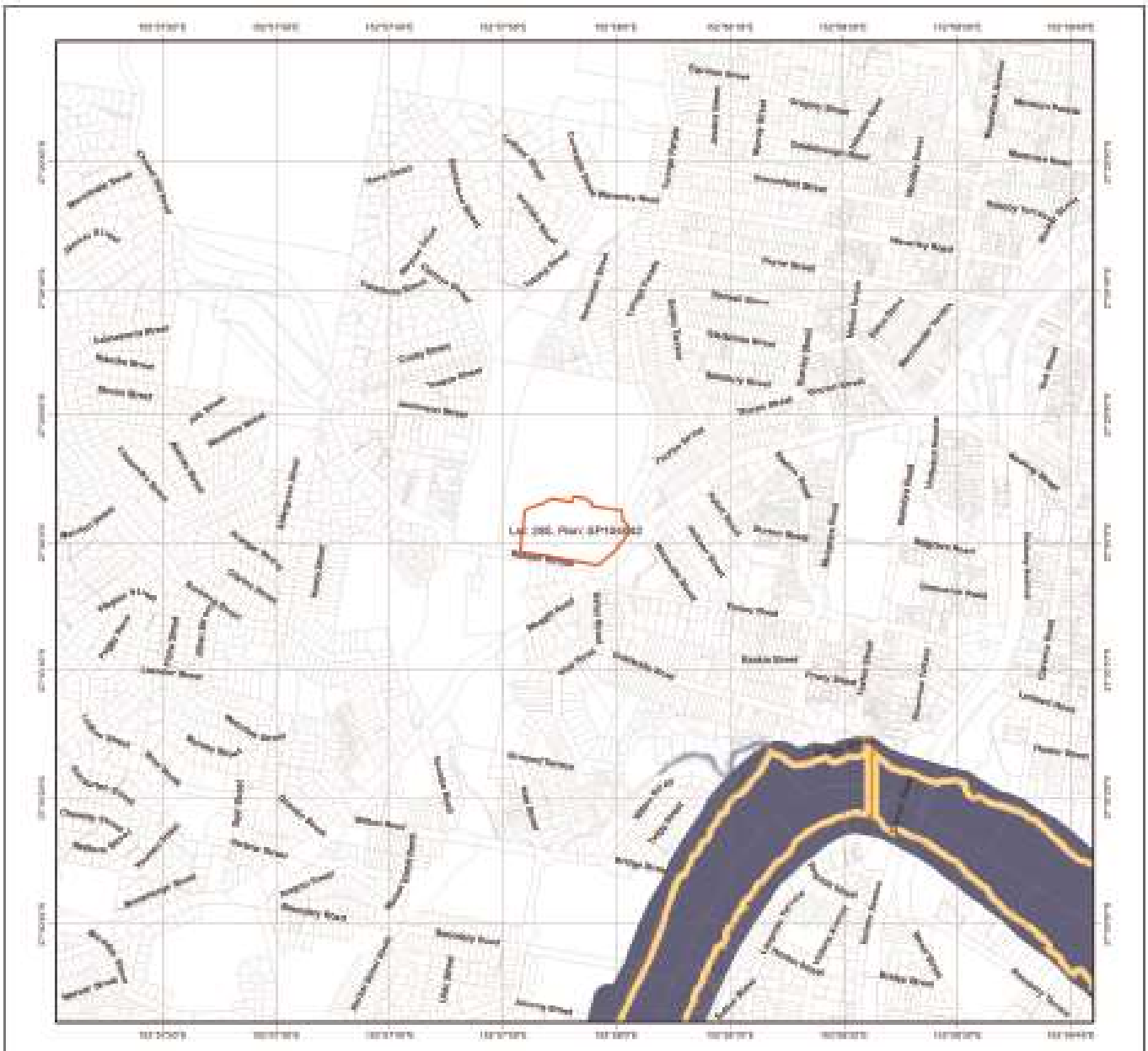
For further information or assistance with interpretation of this product, please contact the Department of Environment and Science, email planning.support@des.qld.gov.au.

0 60 120 180 240 300 m

This product is projected into GDA 1994 MGA Zone 56

© The State of Queensland, 2018

Queensland Government



Coastal Hazard Areas Map
Erosion Prone Area

Legend

- Lot and Plan
- Erosion due to storm impact and long term trends including sediment supply deficit and channel migration
- Erosion from permanent tidal inundation due to sea level rise
- Coastal Management District
- Coastal Building Lines

N

Notes

1. The areas shown on this map are indicative of the extent of erosion and permanent inundation defined by erosion prone area plans declared under the Coastal Protection and Management Act 1995. Only the declared erosion prone area plans should be used for development assessment. To determine the actual position of the erosion prone area a registered surveyor or geotechnical consultant may be required if there is any doubt.

2. Erosion prone area plans for each local government area and a comprehensive description of their determination are available from the Department of Environment and Science website.

Version 7 - October 2018

Disclaimer

Whilst every care is taken to ensure the accuracy of this product, the Department of Environment and Science makes no representations or warranties about its accuracy, reliability, completeness or suitability for any particular purpose and disclaims all responsibility and all liability (including without limitation, liability in negligence) for all expenses, losses, damages (including indirect or consequential damage) and costs which you may incur as a result of the product being inaccurate or incomplete in any way and for any reason. This map is intended to be printed on an A4 page.

0 100 200 300 400 500 m

This product is projected into GDA 1994 MGA Zone 56

© The State of Queensland, 2018

Coastal Hazard Areas Map
Storm Tide Inundation Area

Legend

- Lot and Plan
- High hazard area (greater than 1.0m water depth)
- Medium hazard area (less than 1.0m water depth)
- Coastal Management District
- Coastal hazard data not available in this area
- Coastal Building Lines

* **Regional default values for a 100yr ARI inundation level including 0.8m sea level rise.**

N

Notes

1. A default storm tide inundation level of 1.5 m HAT in South East Queensland regional planning area and 2 m HAT for the remainder of Queensland is used where projected storm tide inundation levels have not been determined locally.

2. The high hazard area may coincide with the area of permanent inundation - refer to the Erosion Prone Area map.

3. The map should be used as a guide only. Field surveys are recommended to verify feature boundaries.

Version 4 - July 2010

Disclaimer

While every care is taken to ensure the accuracy of this product, the Department of Environment and Science makes no representations or warranties about its accuracy, reliability, completeness or suitability for any particular purpose and disclaims all responsibility and all liability (including without limitation, liability in negligence) for all expenses, losses, damages (including indirect or consequential damage) and costs which you may incur as a result of the product being inaccurate or incomplete in any way and for any reason. This map is intended to be printed on an A4 page.

0 100 200 300 400 500 m

This product is projected into GDA 1994 MGA Zone 56

© The State of Queensland, 2018

State Planning Policy - Lot Plan Search

Making or amending a local planning instrument
and designating land for community infrastructure

Date: 29/03/2018

Queensland Government

Department of State Development
Manufacturing, Infrastructure
and Planning

© The State of Queensland 2018.

0 40 80 120 160

Metres

Disclaimer: This map has been prepared with due care based on the best available information at the time of publication. However, the State of Queensland (acting through the department) makes no representations, either express or implied, that the map is free from errors, inconsistencies or omissions. Reliance on information contained in this map is the sole responsibility of the user. The State disclaims responsibility for any loss, damage or inconvenience caused as a result of reliance on information or data contained in this map.

State Planning Policy mapping layers for each selected Lot Plan

Lot Plan: 285SP104042 (Area: 31960 m^2)
BIODIVERSITY
- MSES - Wildlife habitat
- MSES - Regulated vegetation (essential habitat)
- MSES - Regulated vegetation (intersecting a watercourse)
NATURAL HAZARDS RISK AND RESILIENCE
- Flood hazard area - Local Government flood mapping area*
- Bushfire prone area
STRATEGIC AIRPORTS AND AVIATION FACILITIES
- Wildlife hazard buffer zone

Queensland Government
Department of State Development, Manufacturing, Infrastructure and Planning

© The State of Queensland 2018.

Disclaimer: This map has been prepared with due care based on the best available information at the time of publication. However, the State of Queensland (acting through the department) makes no representations, either express or implied, that the map is free from errors, inconsistencies or omissions. Reliance on information contained in this map is the sole responsibility of the user. The State disclaims responsibility for any loss, damage or inconvenience caused as a result of reliance on information or data contained in this map.

State Planning Policy

Making or amending a local planning instrument and designating land for community infrastructure

Date: 29/03/2018

Department of State Development, Manufacturing, Infrastructure and Planning

Queensland Government

© The State of Queensland 2018.

0 70 140 210 280

Metres

Disclaimer:
This map has been prepared with due care based on the best available information at the time of publication. However, the State of Queensland (acting through the department) makes no representations, either express or implied, that the map is free from errors, inconsistencies or omissions. Reliance on information contained in this map is the sole responsibility of the user. The State disclaims responsibility for any loss, damage or inconvenience caused as a result of reliance on information or data contained in this map.

Legend

Drawn Polygon Layer

Override 1

Cadastre (5k)

Cadastre (5k)

MSES - Regulated vegetation (intersecting a watercourse)

MSES - Regulated vegetation (intersecting a watercourse)

MSES - Wildlife habitat

MSES - Wildlife habitat

MSES - Regulated vegetation (essential habitat)

MSES - Regulated vegetation (essential habitat)

Date: 29/03/2018

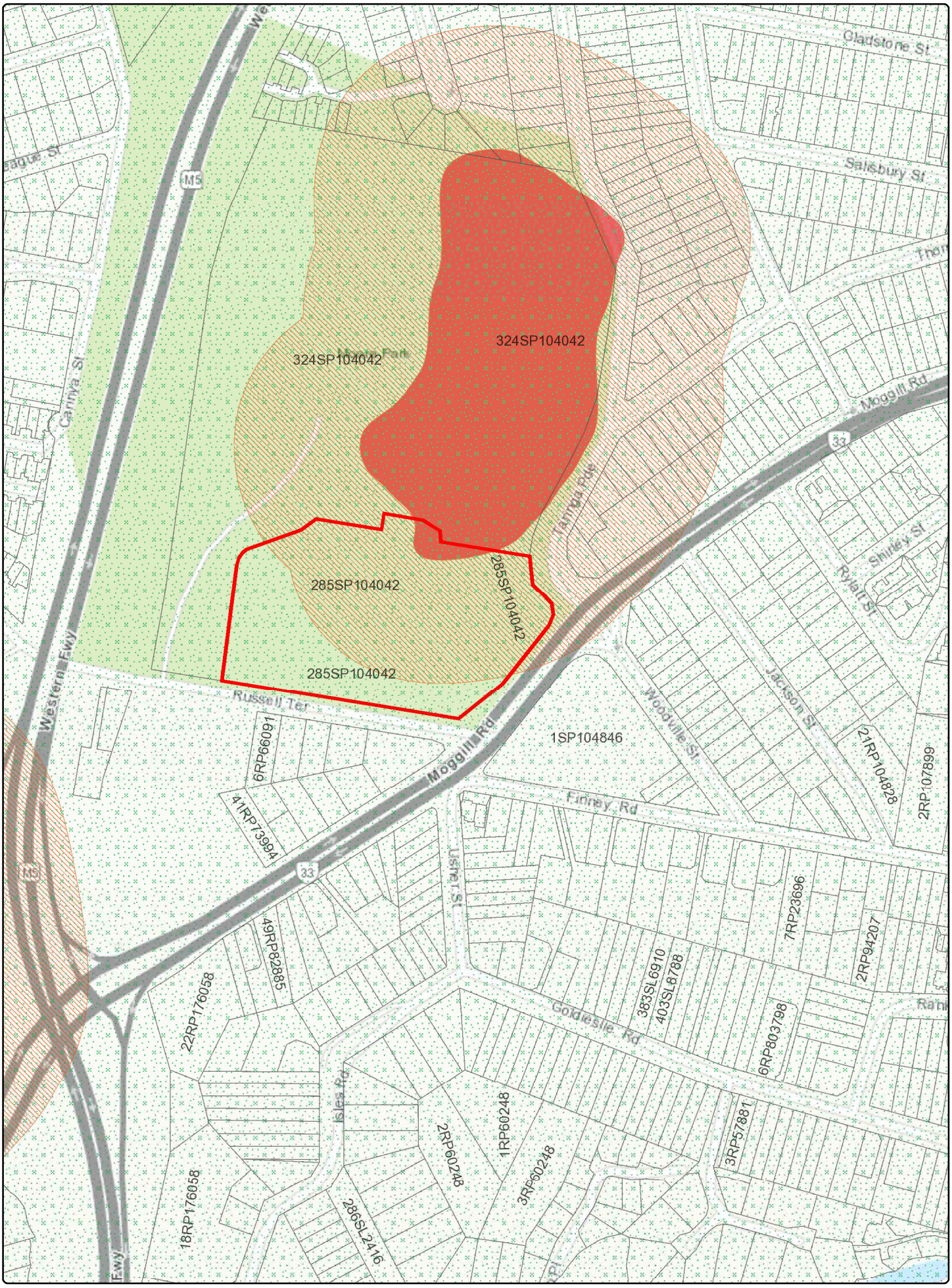
State Planning Policy

Making or amending a local planning instrument and designating land for community infrastructure

Department of State Development, Manufacturing, Infrastructure and Planning

© The State of Queensland 2018.

Disclaimer:
This map has been prepared with due care based on the best available information at the time of publication. However, the State of Queensland (acting through the department) makes no representations, either express or implied, that the map is free from errors, inconsistencies or omissions. Reliance on information contained in this map is the sole responsibility of the user. The State disclaims responsibility for any loss, damage or inconvenience caused as a result of reliance on information or data contained in this map.



State Planning Policy

Making or amending a local planning instrument and designating land for community infrastructure

Date: 29/03/2018

Department of State Development, Manufacturing, Infrastructure and Planning

Queensland Government

© The State of Queensland 2018.

0 70 140 210 280

Metres

Disclaimer:
This map has been prepared with due care based on the best available information at the time of publication. However, the State of Queensland (acting through the department) makes no representations, either express or implied, that the map is free from errors, inconsistencies or omissions. Reliance on information contained in this map is the sole responsibility of the user. The State disclaims responsibility for any loss, damage or inconvenience caused as a result of reliance on information or data contained in this map.

Legend

Drawn Polygon Layer

Override 1

Cadastre (5k)

Cadastre (5k)

Flood hazard area - local government flood mapping area

Flood hazard area - local government flood mapping area

Bushfire prone area

Very High Potential Bushfire Intensity

High Potential Bushfire Intensity

Medium Potential Bushfire Intensity

Potential Impact Buffer

Date: 29/03/2018

State Planning Policy

Making or amending a local planning instrument and designating land for community infrastructure

Department of State Development, Manufacturing, Infrastructure and Planning

Queensland Government

© The State of Queensland 2018.

Disclaimer:
This map has been prepared with due care based on the best available information at the time of publication. However, the State of Queensland (acting through the department) makes no representations, either express or implied, that the map is free from errors, inconsistencies or omissions. Reliance on information contained in this map is the sole responsibility of the user. The State disclaims responsibility for any loss, damage or inconvenience caused as a result of reliance on information or data contained in this map.

State Planning Policy

Making or amending a local planning instrument and designating land for community infrastructure

Date: 29/03/2018

Department of State Development, Manufacturing, Infrastructure and Planning

Queensland Government

© The State of Queensland 2018.

0 70 140 210 280

Metres

Disclaimer:
This map has been prepared with due care based on the best available information at the time of publication. However, the State of Queensland (acting through the department) makes no representations, either express or implied, that the map is free from errors, inconsistencies or omissions. Reliance on information contained in this map is the sole responsibility of the user. The State disclaims responsibility for any loss, damage or inconvenience caused as a result of reliance on information or data contained in this map.

Legend

Drawn Polygon Layer

Override 1

Cadastre (5k)

Cadastre (5k)

Wildlife hazard buffer zone

3km

8km

13km

Date: 29/03/2018

State Planning Policy

Making or amending a local planning instrument and designating land for community infrastructure

Department of State Development, Manufacturing, Infrastructure and Planning

© The State of Queensland 2018.

Disclaimer:
This map has been prepared with due care based on the best available information at the time of publication. However, the State of Queensland (acting through the department) makes no representations, either express or implied, that the map is free from errors, inconsistencies or omissions. Reliance on information contained in this map is the sole responsibility of the user. The State disclaims responsibility for any loss, damage or inconvenience caused as a result of reliance on information or data contained in this map.

Appendix 8

EPBC Protected Matters Report and NCA Wildfline Report

EPBC Act Protected Matters Report

This report provides general guidance on matters of national environmental significance and other matters protected by the EPBC Act in the area you have selected.

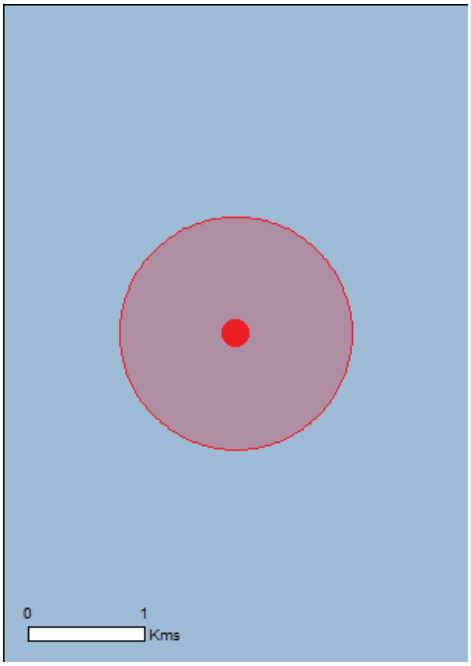
Information on the coverage of this report and qualifications on data supporting this report are contained in the caveat at the end of the report.

Information is available about Environment Assessments and the EPBC Act including significance guidelines, forms and application process details.

Report created: 12/04/18 17:04:57

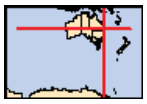
Summary
Details
- Matters of NES
- Other Matters Protected by the EPBC Act
- Extra Information

Caveat
Acknowledgements



This map may contain data which are ©Commonwealth of Australia (Geoscience Australia), ©PSMA 2010

Coordinates
Buffer: 1.0Km



Summary

Matters of National Environmental Significance

This part of the report summarises the matters of national environmental significance that may occur in, or may relate to, the area you nominated. Further information is available in the detail part of the report, which can be accessed by scrolling or following the links below. If you are proposing to undertake an activity that may have a significant impact on one or more matters of national environmental significance then you should consider the Administrative Guidelines on Significance.

World Heritage Properties:	None
National Heritage Places:	None
Wetlands of International Importance:	None
Great Barrier Reef Marine Park:	None
Commonwealth Marine Area:	None
Listed Threatened Ecological Communities:	2
Listed Threatened Species:	55
Listed Migratory Species:	34

Other Matters Protected by the EPBC Act

This part of the report summarises other matters protected under the Act that may relate to the area you nominated. Approval may be required for a proposed activity that significantly affects the environment on Commonwealth land, when the action is outside the Commonwealth land, or the environment anywhere when the action is taken on Commonwealth land. Approval may also be required for the Commonwealth or Commonwealth agencies proposing to take an action that is likely to have a significant impact on the environment anywhere.

The EPBC Act protects the environment on Commonwealth land, the environment from the actions taken on Commonwealth land, and the environment from actions taken by Commonwealth agencies. As heritage values of a place are part of the 'environment', these aspects of the EPBC Act protect the Commonwealth Heritage values of a Commonwealth Heritage place. Information on the new heritage laws can be found at http://www.environment.gov.au/heritage

A permit may be required for activities in or on a Commonwealth area that may affect a member of a listed threatened species or ecological community, a member of a listed migratory species, whales and other cetaceans, or a member of a listed marine species.

Commonwealth Land:	None
Commonwealth Heritage Places:	None
Listed Marine Species:	40
Whales and Other Cetaceans:	1
Critical Habitats:	None
Commonwealth Reserves Terrestrial:	None
Commonwealth Reserves Marine:	None

Extra Information

This part of the report provides information that may also be relevant to the area you have nominated.

State and Territory Reserves:	None
Regional Forest Agreements:	None
Invasive Species:	48
Nationally Important Wetlands:	None
Key Ecological Features (Marine)	None

Details

Matters of National Environmental Significance

Listed Threatened Ecological Communities [Resource Information]

For threatened ecological communities where the distribution is well known, maps are derived from recovery plans, State vegetation maps, remote sensing imagery and other sources. Where threatened ecological community distributions are less well known, existing vegetation maps and point location data are used to produce indicative distribution maps.

Name	Status	Type of Presence
Coastal Swamp Oak (Casuarina glauca) Forest of New South Wales and South East Queensland ecological community	Endangered	Community may occur within area
Lowland Rainforest of Subtropical Australia	Critically Endangered	Community may occur within area

Listed Threatened Species [Resource Information]

Name	Status	Type of Presence
Birds		
Anthochaera phrygia Regent Honeyeater [82338]	Critically Endangered	Foraging, feeding or related behaviour likely to occur within area
Botaurus poiciloptilus Australasian Bittern [1001]	Endangered	Species or species habitat likely to occur within area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area
Dasyornis brachypterus Eastern Bristlebird [533]	Endangered	Species or species habitat likely to occur within area
Diomedea antipodensis Antipodean Albatross [64458]	Vulnerable	Species or species habitat may occur within area
Diomedea antipodensis gibsoni Gibson's Albatross [82270]	Vulnerable	Species or species habitat may occur within area
Diomedea exulans Wandering Albatross [89223]	Vulnerable	Species or species habitat may occur within area
Erythrotriorchis radiatus Red Goshawk [942]	Vulnerable	Species or species habitat known to occur within area
Geophaps scripta scripta Squatter Pigeon (southern) [64440]	Vulnerable	Species or species habitat may occur within area
Lathamus discolor Swift Parrot [744]	Critically Endangered	Species or species habitat likely to occur within area

Name	Status	Type of Presence
Macronectes giganteus Southern Giant-Petrel, Southern Giant Petrel [1060]	Endangered	Species or species habitat may occur within area
Macronectes halli Northern Giant Petrel [1061]	Vulnerable	Species or species habitat may occur within area
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat may occur within area
Pachyptila turtur subantarctica Fairy Prion (southern) [64445]	Vulnerable	Species or species habitat likely to occur within area
Poephila cincta cincta Southern Black-throated Finch [64447]	Endangered	Species or species habitat may occur within area
Rostratula australis Australian Painted Snipe [77037]	Endangered	Species or species habitat likely to occur within area
Thalassarche cauta cauta Shy Albatross, Tasmanian Shy Albatross [82345]	Vulnerable	Species or species habitat may occur within area
Thalassarche cauta steadi White-capped Albatross [82344]	Vulnerable	Species or species habitat likely to occur within area
Thalassarche eremita Chatham Albatross [64457]	Endangered	Species or species habitat may occur within area
Thalassarche impavida Campbell Albatross, Campbell Black-browed Albatross [64459]	Vulnerable	Species or species habitat may occur within area
Thalassarche melanophris Black-browed Albatross [66472]	Vulnerable	Species or species habitat may occur within area
Thalassarche salvini Salvin's Albatross [64463]	Vulnerable	Species or species habitat may occur within area
Turnix melanogaster Black-breasted Button-quail [923]	Vulnerable	Species or species habitat likely to occur within area
Fish		
Epinephelus daemelii Black Rockcod, Black Cod, Saddled Rockcod [68449]	Vulnerable	Species or species habitat may occur within area
Insects		
Argynnis hyperbius inconstans Australian Fritillary [88056]	Critically Endangered	Species or species habitat may occur within area
Mammals		
Chalinolobus dwyeri Large-eared Pied Bat, Large Pied Bat [183]	Vulnerable	Species or species habitat may occur within area
Dasyurus hallucatus Northern Quoll, Digul [Gogo-Yimidir], Wijingadda [Dambimangari], Wiminji [Martu] [331]	Endangered	Species or species habitat likely to occur within area
Dasyurus maculatus maculatus (SE mainland population) Spot-tailed Quoll, Spotted-tail Quoll, Tiger Quoll	Endangered	Species or species

Name	Status	Type of Presence
(southeastern mainland population) [75184]		habitat likely to occur within area
Phascolarctos cinereus (combined populations of Qld, NSW and the ACT)		
Koala (combined populations of Queensland, New South Wales and the Australian Capital Territory) [85104]	Vulnerable	Species or species habitat known to occur within area
Potorous tridactylus tridactylus		
Long-nosed Potoroo (SE mainland) [66645]	Vulnerable	Species or species habitat may occur within area
Pteropus poliocephalus		
Grey-headed Flying-fox [186]	Vulnerable	Foraging, feeding or related behaviour known to occur within area
Plants		
Arthraxon hispidus		
Hairy-joint Grass [9338]	Vulnerable	Species or species habitat may occur within area
Bosistoa transversa		
Three-leaved Bosistoa, Yellow Satinheart [16091]	Vulnerable	Species or species habitat likely to occur within area
Corchorus cunninghamii		
Native Jute [14659]	Endangered	Species or species habitat likely to occur within area
Cryptocarya foetida		
Stinking Cryptocarya, Stinking Laurel [11976]	Vulnerable	Species or species habitat may occur within area
Dichanthium setosum		
bluegrass [14159]	Vulnerable	Species or species habitat likely to occur within area
Fontainea venosa		
[24040]	Vulnerable	Species or species habitat likely to occur within area
Gossia gonoclada		
Angle-stemmed Myrtle [78866]	Endangered	Species or species habitat likely to occur within area
Lepidium peregrinum		
Wandering Pepper-cress [14035]	Endangered	Species or species habitat may occur within area
Macadamia integrifolia		
Macadamia Nut, Queensland Nut Tree, Smooth-shelled Macadamia, Bush Nut, Nut Oak [7326]	Vulnerable	Species or species habitat likely to occur within area
Macadamia ternifolia		
Small-fruited Queensland Nut, Gympie Nut [7214]	Vulnerable	Species or species habitat may occur within area
Macadamia tetraphylla		
Rough-shelled Bush Nut, Macadamia Nut, Rough-shelled Macadamia, Rough-leaved Queensland Nut [6581]	Vulnerable	Species or species habitat may occur within area
Notelaea ipsviciensis		
Cooneana Olive [81858]	Critically Endangered	Species or species habitat may occur within area
Phaius australis		
Lesser Swamp-orchid [5872]	Endangered	Species or species habitat may occur within area
Samadera bidwillii		
Quassia [29708]	Vulnerable	Species or species habitat likely to occur within area
Sophora fraseri		
[8836]	Vulnerable	Species or species

Name	Status	Type of Presence
		habitat may occur within area
Thesium australe Austral Toadflax, Toadflax [15202]	Vulnerable	Species or species habitat may occur within area
Reptiles		
Caretta caretta Loggerhead Turtle [1763]	Endangered	Congregation or aggregation known to occur within area
Chelonia mydas Green Turtle [1765]	Vulnerable	Species or species habitat known to occur within area
Delma torquata Adorned Delma, Collared Delma [1656]	Vulnerable	Species or species habitat likely to occur within area
Dermochelys coriacea Leatherback Turtle, Leathery Turtle, Luth [1768]	Endangered	Species or species habitat known to occur within area
Eretmochelys imbricata Hawksbill Turtle [1766]	Vulnerable	Species or species habitat known to occur within area
Furina dunmalli Dunmall's Snake [59254]	Vulnerable	Species or species habitat may occur within area
Lepidochelys olivacea Olive Ridley Turtle, Pacific Ridley Turtle [1767]	Endangered	Species or species habitat known to occur within area
Natator depressus Flatback Turtle [59257]	Vulnerable	Species or species habitat known to occur within area

Listed Migratory Species [Resource Information]

* Species is listed under a different scientific name on the EPBC Act - Threatened Species list.

Name	Threatened	Type of Presence
Migratory Marine Birds		
Apus pacificus Fork-tailed Swift [678]		Species or species habitat likely to occur within area
Diomedea antipodensis Antipodean Albatross [64458]	Vulnerable	Species or species habitat may occur within area
Diomedea exulans Wandering Albatross [89223]	Vulnerable	Species or species habitat may occur within area
Macronectes giganteus Southern Giant-Petrel, Southern Giant Petrel [1060]	Endangered	Species or species habitat may occur within area
Macronectes halli Northern Giant Petrel [1061]	Vulnerable	Species or species habitat may occur within area
Thalassarche cauta Tasmanian Shy Albatross [89224]	Vulnerable*	Species or species habitat may occur within area
Thalassarche eremita Chatham Albatross [64457]	Endangered	Species or species habitat may occur within area

Name	Threatened	Type of Presence
Thalassarche impavida Campbell Albatross, Campbell Black-browed Albatross [64459]	Vulnerable	Species or species habitat may occur within area
Thalassarche melanophris Black-browed Albatross [66472]	Vulnerable	Species or species habitat may occur within area
Thalassarche salvini Salvin's Albatross [64463]	Vulnerable	Species or species habitat may occur within area
Thalassarche steadi White-capped Albatross [64462]	Vulnerable*	Species or species habitat likely to occur within area
Migratory Marine Species		
Caretta caretta Loggerhead Turtle [1763]	Endangered	Congregation or aggregation known to occur within area
Chelonia mydas Green Turtle [1765]	Vulnerable	Species or species habitat known to occur within area
Dermochelys coriacea Leatherback Turtle, Leathery Turtle, Luth [1768]	Endangered	Species or species habitat known to occur within area
Eretmochelys imbricata Hawksbill Turtle [1766]	Vulnerable	Species or species habitat known to occur within area
Lepidochelys olivacea Olive Ridley Turtle, Pacific Ridley Turtle [1767]	Endangered	Species or species habitat known to occur within area
Manta alfredi Reef Manta Ray, Coastal Manta Ray, Inshore Manta Ray, Prince Alfred's Ray, Resident Manta Ray [84994]		Species or species habitat may occur within area
Manta birostris Giant Manta Ray, Chevron Manta Ray, Pacific Manta Ray, Pelagic Manta Ray, Oceanic Manta Ray [84995]		Species or species habitat may occur within area
Natator depressus Flatback Turtle [59257]	Vulnerable	Species or species habitat known to occur within area
Orcaella brevirostris Irrawaddy Dolphin [45]		Species or species habitat may occur within area
Migratory Terrestrial Species		
Cuculus optatus Oriental Cuckoo, Horsfield's Cuckoo [86651]		Species or species habitat known to occur within area
Hirundapus caudacutus White-throated Needletail [682]		Species or species habitat known to occur within area
Monarcha melanopsis Black-faced Monarch [609]		Species or species habitat known to occur within area
Monarcha trivirgatus Spectacled Monarch [610]		Species or species habitat known to occur within area
Myiagra cyanoleuca Satin Flycatcher [612]		Species or species habitat known to occur

Name	Threatened	Type of Presence within area
Rhipidura rufifrons Rufous Fantail [592]		Species or species habitat known to occur within area
Migratory Wetlands Species		
Actitis hypoleucos Common Sandpiper [59309]		Species or species habitat known to occur within area
Calidris acuminata Sharp-tailed Sandpiper [874]		Species or species habitat known to occur within area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area
Calidris melanotos Pectoral Sandpiper [858]		Species or species habitat known to occur within area
Gallinago hardwickii Latham's Snipe, Japanese Snipe [863]		Species or species habitat may occur within area
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat may occur within area
Pandion haliaetus Osprey [952]		Species or species habitat likely to occur within area
Tringa nebularia Common Greenshank, Greenshank [832]		Species or species habitat likely to occur within area

Other Matters Protected by the EPBC Act

Listed Marine Species		[Resource Information]
* Species is listed under a different scientific name on the EPBC Act - Threatened Species list.		
Name	Threatened	Type of Presence
Birds		
Actitis hypoleucos Common Sandpiper [59309]		Species or species habitat known to occur within area
Anseranas semipalmata Magpie Goose [978]		Species or species habitat may occur within area
Apus pacificus Fork-tailed Swift [678]		Species or species habitat likely to occur within area
Ardea alba Great Egret, White Egret [59541]		Breeding known to occur within area
Ardea ibis Cattle Egret [59542]		Species or species habitat may occur within area
Calidris acuminata Sharp-tailed Sandpiper [874]		Species or species habitat known to occur within area

Name	Threatened	Type of Presence
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area
Calidris melanotos Pectoral Sandpiper [858]		Species or species habitat known to occur within area
Cuculus saturatus Oriental Cuckoo, Himalayan Cuckoo [710]		Species or species habitat known to occur within area
Diomedea antipodensis Antipodean Albatross [64458]	Vulnerable	Species or species habitat may occur within area
Diomedea exulans Wandering Albatross [89223]	Vulnerable	Species or species habitat may occur within area
Diomedea gibsoni Gibson's Albatross [64466]	Vulnerable*	Species or species habitat may occur within area
Gallinago hardwickii Latham's Snipe, Japanese Snipe [863]		Species or species habitat may occur within area
Haliaeetus leucogaster White-bellied Sea-Eagle [943]		Species or species habitat known to occur within area
Hirundapus caudacutus White-throated Needletail [682]		Species or species habitat known to occur within area
Lathamus discolor Swift Parrot [744]	Critically Endangered	Species or species habitat likely to occur within area
Macronectes giganteus Southern Giant-Petrel, Southern Giant Petrel [1060]	Endangered	Species or species habitat may occur within area
Macronectes halli Northern Giant Petrel [1061]	Vulnerable	Species or species habitat may occur within area
Merops ornatus Rainbow Bee-eater [670]		Species or species habitat may occur within area
Monarcha melanopsis Black-faced Monarch [609]		Species or species habitat known to occur within area
Monarcha trivirgatus Spectacled Monarch [610]		Species or species habitat known to occur within area
Myiagra cyanoleuca Satin Flycatcher [612]		Species or species habitat known to occur within area
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat may occur within area
Pachyptila turtur Fairy Prion [1066]		Species or species habitat likely to occur within area

Name	Threatened	Type of Presence
Pandion haliaetus Osprey [952]		Species or species habitat likely to occur within area
Rhipidura rufifrons Rufous Fantail [592]		Species or species habitat known to occur within area
Rostratula benghalensis (sensu lato) Painted Snipe [889]	Endangered*	Species or species habitat likely to occur within area
Thalassarche cauta Tasmanian Shy Albatross [89224]	Vulnerable*	Species or species habitat may occur within area
Thalassarche eremita Chatham Albatross [64457]	Endangered	Species or species habitat may occur within area
Thalassarche impavida Campbell Albatross, Campbell Black-browed Albatross [64459]	Vulnerable	Species or species habitat may occur within area
Thalassarche melanophris Black-browed Albatross [66472]	Vulnerable	Species or species habitat may occur within area
Thalassarche salvini Salvin's Albatross [64463]	Vulnerable	Species or species habitat may occur within area
Thalassarche steadi White-capped Albatross [64462]	Vulnerable*	Species or species habitat likely to occur within area
Tringa nebularia Common Greenshank, Greenshank [832]		Species or species habitat likely to occur within area
Reptiles		
Caretta caretta Loggerhead Turtle [1763]	Endangered	Congregation or aggregation known to occur within area
Chelonia mydas Green Turtle [1765]	Vulnerable	Species or species habitat known to occur within area
Dermochelys coriacea Leatherback Turtle, Leathery Turtle, Luth [1768]	Endangered	Species or species habitat known to occur within area
Eretmochelys imbricata Hawksbill Turtle [1766]	Vulnerable	Species or species habitat known to occur within area
Lepidochelys olivacea Olive Ridley Turtle, Pacific Ridley Turtle [1767]	Endangered	Species or species habitat known to occur within area
Natator depressus Flatback Turtle [59257]	Vulnerable	Species or species habitat known to occur within area

Whales and other Cetaceans [Resource Information]

Name	Status	Type of Presence
Mammals		
Orcaella brevirostris Irrawaddy Dolphin [45]		Species or species habitat may occur within area

Extra Information

Invasive Species [Resource Information]

Weeds reported here are the 20 species of national significance (WoNS), along with other introduced plants that are considered by the States and Territories to pose a particularly significant threat to biodiversity. The following feral animals are reported: Goat, Red Fox, Cat, Rabbit, Pig, Water Buffalo and Cane Toad. Maps from Landscape Health Project, National Land and Water Resouces Audit, 2001.

Name	Status	Type of Presence
Birds		
Acridotheres tristis Common Myna, Indian Myna [387]		Species or species habitat likely to occur within area
Anas platyrhynchos Mallard [974]		Species or species habitat likely to occur within area
Carduelis carduelis European Goldfinch [403]		Species or species habitat likely to occur within area
Columba livia Rock Pigeon, Rock Dove, Domestic Pigeon [803]		Species or species habitat likely to occur within area
Lonchura punctulata Nutmeg Mannikin [399]		Species or species habitat likely to occur within area
Passer domesticus House Sparrow [405]		Species or species habitat likely to occur within area
Streptopelia chinensis Spotted Turtle-Dove [780]		Species or species habitat likely to occur within area
Sturnus vulgaris Common Starling [389]		Species or species habitat likely to occur within area
Frogs		
Rhinella marina Cane Toad [83218]		Species or species habitat known to occur within area
Mammals		
Bos taurus Domestic Cattle [16]		Species or species habitat likely to occur

Name	Status	Type of Presence within area
Canis lupus familiaris Domestic Dog [82654]		Species or species habitat likely to occur within area
Capra hircus Goat [2]		Species or species habitat likely to occur within area
Felis catus Cat, House Cat, Domestic Cat [19]		Species or species habitat likely to occur within area
Feral deer Feral deer species in Australia [85733]		Species or species habitat likely to occur within area
Lepus capensis Brown Hare [127]		Species or species habitat likely to occur within area
Mus musculus House Mouse [120]		Species or species habitat likely to occur within area
Oryctolagus cuniculus Rabbit, European Rabbit [128]		Species or species habitat likely to occur within area
Rattus norvegicus Brown Rat, Norway Rat [83]		Species or species habitat likely to occur within area
Rattus rattus Black Rat, Ship Rat [84]		Species or species habitat likely to occur within area
Sus scrofa Pig [6]		Species or species habitat likely to occur within area
Vulpes vulpes Red Fox, Fox [18]		Species or species habitat likely to occur within area
Plants		
Alternanthera philoxeroides Alligator Weed [11620]		Species or species habitat likely to occur within area
Anredera cordifolia Madeira Vine, Jalap, Lamb's-tail, Mignonette Vine, Anredera, Gulf Madeiravine, Heartleaf Madeiravine, Potato Vine [2643]		Species or species habitat likely to occur within area
Asparagus aethiopicus Asparagus Fern, Ground Asparagus, Basket Fern, Sprengi's Fern, Bushy Asparagus, Emerald Asparagus [62425]		Species or species habitat likely to occur within area
Asparagus africanus Climbing Asparagus, Climbing Asparagus Fern [66907]		Species or species habitat likely to occur within area
Asparagus asparagoides Bridal Creeper, Bridal Veil Creeper, Smilax, Florist's Smilax, Smilax Asparagus [22473]		Species or species habitat likely to occur within area
Asparagus plumosus Climbing Asparagus-fern [48993]		Species or species habitat likely to occur within area
Cabomba caroliniana Cabomba, Fanwort, Carolina Watershield, Fish Grass, Washington Grass, Watershield, Carolina		Species or species habitat likely to occur

Name	Status	Type of Presence
Fanwort, Common Cabomba [5171]		within area
Chrysanthemoides monilifera Bitou Bush, Boneseed [18983]		Species or species habitat may occur within area
Cryptostegia grandiflora Rubber Vine, Rubbervine, India Rubber Vine, India Rubbervine, Palay Rubbervine, Purple Allamanda [18913]		Species or species habitat likely to occur within area
Dolichandra unguis-cati Cat's Claw Vine, Yellow Trumpet Vine, Cat's Claw Creeper, Funnel Creeper [85119]		Species or species habitat likely to occur within area
Eichhornia crassipes Water Hyacinth, Water Orchid, Nile Lily [13466]		Species or species habitat likely to occur within area
Genista monspessulana Montpellier Broom, Cape Broom, Canary Broom, Common Broom, French Broom, Soft Broom [20126]		Species or species habitat likely to occur within area
Hymenachne amplexicaulis Hymenachne, Olive Hymenachne, Water Stargrass, West Indian Grass, West Indian Marsh Grass [31754]		Species or species habitat likely to occur within area
Lantana camara Lantana, Common Lantana, Kamara Lantana, Large-leaf Lantana, Pink Flowered Lantana, Red Flowered Lantana, Red-Flowered Sage, White Sage, Wild Sage [10892]		Species or species habitat likely to occur within area
Opuntia spp. Prickly Pears [82753]		Species or species habitat likely to occur within area
Parkinsonia aculeata Parkinsonia, Jerusalem Thorn, Jelly Bean Tree, Horse Bean [12301]		Species or species habitat likely to occur within area
Parthenium hysterophorus Parthenium Weed, Bitter Weed, Carrot Grass, False Ragweed [19566]		Species or species habitat likely to occur within area
Protasparagus densiflorus Asparagus Fern, Plume Asparagus [5015]		Species or species habitat likely to occur within area
Protasparagus plumosus Climbing Asparagus-fern, Ferny Asparagus [11747]		Species or species habitat likely to occur within area
Rubus fruticosus aggregate Blackberry, European Blackberry [68406]		Species or species habitat likely to occur within area
Sagittaria platyphylla Delta Arrowhead, Arrowhead, Slender Arrowhead [68483]		Species or species habitat likely to occur within area
Salix spp. except S.babylonica, S.x calodendron & S.x reichardtii Willows except Weeping Willow, Pussy Willow and Sterile Pussy Willow [68497]		Species or species habitat likely to occur within area
Salvinia molesta Salvinia, Giant Salvinia, Aquarium Watermoss, Kariba Weed [13665]		Species or species habitat likely to occur within area
Senecio madagascariensis Fireweed, Madagascar Ragwort, Madagascar Groundsel [2624]		Species or species habitat likely to occur within area
Solanum elaeagnifolium Silver Nightshade, Silver-leaved Nightshade, White Horse Nettle, Silver-leaf Nightshade,		Species or species habitat likely to occur

Name	Status	Type of Presence
Tomato Weed, White Nightshade, Bull-nettle, Prairie-berry, Satansbos, Silver-leaf Bitter-apple, Silverleaf-nettle, Trompillo [12323]		within area
Reptiles		
Hemidactylus frenatus		
Asian House Gecko [1708]		Species or species habitat likely to occur within area
Ramphotyphlops braminus		
Flowerpot Blind Snake, Brahminy Blind Snake, Cacing Besi [1258]		Species or species habitat likely to occur within area

Caveat

The information presented in this report has been provided by a range of data sources as acknowledged at the end of the report.

This report is designed to assist in identifying the locations of places which may be relevant in determining obligations under the Environment Protection and Biodiversity Conservation Act 1999. It holds mapped locations of World and National Heritage properties, Wetlands of International and National Importance, Commonwealth and State/Territory reserves, listed threatened, migratory and marine species and listed threatened ecological communities. Mapping of Commonwealth land is not complete at this stage. Maps have been collated from a range of sources at various resolutions.

Not all species listed under the EPBC Act have been mapped (see below) and therefore a report is a general guide only. Where available data supports mapping, the type of presence that can be determined from the data is indicated in general terms. People using this information in making a referral may need to consider the qualifications below and may need to seek and consider other information sources.

For threatened ecological communities where the distribution is well known, maps are derived from recovery plans, State vegetation maps, remote sensing imagery and other sources. Where threatened ecological community distributions are less well known, existing vegetation maps and point location data are used to produce indicative distribution maps.

Threatened, migratory and marine species distributions have been derived through a variety of methods. Where distributions are well known and if time permits, maps are derived using either thematic spatial data (i.e. vegetation, soils, geology, elevation, aspect, terrain, etc) together with point locations and described habitat; or environmental modelling (MAXENT or BIOCLIM habitat modelling) using point locations and environmental data layers.

Where very little information is available for species or large number of maps are required in a short time-frame, maps are derived either from 0.04 or 0.02 decimal degree cells; by an automated process using polygon capture techniques (static two kilometre grid cells, alpha-hull and convex hull); or captured manually or by using topographic features (national park boundaries, islands, etc). In the early stages of the distribution mapping process (1999-early 2000s) distributions were defined by degree blocks, 100K or 250K map sheets to rapidly create distribution maps. More reliable distribution mapping methods are used to update these distributions as time permits.

Only selected species covered by the following provisions of the EPBC Act have been mapped:

- migratory and
- marine

The following species and ecological communities have not been mapped and do not appear in reports produced from this database:

- threatened species listed as extinct or considered as vagrants
- some species and ecological communities that have only recently been listed
- some terrestrial species that overfly the Commonwealth marine area
- migratory species that are very widespread, vagrant, or only occur in small numbers

The following groups have been mapped, but may not cover the complete distribution of the species:

- non-threatened seabirds which have only been mapped for recorded breeding sites
- seals which have only been mapped for breeding sites near the Australian continent

Such breeding sites may be important for the protection of the Commonwealth Marine environment.

Coordinates

-27.4993 152.9654

Acknowledgements

This database has been compiled from a range of data sources. The department acknowledges the following custodians who have contributed valuable data and advice:

-Office of Environment and Heritage, New South Wales
-Department of Environment and Primary Industries, Victoria
-Department of Primary Industries, Parks, Water and Environment, Tasmania
-Department of Environment, Water and Natural Resources, South Australia
-Department of Land and Resource Management, Northern Territory
-Department of Environmental and Heritage Protection, Queensland
-Department of Parks and Wildlife, Western Australia
-Environment and Planning Directorate, ACT
-Birdlife Australia
-Australian Bird and Bat Banding Scheme
-Australian National Wildlife Collection
-Natural history museums of Australia
-Museum Victoria
-Australian Museum
-South Australian Museum
-Queensland Museum
-Online Zoological Collections of Australian Museums
-Queensland Herbarium
-National Herbarium of NSW
-Royal Botanic Gardens and National Herbarium of Victoria
-Tasmanian Herbarium
-State Herbarium of South Australia
-Northern Territory Herbarium
-Western Australian Herbarium
-Australian National Herbarium, Canberra
-University of New England
-Ocean Biogeographic Information System
-Australian Government, Department of Defence
Forestry Corporation, NSW
-Geoscience Australia
-CSIRO
-Australian Tropical Herbarium, Cairns
-eBird Australia
-Australian Government – Australian Antarctic Data Centre
-Museum and Art Gallery of the Northern Territory
-Australian Government National Environmental Science Program
-Australian Institute of Marine Science
-Reef Life Survey Australia
-American Museum of Natural History
-Queen Victoria Museum and Art Gallery, Inveresk, Tasmania
-Tasmanian Museum and Art Gallery, Hobart, Tasmania
-Other groups and individuals

The Department is extremely grateful to the many organisations and individuals who provided expert advice and information on numerous draft distributions.

Please feel free to provide feedback via the Contact Us page.

© Commonwealth of Australia
Department of the Environment
GPO Box 787
Canberra ACT 2601 Australia
+61 2 6274 1111

APPENDIX D

Wildlife Online database results for the study area

Queensland Government

Wildlife Online Extract

Search Criteria: Species List for a Specified Point
Species: All
Type: All
Status: All
Records: All
Date: Since 1980
Latitude: -27.4993
Longitude: 152.9654
Distance: 2
Email: penn@baamecology.com
Date submitted: Thursday 12 Apr 2018 17:03:14
Date extracted: Thursday 12 Apr 2018 17:10:03

The number of records retrieved = 539

Disclaimer

As the DSITIA is still in a process of collating and vetting data, it is possible the information given is not complete. The information provided should only be used for the project for which it was requested and it should be appropriately acknowledged as being derived from Wildlife Online when it is used.

The State of Queensland does not invite reliance upon, nor accept responsibility for this information. Persons should satisfy themselves through independent means as to the accuracy and completeness of this information.

No statements, representations or warranties are made about the accuracy or completeness of this information. The State of Queensland disclaims all responsibility for this information and all liability (including without limitation, liability in negligence) for all expenses, losses, damages and costs you may incur as a result of the information being inaccurate or incomplete in any way for any reason.

Kingdom	Class	Family	Scientific Name	Common Name	I	Q	A	Records
animals	amphibians	Bufonidae	*Rhinella marina*	cane toad	Y			16
animals	amphibians	Hylidae	*Litoria caerulea*	common green treefrog		C		6
animals	amphibians	Hylidae	*Litoria gracilenta*	graceful treefrog		C		2
animals	amphibians	Hylidae	*Litoria fallax*	eastern sedgefrog		C		6
animals	amphibians	Hylidae	*Litoria peronii*	emerald spotted treefrog		C		1
animals	amphibians	Limnodynastidae	*Adelotus brevis*	tusked frog		V		12
animals	amphibians	Limnodynastidae	*Limnodynastes peronii*	striped marshfrog		C		9
animals	amphibians	Myobatrachidae	*Mixophyes fasciolatus*	great barred frog		C		1
animals	amphibians	Myobatrachidae	*Crinia parinsignifera*	beeping froglet		C		1
animals	amphibians	Myobatrachidae	*Pseudophryne major*	great brown broodfrog		C		3
animals	birds	Acanthizidae	*Smicrornis brevirostris*	weebill		C		1
animals	birds	Acanthizidae	*Gerygone olivacea*	white-throated gerygone		C		3
animals	birds	Acanthizidae	*Acanthiza reguloides*	buff-rumped thornbill		C		2
animals	birds	Acanthizidae	*Sericornis frontalis*	white-browed scrubwren		C		5
animals	birds	Accipitridae	*Aviceda subcristata*	Pacific baza		C		25
animals	birds	Accipitridae	*Accipiter fasciatus*	brown goshawk		C		3
animals	birds	Accipitridae	*Lophoictinia isura*	square-tailed kite		C		4
animals	birds	Accipitridae	*Haliastur indus*	brahminy kite		C		15
animals	birds	Accipitridae	*Aquila audax*	wedge-tailed eagle		C		3
animals	birds	Accipitridae	*Hieraaetus morphnoides*	little eagle		C		1
animals	birds	Accipitridae	*Accipiter cirrocephalus*	collared sparrowhawk		C		8
animals	birds	Accipitridae	*Accipiter novaehollandiae*	grey goshawk		C		3
animals	birds	Accipitridae	*Erythrotriorchis radiatus*	red goshawk		E	V	1
animals	birds	Accipitridae	*Haliaeetus leucogaster*	white-bellied sea-eagle		C		4
animals	birds	Anatidae	*Chenonetta jubata*	Australian wood duck		C		21
animals	birds	Anatidae	*Anas superciliosa*	Pacific black duck		C		27
animals	birds	Anatidae	*Aythya australis*	hardhead		C		3
animals	birds	Anhingidae	*Anhinga novaehollandiae*	Australasian darter		C		1
animals	birds	Apodidae	*Apus pacificus*	fork-tailed swift		SL		2
animals	birds	Apodidae	*Hirundapus caudacutus*	white-throated needletail		SL		14
animals	birds	Ardeidae	*Ixobrychus dubius*	Australian little bittern		C		3
animals	birds	Ardeidae	*Butorides striata*	striated heron		C		6
animals	birds	Ardeidae	*Ardea intermedia*	intermediate egret		C		4
animals	birds	Ardeidae	*Bubulcus ibis*	cattle egret		C		16
animals	birds	Ardeidae	*Ardea alba modesta*	eastern great egret		C		1
animals	birds	Ardeidae	*Egretta novaehollandiae*	white-faced heron		C		18
animals	birds	Ardeidae	*Nycticorax caledonicus*	nankeen night-heron		C		3
animals	birds	Ardeidae	*Ixobrychus flavicollis*	black bittern		C		2
animals	birds	Artamidae	*Cracticus tibicen*	Australian magpie		C		78
animals	birds	Artamidae	*Strepera graculina*	pied currawong		C		60
animals	birds	Artamidae	*Artamus cyanopterus*	dusky woodswallow		C		1
animals	birds	Artamidae	*Cracticus torquatus*	grey butcherbird		C		69
animals	birds	Artamidae	*Artamus leucorynchus*	white-breasted woodswallow		C		1
animals	birds	Artamidae	*Cracticus nigrogularis*	pied butcherbird		C		70
animals	birds	Burhinidae	*Burhinus grallarius*	bush stone-curlew		C		28
animals	birds	Cacatuidae	*Cacatua sanguinea*	little corella		C		6

Kingdom	Class	Family	Scientific Name	Common Name	I	Q	A	Records
animals	birds	Cacatuidae	*Calyptorhynchus funereus*	yellow-tailed black-cockatoo		C		4
animals	birds	Cacatuidae	*Calyptorhynchus banksii*	red-tailed black-cockatoo		C		1
animals	birds	Cacatuidae	*Cacatua galerita*	sulphur-crested cockatoo		C		69
animals	birds	Cacatuidae	*Calyptorhynchus lathami lathami*	glossy black-cockatoo (eastern)		V		2
animals	birds	Cacatuidae	*Eolophus roseicapilla*	galah		C		43
animals	birds	Campephagidae	*Coracina lineata*	barred cuckoo-shrike		C		2
animals	birds	Campephagidae	*Lalage leucomela*	varied triller		C		4
animals	birds	Campephagidae	*Coracina tenuirostris*	cicadabird		C		4
animals	birds	Campephagidae	*Coracina novaehollandiae*	black-faced cuckoo-shrike		C		66
animals	birds	Campephagidae	*Coracina papuensis*	white-bellied cuckoo-shrike		C		2
animals	birds	Charadriidae	*Vanellus miles*	masked lapwing		C		4
animals	birds	Charadriidae	*Vanellus miles novaehollandiae*	masked lapwing (southern subspecies)		C		42
animals	birds	Cisticolidae	*Cisticola exilis*	golden-headed cisticola		C		4
animals	birds	Climacteridae	*Climacteris picumnus*	brown treecreeper		C		1
animals	birds	Climacteridae	*Cormobates leucophaea metastasis*	white-throated treecreeper (southern)		C		3
animals	birds	Columbidae	*Ptilinopus regina*	rose-crowned fruit-dove		C		2
animals	birds	Columbidae	*Lopholaimus antarcticus*	topknot pigeon		C		3
animals	birds	Columbidae	*Columba livia*	rock dove	Y			47
animals	birds	Columbidae	*Streptopelia chinensis*	spotted dove	Y			72
animals	birds	Columbidae	*Macropygia amboinensis*	brown cuckoo-dove		C		1
animals	birds	Columbidae	*Ptilinopus superbus*	superb fruit-dove		C		3
animals	birds	Columbidae	*Chalcophaps indica*	emerald dove		C		2
animals	birds	Columbidae	*Leucosarcia melanoleuca*	wonga pigeon		C		2
animals	birds	Columbidae	*Ocyphaps lophotes*	crested pigeon		C		82/1
animals	birds	Columbidae	*Columba leucomela*	white-headed pigeon		C		23
animals	birds	Columbidae	*Geopelia striata*	peaceful dove		C		3
animals	birds	Coraciidae	*Eurystomus orientalis*	dollarbird		C		22
animals	birds	Corvidae	*Corvus coronoides*	Australian raven		C		1
animals	birds	Corvidae	*Corvus orru*	Torresian crow		C		98
animals	birds	Cuculidae	*Scythrops novaehollandiae*	channel-billed cuckoo		C		23
animals	birds	Cuculidae	*Cuculus optatus*	oriental cuckoo		SL		2
animals	birds	Cuculidae	*Chalcites lucidus*	shining bronze-cuckoo		C		2
animals	birds	Cuculidae	*Eudynamys orientalis*	eastern koel		C		36
animals	birds	Cuculidae	*Cacomantis variolosus*	brush cuckoo		C		1
animals	birds	Cuculidae	*Centropus phasianinus*	pheasant coucal		C		34/1
animals	birds	Cuculidae	*Cacomantis flabelliformis*	fan-tailed cuckoo		C		2
animals	birds	Dicruridae	*Dicrurus bracteatus*	spangled drongo		C		40
animals	birds	Estrildidae	*Taeniopygia bichenovii*	double-barred finch		C		2
animals	birds	Estrildidae	*Lonchura punctulata*	nutmeg mannikin	Y			5
animals	birds	Eurostopodidae	*Eurostopodus mystacalis*	white-throated nightjar		C		2
animals	birds	Falconidae	*Falco berigora*	brown falcon		C		1
animals	birds	Falconidae	*Falco longipennis*	Australian hobby		C		10
animals	birds	Falconidae	*Falco cenchroides*	nankeen kestrel		C		11
animals	birds	Falconidae	*Falco peregrinus*	peregrine falcon		C		4
animals	birds	Glareolidae	*Stiltia isabella*	Australian pratincole		C		1
animals	birds	Halcyonidae	*Dacelo novaeguineae*	laughing kookaburra		C		71

Kingdom	Class	Family	Scientific Name	Common Name	I	Q	A	Records
animals	birds	Halcyonidae	*Todiramphus sanctus*	sacred kingfisher		C		19
animals	birds	Halcyonidae	*Todiramphus macleayii*	forest kingfisher		C		1
animals	birds	Hirundinidae	*Petrochelidon nigricans*	tree martin		C		3
animals	birds	Hirundinidae	*Hirundo neoxena*	welcome swallow		C		125
animals	birds	Hirundinidae	*Petrochelidon ariel*	fairy martin		C		12
animals	birds	Maluridae	*Malurus melanocephalus*	red-backed fairy-wren		C		19
animals	birds	Maluridae	*Malurus lamberti*	variegated fairy-wren		C		5
animals	birds	Maluridae	*Malurus cyaneus*	superb fairy-wren		C		1
animals	birds	Megaluridae	*Megalurus timoriensis*	tawny grassbird		C		2
animals	birds	Megapodiidae	*Alectura lathami*	Australian brush-turkey		C		66
animals	birds	Meliphagidae	*Acanthorhynchus tenuirostris*	eastern spinebill		C		1
animals	birds	Meliphagidae	*Philemon citreogularis*	little friarbird		C		15
animals	birds	Meliphagidae	*Lichmera indistincta*	brown honeyeater		C		3
animals	birds	Meliphagidae	*Entomyzon cyanotis*	blue-faced honeyeater		C		58
animals	birds	Meliphagidae	*Caligavis chrysops*	yellow-faced honeyeater		C		4
animals	birds	Meliphagidae	*Meliphaga lewinii*	Lewin's honeyeater		C		4
animals	birds	Meliphagidae	*Philemon corniculatus*	noisy friarbird		C		55
animals	birds	Meliphagidae	*Manorina melanocephala*	noisy miner		C		107
animals	birds	Meliphagidae	*Myzomela sanguinolenta*	scarlet honeyeater		C		14
animals	birds	Meliphagidae	*Plectorhyncha lanceolata*	striped honeyeater		C		1
animals	birds	Meliphagidae	*Melithreptus albogularis*	white-throated honeyeater		C		5
animals	birds	Meliphagidae	*Acanthagenys rufogularis*	spiny-cheeked honeyeater		C		1
animals	birds	Meropidae	*Merops ornatus*	rainbow bee-eater		C		16
animals	birds	Monarchidae	*Monarcha melanopsis*	black-faced monarch		SL		4
animals	birds	Monarchidae	*Myiagra rubecula*	leaden flycatcher		C		2
animals	birds	Monarchidae	*Myiagra cyanoleuca*	satin flycatcher		SL		1
animals	birds	Monarchidae	*Symposiachrus trivirgatus*	spectacled monarch		SL		3
animals	birds	Monarchidae	*Grallina cyanoleuca*	magpie-lark		C		81
animals	birds	Nectariniidae	*Dicaeum hirundinaceum*	mistletoebird		C		27
animals	birds	Oriolidae	*Sphecotheres vieilloti*	Australasian figbird		C		76/1
animals	birds	Oriolidae	*Oriolus sagittatus*	olive-backed oriole		C		32
animals	birds	Pachycephalidae	*Pachycephala pectoralis*	golden whistler		C		10
animals	birds	Pachycephalidae	*Pachycephala rufiventris*	rufous whistler		C		20
animals	birds	Pachycephalidae	*Colluricincla harmonica*	grey shrike-thrush		C		8
animals	birds	Pardalotidae	*Pardalotus punctatus*	spotted pardalote		C		3
animals	birds	Pardalotidae	*Pardalotus striatus*	striated pardalote		C		40
animals	birds	Passeridae	*Passer domesticus*	house sparrow	Y			23
animals	birds	Pelecanidae	*Pelecanus conspicillatus*	Australian pelican		C		1
animals	birds	Petroicidae	*Petroica rosea*	rose robin		C		6
animals	birds	Phaethontidae	*Phaethon rubricauda*	red-tailed tropicbird		V		1/1
animals	birds	Phalacrocoracidae	*Phalacrocorax sulcirostris*	little black cormorant		C		6
animals	birds	Phalacrocoracidae	*Microcarbo melanoleucos*	little pied cormorant		C		9
animals	birds	Phasianidae	*Coturnix ypsilophora*	brown quail		C		4
animals	birds	Pittidae	*Pitta versicolor*	noisy pitta		C		4
animals	birds	Podargidae	*Podargus ocellatus plumiferus*	plumed frogmouth		V		1
animals	birds	Podargidae	*Podargus strigoides*	tawny frogmouth		C		27

Kingdom	Class	Family	Scientific Name	Common Name	I	Q	A	Records
animals	birds	Podicipedidae	*Tachybaptus novaehollandiae*	Australasian grebe		C		3
animals	birds	Podicipedidae	*Poliocephalus poliocephalus*	hoary-headed grebe		C		2
animals	birds	Psittacidae	*Lathamus discolor*	swift parrot		E	CE	1
animals	birds	Psittacidae	*Parvipsitta pusilla*	little lorikeet		C		24
animals	birds	Psittacidae	*Platycercus elegans*	crimson rosella		C		5
animals	birds	Psittacidae	*Alisterus scapularis*	Australian king-parrot		C		23
animals	birds	Psittacidae	*Platycercus adscitus*	pale-headed rosella		C		60
animals	birds	Psittacidae	*Glossopsitta concinna*	musk lorikeet		C		3
animals	birds	Psittacidae	*Aprosmictus erythropterus*	red-winged parrot		C		2
animals	birds	Psittacidae	*Trichoglossus chlorolepidotus*	scaly-breasted lorikeet		C		93
animals	birds	Psittacidae	*Platycercus adscitus palliceps*	pale-headed rosella (southern form)		C		1
animals	birds	Psittacidae	*Trichoglossus haematodus moluccanus*	rainbow lorikeet		C		103/1
animals	birds	Psophodidae	*Psophodes olivaceus*	eastern whipbird		C		21
animals	birds	Rallidae	*Gallirallus philippensis*	buff-banded rail		C		4
animals	birds	Rallidae	*Lewinia pectoralis*	Lewin's rail		C		4
animals	birds	Rallidae	*Gallinula tenebrosa*	dusky moorhen		C		14
animals	birds	Rallidae	*Amaurornis moluccana*	pale-vented bush-hen		C		11
animals	birds	Rallidae	*Porphyrio melanotus*	purple swamphen		C		2
animals	birds	Rhipiduridae	*Rhipidura rufifrons*	rufous fantail		SL		4
animals	birds	Rhipiduridae	*Rhipidura leucophrys*	willie wagtail		C		47
animals	birds	Rhipiduridae	*Rhipidura albiscapa*	grey fantail		C		20
animals	birds	Strigidae	*Ninox strenua*	powerful owl		V		6
animals	birds	Strigidae	*Ninox boobook*	southern boobook		C		21
animals	birds	Sturnidae	*Sturnus vulgaris*	common starling	Y			23
animals	birds	Sturnidae	*Acridotheres tristis*	common myna	Y			13
animals	birds	Threskiornithidae	*Threskiornis molucca*	Australian white ibis		C		13
animals	birds	Threskiornithidae	*Platalea flavipes*	yellow-billed spoonbill		C		1
animals	birds	Threskiornithidae	*Threskiornis spinicollis*	straw-necked ibis		C		26
animals	birds	Threskiornithidae	*Platalea regia*	royal spoonbill		C		12
animals	birds	Timaliidae	*Zosterops lateralis*	silvereye		C		58
animals	birds	Turnicidae	*Turnix varius*	painted button-quail		C		2
animals	birds	Turnicidae	*Turnix melanogaster*	black-breasted button-quail		V	V	1
animals	birds	Tytonidae	*Tyto delicatula*	eastern barn owl		C		1
animals	insects	Hesperiidae	*Ocybadistes walkeri sothis*	green grass-dart				1
animals	insects	Nymphalidae	*Phaedyma shepherdi shepherdi*	white-banded plane (southern subspecies)				4
animals	insects	Nymphalidae	*Acraea andromacha andromacha*	glasswing				5
animals	insects	Nymphalidae	*Hypolimnas bolina nerina*	varied eggfly				1
animals	insects	Nymphalidae	*Danaus plexippus*	monarch				2
animals	insects	Nymphalidae	*Vanessa kershawi*	Australian painted lady				1
animals	insects	Nymphalidae	*Melanitis leda bankia*	evening brown				5
animals	insects	Nymphalidae	*Tirumala hamata hamata*	blue tiger				1
animals	insects	Nymphalidae	*Charaxes sempronius sempronius*	tailed emperor				3
animals	insects	Nymphalidae	*Euploea corinna*	common crow				10
animals	insects	Papilionidae	*Graphium choredon*	blue triangle				8
animals	insects	Papilionidae	*Papilio aegeus aegeus*	orchard swallowtail (Australian subspecies)				7

Kingdom	Class	Family	Scientific Name	Common Name	I	Q	A	Records
animals	insects	Pieridae	*Pieris rapae*	cabbage white				6
animals	insects	Pieridae	*Eurema hecabe*	large grass-yellow				1
animals	insects	Pieridae	*Catopsilia pomona*	lemon migrant				5
animals	mammals	Acrobatidae	*Acrobates pygmaeus*	feathertail glider		C		1
animals	mammals	Emballonuridae	*Saccolaimus flaviventris*	yellow-bellied sheathtail bat		C		1
animals	mammals	Miniopteridae	*Miniopterus australis*	little bent-wing bat		C		1
animals	mammals	Molossidae	*Mormopterus ridei*	eastern free-tailed bat		C		1
animals	mammals	Molossidae	*Tadarida australis*	white-striped freetail bat		C		21
animals	mammals	Molossidae	*Mormopterus sp.*					1
animals	mammals	Muridae	*Rattus rattus*	black rat	Y			4
animals	mammals	Muridae	*Mus musculus*	house mouse	Y			3
animals	mammals	Peramelidae	*Isoodon macrourus*	northern brown bandicoot		C		3
animals	mammals	Petauridae	*Petaurus norfolcensis*	squirrel glider		C		3
animals	mammals	Petauridae	*Petaurus breviceps*	sugar glider		C		1
animals	mammals	Phalangeridae	*Trichosurus vulpecula*	common brushtail possum		C		37
animals	mammals	Phalangeridae	*Trichosurus sp.*					2
animals	mammals	Phalangeridae	*Trichosurus caninus*	short-eared possum		C		6
animals	mammals	Phascolarctidae	*Phascolarctos cinereus*	koala		V	V	7
animals	mammals	Pseudocheiridae	*Pseudocheirus peregrinus*	common ringtail possum		C		31
animals	mammals	Pteropodidae	*Pteropus poliocephalus*	grey-headed flying-fox		C	V	115
animals	mammals	Pteropodidae	*Pteropus alecto*	black flying-fox		C		57
animals	mammals	Pteropodidae	*Pteropus sp.*					7
animals	mammals	Pteropodidae	*Pteropus scapulatus*	little red flying-fox		C		6
animals	mammals	Tachyglossidae	*Tachyglossus aculeatus*	short-beaked echidna		SL		2
animals	mammals	Vespertilionidae	*Chalinolobus nigrogriseus*	hoary wattled bat		C		2
animals	mammals	Vespertilionidae	*Scotorepens greyii*	little broad-nosed bat		C		2
animals	mammals	Vespertilionidae	*Chalinolobus gouldii*	Gould's wattled bat		C		1
animals	ray-finned fishes	Eleotridae	*Mogurnda adspersa*	southern purplespotted gudgeon				1
animals	ray-finned fishes	Eleotridae	*Hypseleotris galii*	firetail gudgeon				1
animals	ray-finned fishes	Melanotaeniidae	*Melanotaenia duboulayi*	crimsonspotted rainbowfish				1
animals	ray-finned fishes	Poeciliidae	*Xiphophorus hellerii*	swordtail	Y			1
animals	ray-finned fishes	Poeciliidae	*Poecilia reticulata*	guppy	Y			1
animals	ray-finned fishes	Terapontidae	*Leiopotherapon unicolor*	spangled perch				1
animals	reptiles	Agamidae	*Intellagama lesueurii*	eastern water dragon		C		11
animals	reptiles	Agamidae	*Pogona barbata*	bearded dragon		C		6
animals	reptiles	Boidae	*Morelia spilota*	carpet python		C		21
animals	reptiles	Chelidae	*Chelodina longicollis*	eastern snake-necked turtle		C		1
animals	reptiles	Colubridae	*Dendrelaphis punctulatus*	green tree snake		C		7
animals	reptiles	Elapidae	*Hoplocephalus stephensii*	Stephens' banded snake		C		1
animals	reptiles	Elapidae	*Pseudechis porphyriacus*	red-bellied black snake		C		1
animals	reptiles	Elapidae	*Demansia psammophis*	yellow-faced whipsnake		C		1
animals	reptiles	Elapidae	*Pseudonaja textilis*	eastern brown snake		C		5
animals	reptiles	Elapidae	*Cacophis squamulosus*	golden crowned snake		C		1
animals	reptiles	Elapidae	*Cacophis krefftii*	dwarf crowned snake		C		3
animals	reptiles	Elapidae	*Hemiaspis signata*	black-bellied swamp snake		C		2
animals	reptiles	Elapidae	*Cacophis harriettae*	white-crowned snake		C		7

Kingdom	Class	Family	Scientific Name	Common Name	I	Q	A	Records
animals	reptiles	Gekkonidae	*Hemidactylus frenatus*	house gecko	Y			4
animals	reptiles	Pygopodidae	*Lialis burtonis*	Burton's legless lizard		C		2
animals	reptiles	Scincidae	*Eroticoscincus graciloides*	elf skink		C		1
animals	reptiles	Scincidae	*Cryptoblepharus pulcher pulcher*	elegant snake-eyed skink		C		30
animals	reptiles	Scincidae	*Bellatorias frerei*	major skink		C		2
animals	reptiles	Scincidae	*Calyptotis scutirostrum*	scute-snouted calyptotis		C		14
animals	reptiles	Scincidae	*Ctenotus spaldingi*	straight-browed ctenotus		C		6
animals	reptiles	Scincidae	*Cyclodomorphus gerrardii*	pink-tongued lizard		C		9
animals	reptiles	Scincidae	*Concinnia martini*	dark bar-sided skink		C		4
animals	reptiles	Scincidae	*Lampropholis delicata*	dark-flecked garden sunskink		C		29
animals	reptiles	Scincidae	*Anomalopus verreauxii*	three-clawed worm-skink		C		2/1
animals	reptiles	Scincidae	*Tiliqua scincoides*	eastern blue-tongued lizard		C		13
animals	reptiles	Scincidae	*Eulamprus quoyii*	eastern water skink		C		8
animals	uncertain	Indeterminate	*Indeterminate*	Unknown or Code Pending		C		2
fungi	arthoniomycetes	Opegraphaceae	*Opegrapha varia*			C		1/1
fungi	lecanoromycetes	Candelariaceae	*Candelariella xanthostigmoides*			C		1/1
fungi	lecanoromycetes	Cladiaceae	*Cladia muelleri*			C		2/2
fungi	lecanoromycetes	Cladoniaceae	*Cladonia praetermissa var. praetermissa*			C		1/1
fungi	lecanoromycetes	Cladoniaceae	*Cladonia floerkeana*			C		2/2
fungi	lecanoromycetes	Graphidaceae	*Graphis sayeri*			C		1/1
fungi	lecanoromycetes	Graphidaceae	*Fissurina insidiosa*			C		1/1
fungi	lecanoromycetes	Icmadophilaceae	*Dibaeis sorediata*			C		1/1
fungi	lecanoromycetes	Lecanoraceae	*Lecanora*			C		1/1
fungi	lecanoromycetes	Lecanoraceae	*Ramboldia haematites*			C		1/1
fungi	lecanoromycetes	Lecanoraceae	*Lecanora caesiorubella*			C		1/1
fungi	lecanoromycetes	Lecideaceae	*Lecidea terrena*			C		1/1
fungi	lecanoromycetes	Lecideaceae	*Lecidea*			C		2/2
fungi	lecanoromycetes	Parmeliaceae	*Parmotrema tinctorum*			C		1/1
fungi	lecanoromycetes	Parmeliaceae	*Parmotrema sulphuratum*			C		1/1
fungi	lecanoromycetes	Parmeliaceae	*Parmotrema gardneri*			C		1/1
fungi	lecanoromycetes	Pertusariaceae	*Pertusaria pustulata*			C		1/1
fungi	lecanoromycetes	Pertusariaceae	*Ochrolechia*			C		2/2
fungi	lecanoromycetes	Pertusariaceae	*Pertusaria leucostomoides*			C		1/1
fungi	lecanoromycetes	Physciaceae	*Pyxine cocoes*			C		1/1
fungi	lecanoromycetes	Physciaceae	*Heterodermia obscurata*			C		1/1
fungi	lecanoromycetes	Physciaceae	*Heterodermia speciosa*			C		1/1
fungi	lecanoromycetes	Physciaceae	*Hyperphyscia pandani*			C		3/3
fungi	lecanoromycetes	Physciaceae	*Amandinea punctata*			C		1/1
fungi	lecanoromycetes	Physciaceae	*Dirinaria applanata*			C		2/2
fungi	lecanoromycetes	Physciaceae	*Dirinaria confluens*			C		2/2
fungi	lecanoromycetes	Physciaceae	*Buellia disciformis*			C		1/1
fungi	lecanoromycetes	Ramalinaceae	*Ramalinora glaucolivida*			C		1/1
fungi	lecanoromycetes	Teloschistaceae	*Caloplaca cerina*			C		1/1
fungi		Basidiomycota	*Boletus*			C		1/1
fungi		Basidiomycota	*Cyathus*			C		1/1
fungi		Basidiomycota	*Russula*			C		1/1

Kingdom	Class	Family	Scientific Name	Common Name	I	Q	A	Records
fungi		Basidiomycota	*Hydropus*			C		1/1
fungi		Basidiomycota	*Inonotus*			C		1/1
fungi		Basidiomycota	*Laccaria*			C		1/1
fungi		Basidiomycota	*Ganoderma*			C		1/1
fungi		Basidiomycota	*Marasmius*			C		1/1
fungi		Basidiomycota	*Phellinus*			C		2/2
fungi		Basidiomycota	*Polyporus*			C		1/1
fungi		Basidiomycota	*Boletellus*			C		1/1
fungi		Basidiomycota	*Gymnopilus*			C		1/1
fungi		Basidiomycota	*Lyophyllum*			C		1/1
fungi		Basidiomycota	*Amauroderma*			C		1/1
fungi		Basidiomycota	*Rigidoporus*			C		1/1
fungi		Basidiomycota	*Aseroe rubra*			C		1/1
fungi		Basidiomycota	*Marasmiellus*			C		1/1
fungi		Basidiomycota	*Zelleromyces*			C		1/1
fungi		Basidiomycota	*Chlorophyllum*			C		1/1
fungi		Basidiomycota	*Lenzites acuta*			C		2/1
fungi		Basidiomycota	*Amanita vaginata*			C		1/1
fungi		Basidiomycota	*Lysurus gardneri*			C		1/1
fungi		Basidiomycota	*Ganoderma australe*			C		1/1
fungi		Basidiomycota	*Lepista sublilacina*			C		1/1
fungi		Basidiomycota	*Stereum complicatum*			C		1/1
fungi		Basidiomycota	*Rigidoporus lineatus*			C		2/2
fungi		Basidiomycota	*Scleroderma areolatum*			C		1/1
fungi		Basidiomycota	*Ganoderma steyaertanum*			C		1/1
fungi		Basidiomycota	*Leucocoprinus birnbaumii*			C		1/1
fungi		Basidiomycota	*Perenniporia medulla-panis*			C		1/1
plants	ferns	Athyriaceae	*Diplazium esculentum*		Y			1/1
plants	higher dicots	Acanthaceae	*Thunbergia alata*	black-eyed Susan	Y			1/1
plants	higher dicots	Acanthaceae	*Ruellia squarrosa*		Y			1/1
plants	higher dicots	Acanthaceae	*Hypoestes aristata*		Y			1/1
plants	higher dicots	Acanthaceae	*Dyschoriste depressa*		Y			1/1
plants	higher dicots	Acanthaceae	*Eranthemum pulchellum*		Y			2/2
plants	higher dicots	Acanthaceae	*Justicia brandegeeana*		Y			3/3
plants	higher dicots	Acanthaceae	*Hypoestes phyllostachya*		Y			1/1
plants	higher dicots	Acanthaceae	*Justicia betonica*		Y			2/2
plants	higher dicots	Acanthaceae	*Stephanophysum longifolium*		Y			2/2
plants	higher dicots	Adoxaceae	*Sambucus nigra*		Y			2/2
plants	higher dicots	Amaranthaceae	*Amaranthus blitum*		Y			1/1
plants	higher dicots	Amaranthaceae	*Guilleminea densa*	small matweed	Y			1/1
plants	higher dicots	Amaranthaceae	*Gomphrena celosioides*	gomphrena weed	Y			1/1
plants	higher dicots	Anacardiaceae	*Schinus terebinthifolius*		Y			1
plants	higher dicots	Apiaceae	*Lilaeopsis brisbanica*			E		3/3
plants	higher dicots	Apiaceae	*Centella asiatica*			C		1/1
plants	higher dicots	Araliaceae	*Hydrocotyle peduncularis*			C		1/1
plants	higher dicots	Araliaceae	*Hydrocotyle acutiloba*			C		1/1

Kingdom	Class	Family	Scientific Name	Common Name	I	Q	A	Records
plants	higher dicots	Araliaceae	*Tetrapanax papyrifer*		Y			1/1
plants	higher dicots	Asteraceae	*Senecio madagascariensis*	fireweed	Y			1/1
plants	higher dicots	Asteraceae	*Sphagneticola trilobata*		Y			1
plants	higher dicots	Asteraceae	*Lactuca serriola forma serriola*		Y			1/1
plants	higher dicots	Asteraceae	*Acanthospermum australe*		Y			1/1
plants	higher dicots	Asteraceae	*Sigesbeckia orientalis*	Indian weed		C		1/1
plants	higher dicots	Asteraceae	*Tithonia diversifolia*	Japanese sunflower	Y			2/2
plants	higher dicots	Asteraceae	*Ageratum houstonianum*	blue billygoat weed	Y			1
plants	higher dicots	Asteraceae	*Erigeron sumatrensis*		Y			1/1
plants	higher dicots	Asteraceae	*Calyptocarpus vialis*	creeping cinderella weed	Y			2/2
plants	higher dicots	Asteraceae	*Ageratina adenophora*	crofton weed	Y			1/1
plants	higher dicots	Asteraceae	*Glossocardia bidens*	native cobbler's pegs		C		1/1
plants	higher dicots	Asteraceae	*Tridax procumbens*	tridax daisy	Y			1/1
plants	higher dicots	Asteraceae	*Cosmos sulphureus*		Y			1/1
plants	higher dicots	Asteraceae	*Chrysocephalum apiculatum*	yellow buttons		C		1/1
plants	higher dicots	Asteraceae	*Bidens pilosa*		Y			2/1
plants	higher dicots	Asteraceae	*Olearia nernstii*	Ipswich daisy		C		1/1
plants	higher dicots	Basellaceae	*Anredera cordifolia*	Madeira vine	Y			1
plants	higher dicots	Bignoniaceae	*Pyrostegia*			C		1
plants	higher dicots	Bignoniaceae	*Tecoma stans*	tecoma	Y			1
plants	higher dicots	Bignoniaceae	*Jacaranda mimosifolia*	jacaranda	Y			1
plants	higher dicots	Bignoniaceae	*Pithecoctenium crucigerum*		Y			4/4
plants	higher dicots	Byttneriaceae	*Commersonia bartramia*	brown kurrajong		C		1
plants	higher dicots	Cactaceae	*Opuntia monacantha*		Y			1/1
plants	higher dicots	Caesalpiniaceae	*Senna pendula var. glabrata*	Easter cassia	Y			2/1
plants	higher dicots	Caesalpiniaceae	*Peltophorum pterocarpum*	yellow poinciana	Y			1
plants	higher dicots	Caesalpiniaceae	*Bauhinia variegata*		Y			1/1
plants	higher dicots	Caesalpiniaceae	*Bauhinia galpinii*		Y			1/1
plants	higher dicots	Campanulaceae	*Wahlenbergia gracilis*	sprawling bluebell		C		1/1
plants	higher dicots	Campanulaceae	*Lobelia concolor*			C		1/1
plants	higher dicots	Caryophyllaceae	*Sagina procumbens*	spreading pearlwort	Y			1/1
plants	higher dicots	Casuarinaceae	*Allocasuarina torulosa*			C		1
plants	higher dicots	Celastraceae	*Siphonodon australis*	ivorywood		C		3/3
plants	higher dicots	Celastraceae	*Elaeodendron australe var. australe*			C		1/1
plants	higher dicots	Clusiaceae	*Hypericum involutum*			C		1/1
plants	higher dicots	Crassulaceae	*Bryophyllum fedtschenkoi*		Y			1/1
plants	higher dicots	Ebenaceae	*Diospyros geminata*	scaly ebony		C		2/2
plants	higher dicots	Ericaceae	*Leucopogon juniperinus*	prickly heath		C		1/1
plants	higher dicots	Euphorbiaceae	*Manihot grahamii*		Y			2/2
plants	higher dicots	Euphorbiaceae	*Ricinus communis*	castor oil bush	Y			1
plants	higher dicots	Euphorbiaceae	*Euphorbia maculata*		Y			1/1
plants	higher dicots	Euphorbiaceae	*Excoecaria agallocha*	milky mangrove		C		1/1
plants	higher dicots	Euphorbiaceae	*Euphorbia cyathophora*	dwarf poinsettia	Y			1/1
plants	higher dicots	Euphorbiaceae	*Euphorbia ophthalmica*		Y			1/1
plants	higher dicots	Euphorbiaceae	*Mallotus philippensis*	red kamala		C		1/1
plants	higher dicots	Euphorbiaceae	*Euphorbia hyssopifolia*		Y			1/1

Kingdom	Class	Family	Scientific Name	Common Name	I	Q	A	Records
plants	higher dicots	Fabaceae	*Cullen tenax*	emu-foot		C		1/1
plants	higher dicots	Fabaceae	*Crotalaria medicaginea var. neglecta*			C		2/2
plants	higher dicots	Fabaceae	*Crotalaria brevis*			C		1/1
plants	higher dicots	Fabaceae	*Desmodium incanum*		Y			1/1
plants	higher dicots	Fabaceae	*Indigofera spicata*	creeping indigo	Y			3/3
plants	higher dicots	Fabaceae	*Neonotonia wightii*		Y			1
plants	higher dicots	Fabaceae	*Glycine microphylla*			C		1/1
plants	higher dicots	Fabaceae	*Robinia pseudoacacia*	black locust	Y			1/1
plants	higher dicots	Fabaceae	*Desmodium brachypodum*	large ticktrefoil		C		1/1
plants	higher dicots	Fabaceae	*Indigofera circinella*		Y			2/2
plants	higher dicots	Fabaceae	*Desmodium rhytidophyllum*			C		1/1
plants	higher dicots	Fabaceae	*Macroptilium lathyroides*		Y			1/1
plants	higher dicots	Fabaceae	*Tephrosia glomeruliflora*	pink tephrosia	Y			1/1
plants	higher dicots	Fabaceae	*Tephrosia filipes subsp. filipes*			C		1/1
plants	higher dicots	Fabaceae	*Abrus precatorius subsp. africanus*		Y			2/2
plants	higher dicots	Fabaceae	*Austrosteenisia blackii var. blackii*			C		1/1
plants	higher dicots	Fabaceae	*Tipuana tipu*	tipuana	Y			1
plants	higher dicots	Lythraceae	*Cuphea carthagenensis*		Y			1/1
plants	higher dicots	Malpighiaceae	*Hiptage benghalensis*		Y			4/4
plants	higher dicots	Malpighiaceae	*Stigmaphyllon ciliatum*		Y			1/1
plants	higher dicots	Malvaceae	*Hibiscus mutabilis*		Y			3/3
plants	higher dicots	Mimosaceae	*Leucaena leucocephala*		Y			2/1
plants	higher dicots	Mimosaceae	*Acaciella angustissima*	white ball acacia	Y			7/7
plants	higher dicots	Mimosaceae	*Dichrostachys cinerea subsp. malesiana*		Y			1/1
plants	higher dicots	Mimosaceae	*Acacia maidenii*	Maiden's wattle		C		1
plants	higher dicots	Mimosaceae	*Pararchidendron pruinosum*			C		1/1
plants	higher dicots	Mimosaceae	*Acacia disparrima subsp. disparrima*			C		2/2
plants	higher dicots	Moraceae	*Maclura cochinchinensis*	cockspur thorn		C		1
plants	higher dicots	Moraceae	*Ficus coronata*	creek sandpaper fig		C		1
plants	higher dicots	Moraceae	*Ficus benjamina*			C		1
plants	higher dicots	Myrsinaceae	*Lysimachia arvensis*		Y			1/1
plants	higher dicots	Myrtaceae	*Corymbia citriodora subsp. citriodora*			C		1
plants	higher dicots	Myrtaceae	*Eugenia uniflora*	Brazilian cherry tree	Y			2/2
plants	higher dicots	Myrtaceae	*Gossia gonoclada*			E	E	1/1
plants	higher dicots	Myrtaceae	*Eucalyptus crebra*	narrow-leaved red ironbark		C		3/3
plants	higher dicots	Myrtaceae	*Eucalyptus robusta*	swamp mahogany		C		1
plants	higher dicots	Myrtaceae	*Eucalyptus saligna*			C		1
plants	higher dicots	Myrtaceae	*Corymbia torelliana*	cadaghi		C		1
plants	higher dicots	Myrtaceae	*Eucalyptus curtisii*	Plunkett mallee		NT		1
plants	higher dicots	Myrtaceae	*Melaleuca bracteata*			C		1
plants	higher dicots	Myrtaceae	*Melaleuca viminalis*			C		1
plants	higher dicots	Myrtaceae	*Melaleuca linariifolia*	snow-in summer		C		1
plants	higher dicots	Myrtaceae	*Waterhousea floribunda*	weeping lilly pilly		C		2/1
plants	higher dicots	Myrtaceae	*Eucalyptus siderophloia*			C		1/1
plants	higher dicots	Myrtaceae	*Melaleuca styphelioides*			C		1/1
plants	higher dicots	Myrtaceae	*Psidium guajava*	guava	Y			1

Kingdom	Class	Family	Scientific Name	Common Name	I	Q	A	Records
plants	higher dicots	Myrtaceae	*Melaleuca*			C		1
plants	higher dicots	Nyctaginaceae	*Bougainvillea*			C		1
plants	higher dicots	Ochnaceae	*Ochna serrulata*	ochna	Y			2/1
plants	higher dicots	Oleaceae	*Ligustrum lucidum*	large-leaved privet	Y			1
plants	higher dicots	Oleaceae	*Notelaea punctata*			C		2/2
plants	higher dicots	Oxalidaceae	*Oxalis chnoodes*			C		1/1
plants	higher dicots	Passifloraceae	*Passiflora subpeltata*	white passion flower	Y			1/1
plants	higher dicots	Petiveriaceae	*Rivina humilis*		Y			2/2
plants	higher dicots	Phyllanthaceae	*Bridelia exaltata*			C		2/2
plants	higher dicots	Pittosporaceae	*Hymenosporum flavum*	native frangipani		C		1/1
plants	higher dicots	Plantaginaceae	*Plantago debilis*	shade plantain		C		1/1
plants	higher dicots	Plantaginaceae	*Scoparia dulcis*	scoparia	Y			1/1
plants	higher dicots	Polygonaceae	*Antigonon leptopus*		Y			1
plants	higher dicots	Polygonaceae	*Rumex conglomeratus*	clustered dock	Y			1/1
plants	higher dicots	Polygonaceae	*Persicaria decipiens*	slender knotweed		C		1/1
plants	higher dicots	Polygonaceae	*Rumex brownii*	swamp dock		C		2/2
plants	higher dicots	Proteaceae	*Macadamia integrifolia*	macadamia nut		V	V	1
plants	higher dicots	Rosaceae	*Eriobotrya japonica*	loquat	Y			1/1
plants	higher dicots	Rosaceae	*Rhaphiolepis indica*	Indian hawthorn	Y			1/1
plants	higher dicots	Rosaceae	*Rubus parvifolius*	pink-flowered native raspberry		C		1/1
plants	higher dicots	Rubiaceae	*Spermacoce brachystema*			C		1/1
plants	higher dicots	Rubiaceae	*Cyclophyllum coprosmoides var. coprosmoides*			C		4/4
plants	higher dicots	Rutaceae	*Murraya paniculata*			C		1
plants	higher dicots	Rutaceae	*Bergera koenigii*		Y			1/1
plants	higher dicots	Sapindaceae	*Arytera foveolata*	pitted coogera		C		1/1
plants	higher dicots	Sapindaceae	*Alectryon connatus*	grey birds-eye		C		1/1
plants	higher dicots	Sapindaceae	*Dodonaea triquetra*	large-leaved hop bush		C		1/1
plants	higher dicots	Sapindaceae	*Alectryon tomentosus*			C		1/1
plants	higher dicots	Sapindaceae	*Cupaniopsis parvifolia*	small-leaved tuckeroo		C		1/1
plants	higher dicots	Sapindaceae	*Koelreuteria elegans subsp. formosana*		Y			1
plants	higher dicots	Sapindaceae	*Cardiospermum grandiflorum*	heart seed vine	Y			2/1
plants	higher dicots	Sapindaceae	*Jagera pseudorhus var. pseudorhus*			C		1/1
plants	higher dicots	Scrophulariaceae	*Eremophila debilis*	winter apple		C		1/1
plants	higher dicots	Sterculiaceae	*Brachychiton acerifolius*	flame tree		C		1
plants	higher dicots	Ulmaceae	*Celtis sinensis*	Chinese elm	Y			1
plants	higher dicots	Viscaceae	*Notothixos incanus*			C		1/1
plants	liverworts	Aytoniaceae	*Reboulia hemisphaerica*			C		2/2
plants	liverworts	Fossombroniaceae	*Fossombronia papillata*			C		1/1
plants	liverworts	Frullaniaceae	*Frullania pentapleura*			C		1/1
plants	liverworts	Frullaniaceae	*Frullania*			C		1/1
plants	liverworts	Geocalycaceae	*Chiloscyphus semiteres*			C		1/1
plants	liverworts	Jungermanniaceae	*Jungermannia wattsiana*			C		1/1
plants	lower dicots	Apocynaceae	*Acokanthera oblongifolia*	bushman's poison	Y			1/1
plants	lower dicots	Apocynaceae	*Parsonsia brisbanensis*	broad-leaved monkey vine		C		1/1
plants	lower dicots	Aristolochiaceae	*Aristolochia meridionalis subsp. meridionalis*			C		1/1
plants	lower dicots	Berberidaceae	*Nandina domestica*		Y			1/1

Kingdom	Class	Family	Scientific Name	Common Name	I	Q	A	Records
plants	lower dicots	Convolvulaceae	*Ipomoea ochracea*		Y			1/1
plants	lower dicots	Convolvulaceae	*Ipomoea alba*	moon flower	Y			1/1
plants	lower dicots	Lamiaceae	*Anisomeles moschata*			C		2/2
plants	lower dicots	Lamiaceae	*Salvia coccinea*	red salvia	Y			1/1
plants	lower dicots	Lamiaceae	*Plectranthus verticillatus*		Y			1/1
plants	lower dicots	Lamiaceae	*Plectranthus amboinicus*	allspice	Y			1/1
plants	lower dicots	Lauraceae	*Cryptocarya microneura*	murrogun		C		1/1
plants	lower dicots	Lauraceae	*Cinnamomum camphora*	camphor laurel	Y			2/1
plants	lower dicots	Lauraceae	*Cassytha filiformis*	dodder laurel		C		1/1
plants	lower dicots	Ranunculaceae	*Ranunculus sessiliflorus*			C		1/1
plants	lower dicots	Solanaceae	*Nicandra physalodes*	apple of Peru	Y			1/1
plants	lower dicots	Solanaceae	*Solanum mauritianum*	wild tobacco	Y			1
plants	lower dicots	Solanaceae	*Physalis angulata*		Y			1/1
plants	lower dicots	Solanaceae	*Cestrum parqui*	green cestrum	Y			1
plants	lower dicots	Solanaceae	*Solanum torvum*	devil's fig	Y			1/1
plants	lower dicots	Solanaceae	*Solanum seaforthianum*	Brazilian nightshade	Y			1
plants	lower dicots	Verbenaceae	*Duranta erecta*	duranta	Y			2/1
plants	lower dicots	Verbenaceae	*Phyla nodiflora*	carpetweed		C		1
plants	lower dicots	Verbenaceae	*Lantana camara*	lantana	Y			2/1
plants	monocots	Araceae	*Syngonium podophyllum*		Y			1/1
plants	monocots	Arecaceae	*Archontophoenix alexandrae*	Alexandra palm		C		1
plants	monocots	Asparagaceae	*Asparagus aethiopicus cv. Sprengeri*	basket asparagus fern	Y			1/1
plants	monocots	Asparagaceae	*Asparagus africanus*	ornamental asparagus	Y			3/2
plants	monocots	Colchicaceae	*Iphigenia indica*			C		1/1
plants	monocots	Commelinaceae	*Commelina diffusa*	wandering jew		C		2/2
plants	monocots	Commelinaceae	*Tradescantia zebrina*		Y			2/2
plants	monocots	Commelinaceae	*Commelina benghalensis*		Y			1/1
plants	monocots	Commelinaceae	*Commelina*			C		1/1
plants	monocots	Commelinaceae	*Callisia fragrans*		Y			3/3
plants	monocots	Cyperaceae	*Scleria mackaviensis*			C		2/2
plants	monocots	Cyperaceae	*Cyperus laevis*			C		1/1
plants	monocots	Dracaenaceae	*Sansevieria trifasciata var. trifasciata*		Y			1/1
plants	monocots	Hemerocallidaceae	*Geitonoplesium cymosum*	scrambling lily		C		1/1
plants	monocots	Hydrocharitaceae	*Hydrilla verticillata*	hydrilla		C		1/1
plants	monocots	Hydrocharitaceae	*Egeria densa*	dense waterweed	Y			1/1
plants	monocots	Iridaceae	*Freesia laxa*		Y			3/3
plants	monocots	Juncaceae	*Juncus usitatus*			C		1/1
plants	monocots	Laxmanniaceae	*Eustrephus latifolius*	wombat berry		C		1/1
plants	monocots	Poaceae	*Capillipedium spicigerum*	spicytop		C		1/1
plants	monocots	Poaceae	*Echinochloa telmatophila*	swamp barnyard grass		C		1/1
plants	monocots	Poaceae	*Hyparrhenia filipendula*	tambookie grass		C		1/1
plants	monocots	Poaceae	*Dinebra divaricatissima*			C		1/1
plants	monocots	Poaceae	*Dactyloctenium australe*	sweet smother grass	Y			1/1
plants	monocots	Poaceae	*Urochloa subquadripara*		Y			1/1
plants	monocots	Poaceae	*Moorochloa eruciformis*		Y			1/1
plants	monocots	Poaceae	*Echinochloa crus-galli*	barnyard grass	Y			1/1

Kingdom	Class	Family	Scientific Name	Common Name	I	Q	A	Records
plants	monocots	Poaceae	*Chrysopogon sylvaticus*			C		1/1
plants	monocots	Poaceae	*Alloteropsis semialata*	cockatoo grass		C		1/1
plants	monocots	Poaceae	*Digitaria abyssinica*		Y			1/1
plants	monocots	Poaceae	*Paspalum conjugatum*	sourgrass	Y			1/1
plants	monocots	Poaceae	*Megathyrsus maximus*		Y			1
plants	monocots	Poaceae	*Digitaria didactyla*	Queensland blue couch	Y			1/1
plants	monocots	Poaceae	*Urochloa decumbens*		Y			2/2
plants	monocots	Poaceae	*Chloris gayana*	rhodes grass	Y			1/1
plants	monocots	Poaceae	*Panicum effusum*			C		1/1
plants	monocots	Poaceae	*Cynodon dactylon*		Y			1
plants	monocots	Poaceae	*Digitaria minima*			C		1/1
plants	monocots	Poaceae	*Leersia hexandra*	swamp rice grass		C		1/1
plants	monocots	Poaceae	*Digitaria diffusa*			C		1/1
plants	monocots	Poaceae	*Urochloa whiteana*			C		1/1
plants	monocots	Poaceae	*Oplismenus aemulus*	creeping shade grass		C		1/1
plants	monocots	Poaceae	*Paspalidium gausum*			C		1/1
plants	mosses	Aulacomniaceae	*Mesochaete undulata*			C		1/1
plants	mosses	Bryaceae	*Rosulabryum billardierei*			C		1/1
plants	mosses	Bryaceae	*Rosulabryum subfasciculatum*			C		2/2
plants	mosses	Dicranaceae	*Dicranella dietrichiae*			C		1/1
plants	mosses	Fissidentaceae	*Fissidens megalotis*			C		1/1
plants	mosses	Fissidentaceae	*Fissidens*			C		6/6
plants	mosses	Funariaceae	*Entosthodon apophysatus*			C		1/1
plants	mosses	Funariaceae	*Funaria hygrometrica*			C		1/1
plants	mosses	Hypnaceae	*Hypnum*			C		1/1
plants	mosses	Meesiaceae	*Leptobryum pyriforme*			C		1/1
plants	mosses	Polytrichaceae	*Dawsonia longiseta*			C		2/2
plants	mosses	Polytrichaceae	*Dawsonia polytrichoides*			C		1/1
plants	mosses	Pottiaceae	*Trichostomum brachydontium*			C		1/1
plants	mosses	Ptychomitriaceae	*Ptychomitrium australe*			C		1/1
plants	uncertain	Indet.	*Indet.*			C		1/1
protists	green algae	Chlorophyceae	*Chaetophora*			C		1/1
protists	green algae	Chlorophyceae	*Tetraspora gelatinosa*			C		1/1
protists		Streptophyceae	*Mougeotia recurva*			C		1/1

CODES

I - Y indicates that the taxon is introduced to Queensland and has naturalised.

Q - Indicates the Queensland conservation status of each taxon under the *Nature Conservation Act 1992.* The codes are Extinct in the Wild (PE), Endangered (E), Vulnerable (V), Near Threatened (NT), Least Concern (C) or Not Protected ( ).

A - Indicates the Australian conservation status of each taxon under the *Environment Protection and Biodiversity Conservation Act 1999.* The values of EPBC are Conservation Dependent (CD), Critically Endangered (CE), Endangered (E), Extinct (EX), Extinct in the Wild (XW) and Vulnerable (V).

Records – The first number indicates the total number of records of the taxon for the record option selected (i.e. All, Confirmed or Specimens).
This number is output as 99999 if it equals or exceeds this value. The second number located after the / indicates the number of specimen records for the taxon.
This number is output as 999 if it equals or exceeds this value.

Appendix 8

CLR & EMR Search

Department of Environment and Heritage Protection (EHP)
ABN 46 640 294 485
400 George St Brisbane, Queensland 4000
GPO Box 2454 Brisbane QLD 4001 AUSTRALIA
www.ehp.qld.gov.au

SEARCH RESPONSE
ENVIRONMENTAL MANAGEMENT REGISTER (EMR)
CONTAMINATED LAND REGISTER (CLR)

Transaction ID: 50440351 EMR Site Id: 01 March 2018
This response relates to a search request received for the site:
Lot: 285 Plan: SP104042

EMR RESULT

The above site is NOT included on the Environmental Management Register.

CLR RESULT

The above site is NOT included on the Contaminated Land Register.

ADDITIONAL ADVICE

All search responses include particulars of land listed in the EMR/CLR when the search was generated.
The EMR/CLR does NOT include:-

1. land which is contaminated land (or a complete list of contamination) if EHP has not been notified
2. land on which a notifiable activity is being or has been undertaken (or a complete list of activities) if EHP has not been notified

If you have any queries in relation to this search please phone 13QGOV (13 74 68)

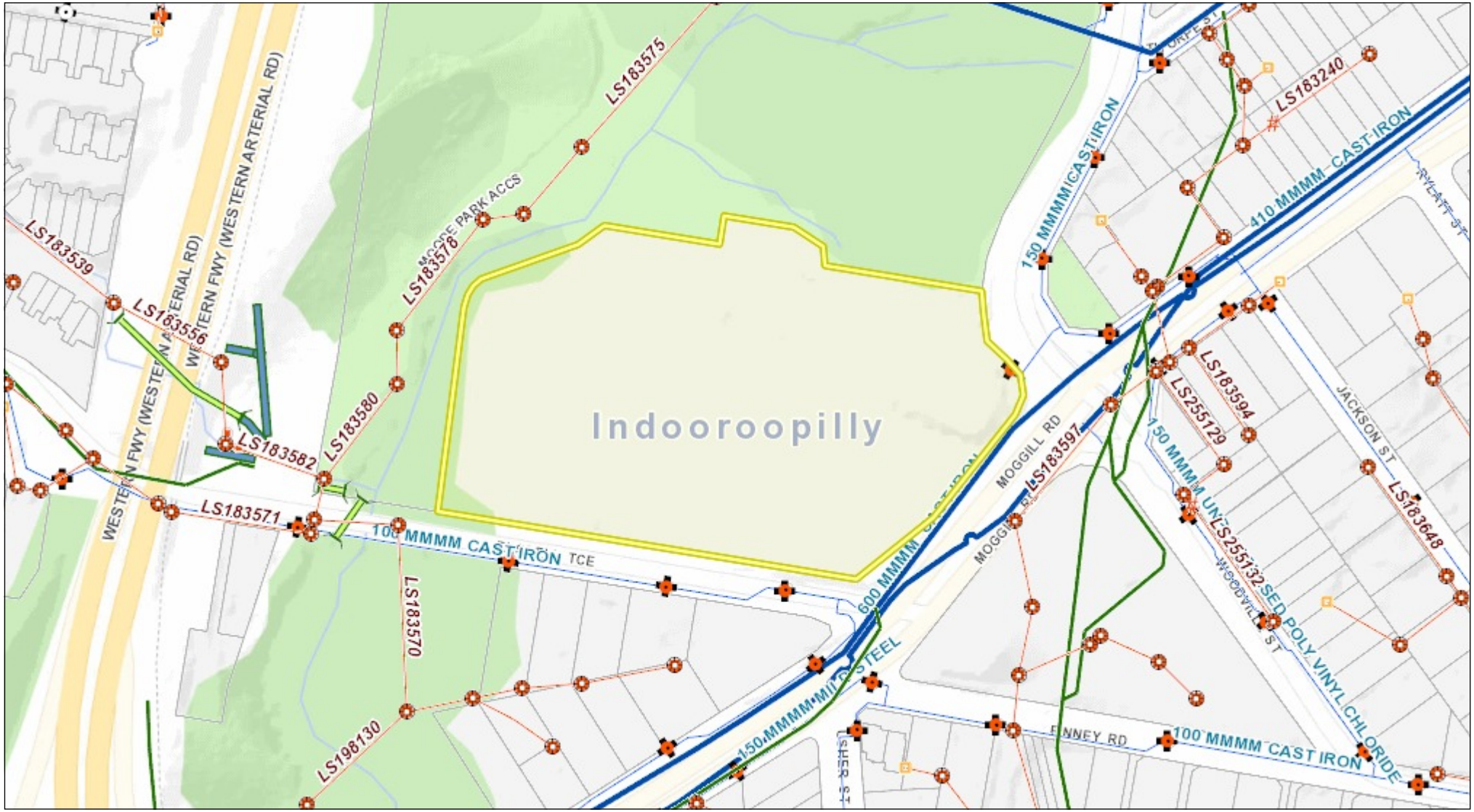
Administering Authority

Appendix 9

Service Infrastructure Plans

Department of Housing and Public Works

Queensland Government



While every care is taken to ensure the accuracy of this data, the Brisbane City Council and the copyright owners, in permitting the use of this data, make no representations or warranties about its accuracy, reliability, completeness or suitability for any particular purpose and disclaims all responsibility and all liability (including without limitation, liability in negligence) for all expenses, losses, damages (including indirect or consequential damage) and costs which you might incur as a result of the data being inaccurate or incomplete in any way and for any reason.

N

BRISBANE CITY

Dedicated to a better Brisbane

indro

125.0 0 62.0 93.8 125.0

Metres

Scale: 1:2,500

Print Date: 1/08/2018 - 12:06 PM

© Copyright Brisbane City Council 2015

Projection: Web Mercator Auxiliary Sphere

Legend

- Local Government Areas
- PRESSURE GAUGE
- PRESSURE GAUGE - OFFLINE

Recycled Water Fitting

- END CAP
- GIBAULT JOINT
- REDUCER
- RESERVOIR INLET
- SAMPLING STATION
- <all other values>
- HEAD WALL

Recycled Water Chamber

- INGROUND HYDRANT

Recycled Water Control Valve

- AIR
- ALTITUDE
- SCOUR - OFFLINE
- PRESSURE REDUCING - OFFLINE

Recycled Water System Valve

- GATE, OPEN
- BALL, OPEN
- SERVICE VALVE CLOSED
- RESERVOIR
- TREATMENT PLANT
- PUMP STATION

Recycled Water Pumps

- BOOSTER PUMP - OFFLINE

Recycled Water Pressure Main

- TRUNK MAIN
- TRUNK MAIN - OFFLINE
- END FLUSHING POINT
- VACUUM LIFT
- JOINT
- JUNCTION
- WYE
- GIBAULT JOINT
- OUTLET

Recycled Water Device

- FLOW METER
- FLOW METER - OFFLINE
- <all other values>
- CROSS
- TAPPING BAND
- WYE
- SCOUR OUTLET
- CHEMICAL INJECTION POINT
- ANCHOR BLOCK
- PIER

Recycled Network Structure Boundary

- PILLAR HYDRANT
- REFLUX
- PRESSURE SUSTAINING
- FLOW CONTROL
- AIR - OFFLINE
- ALTITUDE - OFFLINE
- <all other values>
- BUTTERFLY, OPEN

Recycled Water Service Valve

- SERVICE VALVE OPEN
- RESERVOIR - OFFLINE
- FILLING STATION
- PUMP STATION - OFFLINE
- BOOSTER PUMP
- LIFT PUMP - OFFLINE
- MODEL LINK
- SCOUR MAIN
- SCOUR MAIN - OFFLINE
- INLINE FLUSHING POINT

Sewer Fitting - All Other Fittings

- RODDING JOINT
- END CAP
- TEE
- CROSS

Sewer Manholes

- <all other values>
- LEVEL SENSOR
- LEVEL SENSOR - OFFLINE
- BEND
- JOINT
- TAPPING
- TEE
- PIGGING POINT

Recycled Water Structures

- CONCRETE STOP
- PIPE BRIDGE

Recycled Water Hydrant

Recycled Water Flow Meter

- SCOUR
- PRESSURE REDUCING
- REFLUX - OFFLINE
- PRESSURE SUSTAINING - OFFLINE
- FLOW CONTROL - OFFLINE
- GATE, CLOSED
- BALL, CLOSED
- <all other values>

Recycled Water- Reservoirs

Recycled Water Network Structure

Recycled Water Pump Stations

Recycled Water Network Structure Boundary

- LIFT PUMP

Recycled Vertical Pressure Main

- RETIC MAIN
- RETIC MAIN - OFFLINE

Sewer Fitting - Main Fittings

- OUTLET
- <all other values>
- PROPERTY CONNECTION BOUNDARY
- BEND
- REDUCER
- INLET
- <all other values>

Appendix 10

BCC FloodWise Property Report

Department of Housing and Public Works

Queensland Government

Brisbane City Council

FloodWise Property Report

Report Reference
1522276929920
29/03/2018 08:42:09

Dedicated to a better Brisbane

THIS REPORT IS FOR BUILDING AND DEVELOPMENT PURPOSES ONLY

The FloodWise Property Report provides property or lot-based flood information for building and development requirements. This report provides information on estimated flood levels, habitable floor level requirements and more technical information on the four sources of flooding: river, creek / waterway, storm tide and overland flow. Refer to the Useful Definitions section for a glossary of terms.

To find out more about how the contents of this report may affect building or development on this property, please visit www.brisbane.qld.gov.au/planning-building.For more general information about understanding your flood risk and how to prepare your property, family or business for potential flooding visit www.brisbane.qld.gov.au/beprepared

THIS IS A REPORT FOR:

Rateable Address: 471 MOGGILL RD, INDOOROOPILLY QLD 4068
Lot Details: L.285 SP.104042 *This is a report for this Lot only*

This property has flags for building or development purposes only

Brisbane City Council has not assigned flood level information for this property for building or development purposes. However, mapping indicates that it is affected by one or more flood or property development flags. Please refer below for details.

For professional advice or detailed assessment of a property contact a Registered Professional Engineer of Queensland.

For general information on your flood risk and how to prepare your home or business for potential flooding visit www.brisbane.qld.gov.au/beprepared.

FLOOD AND PLANNING DEVELOPMENT FLAGS

DEVELOPMENT FLAG(S)

This property may also be affected by one or more flood or property development overlays or flags. These include: OVERLAND FLOW PATH,LARGE ALLOTMENT,WATERWAY CORRIDOR

Please review the technical summary over page and refer to Council's planning scheme for further information.

Brisbane City Council

FloodWise Property Report

Dedicated to a better Brisbane

Report Reference
1522276929920

29/03/2018 08:42:09

TECHNICAL SUMMARY

This section of the FloodWise Property Report contains more detailed flood information for this property so surveyors, builders, certifiers, architects and engineers can plan and build in accordance with Council's planning scheme. For more information about building and development in Brisbane please visit www.brisbane.qld.gov.au/planning-building or talk to a Development Assessment Planning Information Officer via Council's Contact Centre on (07) 3403 8888.

THIS IS A REPORT FOR:

Rateable Address: 471 MOGGILL RD, INDOOROOPILLY QLD 4068

Lot Details: L.285 SP.104042 *This is a report for this Lot only*

FLOOD PLANNING DEVELOPMENT INFORMATION

This section of the FloodWise Property Report contains information about Council's planning scheme overlays. Overlays identify areas within the planning scheme that reflect distinct themes that may include constrained land and/or areas sensitive to the effects of development.

FLOOD OVERLAY CODE

The Flood overlay code of Council's planning scheme uses the following information to provide guidelines when developing properties. The table below summarises the Flood Planning Areas (FPAs) that apply to this property. Development guidelines for the FPAs are explained in Council's planning scheme, which is available from www.brisbane.qld.gov.au/planning-building.

FLOOD PLANNING AREAS (FPA)		
RIVER	CREEK/WATERWAY	OVERLAND FLOW
	FPA3	Applicable
	FPA4	
	FPA5	

COASTAL HAZARD OVERLAY CODE

There are currently no Coastal Hazard Overlays that apply to this property.

PROPERTY DEVELOPMENT FLAGS

Overland Flow Path - Mapping indicates this property may be located within an overland flow path. Overland flow flooding usually occurs when the capacity of the underground piped drainage system is exceeded and/or when the overland flow path is blocked. It is recommended you consult a Registered Professional Engineer of Queensland to determine this property's habitable floor level and flooding depth. Please refer to Council's planning scheme for further information.

Waterway Corridor - This property may also be located within a mapped waterway corridor as identified in the waterway corridors overlay map of Council's planning scheme. Please consider this in conjunction with Council's planning scheme requirements.

Large Allotment - This property is either a Large Allotment of over 1000 square metres or is located within a Large Allotment. Flood levels may vary significantly across allotments of this size. Further investigations may be warranted in determining the variation in flood levels and the minimum habitable floor level across the site. For more information or advice, it is recommended you engage a Registered Professional Engineer of Queensland.

Brisbane City Council

FloodWise Property Report

Report Reference
1522276929920

29/03/2018 08:42:09

Dedicated to a better Brisbane

Useful Definitions

Australian Height Datum (AHD) - The reference level for defining ground levels in Australia. The level of 0.0m AHD is approximately mean sea level.

Annual Exceedance Probability (AEP) – The probability of a flood event of a given size occurring in any one year, usually expressed as a percentage annual chance.

Defined Flood Level (DFL) - The DFL for Brisbane River flooding is a level of 3.7m AHD at the Brisbane City Gauge based on a flow of 6,800 m^3/s.

Maximum and Minimum Ground Level – Highest and lowest ground levels on the property based on available ground level information. A Registered Surveyor can confirm exact ground levels.

Minimum Habitable Floor Level – The minimum level in metres AHD at which habitable areas of development (generally including bedrooms, living rooms, kitchen, study, family and rumpus rooms) must be constructed.

Council's Planning Scheme - The City Plan (planning scheme) has been prepared in accordance with the Sustainable Planning Act as a framework for managing development in a way that advances the purpose of the Act. In seeking to achieve this purpose, the planning scheme sets out the Council's intention for future development in the planning scheme area, over the next 20 years.

Residential Flood Level (RFL) – Residential flood level (RFL) for Brisbane River flooding equates to the flood level applicable to the extent of January 2011 floods as depicted by mapping on the Queensland Reconstruction Authority website or the Council's defined flood level (DFL) for the Brisbane River, whichever is higher.

Rateable Address - A Lot or Property may have more than one street address. The address shown on this report is the address used by Council for the Lot or property selected.

Property - A property will contain 1 or more lots. The *Multiple Lot Warning* is shown if you have selected a property that contains multiple lots.

2017 Brisbane River Catchment Flood Study (BRCFS) – The BRCFS is a project led by the Queensland Government. The flood study was released in 2017. The 1% AEP flood levels from the flood study is yet to be adopted for application in planning schemes and is for information only. Other % AEPs will be updated with new information from the flood study as part of any relevant changes to City Plan 2014 as soon as is practicable.

Brisbane City Council's Online Flood Tools

Council provides a number of online flood tools:

- to guide planning and development
- to help residents and businesses understand their flood risk and prepare for flooding.

Planning and Development Online Flood Tools

Council's online flood tools for planning and development purposes include:

- FloodWise Property Report
- Flood Overlay Code

For more information on Council's planning scheme and online flood tools for planning and development:

- phone 07 3403 8888 to talk to a Development Assessment Customer Liaison Officer
- visit www.brisbane.qld.gov.au/planning-building
- visit a Regional Business Centre.

Helping residents and businesses be prepared for flooding

Council has a range of free tools and information to help residents and businesses understand potential flood risks and how to be prepared. This includes:

- Flood Awareness Maps
- Flooding in Brisbane – A Guide for Residents
- Flooding in Brisbane – A Guide for Business
- Early Warning Alert Service. Visit www.brisbane.qld.gov.au/earlywarning to register for email, home phone or SMS severe weather alert updates.

Note: The Flood Awareness Maps show four levels of flood likelihood from high likelihood (flooding is very likely to occur) through to very low likelihood (very rare and extreme flood events).

For more information on Council's online flood tools for residents and business:

- Visit www.brisbane.qld.gov.au/beprepared
- Phone (07) 3403 8888.

Brisbane City Council

FloodWise Property Report

Dedicated to a better Brisbane

Report Reference
1522276929920

29/03/2018 08:42:09

Disclaimer

1. Defined Flood Levels and Residential Flood Levels, and the Minimum Habitable Floor Levels are determined from the best available information to Council at the date of issue. These flood levels, for a particular property, may change if more detailed information becomes available or changes are made in the method of calculating flood levels.
2. Council makes no warranty or representation regarding the accuracy or completeness of a FloodWise Property report. Council disclaims any responsibility or liability in relation to the use or reliance by any person on a FloodWise Property Report.

Planning to build or renovate?

For information, guidelines, tools and resources to help you track, plan or apply for your development visit **www.brisbane.qld.gov.au/planning-building**

You can also find the Brisbane City Plan 2014 and Neighbourhood Plans as well as other information and training videos to help with your building and development plans.

Appendix 12

Stormwater Management Plan

Department of Housing and Public Works

Queensland Government

CIVIL & STRUCTURAL ENGINEERING | DESIGN | MANAGEMENT

January 2018

Indooroopilly State School - Proposed New Learning Centre

426 Moggill Road, Indooroopilly QLD 4068

Master Plan - Stormwater Management Plan

Project No.: 18054

Revision: C

Contents

1. Introduction 3
a. Existing Topography 4
b. Existing Land Use 4
c. Proposed Land Use 4
2. Erosion and Sediment Control 5
3. Stormwater Drainage 8
a. Stormwater Quality Management 8
b. Stormwater Quantity Management 9
c. Maintenance 11
d. Flood Zoning 13
e. Stormwater Drainage 15
4. Development Codes 16
5. Conclusions 16
6. References 17
Appendix A - Proposed Master Plan Drawings 18
Appendix B – BCC Floodwise Property Report 19

A PO Box 26, Carina Q 4152
E admin@vtce.com.au
W www.vtce.com.au

Document Status:

REVISION	PREPARED BY	REVIEWED BY	DATE
Draft	A. Alkamachy	A. van Tonder	22/05/18
A	A. Alkamachy	A. van Tonder	25/05/18
B	A. van Tonder	A. van Tonder	01/06/18
C	A. van Tonder	A. van Tonder	01/06/18

This document is produced by vT Consulting Engineers for the benefit and use by the client in accordance with the terms of the agreement. vT Consulting Engineers does not and shall not assume any responsibility or liability whatsoever to any third party arising out of any use or reliance by any third party on the content of this document.

1. Introduction

vT Consulting Engineers Pty Ltd has been commissioned by Ko and Co Architecture Pty Ltd and the Department of Education and Training (DET) to prepare this Stormwater Management Plan for the proposed Master Planning of the Indooroopilly State School at 471 Moggill Road, Indooroopilly QLD, 4068. The site locality is illustrated in Figure1.1.

The following report will detail the civil and structural engineering requirements for the proposed development which consists of the Master Planning for the School.

Address	Indooroopilly State School, 471 Moggill Road, Indooroopilly QLD 4068
RP Description	Lot 285 on SP104042
Total Site Area	31960m^2
Proposed Use	Educational Facility
Local Authority	Brisbane City Council (BCC)

Figure 1.1 Site Layout Plan (Google Maps)

a. Existing Topography

The site is situated in a residential area fronting Moggill Road to the east, Russell Terrace to the south and Witton Creek on its western side. The site falls from the eastern boundary towards Witton Creek.

b. Existing Land Use

The property is currently occupied by Indooroopilly State School.

c. Proposed Land Use

Indooroopilly State School has experienced significant growth over the past year with their student enrolments. As a result, DET have engaged a team of consultants to complete a masterplan for the school which proposes a range of areas for new buildings.

Figure 1.2 Site Master Plan (Ko and Co Architecture Pty Ltd)

2. Erosion and Sediment Control

During construction, each stage is to be assessed for the its erosion risk using the Brisbane City Council Sediment and Erosion Control Hazard Assessment form. The proposed stages will only be exposed for a minimal amount of time during the earthworks required for service trenching and constructing the building platforms. The trenches will only be exposed while the services are being installed and then will be covered by the proposed building works. The International Erosion Control Association Australasia standard drawings and control notes are deemed to be the expected standard of erosion control for this development.

The construction contractor is responsible for ensuring that soil and debris does not leave the site as well as the confines of the construction zone and is not deposited on external roads or existing in-use areas due to the proposed earthworks and construction activity.

Acid Sulphate Soils

The local council is listed in the Glossary (Acid Sulphate soil affected area) in State Planning Policy April 2016, indicating that this development application may require compliance with the State Planning Policy April 2016 acid sulphate soils development objectives.

Acid sulphate soil testing is typically conducted in areas with reduced levels of less than 5.0m Australian Height Datum (AHD) as stated in State Planning Policy April 2016. This policy also states that developments below 20.0m AHD that involve a Material Change of Use or operational works are required to be assessed against the State Planning Policy April 2016 acid sulphate soils development objectives. As the lowest point on this site is an approximate level of RL 8.9, we believe that there is a possibility of acid sulphate soil being present and therefore testing would be likely.

Figure 2.1 provides a visual aid to determining assessable development.

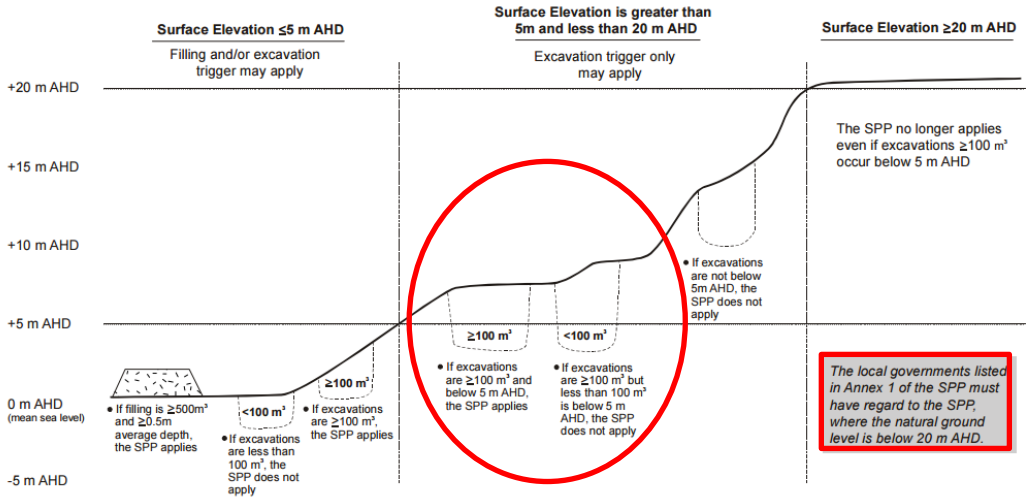


Figure 2.1 Acid Sulphate Soils assessment diagram (Adapted from SPP Water Quality State Interest Guideline 2016)

The requirements for Acid Sulphate Testing will be confirmed by a geotechnical engineer prior to the detailed design stage of this proposed development.

Land Disturbing Activities

Important causes/issues of erosion for this site would consist of the following:

- Precipitation and consequent run-off
- Stripping and removal of topsoil
- Removal of fill
- Other earthwork operations
- Heavy vehicle use on site
- Wind erosion

The proposed development is a short construction period which will be programmed so that the shortest period of time elapses between ground cover removal and restoration.

Erosion and Sediment Control Measures

Sediment control filter fabric will be securely placed around the downstream boundaries of the construction site. This will ensure sediment is trapped before being released into the catchment.

An ESC measure will be provided at any vehicular access points to the site. Construction and maintenance details are given in Appendix C. A temporary construction entrance will be provided from Richmond Road for access during construction.

A filter sock sediment trap will be utilized on all downstream stormwater inlets. Refer Appendix C for construction and maintenance details.

No clearing will be undertaken unless preceded or accompanied by installation of adequate run-off and sediment control measures, as described above.

Following practical completion of the project a minimum of 70% coverage of all soil with ground cover (i.e. topsoiling and seeding) will be provided within 30 calendar days.

During the demolition and construction phases, spraying of water will be used with care to act as a dust suppression method.

Monitoring and Maintenance Programs

Water discharge from the site will adhere to a total suspended solid content of less than 50 milligrams per litre and a pH range of between 6.5 and 8.5 at all times. If the pH of the flocculated water is not achieved, then pH adjustments will be required. This could possibly be done by a dosing of lime.

Site personnel will inspect all erosion and control measures at least at the following frequencies:

- Daily during construction works,
- Weekly when construction works are not happening,
- Within 24 hours of expected rain, and
- Within 18 hours of an impacting rainfall event.

All erosion and sediment control measures that have an order of efficiency below 75% will be corrected by the end of that working day.

3. Stormwater Drainage

Existing site stormwater flows towards the front of the site into a gully outlet headwall discharging to Witton Creek. It is proposed that stormwater runoff from the proposed development will also be discharged Witton Creek.

a. Stormwater Quality Management - Individual Stages

State Planning Policy

The State Planning Policy April 2016 (SPP2016) applies for stormwater quality management and management of new or expanded non-tidal artificial waterways applies to development that is outlined below in Table 3.1.

SPP2016 PART E: INTERIM DEVELOPMENT ASSESSMENT REQUIREMENTS. STATE INTEREST – WATER QUALITY	YES / NO
Material change of use for urban purposes that involves a land area greater than 2500m^2 that:	
will result in an impervious area greater than 25% of the net developable area	NO
Will result in 6 or more dwellings	N/A
Reconfiguring a lot for urban purposes that involves a land area greater than 2500m^2 and will result in six or more lots:	NO
Operational works for urban purposes that involve disturbing more than 2500m^2 of land	NO

Table 3.1: Water Quality Objectives for the Individual Stages

As the individual stages of the proposed development are less than 2500m^2, they do not trigger any applicable items in the above Table 3.1, therefore the SPP2016 is not applicable and compliance is not expected by the local government authority for individual stages.

b. Stormwater Quality Management - Master Plan

State Planning Policy

The State Planning Policy April 2016 (SPP2016) applies for stormwater quality management and management of new or expanded non-tidal artificial waterways applies to development that is outlined below in Table 3.2.

SPP2016 PART E: INTERIM DEVELOPMENT ASSESSMENT REQUIREMENTS. STATE INTEREST – WATER QUALITY	YES / NO
Material change of use for urban purposes that involves a land area greater than 2500m^2 that:	
will result in an impervious area greater than 25% of the net developable area	YES
Will result in 6 or more dwellings	NO
Reconfiguring a lot for urban purposes that involves a land area greater than 2500m^2 and will result in six or more lots:	YES
Operational works for urban purposes that involve disturbing more than 2500m^2 of land	YES

Table 3.2: Water Quality Objectives for the Master Plan

As the total site is more than 2500m^2 the proposed development for the master plan triggers one or more applicable items in the above Table 3.2, therefore, the SPP2016 is applicable and compliance is expected by the local government authority. To achieve the above SPP2016 outcomes the development is to:

- avoid or minimise development impacts arising from altered stormwater quality and flow by providing for development and construction activities in accordance with acceptable design objectives
- avoid or minimise development impacts of waste water (other than contaminated stormwater) on water quality objectives
- avoid or minimise development impacts arising from the creation or expansion of non-tidal artificial waterways such as urban lakes

c. Stormwater Quality Treatment - Master Plan

For completion of each individual stage, stormwater quality treatment is not a requirement; however, for completion of the master plan, a stormwater quality treatment system needs to be provided. An indicative design for a bioretention system is in accordance with the Deemed to Comply Solutions from Water Sensitive Urban Design Technical Design Guidelines (by Water by Design) and a typical system is shown in the figure below.

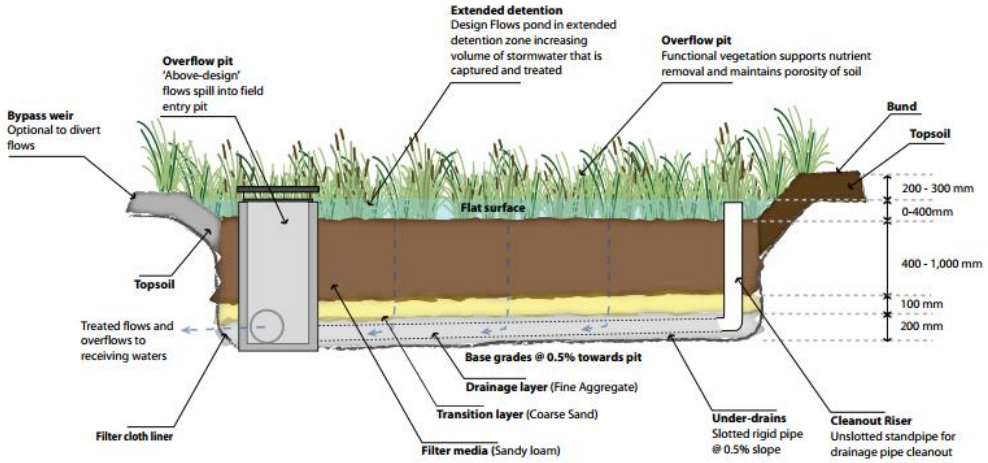


Figure 3.1: Water by Design Bioretention System

The bioretention system is designed to treat the stormwater runoff by filtering the runoff through densely planted vegetation and percolating the runoff through the filter media. As per figure 2 in section 6.1 of Deemed to Comply Solutions, the bioretention system is to be designed for the Central Region (Greater Brisbane).

In order to meet the deemed to comply design requirements for a commercial bioretention system in the Greater Brisbane region, the bioretention system filter media area is to amount to 1.6% of the total catchment area which is 31962m^2, giving a bioretention basin surface area of approximately 511m^2. An alternative in ground proprietary product may also be suitable in accordance with BCC guidelines.

The size of the bioretention basin or stormwater treatment system is to be determined during detailed design and it is recommended that a MUSIC model be prepared to confirm the size. Additional space would be required for batters and access etc. to be confirmed during detailed design.

d. Stormwater Quantity Management

BCC's Planning Scheme for stormwater drainage states that stormwater detention requirements may be waived where:

- The development will not cause adverse impacts or actionable nuisance to surrounding properties;
- The site discharges directly into the lower catchments of creeks or major drains where it would generally be undesirable to have detention where it may allow peak flows from the site to coincide with the wider catchment flood peak;
- the development site is located entirely within the 1% AEP floodplain (waterway/creek or river flooding sources).

In accordance with BCC's planning scheme stormwater detention for this site is not required as it discharges directly into Perrin Creek.

e. Maintenance

Construction Phase Management Plan

Potential construction phase impacts include the following:

- Sedimentation and erosion
- Management of contaminated soils and materials on the site Construction Material (such as cement)

General

The objective of the Construction Phase Management Plan is to comply with the requirements of the Queensland Environmental Protection Act 1994 and Environmental Protection (Water) Policy 2009 so that the environmental values of effected receiving waters are maintained or enhanced. In essence the purpose of the Plan is to prevent polluted stormwater being discharged to the local waterways.

Performance Indicators

The management is not being effective when any of the following occur during the construction phase of the project.

- The required water quality objectives are not achieved,
- Contaminated water is released off site.

Construction Phase Management of Sedimentation and Erosion

Existing vegetation from site will be removed in stages as required to reduce the likelihood of surface erosion. A sediment and siltation fence will be erected around the property boundary to ensure that sediment is not washed off site and onto adjacent properties or roads. Entry and exit from the site will be restricted to a single stabilised location to minimise the rise of onsite transport of silt sediment or mud. It is anticipated that a layer of crushed rock will provide the necessary stabilisation of the access route. If required a specific bunded wash

down area will be provided for the cleaning of plant before leaving the site and all wash down waste water will be collected. In the event that debris or sediment leaves the site it will be cleaned.

Management of Contaminated Soils Materials

There are no contaminated soils materials fill on the site. The site is not listed on the public contaminated sites register.

Management of Imported Materials

Any material imported to the site including construction materials will be stockpiled in a location where it cannot contaminate the stormwater system or stormwater runoff.

Complaint Response

The contractor will erect signage at the entrance to the works with contact information, including afterhours contact numbers. The contractor will properly deal with all complaints.

Monitoring and Reporting

All sediment and erosion control devices will be checked daily and after rainfall events by the construction site supervisor. Defective or full devices will be cleaned and repaired as required. Regular inspections and maintenance of the storm water system will be carried out by the property owner. The civil components (structural and erosion) are to be assessed by a suitably qualified engineer as required.

Lifecycle cost assessment

There will be no abnormal capital or recurrent costs for the proposed stormwater strategy.

f. Flood Zoning

There is no BCC flood planning area that applies to the proposed development site. Figure 4.1 below, adapted from the BCC City Plan 2014 Interactive Mapping shows the extent of the creek/waterway flood planning area in relation to the site.

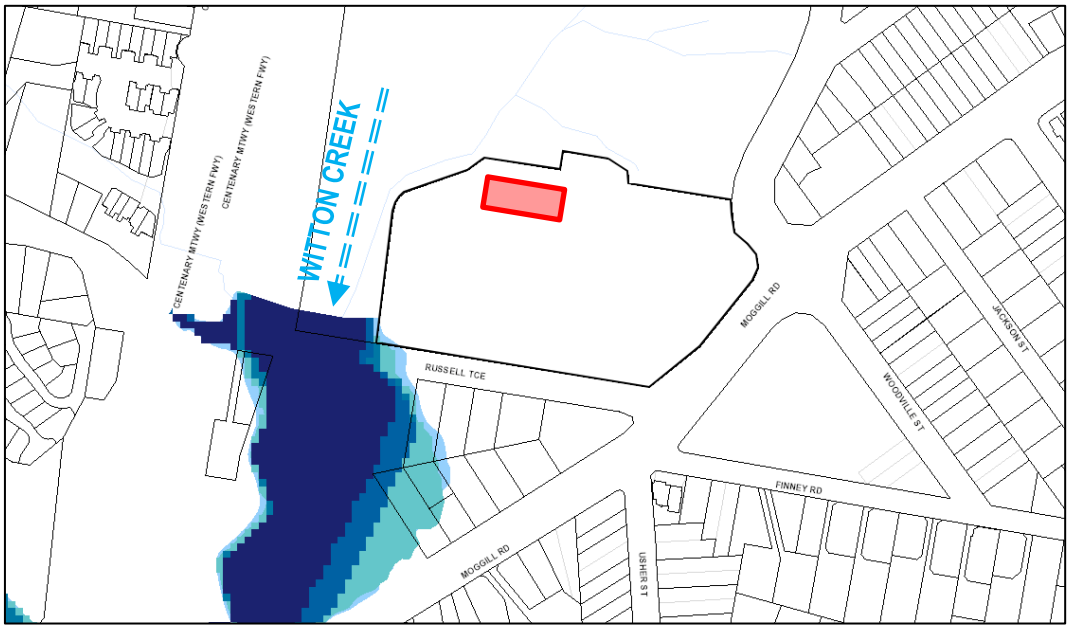


Figure 4.1 Adaption of BCC's creek/waterway flood planning area mapping

Figure 4.2 below, adapted from the BCC City Plan 2014 Interactive Mapping shows the extent of the overland flow planning area in relation to the site.

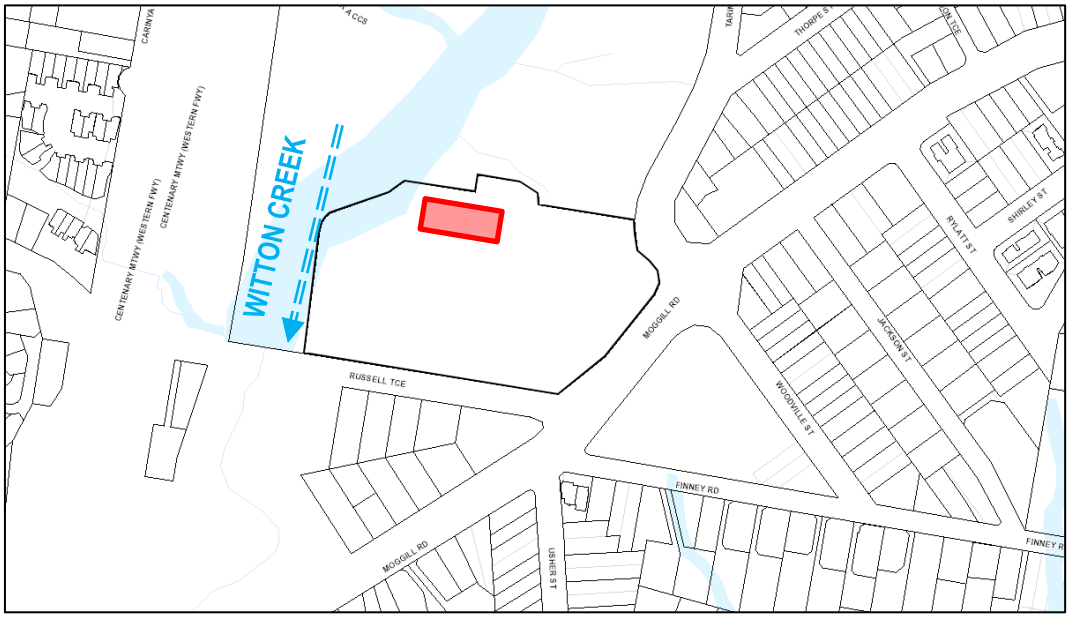
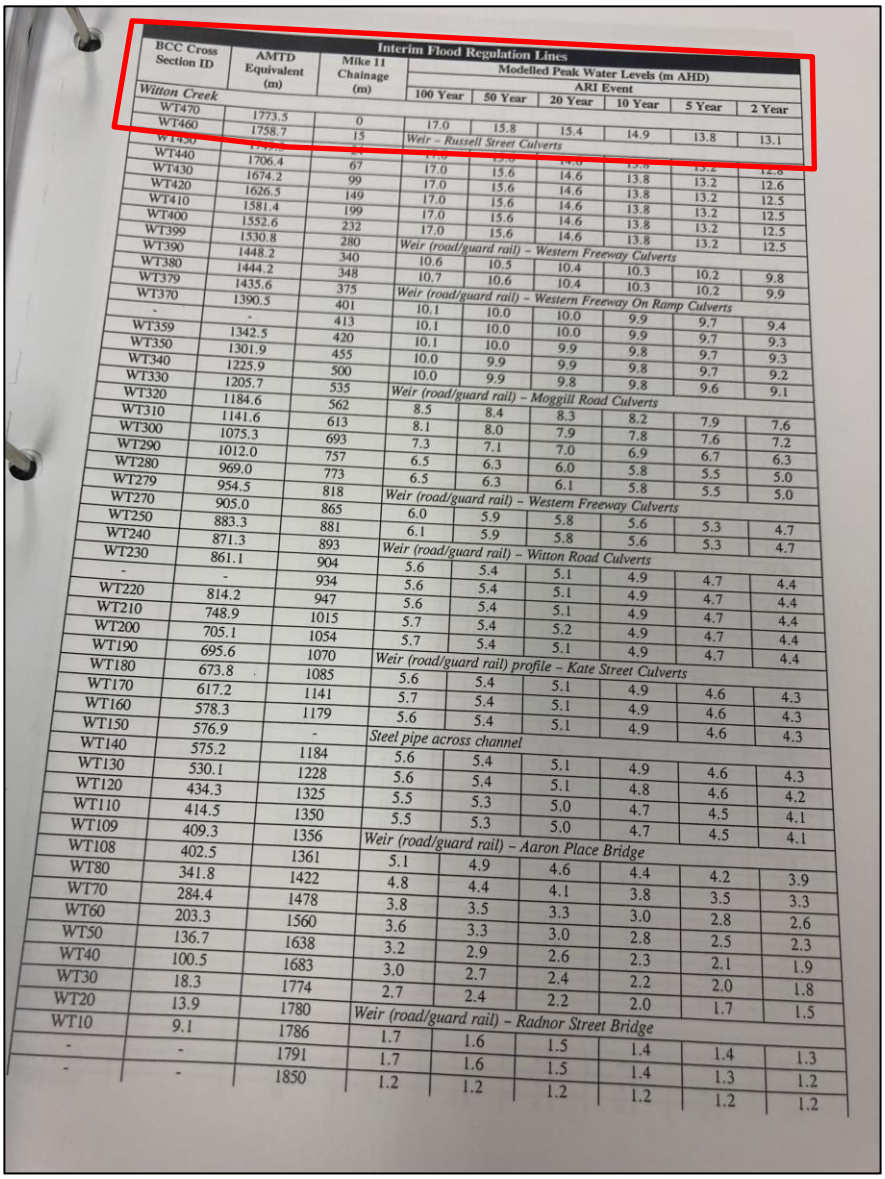


Figure 4.2 Adaption of BCC's overland flow flood planning area mapping

As shown from figures 4.1 and 4.2 above, the proposed development site is located outside of BCC's flood and overland flow mapped hazard areas. The proposed flood level for the new GLA building is to be determined to be at a level that is sufficient to prevent ingress of runoff from the surrounding areas in accordance with BCC Flood Overlay Code.

The Witton Creek Stormwater Management Plan Technical Report prepared and published by Brisbane City Council has been obtained for the site. The modified peak water levels (m AHD) obtained from the report indicated 100-year ARI of RL17.0m AHD (WT470) which as shown on figure 4.3 does not impact the development site. Based on the 100-year ARI of RL17.0m AHD and 500mm free board to habitable floor level, the minimum level is RL17.5. The lowest floor level proposed is RL20.3 (Level 0) which provides suitable freeboard.



Interim Flood Regulation Lines

BCC Cross Section ID	AMTD Equivalent (m)	Mike 11 Chainage (m)	Modelled Peak Water Levels (m AHD) ARI Event 100 Year	50 Year	20 Year	10 Year	5 Year	2 Year
Witton Creek								
WT470	1773.5	0	17.0	15.8	15.4	14.9	13.8	13.1
WT460	1758.7	15	*Weir – Russell Street Culverts*					
WT450	[illegible]	[illegible]	[illegible]					
WT440	1706.4	67	17.0	15.6	14.6	13.8	13.2	12.6
WT430	1674.2	99	17.0	15.6	14.6	13.8	13.2	12.5
WT420	1626.5	149	17.0	15.6	14.6	13.8	13.2	12.5
WT410	1581.4	199	17.0	15.6	14.6	13.8	13.2	12.5
WT400	1552.6	232	17.0	15.6	14.6	13.8	13.2	12.5
WT399	1530.8	280	*Weir (road/guard rail) – Western Freeway Culverts*					
WT390	1448.2	340	10.6	10.5	10.4	10.3	10.2	9.8
WT380	1444.2	348	10.7	10.6	10.4	10.3	10.2	9.9
WT379	1435.6	375	*Weir (road/guard rail) – Western Freeway On Ramp Culverts*					
WT370	1390.5	401	10.1	10.0	10.0	9.9	9.7	9.4
-	-	413	10.1	10.0	10.0	9.9	9.7	9.3
WT359	1342.5	420	10.1	10.0	9.9	9.8	9.7	9.3
WT350	1301.9	455	10.0	9.9	9.9	9.8	9.7	9.2
WT340	1225.9	500	10.0	9.9	9.8	9.8	9.6	9.1
WT330	1205.7	535	*Weir (road/guard rail) – Moggill Road Culverts*					
WT320	1184.6	562	8.5	8.4	8.3	8.2	7.9	7.6
WT310	1141.6	613	8.1	8.0	7.9	7.8	7.6	7.2
WT300	1075.3	693	7.3	7.1	7.0	6.9	6.7	6.3
WT290	1012.0	757	6.5	6.3	6.0	5.8	5.5	5.0
WT280	969.0	773	6.5	6.3	6.1	5.8	5.5	5.0
WT279	954.5	818	*Weir (road/guard rail) – Western Freeway Culverts*					
WT270	905.0	865	6.0	5.9	5.8	5.6	5.3	4.7
WT250	883.3	881	6.1	5.9	5.8	5.6	5.3	4.7
WT240	871.3	893	*Weir (road/guard rail) – Witton Road Culverts*					
WT230	861.1	904	5.6	5.4	5.1	4.9	4.7	4.4
-	-	934	5.6	5.4	5.1	4.9	4.7	4.4
WT220	814.2	947	5.6	5.4	5.1	4.9	4.7	4.4
WT210	748.9	1015	5.7	5.4	5.2	4.9	4.7	4.4
WT200	705.1	1054	5.7	5.4	5.1	4.9	4.7	4.4
WT190	695.6	1070	*Weir (road/guard rail) profile – Kate Street Culverts*					
WT180	673.8	1085	5.6	5.4	5.1	4.9	4.6	4.3
WT170	617.2	1141	5.7	5.4	5.1	4.9	4.6	4.3
WT160	578.3	1179	5.6	5.4	5.1	4.9	4.6	4.3
WT150	576.9	-	*Steel pipe across channel*					
WT140	575.2	1184	5.6	5.4	5.1	4.9	4.6	4.3
WT130	530.1	1228	5.6	5.4	5.1	4.8	4.6	4.2
WT120	434.3	1325	5.5	5.3	5.0	4.7	4.5	4.1
WT110	414.5	1350	5.5	5.3	5.0	4.7	4.5	4.1
WT109	409.3	1356	*Weir (road/guard rail) – Aaron Place Bridge*					
WT108	402.5	1361	5.1	4.9	4.6	4.4	4.2	3.9
WT80	341.8	1422	4.8	4.4	4.1	3.8	3.5	3.3
WT70	284.4	1478	3.8	3.5	3.3	3.0	2.8	2.6
WT60	203.3	1560	3.6	3.3	3.0	2.8	2.5	2.3
WT50	136.7	1638	3.2	2.9	2.6	2.3	2.1	1.9
WT40	100.5	1683	3.0	2.7	2.4	2.2	2.0	1.8
WT30	18.3	1774	2.7	2.4	2.2	2.0	1.7	1.5
WT20	13.9	1780	*Weir (road/guard rail) – Radnor Street Bridge*					
WT10	9.1	1786	1.7	1.6	1.5	1.4	1.4	1.3
-	-	1791	1.7	1.6	1.5	1.4	1.3	1.2
-	-	1850	1.2	1.2	1.2	1.2	1.2	1.2

Figure 4.3 Witton Creek flood levels obtained from The Witton Creek Technical Report

A site inspection to the school ground was conducted on 27th April 2018 showed the existing stormwater inlets and pipes in the vicinity of the proposed new building and the astro turf play area are heavily blocked with leaves and debris. Further discussion with school representatives, has determined that the astro turf play area has showed signs of ponding in previous heavy rainfall events. The overland flow and ponding issue may be caused by blocked pipes and pits as well as a lack of stormwater inlet pits in the play area. Therefore, it's required that all stormwater pits and pipes must be cleaned to the outlets to prevent future ponding.

The proposed new building will help reduce overland flow, however, it will not eliminate the existing overland flow issues. Additional stormwater pits might be required in the astro turf play area to ensure sufficient runoff capture during heavy rainfall events, which is outside of this scope of works.

It was also determined that a temporary building is currently located within a mapped overland flow overlay but is excluded from this scope of works. The school is to ensure there is a suitable flood warning and a management plan in place to deal with a flood event

g. Stormwater Drainage

The design of the stormwater drainage system is to be in accordance with the local council infrastructure design guidelines and the Queensland Urban Drainage Manual (QUDM).

As the proposed structure and extent of works is not more than 2500m^2, it is anticipated that the requirements to provide stormwater quality treatment in accordance with the current State Planning Policy will not be triggered and therefore stormwater treatment devices will be required.

Roof water from the proposed structure is to be captured in gutters and piped to the existing roof water drainage system. The design of the roof water system is to be by the hydraulic engineer.

Stormwater detention will not be required as the site is within close proximity to the creek and will be discharging directly to the creek along the western boundary of the site.

A suitable drainage system is to be provided behind any proposed retaining wall.

Water proofing of any retaining walls and structures is to be to the architect's details.

Site Stormwater Drainage

It is proposed to install new stormwater pipes from the proposed buildings to convey stormwater to discharge to Witton Creek. Refer to the preliminary drawings in Appendix A.

The discharge point to be located as far as possible from the structures to avoid introducing abnormal moisture conditions to the founding strata. The final outlet location is to be confirmed on site and may need to be amended to avoid any existing trees located along the creek bank.

4. Development Codes

It is suggested that the following Local Codes are applicable and are to be completed as a minimum to address the proposed development of each stage:

- BCC Stormwater Code
- Flood Overlay Code

5. Conclusions

vT Consulting Engineers Pty. Ltd. has undertaken a review of Stormwater Management required for the proposed development located at Indooroopilly State School, 471 Moggill Road, Indooroopilly QLD 4068.

Based on all the findings outlined in this report, vT Consulting Engineers Pty. Ltd. believes that there are no significant Stormwater Management issues in relation to this development.

6. References

AustIECA (2016). Book 6 Standard Drawings. Accessed August 30 2016. www.google.com.au/webhp?sourceid=chrome-instant&ion=1&espv=2&ie=UTF-8#q=ieca%20standard%20drawings

BCC (2014). Brisbane City Plan 2014 document – Schedule 6 – Infrastructure design priority infrastructure plan. Accessed September 17 2014. www.brisbane.qld.gov.au/planning-building/planning-guidelines-tools/brisbane-city-plan-2014/document/schedule-6/infrastructure-design-psp

BCC (2016a). Brisbane Standard Drawings (BSD), Brisbane City Council. Accessed August 30 2016. www.google.com.au/webhp?sourceid=chrome-instant&ion=1&espv=2&ie=UTF-8#q=bcc%20standard%20drawings

BCC (2016b). Brisbane City Council Mapped Waterway Corridor Overlay http://cityplan2014maps.brisbane.qld.gov.au/CityPlan/. Accessed October 04 2016.

BCC (2016c). Flood Awareness Map, Brisbane City Council. Accessed August 30 2016. http://floodinformation.brisbane.qld.gov.au/fio/

Department of Infrastructure, Local Government and Planning (DILGP 2016a). State Planning Policy (SPP). Accessed August 30 2016. http://www.dilgp.qld.gov.au/planning/state-planning-instruments/state-planning-policy.html

DILGP (2016b). State Planning Policy-State Interest Guideline, Water Quality. Accessed August 30 2016. http://www.dilgp.qld.gov.au/resources/guideline/spp/spp-guideline-water-quality.pdf

GHD (2012). Port of Brisbane PTY LTD. Port of Brisbane Acid Sulphate Soil Management Plan. Accessed December, 07 2016. https://www.portbris.com.au/PortBris/media/General-Files/Environment/PBPL-Acid-Sulfate-Soils-Management-Plan-2012.pdf

Google Earth (2016). Accessed August 30 2016. www.google.com.au/webhp?sourceid=chrome-instant&ion=1&espv=2&ie=UTF-8#q=google%20earth%20queensland

PBPL (2015). Port of Brisbane Land Use Plan. Accessed December 07 2016. file:///Z:/Standards/Design%20Info%20-%20Civil/Port%20of%20Brisbane%20Land%20Use%20Plan/Brisbane-Port-Land-Use-Plan-2015.pdf

Queensland Government (1994). *Environmental Protection Act.* Accessed August 30 2016. www.legislation.qld.gov.au/legisltn/current/e/envprota94.pdf

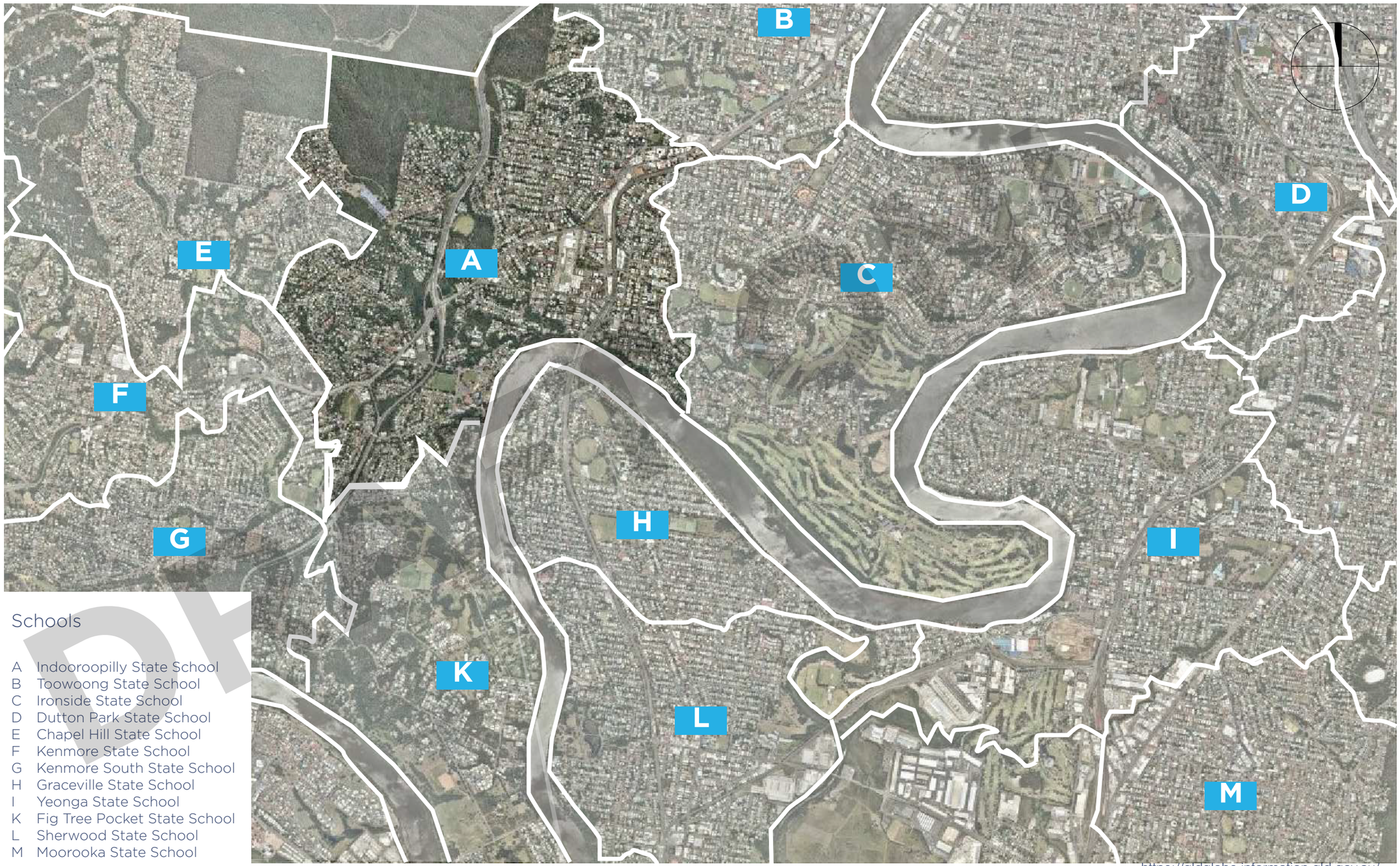
Queensland Government (2009). *Environmental Protection (Water) Policy.* Accessed August 30 2016. www.ehp.qld.gov.au/water/policy/

Water by Design (2006). Water Sensitive Urban Design, Technical Design Guidelines for South East Queensland. Accessed August 10 2016. http://healthywaterways.org/u/lib/mob/20151210164506_9581d6262ed405324/2006_wsudtechdesignguidelines-4mb.pdf

Water by Design (2010). *MUSIC* Modelling Guidelines. SEQ Healthy Waterways Partnership. Brisbane, Queensland. ISBN 978-0-9806278-4-8. Accessed 01 August 2016. http://healthywaterways.org/u/lib/mob/20141110114128_5aed87c313f50ca3d/2010_musicmodellingguidelines_v10-025mb.pdf

Appendix A - Proposed Master Plan Drawings

1.1 Master Planning - Indooroopilly State School
Location Plan



Schools

A Indooroopilly State School
B Toowoong State School
C Ironside State School
D Dutton Park State School
E Chapel Hill State School
F Kenmore State School
G Kenmore South State School
H Graceville State School
I Yeonga State School
K Fig Tree Pocket State School
L Sherwood State School
M Moorooka State School

https://qldglobe.information.qld.gov.au/

Master Plan Concept Plan - Surrounding Schools - 1:30000

1.2 Master Planning - Indooroopilly State School
Existing Site Plan

http://maps.au.nearmap.com/

Master Plan Map - Indooroopilly SS - 1:1000

1.3 Master Planning - Indooroopilly State School Existing Building Stock

In workshop 1 on 16th March 2018, each building, its use, current condition & future use was discussed.
A record of these discussions are below with small and large scale considerations for the masterplan highlighted in blue.
The Master Plan was developed based on these discussions.

A Block (Administration)
- Location of the School Administration was questioned by the School as it does not have a strong presence from the Street and is difficult for visitors to find.
- Given the arrangement of the platforms on the site (junior and senior campus), the current location is central for the students and should remain around this area but could be flagged for a potential development site with the library

Given existing condition of this building and use, there is the possibility for future development/at least 2 storey building for this area with E Block

B Block (Yr 5, Yr 6 + Uniform Shop)
- Year 6 & 5 currently in this building
- Covered lunch area to ground floor
- Toilets located on ground floor
- **Classrooms are not large enough**
- **No classrooms have store rooms or any breakout spaces**
- **Classroom 6B & 5D are the most undersized classrooms**
- Uniform shop currently located on ground floor

Given the classrooms are undersized, this building could be flagged for possible future development with the small music classroom building, creating a larger covered play area with larger classrooms/breakout spaces/ storage above. The new building footprint could extend to the tennis courts

C Block (Yr4)
- Currently all year 4 is in this building
- Partially closed in with verandas
- **No withdrawal zones**
- **Centre of Network located in this building**
- Eating area underneath & student toilets
- Some storage

The only building which currently houses an entire year level. Teaching and classrooms are limited by the lack of storage and breakout spaces.

D Block (Prep, Yr 1 & Yr2)
- Good proximity to outdoor playspaces – Prep should remain in this area due to the outdoor learning areas and close
- Withdrawal rooms are only on Level 1 & 2, but none on ground floor, some classrooms have store rooms
- **Verandahs on this building are not weatherproof –** teachers do prefer to extend the teaching space into the verandahs but cannot when it is raining
- **Current design issue = when it rains, water runs towards the building on both sides of the ground floor, instead of away from the building**

Hall
- Currently undersized - entire School cannot fit in the Hall
- Music is currently practiced in this facility but the Schools preference would be to have a specific room for rehearsals due to noise

E Block (Library + Yr 5)
- **Library is significantly undersized (currently the size of 2 classrooms)**
- **Existing classrooms on the ground floor have ongoing issues with water ingress when there are storms**
- Classroom sizes are inadequate
- PE, SEP & CHAP storage
- Science storage

Given existing condition of this building and lack of space in the library area, there is the possibility for future development/at least 2 storey building for this area with A Block

F Block (Yr 2, Yr 3 & After School Care)
Classrooms are an adequate size with verandahs
- **No withdrawal or storage spaces in classrooms**

H Block (Prep)
- Current size of classrooms is adequate
- Withdrawal spaces are provided

Buildings to remain, but as these are 'temporary', they may be flagged to be replaced by more permanent building stock (with multiple levels) in the future

G Block (Prep & Yr1/Prep)
- Current size of classrooms is adequate
- Withdrawal spaces are provided

Buildings to remain, but as these are 'temporary', they may be flagged to be replaced by more permanent building stock (with multiple levels) in the future

1 - Amenities (Prep, Yr 1-3)
- **Existing arrangement is dated and has not been designed for anti-bullying**

Preference is to demolish this toilet block and provide new toilet facilities in a larger building that completes the corner of this site

M1 & M2 (Yr 3 + support services)
- **Both currently have asbestos**

Both modulars need to be removed for a new classroom building which will enclose the courtyard area and connect back with a lift to Block A

M3, M5 & M6 (Yr 3)
- 4 Year 3 classrooms to be temporarily located here (2 are currently in the library and one is in the music block)

All modulars need to be removed once a new building has been completed to return this green space back to the oval

M4
Aged demountable – preference to be demolished

Canteen & Undercover Area (T & 2)
- Used for wet weather PE classrooms
- Tuckshop/Canteen recently was renovated and is a sufficient size for the School

Spaces are sufficient – no requirement for upgrade in masterplan

Outside of Hours Facilities
- After School care is located in the Hall and in F Block (2 classrooms dedicated for this)
- **Tennis courts are used outside of hours**
- **Pool is used outside of hours**
- Oval is not used by the community and is for School only

Dental Clinic
- Not many Indooroopilly SS students use this facility
- **Concerns from School about student security with external people accessing the site**

Schools preference would be for Q Health to not operate on the School grounds. This existing building could be refurbished for smaller staff areas (not preferable for classroom spaces as the area is too restricted in size for a larger development given its proximity to the pool)

4 (Music Block)
- Currently Year 3 classroom (to move to demountable on oval)
- Was the former library
- **Of no significance to the School**
- Mainly choral lessons occur here, not music lessons

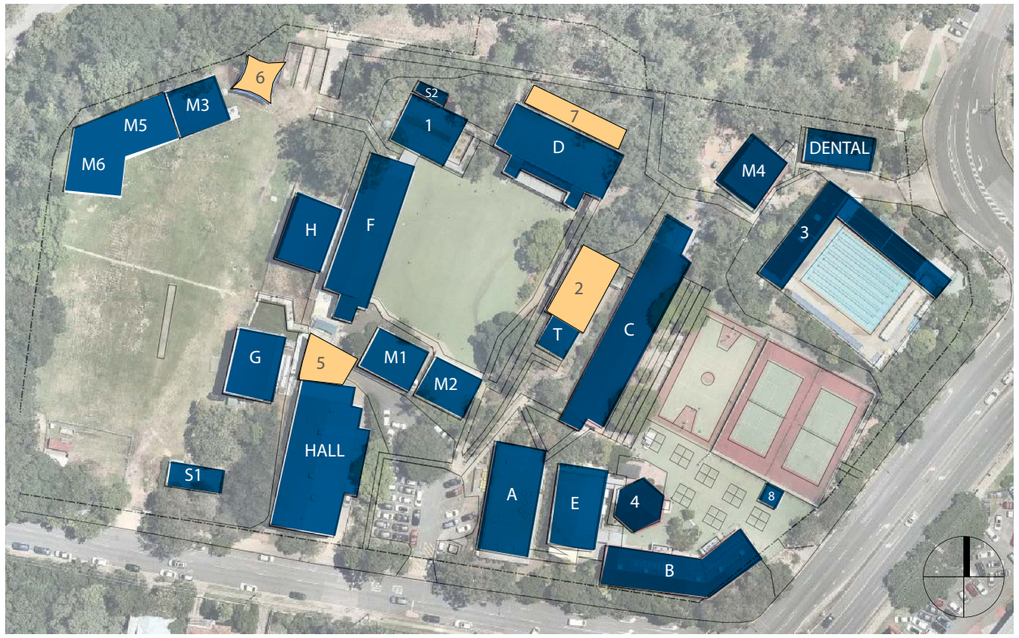
Given this is a single storey building and is of no Heritage significance, it could be flagged for possible future development with C Block, becoming part of a precinct creating a larger covered play area with larger classrooms/ breakout spaces/storage above

S1 - Grounds Keepers Shed
- Currently houses all of the equipment for the groundskeeper as well as PE storage

Location of the shed was discussed – PE equipment could be housed in another building facing the oval to reduce the size of the shed required by the Groundskeeper if the shed is required to be removed from its current location

Lower Oval
- **Cricket nets are unused and do not need to be replaced if they are removed from this site**
- Existing play equipment needs to stay as it is well used by the students
- **Access to the oval from the buildings currently via non compliant stairs**

Current DDA Access
- If students need to access higher or lower levels on the site, this is generally achieved by using the external paths along the road to access these levels
- Music and library will come to these students
- Management plan in place for classrooms as these students get older
- PWD Toilet and shower should be considered in new build



DRAFT ONLY

1.4 Master Planning - Indooroopilly State School
Existing Key Issues

Classroom Building lacks storage & withdrawal spaces - future refurbishments to consider this

Removal of temporary buildings - returning this area back to green space

Demolish permanent demountables

Preference for Qld Health to relocate off premise and refurbish existing building for smaller staff spaces

Existing pathway is uncovered - requires to be covered

BCC is currently upgrading Drop Off area along Tarinaga Pde

Access (ramp/stairs) are non compliant - require upgrading

Fixed play equipment is dated and requires replacement

Toilet facilities are dated (re: anti-bullying) and need to be replaced

Administration and Staff Facilities are insufficient. Location is currently central to the campus (between junior and senior campus) but facilities are dated and inadequate in size

Hall is currently undersized and does not accomodate entire school

Current music room/facility - preference would be to relocate music to the Hall

2.1 Master Planning - Indooroopilly State School Concept Plan

Buildings

A + E	New administration & library building with basement carparking
B	General Learning, uniform shop + toilets
C	General Learning, toilets + CON
D	General Learning
F	General Learning
G	General Learning with undercroft
H	General Learning
HALL	Full sized basketball/ netball, Stage, Music Room & General Learning
T	Canteen
1A	General Learning
1B	(Bottom Infill of 2 levels)
2	Undercover Area
3	Pool & Amenities
4	Covered Play Area
5	Covered Prep Area

Enrolment Capacity
Staging Proposal:

Current Capacity: 1,112
Stage 1A of new build: 1,304
Stage 1B of new build: 1,400
Masterplan Complete: 1,496

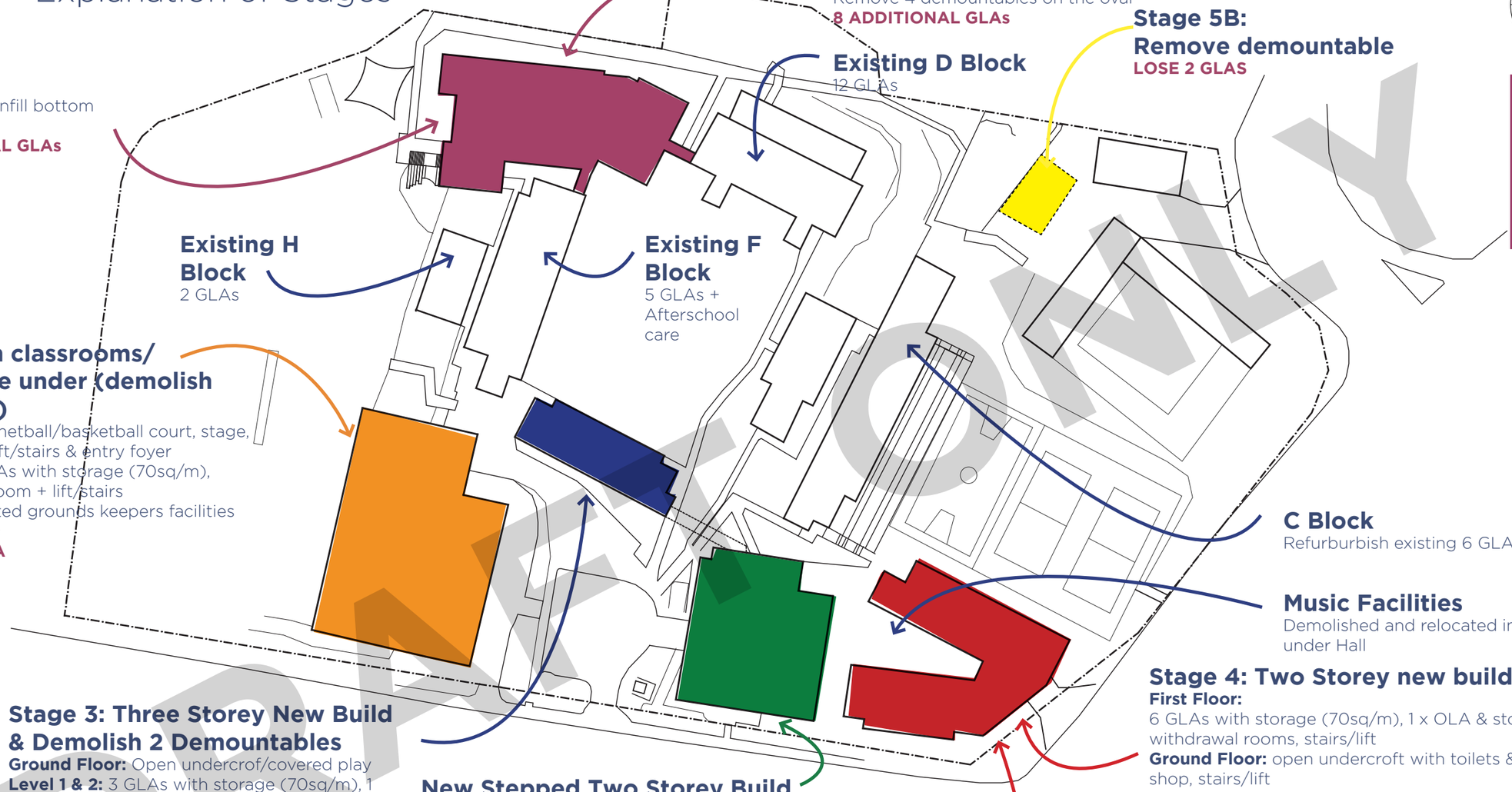
Legend

- Pedestrian
- Covered Walkways
- Covered Areas
- Driveway/Uncovered Parking
- Existing Buildings
- Refurbish Existing Building
- Stage 1A & Stage 1B New Build (top 2 levels infilled for Stage 1 & bottom 2 levels infilled for Stage 2)
- Possible future development (3 storeys including undercroft)
- Possible future development (2 storeys - non teaching spaces with basement carpark)
- Possible future development (3 storeys)
- upgrade existing stairs/ramp to be compliant with current standards
- new elevated walkway

Concept Plan 1:1000
April 2018

DRAFT

Master Planning - Indooroopilly State School
Explanation of Stages



Stage 1A:
11 new classrooms & 1 FLA
Remove 4 demountables on the oval
8 ADDITIONAL GLAs

Stage 1B:
4 new GLAs (infill bottom two levels)
4 ADDITIONAL GLAs

Existing D Block
12 GLAs

Stage 5B:
Remove demountable
LOSE 2 GLAS

Existing H Block
2 GLAs

Existing F Block
5 GLAs + Afterschool care

New Hall with classrooms/ music/storage under (demolish demountable)
Ground Floor: Full netball/basketball court, stage, amenitie, storage, lift/stairs & entry foyer
Undercroft: 3 x GLAs with storage (70sq/m), 1 x 90sq/m music room + lift/stairs
Oval Level: Relocated grounds keepers facilities + covered play area
1 ADDITIONAL GLA

Enrolment Capacity Staging Proposal:
Current Capacity: 1,112
Stage 1A of new build: 1,304
Stage 1B of new build: 1,400
Masterplan Complete: 1,496

C Block
Refurburbish existing 6 GLAs

Music Facilities
Demolished and relocated into & under Hall

Stage 4: Two Storey new building
First Floor:
6 GLAs with storage (70sq/m), 1 x OLA & storage, 3x withdrawal rooms, stairs/lift
Ground Floor: open undercroft with toilets & uniform shop, stairs/lift

Existing Block B to be demolished = 6 undersized classrooms with no storage, toilets & unfirom shop
NO ADDITIONAL GLAs GAINED

Stage 3: Three Storey New Build & Demolish 2 Demountables
Ground Floor: Open undercrof/covered play
Level 1 & 2: 3 GLAs with storage (70sq/m), 1 withdrawal space + lift/stairs
Can accomodate 6 GLAs in total
3 ADDITIONAL GLAs

New Stepped Two Storey Build
Non teaching space :
New Administration and Library Building (no classrooms)
Demolish Block A & Block E (lose 3 classrooms)
Basement carparking: 14 carpark basement carparkts (including one PWD carpark with access to lift and stairs)
LOSE 3 GLAS

Stage 5A: Infill to Block B undercroft
Ground Floor: open undercroft with toilets & uniform toilets, stairs/lift & 5 new GLAs (demountable is removed as part of this stage)
3 ADDITIONAL GLAs

Junior Platform Classroom numbers (after Stage 3 is completely infilled):
NEW BUILDING = 16 GLAs
H BLOCK = 2 GLAs
BLOCK F = 5 GLAs + Afterschool care
BLOCK D = 12 GLAs
Stage 3 = 6 GLAS
HALL = 3 GLAs + music facilities
Junior Platform = 44 GLAS in total

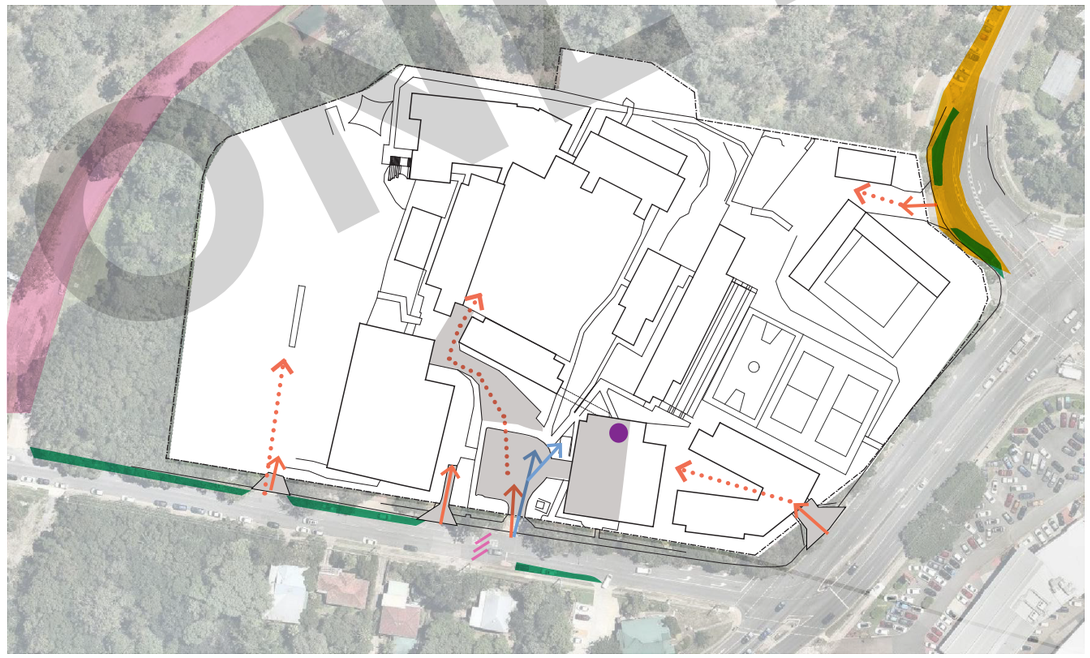
Senior Platform Classroom numbers (after Stage 5):
New classroom numbers = First Floor replaces the same classroom numbers as Block B but adds an OLA, lift and 3 withdrawal rooms
Classroom Numbers:
E BLOCK = 3 GLAs **lost**
STAGE 4 B BLOCK = 6 GLAs (First Floor infill only)
C BLOCK = 6 GLAs
DEMOUNTABLE M4 removed = 2 GLAS **lost**
STAGE 5 B BLOCK = 4 GLAs (Ground floor Infill)
Senior Platform = 11 GLAs in total (if 3 GLAs are lost with the demolition of Block E)

DRAFT ONLY

2.2 Master Planning - Indooroopilly State School Landscape Plan

Landscape Plan 1:1000

2.3 Master Planning - Indooroopilly State School
Circulation (Access, Wayfinding & Movement) Overlay



Circulation

- Pedestrian Pathways
- Covered Walkways or Area
- Walkway covered by building overhang
- Pedestrian entry through Moore Park
- upgrade eixsting stair/ramp to comply with current standards
- elevated walkway

Vehicular Movement

- Vehicular Access
- Driveway/Uncovered Parking
- Ambulance access
- Bin collection & Canteen deliveries
- Drop & go zones
- Lollipop crossing
- Upgrade to Taringa Pde by BCC (extent to be confirmed)
- Informal offsite parking for staff in Moore Park
- Compliant PWD carpark located in basement carpark

DRAFT ONLY

2.4 Master Planning - Indooroopilly State School
Civil (Topography & Flooding) Overlay

http://maps.au.nearmap.com/

Civil Overlay - 1:1000

Legend

- Overland Flow
- Flood (subcategory 4 & 5)

Appendix B – BCC Floodwise Property Report

Brisbane City Council

FloodWise Property Report

Report Reference
1524792973265
27/04/2018 11:36:13

Dedicated to a better Brisbane

THIS REPORT IS FOR BUILDING AND DEVELOPMENT PURPOSES ONLY

The FloodWise Property Report provides property or lot-based flood information for building and development requirements. This report provides information on estimated flood levels, habitable floor level requirements and more technical information on the four sources of flooding: river, creek / waterway, storm tide and overland flow. Refer to the Useful Definitions section for a glossary of terms.

To find out more about how the contents of this report may affect building or development on this property, please visit www.brisbane.qld.gov.au/planning-building.For more general information about understanding your flood risk and how to prepare your property, family or business for potential flooding visit www.brisbane.qld.gov.au/beprepared

THIS IS A REPORT FOR:

Rateable Address: 471 MOGGILL RD, INDOOROOPILLY QLD 4068

Lot Details: L.285 SP.104042

This property has flags for building or development purposes only

Brisbane City Council has not assigned flood level information for this property for building or development purposes. However, mapping indicates that it is affected by one or more flood or property development flags. Please refer below for details.

For professional advice or detailed assessment of a property contact a Registered Professional Engineer of Queensland.

For general information on your flood risk and how to prepare your home or business for potential flooding visit www.brisbane.qld.gov.au/beprepared.

FLOOD AND PLANNING DEVELOPMENT FLAGS

DEVELOPMENT FLAG(S)

This property may also be affected by one or more flood or property development overlays or flags. These include: OVERLAND FLOW PATH,LARGE ALLOTMENT,WATERWAY CORRIDOR

Please review the technical summary over page and refer to Council's planning scheme for further information.

Brisbane City Council

FloodWise Property Report

Dedicated to a better Brisbane

Report Reference
1524792973265

27/04/2018 11:36:13

TECHNICAL SUMMARY

This section of the FloodWise Property Report contains more detailed flood information for this property so surveyors, builders, certifiers, architects and engineers can plan and build in accordance with Council's planning scheme. For more information about building and development in Brisbane please visit www.brisbane.qld.gov.au/planning-building or talk to a Development Assessment Planning Information Officer via Council's Contact Centre on (07) 3403 8888.

THIS IS A REPORT FOR:

Rateable Address: 471 MOGGILL RD, INDOOROOPILLY QLD 4068

Lot Details: L.285 SP.104042

FLOOD PLANNING DEVELOPMENT INFORMATION

This section of the FloodWise Property Report contains information about Council's planning scheme overlays. Overlays identify areas within the planning scheme that reflect distinct themes that may include constrained land and/or areas sensitive to the effects of development.

FLOOD OVERLAY CODE

The Flood overlay code of Council's planning scheme uses the following information to provide guidelines when developing properties. The table below summarises the Flood Planning Areas (FPAs) that apply to this property. Development guidelines for the FPAs are explained in Council's planning scheme, which is available from www.brisbane.qld.gov.au/planning-building.

FLOOD PLANNING AREAS (FPA)		
RIVER	CREEK/WATERWAY	OVERLAND FLOW
	FPA3	Applicable
	FPA4	
	FPA5	

COASTAL HAZARD OVERLAY CODE

There are currently no Coastal Hazard Overlays that apply to this property.

PROPERTY DEVELOPMENT FLAGS

Overland Flow Path - Mapping indicates this property may be located within an overland flow path. Overland flow flooding usually occurs when the capacity of the underground piped drainage system is exceeded and/or when the overland flow path is blocked. It is recommended you consult a Registered Professional Engineer of Queensland to determine this property's habitable floor level and flooding depth. Please refer to Council's planning scheme for further information.

Waterway Corridor - This property may also be located within a mapped waterway corridor as identified in the waterway corridors overlay map of Council's planning scheme. Please consider this in conjunction with Council's planning scheme requirements.

Large Allotment - This property is either a Large Allotment of over 1000 square metres or is located within a Large Allotment. Flood levels may vary significantly across allotments of this size. Further investigations may be warranted in determining the variation in flood levels and the minimum habitable floor level across the site. For more information or advice, it is recommended you engage a Registered Professional Engineer of Queensland.

Brisbane City Council

FloodWise Property Report

Report Reference
1524792973265

27/04/2018 11:36:13

Dedicated to a better Brisbane

Useful Definitions

Australian Height Datum (AHD) - The reference level for defining ground levels in Australia. The level of 0.0m AHD is approximately mean sea level.

Annual Exceedance Probability (AEP) – The probability of a flood event of a given size occurring in any one year, usually expressed as a percentage annual chance.

Defined Flood Level (DFL) - The DFL for Brisbane River flooding is a level of 3.7m AHD at the Brisbane City Gauge based on a flow of 6,800 m^3/s.

Maximum and Minimum Ground Level – Highest and lowest ground levels on the property based on available ground level information. A Registered Surveyor can confirm exact ground levels.

Minimum Habitable Floor Level – The minimum level in metres AHD at which habitable areas of development (generally including bedrooms, living rooms, kitchen, study, family and rumpus rooms) must be constructed.

Council's Planning Scheme - The City Plan (planning scheme) has been prepared in accordance with the Sustainable Planning Act as a framework for managing development in a way that advances the purpose of the Act. In seeking to achieve this purpose, the planning scheme sets out the Council's intention for future development in the planning scheme area, over the next 20 years.

Residential Flood Level (RFL) – Residential flood level (RFL) for Brisbane River flooding equates to the flood level applicable to the extent of January 2011 floods as depicted by mapping on the Queensland Reconstruction Authority website or the Council's defined flood level (DFL) for the Brisbane River, whichever is higher.

Rateable Address - A Lot or Property may have more than one street address. The address shown on this report is the address used by Council for the Lot or property selected.

Property - A property will contain 1 or more lots. The *Multiple Lot Warning* is shown if you have selected a property that contains multiple lots.

2017 Brisbane River Catchment Flood Study (BRCFS) – The BRCFS is a project led by the Queensland Government. The flood study was released in 2017. The 1% AEP flood levels from the flood study is yet to be adopted for application in planning schemes and is for information only. Other % AEPs will be updated with new information from the flood study as part of any relevant changes to City Plan 2014 as soon as is practicable.

Brisbane City Council's Online Flood Tools

Council provides a number of online flood tools:

- to guide planning and development
- to help residents and businesses understand their flood risk and prepare for flooding.

Planning and Development Online Flood Tools

Council's online flood tools for planning and development purposes include:

- FloodWise Property Report
- Flood Overlay Code

For more information on Council's planning scheme and online flood tools for planning and development:

- phone 07 3403 8888 to talk to a Development Assessment Customer Liaison Officer
- visit www.brisbane.qld.gov.au/planning-building
- visit a Regional Business Centre.

Helping residents and businesses be prepared for flooding

Council has a range of free tools and information to help residents and businesses understand potential flood risks and how to be prepared. This includes:

- Flood Awareness Maps
- Flooding in Brisbane – A Guide for Residents
- Flooding in Brisbane – A Guide for Business
- Early Warning Alert Service. Visit www.brisbane.qld.gov.au/earlywarning to register for email, home phone or SMS severe weather alert updates.

Note: The Flood Awareness Maps show four levels of flood likelihood from high likelihood (flooding is very likely to occur) through to very low likelihood (very rare and extreme flood events).

For more information on Council's online flood tools for residents and business:

- Visit www.brisbane.qld.gov.au/beprepared
- Phone (07) 3403 8888.

Brisbane City Council

FloodWise Property Report

Dedicated to a better Brisbane

Report Reference
1524792973265

27/04/2018 11:36:13

Disclaimer

1. Defined Flood Levels and Residential Flood Levels, and the Minimum Habitable Floor Levels are determined from the best available information to Council at the date of issue. These flood levels, for a particular property, may change if more detailed information becomes available or changes are made in the method of calculating flood levels.
2. Council makes no warranty or representation regarding the accuracy or completeness of a FloodWise Property report. Council disclaims any responsibility or liability in relation to the use or reliance by any person on a FloodWise Property Report.

Planning to build or renovate?

For information, guidelines, tools and resources to help you track, plan or apply for your development visit **www.brisbane.qld.gov.au/planning-building**

You can also find the Brisbane City Plan 2014 and Neighbourhood Plans as well as other information and training videos to help with your building and development plans.

Appendix 13

Traffic Assessment

Department of Housing and Public Works

Queensland Government

INDOOROOPILLY STATE SCHOOL
ADDITIONAL ACCOMMODATION
TRAFFIC IMPACT ASSESSMENT

FOR

QUEENSLAND DEPARTMENT OF EDUCATION AND TRAINING

BITZIOS consulting

Gold Coast
Suite 26, 58 Riverwalk Avenue
Robina QLD 4226
P: (07) 5562 5377
W: www.bitziosconsulting.com.au

Brisbane
Level 2, 428 Upper Edward Street
Spring Hill QLD 4000
P: (07) 3831 4442
E: admin@bitziosconsulting.com.au

Sydney
Studio 203, 3 Gladstone Street
Newtown NSW 2042
P: (02) 9557 6202

Project No: P3606 Version No: 001 Issue date: 2nd July 2018

DOCUMENT CONTROL SHEET

Issue History

Report File Name	Prepared by	Reviewed by	Issued by	Date	Issued to
P3606.001R Indooroopilly SS TIA	C. Luk & N. Edwards	L. Darragh	N. Edwards	02/07/2018	Ian Brunning at Altus Group via email: Ian.brunning@altusgroup.com

Copyright in the information and data in this document is the property of Bitzios Consulting. This document and its information and data is for the use of the authorised recipient and this document may not be used, copied or reproduced in whole or in part for any purpose other than for which it was supplied by Bitzios Consulting. Bitzios Consulting makes no representation, undertakes no duty and accepts no responsibility to any third party who may use or rely upon this document or its information and data.

CONTENTS

Page

1. INTRODUCTION 1
1.1 BACKGROUND 1
1.2 PROPOSED EXPANSION OVERVIEW 1
1.3 DROP AND GO FACILITY – TARINGA PARADE 2
1.4 SCOPE OF ASSESSMENT 3
2. EXTERNAL ROADS AND INTERSECTION REVIEW 4
2.1 OVERVIEW 4
2.2 OBSERVATIONS 5
2.3 PROPOSED EXPANSION – TRAFFIC IMPACT ASSESSMENT 5
2.3.1 Transport Network Planning 5
2.3.2 Assessed Intersections 5
2.3.3 Assessment Methodology 5
2.3.4 Surveyed Traffic Volumes 6
2.3.5 Background Traffic Growth 6
2.3.6 Proposed Expansion Traffic – Generation Rates 6
2.3.7 Proposed Expansion Traffic – Directional Splits 6
2.3.8 Proposed Expansion Traffic – Generation 7
2.3.9 Proposed Expansion Traffic – External Traffic Distribution 7
2.3.10 Assessment Scenarios 7
2.3.11 Assessed Traffic Volumes 7
2.3.12 SIDRA Network Analysis Results – Stages 1A and 1B 8
2.3.13 SIDRA Network Analysis Results – Stages 2 to 5 12
2.3.14 Travel Demand Management Plan 13
3. PUBLIC TRANSPORT INFRASTRUCTURE REVIEW 14
3.1 OVERVIEW 14
3.2 OBSERVATIONS 15
3.3 RECOMMENDATIONS 16
4. SET-DOWN AND PICK-UP ARRANGEMENTS REVIEW 17
4.1 OVERVIEW 17
4.2 OBSERVATIONS 17
4.3 RECOMMENDATIONS 18
5. EXTERNAL ACTIVE TRANSPORT INFRASTRUCTURE REVIEW 19
5.1 OVERVIEW 19
5.2 OBSERVATIONS 19
5.3 RECOMMENDATIONS 20
6. INTERNAL TRANSPORT INFRASTRUCTURE REVIEW 22
6.1 OVERVIEW 22
6.2 CAR PARKING 22
6.2.1 Existing Areas 22
6.2.2 Expansion Requirements 22
6.3 BICYCLE PARKING 23
6.4 SERVICING 23
7. CODE RESPONSES 24
8. SUMMARY 25

Tables

Table 1.1: Student Enrolments and Staff – Existing and Proposed

Table 2.1: Key Roads
Table 2.2: Key Intersections
Table 2.3: Traffic Survey Results Summary
Table 2.4: Adopted Background Traffic Growth Rates (Linear)
Table 2.5: Adopted Trip Generation Rates
Table 2.6: Adopted Directional Split
Table 2.7: Estimated Peak Hour Demands
Table 2.8: Adopted External Traffic Distribution
Table 2.9: SIDRA Results: Intersection 1
Table 2.10: SIDRA Results: Intersection 2
Table 2.11: SIDRA Results: Intersection 2 – Upgraded Layout
Table 2.12: SIDRA Results: Intersection 1 – With Intersection 2 Upgrade
Table 2.13: SIDRA Results: Intersection 1 – Moggill Road / Russell Terrace
Table 2.14: SIDRA Results: Intersection 2 – Moggill Road / Taringa Parade / Woodville Street

Table 3.1: Public Transport Services

Table 6.1: Car Parking Provision Rate – TAPS Policy
Table 6.2: Car Parking Provision Requirements – TAPS Policy
Table 6.3: Bicycle Parking Provision Rate – TAPS Policy
Table 6.4: Bicycle Parking Provision Review Summary – TAPS Policy

Figures

Figure 1.1: Subject Site Location

Figure 2.1: Existing Road Network
Figure 2.2: Modelled Network Layout
Figure 2.3: Modelled Layout – Intersection 2 – Upgraded Layout
Figure 2.4: Modelled Network Layout

Figure 3.1: Public Transport Network – Bus Stops
Figure 3.2: Bus Stop (ID: 001592) – Moggill Road Eastbound
Figure 3.3: Bus Stop (ID: 001593) – Moggill Road Westbound

Figure 4.1: Set-Down/Pick-up Arrangements

Figure 5.1: Key Pedestrian and Cycle Site Access Points
Figure 5.2: Existing Footpath – Eastern Side of Russell Terrace
Figure 5.3: Moore Park Driveway – Russell Terrace – No Pedestrian Path

Figure 6.1: Existing Car Parking Area

Appendices

Appendix A: Proposed Development Plans
Appendix B: Traffic Survey Results
Appendix C: Assessed Traffic Volumes
Appendix D: SIDRA Analysis Results
Appendix E: Code Responses

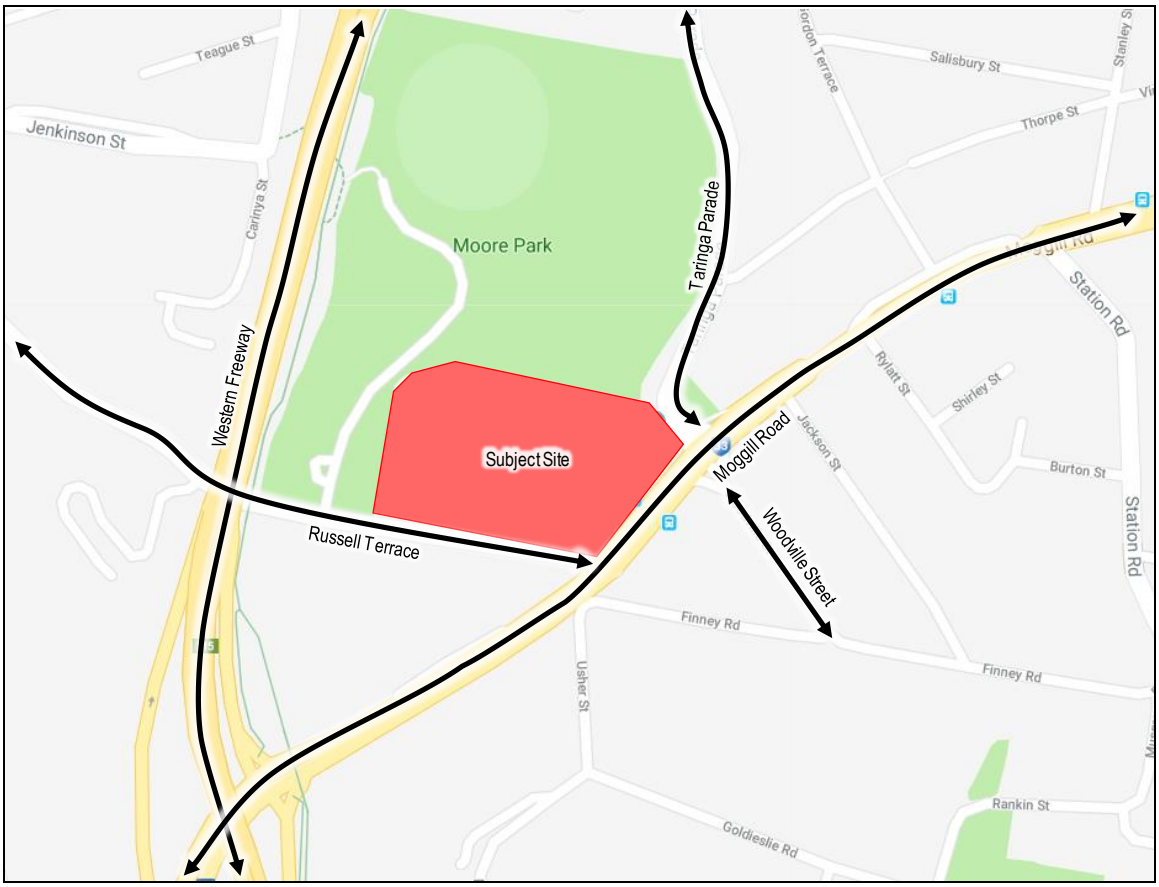
1. INTRODUCTION

1.1 BACKGROUND

Bitzios Consulting has been commissioned by Queensland's Department of Education and Training (DET) to prepare a traffic impact assessment (TIA) for the 'proposed expansion' of the Indooroopilly State School ('the subject site').

The subject site is located at 471 Moggill Road, Indooroopilly, is formally described as Lot 285 on SP104042 and is located within the Brisbane City Council (Council) local government area.

The location of the subject site is shown in Figure 1.1.



SOURCE: Google Maps

Figure 1.1: Subject Site Location

1.2 PROPOSED EXPANSION OVERVIEW

A new building is proposed to be constructed on-site to increase the enrolment capacity of the school to cater for expected growth. The master planned expansion is proposed to be undertaken in eight (8) stages over several years.

The first two (2) stages are expected to be completed in the short term (2020) with the remaining six (6) stages expected to be completed in the years following. Accordingly, more comprehensive planning of the first two (2) expansion stages has been completed to date.

Furthermore, it is noted that the first two (2) stages accommodate the majority (75%) of the proposed enrolment growth.

Noting the above, we have predominately focussed on the traffic matters associated with the first two (2) stages of the expansion as part of this report.

The works proposed as part of the first two (2) stages of the expansion are summarised below:

- Stage 1A:
  - remove existing demountable buildings on oval which include six (6) general learning areas (GLAs);
  - construct a new building, providing 11 GLAs and one (1) flexible learning area (FLA);
  - sub-total: six (6) additional GLAs and one (1) new FLA;
- Stage 1B:
  - expand the building constructed as part of Stage 1A, providing four (4) additional GLAs;
- *Total:*
  - *one (1) new building;*
  - *10 additional GLAs and one (1) new FLA.*

An overview of the works proposed as part of the later six (6) stages of the expansion is provided below:

- Stage 2 – one (1) additional GLA;
- Stage 3 – three (3) additional GLAs;
- Stage 4A – no additional GLAs;
- Stage 4B – two (2) GLAs removed;
- Stage 4C – three (3) additional GLAs;
- Stage 5 – three (3) GLAs removed; and
- *Total – two (2) new GLAs.*

A summary of the existing and proposed student enrolment and staffing numbers is provided in Table 1.1.

Table 1.1: Student Enrolments and Staff – Existing and Proposed

Stage	Student Enrolments		Staff	
	Change	Total	Change	Total
Existing	-	1,126	-	90
1A	+178	1,304	+8	98
1B	+110	1,414	+4	102
Sub-Total	**+288**	**1,414**	**+12**	**102**
Stages 2 to 5	+96	1,510	+2	104
Total	**+384**	**1,510**	**+14**	**104**

A copy of the site plans is included in **Appendix A**.

Whilst existing traffic and transport matters were considered as part of this assessment, the traffic and transport matters associated with the proposed expansion was our focus. The key tasks we undertook as part of preparing this assessment are outlined in Section 1.4.

1.3 DROP AND GO FACILITY – TARINGA PARADE

It is understood that Council is proposing to upgrade the School's existing drop and go zone on Taringa Parade. We contacted Council in mid May 2018 in relation to the upgrades i.e. to better understand the proposed upgrades.

Council indicated that at that time only preliminary planning had been completed and no plans were available for review.

For the purposes of this report, we have assumed that the proposed upgrade will accommodate additional demands associated with the expansion. However once available, the plans should be reviewed to confirm that the upgrade is likely to accommodate additional demand.

1.4 SCOPE OF ASSESSMENT

Whilst existing traffic and transport matters were considered as part of this assessment, the traffic and transport matters associated with the proposed expansion was our focus.

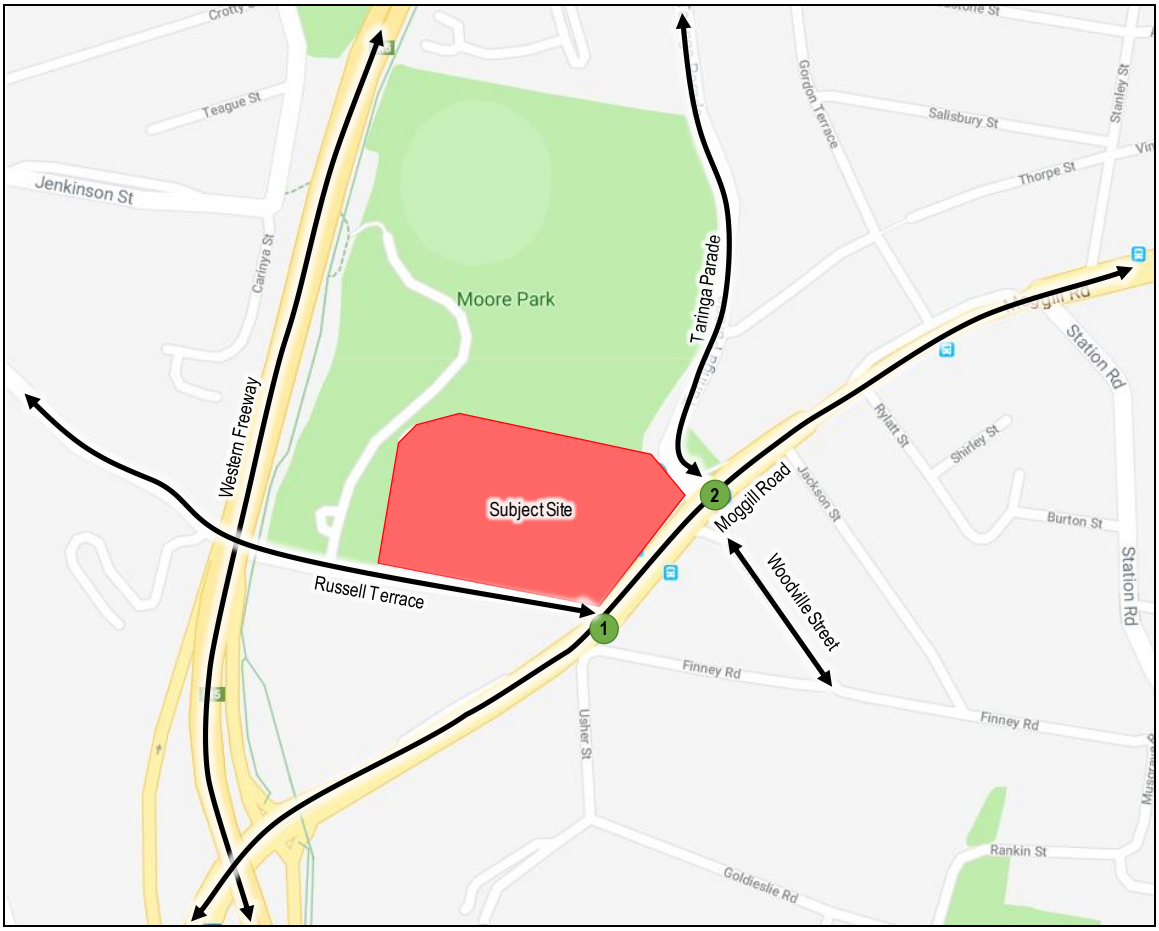
The scope of this TIA included completing the following key tasks:

- undertaking morning and afternoon school peak period site inspections (24th April 2018) to gain a better understanding of the transport network surrounding the subject site, observe existing traffic and transport operations, issues etc.;
- estimating the proposed expansion's traffic generation and distributing traffic volumes across the external road network;
- undertaking SIDRA analysis at the Moggill Road / Russell Terrace & Moggill Road / Taringa Parade / Woodville Street signalised intersections and quantifying potential expansion related impacts;
- reviewing any modified access arrangements against Council's 'Transport, Access, Parking and Servicing Planning Scheme Policy' (TAPS Policy) and/or relevant Australian Standards (AS2890);
- reviewing additional on-site car and bicycle parking provisions against Council's TAPS Policy;
- reviewing modified car park areas against Council's TAPS Policy and/or AS2890;
- reviewing modified servicing and refuse collection arrangements including swept paths; and
- reviewing active and public transport in proximity to the subject site.

2. EXTERNAL ROADS AND INTERSECTION REVIEW

2.1 OVERVIEW

Figure 2.1 illustrates the key elements of the existing road network in proximity to the subject site.



SOURCE: Google Maps

Figure 2.1: Existing Road Network

Table 2.1 provides a summary of the key roads surrounding the subject site.

Table 2.1: Key Roads

Road Name	Jurisdiction	Hierarchy	Cross-Section	Speed Limit
Moggill Road	Council	Arterial Road	4 lanes divided	60km/h (School Zone – 40km/h)
Russell Terrace	Council	District Road	2 lanes divided	60km/h (School Zone – 40km/h)
Taringa Parade	Council	District Road	2 lanes divided	50km/h (School Zone – 40km/h)
Woodville Street	Council	District Road	2 lanes divided	50km/h

Table 2.2 provides a summary of the key intersections surrounding the subject site.

Table 2.2: Key Intersections

ID	Name	Jurisdiction	Control
Intersection 1	Moggill Road / Russell Terrace	Council	Traffic Signals
Intersection 2	Moggill Road / Taringa Parade / Woodville Street	Council	Traffic Signals

2.2 OBSERVATIONS

An inspection of the subject site and surrounding transport network was undertaken on Tuesday 24th April 2018 during both the morning and afternoon school peak periods.

Key road and intersection related observations made during our inspections are summarised below:

- traffic demands generated by the subject site appeared to be more evenly spread across the morning peak period than those generated in the afternoon peak period;
- some parents walked their children to/from the subject site after parking on Taringa Parade and Russell Terrace;
- some parents walked their children to/from the subject site after parking in Moore Park (located immediately west of the school);
- parents dropped off and picked up children predominately from drop and go zones on Taringa Parade and Russell Terrace;
- Russell Terrace was particularly congested in the morning with both commuter and school related traffic. Queues on Russell Terrace extended from Moggill Road back to the Centenary Motorway overpass (over 300m);
- in the afternoon, traffic demands generated by the subject site were highest between approximately 2:50pm and 3:20pm (school finishes at 3:00pm). Traffic demands reduced significantly after this time;
- the drop and go zone on Taringa Parade was particularly congested during the afternoon pick-up peak period with queues sometimes extending back to Moggill Parade; and
- Moore Park was more heavily used by parents during the afternoon peak period.

2.3 PROPOSED EXPANSION – TRAFFIC IMPACT ASSESSMENT

2.3.1 Transport Network Planning

A review of Council's Local Government Infrastructure Plan (LGIP), indicated that no upgrades are planned for the existing road, active transport or public transport networks adjacent to the site.

However as noted above, Council are proposing to upgrade the School's drop and go zone on Taringa Parade in proximity to the intersection with Moggill Road.

A review of the Queensland Transport and Roads Investment Program (QTRIP) 2017-18 to 2020-21, published by the Department of Transport and Main Roads (TMR), indicated that no upgrades are planned for the existing road, active transport or public transport networks adjacent to the site.

2.3.2 Assessed Intersections

Operational (SIDRA) analysis has been undertaken at the following intersections to determine the potential impact of proposed expansion related traffic:

1. Moggill Road / Russell Terrace; and
2. Moggill Road / Taringa Parade / Woodville Street.

2.3.3 Assessment Methodology

Our traffic analysis has been undertaken generally in accordance with TAPS Policy requirements.

2.3.4 Surveyed Traffic Volumes

To establish baseline traffic volumes, surveys were undertaken at the two study intersections.

The survey results are summarised in Table 2.3.

Table 2.3: Traffic Survey Results Summary

Day & Date	Intersection	AM School Peak Period		PM School Peak Period	
		Time	Total Traffic Volumes	Time	Total Traffic Volumes
Wednesday 1 May 2018	1	7:45am to 8:45am	6,752 trips	3:00pm to 4:00pm	3,443 trips
	2		7,497 trips		3,558 trips

A copy of the raw data is provided at **Appendix B**.

2.3.5 Background Traffic Growth

Future year background traffic volumes were estimated based on applying growth rates to surveyed traffic volumes. Traffic growth rates were identified based on a review of existing and expected development accessed by each road.

Adopted background traffic growth rates (linear) are identified in Table 2.4.

Table 2.4: Adopted Background Traffic Growth Rates (Linear)

Road	Growth Rate (Linear)
Moggill Road	1% p.a.
Russell Terrace	0.5% p.a.
Taringa Parade	0.5% p.a.
Woodville Street	1% p.a.

2.3.6 Proposed Expansion Traffic – Generation Rates

Table 2.5 provides a summary of the trip generation rates we adopted in our assessment.

Table 2.5: Adopted Trip Generation Rates

Land Use	AM Peak	PM Peak	Unit	Source
Primary School	0.82	0.80	trips / enrolment	GTA Sydney School Traffic Generation Report

2.3.7 Proposed Expansion Traffic – Directional Splits

Table 2.6 provides a summary of the adopted directional distribution splits, sourced from the GTA Sydney School Traffic Generation Report.

Table 2.6: Adopted Directional Split

Land Use	AM Peak			PM Peak		
	In	Out	Total	In	Out	Total
Primary School	60%	40%	100%	40%	60%	100%

2.3.8 Proposed Expansion Traffic – Generation

Table 2.7 provides a summary of the estimated peak hour demands generated by the proposed expansion.

Table 2.7: Estimated Peak Hour Demands

Expansion Stages	AM Peak (trips)			PM Peak (trips)		
	In	Out	Total	In	Out	Total
1A & 1B	142	94	236	92	138	230
2 to 5	47	31	79	31	46	77
Total	**189**	**126**	**315**	**123**	**184**	**307**

2.3.9 Proposed Expansion Traffic – External Traffic Distribution

The adopted external traffic distribution was identified based on a review of the traffic surveys results and on-site observations.

The external traffic distribution we adopted is summarised in Table 2.8.

Table 2.8: Adopted External Traffic Distribution

Direction	Via	Proportion %
North	Russell Terrace	10%
	Taringa Parade	15%
East	Moggill Road	30%
South	Woodville Street	30%
West	Moggill Road	15%
Total	**-**	**100%**

It is important to note that it has been assumed that drivers travelling to and from the subject site via Taringa Parade and Russell Terrace will not traverse the intersections we have assessed.

2.3.10 Assessment Scenarios

This report considers proposed expansion related traffic impacts during the following years:

- 2018 base year (when traffic survey data was captured);
- 2020 future year (assumed year of opening for proposed expansion Stages 1A and 1B);
- 2030 future year (assumed 10 years post opening for the proposed expansion Stages 1A and 1B);
- 2025 future year (assumed year of opening for proposed expansion Stages 2 to 5); and
- 2035 future year (assumed 10 years post opening for the proposed expansion Stages 2 to 5).

It is noted that traffic associated with expansion Stages 1A and 1B has been assumed to be background traffic in 2025 and 2035.

2.3.11 Assessed Traffic Volumes

Assessed traffic volumes have been derived by adding estimated development trips to the background traffic forecasts for various design horizons. The assessed traffic volumes are included in **Appendix C**.

2.3.12 SIDRA Network Analysis Results – Stages 1A and 1B

Due to the proximity of the two (2) intersections (approximately 135m), the intersections were assessed using the SIDRA network tool. The tool considers potential intersection interaction and associated queueing and operational impacts.

The modelled road network geometry is illustrated in Figure 2.2.

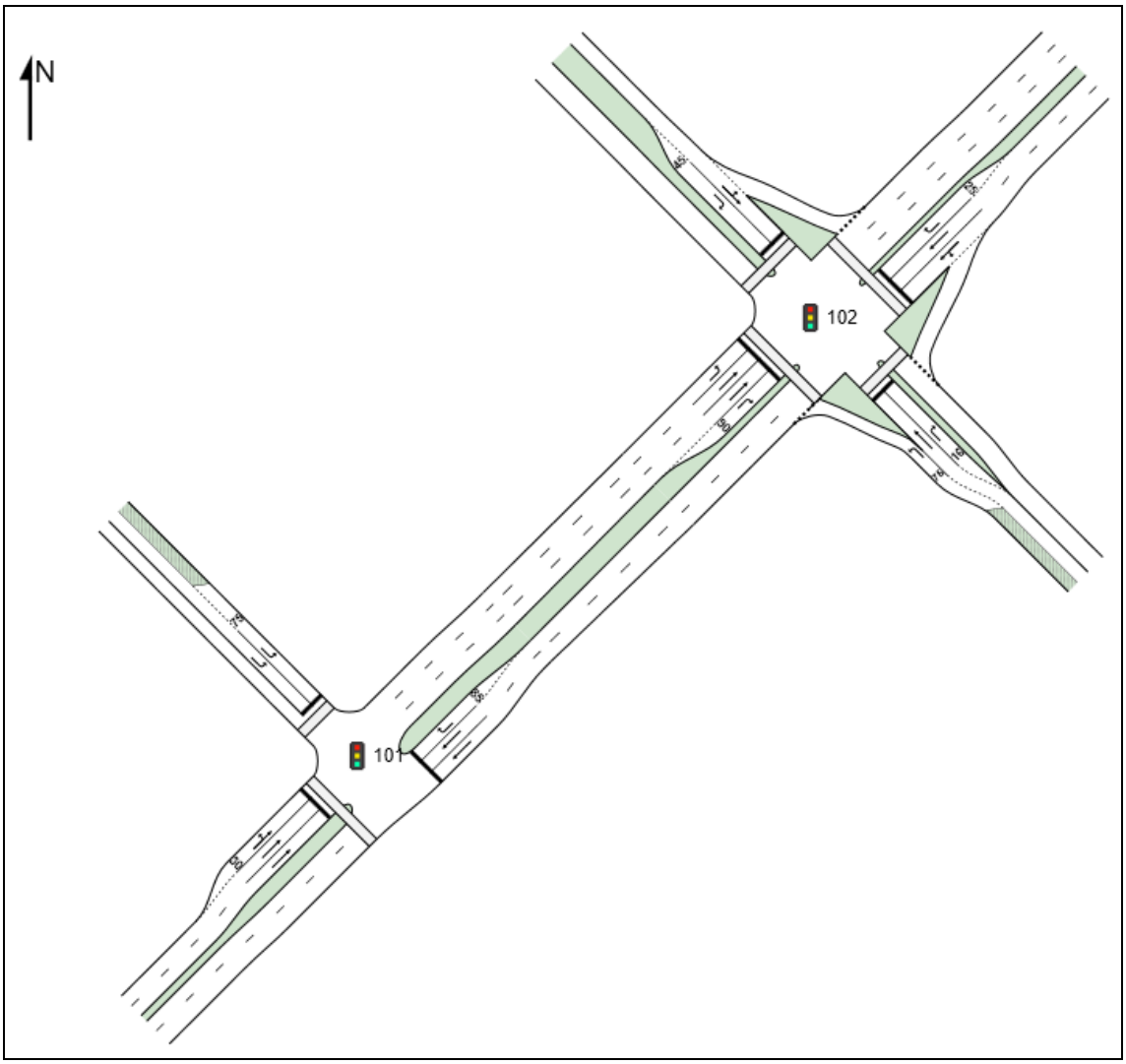


Figure 2.2: Modelled Network Layout

The SIDRA results for the Moggill Road / Russell Terrace intersection (Intersection 1) are summarised in Table 2.9 with detailed outputs provided at **Appendix D**.

Table 2.9: SIDRA Results: Intersection 1

Year	Peak	Scenario	Degree of Saturation (DOS)	Average Delay (s)	Level of Service	95th Percentile Queue Length (m)
2018	AM	Survey	1.13	119	LOS F	625
	PM*		0.56	13	LOS B	98
2020	AM	Background	1.14	129	LOS F	666
	PM*		0.58	13	LOS B	99
2020	AM	With Stg 1A & 1B Expansion	1.17	136	LOS F	680
	PM*		0.61	14	LOS B	102
2030	AM	Background	1.20	179	LOS F	879
	PM*		0.64	13	LOS B	108
2030	AM	With Stg 1A & 1B Expansion	1.22	186	LOS F	893
	PM*		0.66	14	LOS B	117

**School Peak Period*
Green = operating below the practical operating capacity for a signalised intersection (DOS < 0.90)

The above results suggest that the intersection is currently performing beyond the acceptable performance threshold for a signalised intersection i.e. DOS exceeds 0.90. This indicates that upgrades are currently required at the intersection.

The results also indicate that the expansion is likely to have a relatively minor impact on intersection operations. Therefore, no upgrades are considered to be required at Intersection 1 to mitigate development impacts associated with the Stage 1A and 1B expansions.

The SIDRA results for the Moggill Road / Taringa Parade / Woodville Street intersection (Intersection 2) are summarised in Table 2.10 with detailed outputs provided at **Appendix D**.

Table 2.10: SIDRA Results: Intersection 2

Year	Peak	Scenario	Degree of Saturation (DOS)	Average Delay (s)	Level of Service	95th Percentile Queue Length (m)
2018	AM	Survey	2.46	132	LOS F	299
	PM*		0.74	23	LOS C	248
2020	AM	Background	2.48	136	LOS F	302
	PM*		0.75	23	LOS C	256
2020	AM	With Stg 1A & 1B Expansion	2.62	192	LOS F	412
	PM*		0.87	29	LOS C	255
2030	AM	Background	2.62	157	LOS F	327
	PM*		0.83	25	LOS C	312
2030	AM	With Stg 1A & 1B Expansion	2.75	215	LOS F	462
	PM*		0.98	30	LOS C	359

**School Peak Period*
Green = operating below the practical operating capacity for a signalised intersection (DOS < 0.90)

The above results suggest that the intersection is currently performing beyond the acceptable performance threshold for a signalised intersection i.e. DOS exceeds 0.90. This indicates that upgrades are currently required at the intersection.

The results also indicate that the Stage 1A and 1B expansion is likely to somewhat impact intersection operations. Therefore, intersection upgrades have been identified to mitigate expansion related impacts i.e. upgrades which are expected to result in the intersection performing no worse with the proposed expansion.

The upgrade identified involves allowing through movements from the existing left turn only lane on the southwest intersection approach.

Based on our review of existing intersection operations, we believe that the through movement from this lane may have been banned due to cars queuing back onto Moggill Road from the school's existing drop and go zone on Taringa Parade.

It is again noted that Council are currently planning to upgrade the existing drop and go zone on Taringa Parade. Although the proposed upgraded drop and go zone arrangements have not yet been finalised, we expect that the upgrade should resolve or significantly reduce the likelihood of queues reaching Moggill Road.

Therefore, provided the drop and go zone is upgraded, the Intersection 2 upgrade we have identified is not expected to significantly impact safety.

The upgraded Intersection 2 layout is illustrated in Figure 2.3.

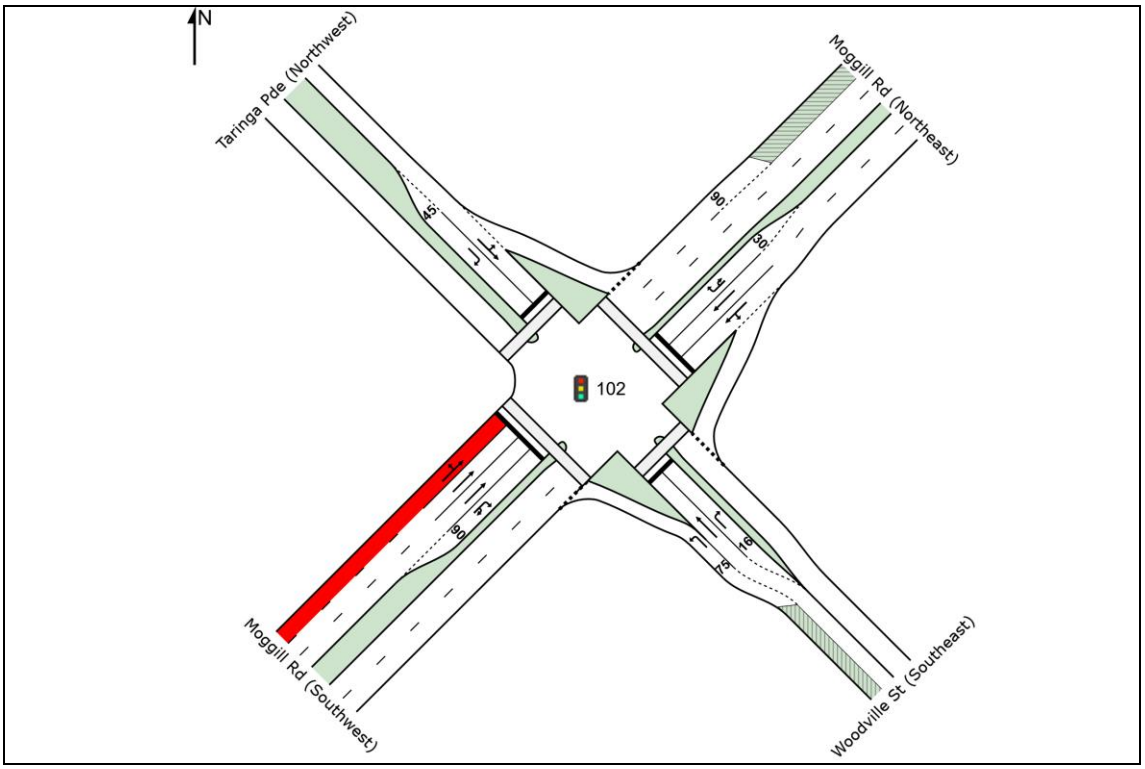


Figure 2.3: Modelled Layout – Intersection 2 – Upgraded Layout

The SIDRA results based on the upgraded Intersection 2 layout are summarised in Table 2.11 with detailed outputs provided at **Appendix D**.

Table 2.11: SIDRA Results: Intersection 2 – Upgraded Layout

Year	Peak	Scenario	Degree of Saturation (DOS)	Average Delay (s)	Level of Service	95th Percentile Queue Length (m)
2020	AM	Background	2.48	136	LOS F	302
	PM*		0.75	23	LOS C	256
2020	AM	With Stg 1A & 1B Expansion	1.48	60	LOS E	264
	PM*		0.83	28	LOS C	274
2030	AM	Background	2.62	157	LOS F	327
	PM		0.83	25	LOS C	312
2030	AM	With Stg 1A & 1B Expansion & Upgrade	2.09	95	LOS F	391
	PM*		0.98	34	LOS C	437

**School Peak Period*
Green = operating below the practical operating capacity for a signalised intersection (DOS < 0.90)

The results indicate that the upgraded intersection configuration will improve operational performance during AM peak periods.

Whilst the upgrade does not fully offset Stage 1A and 1B expansion related impacts during the PM school peak period, it is important to note that the road/commuter peak is the critical PM peak period i.e. intersection performance is worse during the PM road peak.

The proposed expansion is expected to typically generate minimal, if any traffic demands during the PM road peak period (i.e. the expansion traffic will largely be confined to the school peak).

We also assessed the impacts of the proposed Intersection 2 upgrade at Intersection 1.

The SIDRA results for Intersection 1 which take into account the proposed upgrades at Intersection 2 are summarised in Table 2.12. Detailed outputs are provided at **Appendix D**.

Table 2.12: SIDRA Results: Intersection 1 – With Intersection 2 Upgrade

Year	Peak	Scenario	Degree of Saturation (DOS)	Average Delay (s)	Level of Service	95th Percentile Queue Length (m)
2020	AM	Background	1.14	129	LOS F	666
	PM*		0.58	13	LOS B	99
2020	AM	With Stg 1A & 1B Expansion	1.15	62	LOS E	412
	PM*		0.60	14	LOS B	133
2030	AM	Background	1.20	179	LOS F	879
	PM		0.64	13	LOS B	108
2030	AM	With Expansion & Upgrade at Int 2	1.25	188	LOS F	905
	PM*		0.88	16	LOS B	137

The results indicate that the Stage 1A and 1B expansion is likely to have a relatively minor impact on intersection operations notwithstanding the proposed Intersection 2 upgrade. It is again noted that no upgrades are considered to be required at Intersection 1 to offset the impacts of expansion related traffic.

Summary

In summary, no upgrades are required at Intersection 1 to mitigate development impacts associated with the Stage 1A and 1B expansions.

We have identified an upgrade at Intersection 2 to mitigate development impacts associated with the Stage 1A and 1B expansions. We recommend that this upgrade is provided to support expansion Stage 1B.

Alternatively, if agreed with relevant authorities i.e. Council etc. different upgrade works could be constructed, or a contribution could be made to offset expansion impacts.

2.3.13 SIDRA Network Analysis Results – Stages 2 to 5

The modelled road network geometry is illustrated in Figure 2.4. Importantly, we have assumed that the Intersection 2 upgrade associated with expansion Stages 1A and 1B will be in place in all assessed scenarios.

It is also again noted that traffic associated with expansion Stages 1A and 1B has been assumed to be background traffic in 2025 and 2035.

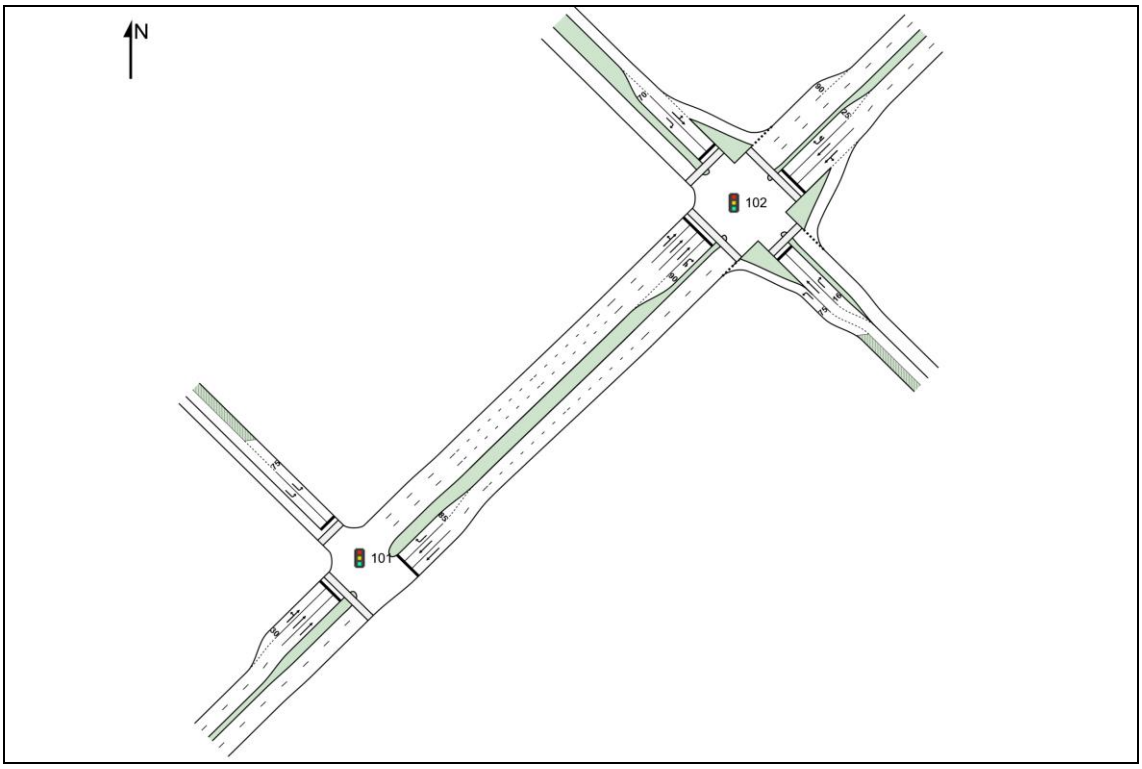


Figure 2.4: Modelled Network Layout

The SIDRA results for the Moggill Road / Russell Terrace intersection are summarised in Table 2.13 with detailed outputs provided at **Appendix D**.

Table 2.13: SIDRA Results: Intersection 1 – Moggill Road / Russell Terrace

Year	Peak	Scenario	Degree of Saturation (DOS)	Average Delay (s)	Level of Service	95th Percentile Queue Length (m)
2025	AM	Background	1.22	72	LOS E	462
	PM		0.91	16	LOS B	128
2025	AM	With Stg 2 to 5 Expansion	1.22	85	LOS F	575
	PM		0.88	15	LOS B	127
2035	AM	Background	1.29	214	LOS F	1,010
	PM		0.66	14	LOS B	178
2035	AM	With Expansion	1.30	216	LOS F	1,014
	PM		0.65	14	LOS B	176

Green = operating below the practical operating capacity for a signalised intersection (DOS < 0.90)

The above results suggest that the intersection is currently performing beyond the acceptable performance threshold for a signalised intersection i.e. DOS exceeds 0.90. This indicates that upgrades are currently required at the intersection.

The results also indicate that the Stage 2 to 5 expansions are likely to have a relatively minor impact on intersection operations. Therefore, no upgrades are considered to be required at Intersection 1 to mitigate development impacts associated with the Stage 1A and 1B expansions.

The SIDRA results for the Moggill Road / Taringa Parade / Woodville Street intersection are summarised in Table 2.14 with detailed outputs provided at **Appendix D**.

Table 2.14: SIDRA Results: Intersection 2 – Moggill Road / Taringa Parade / Woodville Street

Year	Peak	Scenario	Degree of Saturation (DOS)	Average Delay (s)	Level of Service	95th Percentile Queue Length (m)
2025	AM	Background	2.06	86	LOS F	382
	PM		0.89	29	LOS C	306
2025	AM	With Expansion	2.24	106	LOS F	439
	PM		0.82	31	LOS C	332
2035	AM	Background	2.14	101	LOS F	405
	PM		1.05	37	LOS D	473
2035	AM	With Expansion	2.30	113	LOS F	458
	PM		1.01	37	LOS D	466

Green = operating below the practical operating capacity for a signalised intersection (DOS < 0.90)

The above results suggest that notwithstanding the Stage 2 to 5 expansions, the intersection will perform beyond the acceptable performance threshold for a signalised intersection i.e. DOS exceeds 0.90.

The results also indicate that the Stage 2 to 5 expansions are likely to have a relatively minor impact on intersection operations. Therefore, no upgrades are considered to be required at Intersection 2 to offset the impacts of Stages 2 to 5 expansion related traffic.

Summary

In summary, no upgrades are required at Intersection 1 or Intersection 2 to mitigate development impacts associated with the Stages 2 to 5 expansions.

We do however recommend that once the Stage 2 expansion has been completed, the school develops a travel demand management plan (TDMP) with the aim to limit development related traffic impacts.

Further discussion in relation to TDMP's is provided in Section 0 below.

2.3.14 Travel Demand Management Plan

As outlined above, it is recommended that the school develops and implements a travel demand management plan (TDMP) at the school once the Stage 2 expansion has been completed. The intention of a TDMP is to aim to limit development related traffic impacts i.e. reductions or limited increases in; total traffic demands, peak traffic demands, road peak period traffic demands etc.

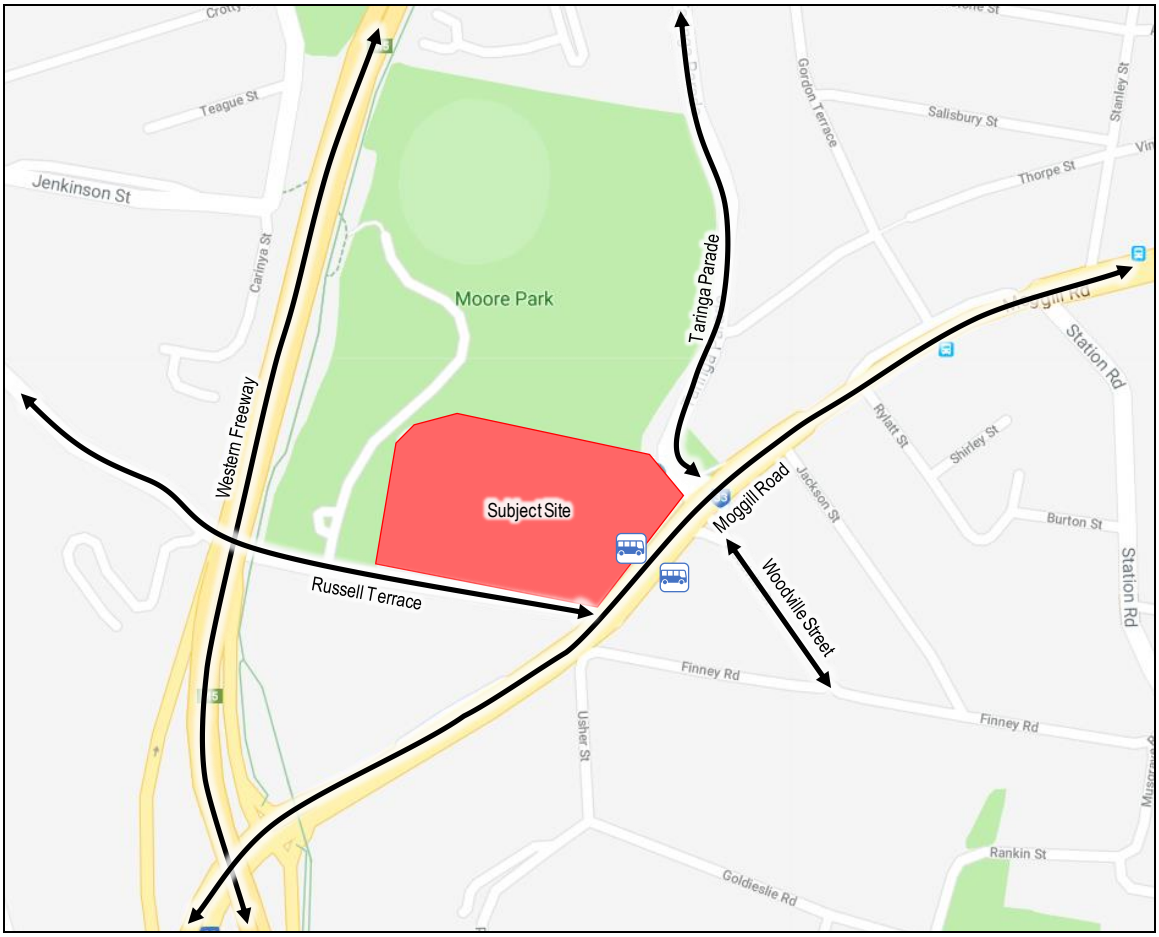
We have identified several strategies that could be implemented as part of the TDMP as outlined below:

- monitor pick-up/drop-off demands on Russell Terrace, Taringa Parade and in Moore Park and based on these observations, encourage parents to use the less congested location/s;
- encourage use of active and public transport modes;
- require students in particular grades to be dropped off or picked up from a specific location;
- encourage parents/guardians to pick-up students15-20mins after school finishes instead of immediately after classes finish for the day (e.g. stagger pick-up / drop-off times);
- undertake surveys to understand if there is sufficient demand for school bus service/s and implement service/s if there is sufficient demand; and
- stagger school start and/or end times.

3. PUBLIC TRANSPORT INFRASTRUCTURE REVIEW

3.1 OVERVIEW

There are two (2) key bus stops within approximately 500m of the subject site as identified on Figure 3.1.



SOURCE: Google Maps

Figure 3.1: Public Transport Network – Bus Stops

The stops are serviced by several inbound and outbound bus routes as outlined in Table 3.1 overleaf.

Table 3.1: Public Transport Services

Route Number	Servicing	Weekday Frequency	Weekend Frequency
425	Chapel Hill, Indooroopilly, Toowong, City	Peak – 30 mins Off-peak – 60 mins	60 mins
427	Chapel Hill, Indooroopilly, University of Queensland	Peak – 150 mins Off-peak – 60 mins	No services
428	Chapel Hill, Indooroopilly, University of Queensland	Peak – 150 mins Off-peak – 60 mins	Sat – 30-60 mins Sun – 60 mins
430	Fig Tree Pocket, Kenmore, Indooroopilly, Cultural Centre, City	60 mins	60 mins
432	Kenmore, Indooroopilly, University of Queensland	Peak – 10 mins Off-peak – 25 mins	No services
433	Kenmore South, Chapel Hill, Indooroopilly, Toowong, City	Peak – 35 mins Off-peak – 60 mins	60 mins
435	Brookfield, Kenmore Hills, Kenmore, Chapel Hill, Indooroopilly, Toowong, Cultural Centre, City	Peak – 20 mins Off-peak – 60 mins	Sat – 60 mins Sun – 4 services
444	Moggill, Bellbowrie, Pinjarra Hills, Kenmore, Indooroopilly, Toowong, City	10-15 mins	15 mins
445	Fig Tree Pocket, Lone Pine, Chapel Hill, Indooroopilly, Toowong, City	Peak – 30 mins Off-peak – 60 mins	Sat – 60 mins
450	Riverhills, Mount Ommaney, Jindalee, Indooroopilly, Toowong, City	Friday mid-night – 1 service	30 mins
453	Mount Ommaney, Jindalee, Indooroopilly, Toowong, City	Peak – 15 mins Off-peak – 30 mins	No services
454	Riverhills, Mount Ommaney, Indooroopilly, Toowong, City	Peak – 20 mins Off-peak – 30 mins	No services
460	Heathwood, Forest Lake, Richlands, Mount Ommaney, Indooroopilly, Toowong, City	Peak – 15 mins Off-peak – 30 mins	Sat – 30 mins Sun – 60 mins
468	Indooroopilly, Sinnamon Park, Seventeen Mile Rocks, Oxley	60 mins	No services
N449	Fortitude Valley, City, Milton, Toowong, Indooroopilly, Mount Ommaney, Riverhills	No services	60 mins

In summary, the subject site is well serviced by the existing public transport network.

3.2 OBSERVATIONS

Key public transport related observations made during our inspections are summarised below:

- only a small proportion of students used buses to travel to and from school; and
- both stops include an electronic signage board identify the routes of approaching buses and expected time until arrival.

Figure 3.2 and Figure 3.3 illustrate existing bus stop arrangements on Moggill Road.

SOURCE: Google Streetview

Figure 3.2: Bus Stop (ID: 001592) – Moggill Road Eastbound

SOURCE: Google Streetview

Figure 3.3: Bus Stop (ID: 001593) – Moggill Road Westbound

3.3 RECOMMENDATIONS

It is not anticipated that the development would trigger the need for any modifications to the existing public transport network or trigger the need for additional public transport services.

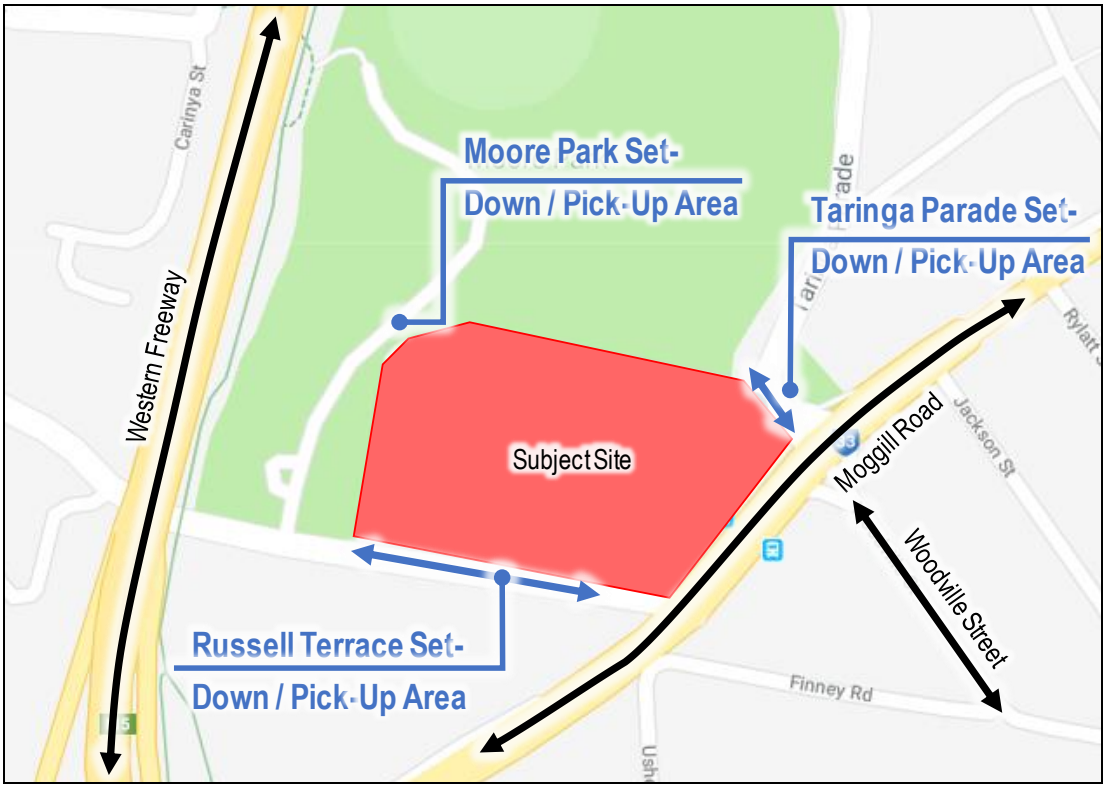
4. SET-DOWN AND PICK-UP ARRANGEMENTS REVIEW

4.1 OVERVIEW

It is noted that an inspection of the subject site and surrounding transport network during the morning and afternoon school peak periods was undertaken on Tuesday 24th April 2018.

Most students travelled by private car, with most parents using three (3) set-down and pick-up areas as identified below and illustrated in Figure 4.1:

- Russell Terrace;
- Taringa Parade; and
- Moore Park.



SOURCE: State of Queensland 2017. Includes material © Airbus DS 2013-17, all rights reserved

Figure 4.1: Set-Down/Pick-up Arrangements

4.2 OBSERVATIONS

Our set-down and pick-up related observations are summarised below:

- Russell Terrace was very congested in the morning noting that school and road peak periods overlap. Although congestion in proximity to school set-down/pick-up areas is not ideal, we did not observe any significant operational or safety issues;
- during the afternoon school peak period, student pick-up on Russell Terrace operated relatively efficiently. Less students were picked up from Russell Terrace than from Taringa Parade;
- during the morning school peak period, the Taringa Parade set-down/pick-up area operated relatively efficiently. No significant operational or safety issues associated with student set-down were observed;
- during the afternoon school peak period, a large number of students were collected from the Taringa Parade set-down/pick-up area which resulted in queues on Taringa Parade extending back onto Moggill Road, impacting transport network safety and efficiency;
- a number of parents performed U-turns on Taringa Parade after using the set-down/pick-up area impacting transport network safety and efficiency; and
- Moore Park was used by a number of parents for set-down/pick-up during both the morning and afternoon peak periods. Although busy, no significant operational or safety issues were observed.

4.3 RECOMMENDATIONS

The Department of Transport and Main Roads (TMR), 'Planning for Safe Transport Infrastructure at Schools' (PSTIS), 2011 guideline recommends that 20% of the short term (i.e. visitor) parking supply should be provided as drop and go bays. As outlined in Section 6.2.2, the expansion only requires one (1) additional visitor bay, additional drop and go bays are not considered warranted.

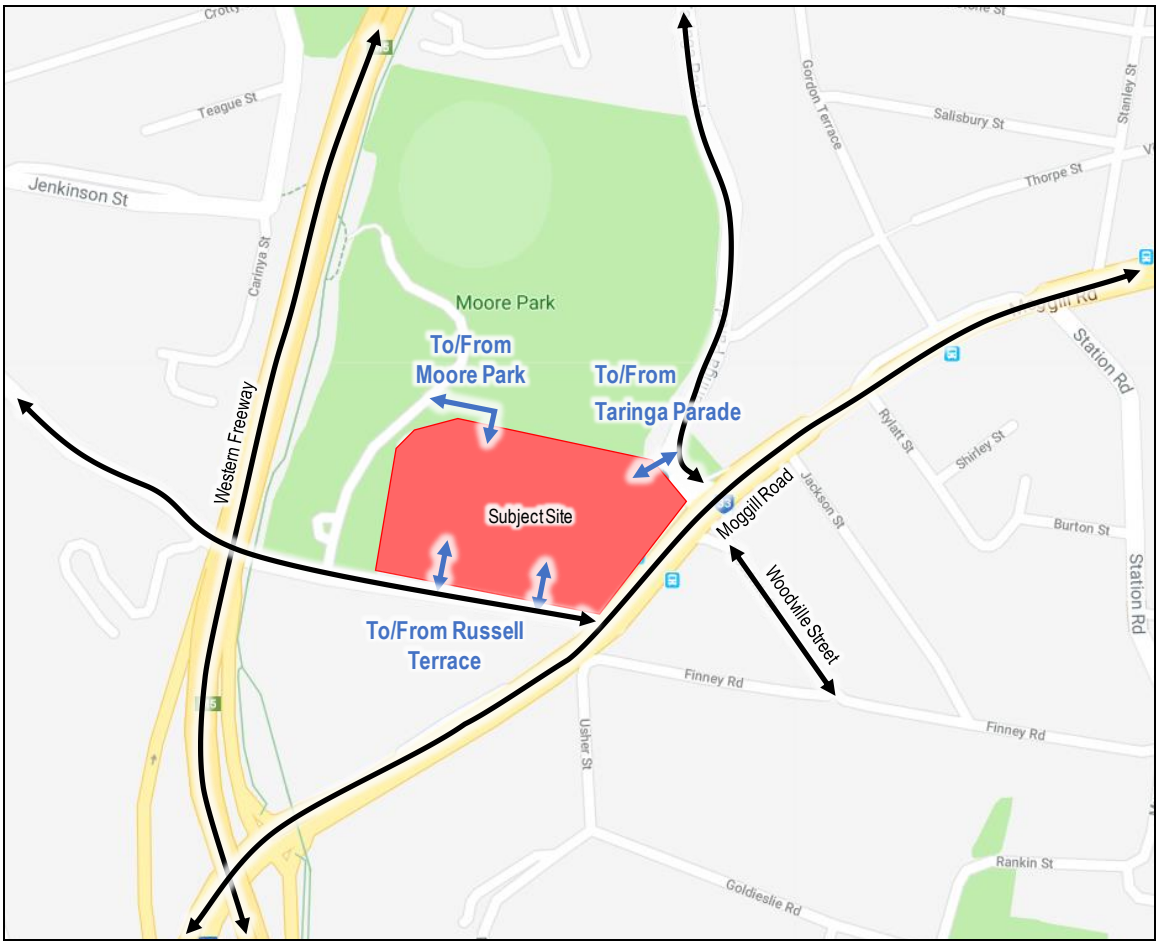
It is also again noted that Council is proposing to upgrade the existing drop and go zone on Taringa Parade and we have assumed that the proposed upgrade will accommodate additional demands associated with the expansion. However once available, the plans should be reviewed to confirm that this is the case i.e. the upgrade is likely to accommodate additional demands associated with the expansion.

Notwithstanding this, we believe the operation of the Taringa Parade set-down/pick-up area during the afternoon school peak period could be improved with the implementation of a travel demand management plan (TDMP) as detailed in Section 2.3.14.

5. EXTERNAL ACTIVE TRANSPORT INFRASTRUCTURE REVIEW

5.1 OVERVIEW

The key site access points which can be used by pedestrians and cyclists are identified on Figure 5.1.



SOURCE: Google Maps

Figure 5.1: Key Pedestrian and Cycle Site Access Points

The subject site is located within a well-established urban network and as such, it benefits from access to an existing comprehensive active transport network. Typically, all roads within 800m of the subject site (i.e. 10-minute walking distance) have a concrete footpath on at least one side. Importantly, there are existing paths along all frontages to the subject site.

To assist those pedestrians wanting to cross roads in proximity to the subject site, it is noted that there are:

- signalised crossings at the Moggill Road / Russell Terrace and the Moggill Road / Taringa Parade / Woodville Street intersections; and
- children's crossings located on Russell Terrace and Taringa Parade.

In summary, the subject site is considered well serviced by the existing active transport network.

5.2 OBSERVATIONS

Key active transport related observations made during our inspections are summarised below:

- the footpath on the eastern side of Russell Terrace, in proximity to the Moore Park driveway access is narrow and becomes congested during school peak periods due to the high number of pedestrians. Due to this congestion, some pedestrians walk along the Russell Terrace roadway;
- there is no dedicated pedestrian path connecting the footpath on the eastern side of Russell Terrace to Moore Park in proximity to the Moore Park driveway access. Therefore, pedestrians use the driveway. This route is currently traversed by a number of pedestrians.

Figure 5.2 and Figure 5.3 illustrate the existing footpath arrangements as described above.

Figure 5.2: Existing Footpath – Eastern Side of Russell Terrace

Figure 5.3: Moore Park Driveway – Russell Terrace – No Pedestrian Path

5.3 RECOMMENDATIONS

In order to improve pedestrian safety, it is recommended that the existing footpath on the eastern side of Russell Terrace, in proximity to the Moore Park driveway access is widened.

It is also recommended that a dedicated pedestrian path is constructed, connecting the footpath on the eastern side Russell Terrace to Moore Park in proximity to the Moore Park driveway access.

It is important to note that each of the pedestrian path upgrades have been recommended to address existing infrastructure deficiencies i.e. we do not believe that the proposed expansion solely necessitates the upgrades.

It is recommended that DET work with Council to undertake these upgrades noting safety issues associated with the existing arrangements.

6. INTERNAL TRANSPORT INFRASTRUCTURE REVIEW

6.1 OVERVIEW

A review of the internal transport infrastructure requirements based on the preliminary expansion planning completed to date was undertaken as outlined in the following sections.

However, it is worth noting that based on the preliminary expansion planning completed to date:

- existing vehicular accesses and servicing areas are not expected to be modified; and
- existing on-site car parking areas are proposed to be modified as part of Stage 5.

It is noted that as more detailed planning is undertaken, any modifications should be reviewed to confirm that they will operate acceptably from a traffic and transport perspective.

6.2 CAR PARKING

6.2.1 Existing Areas

On-site car parking is provided within a single car park as illustrated in Figure 6.1. It is important to note that the proposed expansion does not affect the existing car park areas.

SOURCE: Google Earth, State of Queensland 2017

Figure 6.1: Existing Car Parking Area

6.2.2 Expansion Requirements

The car parking provision required to support the expansion has been identified noting the requirements of Council's TAPS Policy as outlined below.

The car parking provision rate required by the TAPS Policy is identified in Table 6.1.

Table 6.1: Car Parking Provision Rate – TAPS Policy

Land Use	Required Provision Rate
Education Establishment (Primary School)	1 space per staff plus 0.1 spaces per staff for visitors

The parking provision required by the TAPS Policy for the proposed expansion is summarised in Table 6.2.

Table 6.2: Car Parking Provision Requirements – TAPS Policy

Stage	Yield	Required Spaces by Type	Total Required Spaces
1A & 1B	10 staff	10 staff 1 visitor	11
2 to 5	2 staff	2 staff 1 visitor	3
Total	12 staff	12 staff 1 visitor	14

Our review indicates that 14 car parking spaces are required by the TAPS Policy for the proposed expansion. It is recommended at least the 12 staff spaces required by the TAPS Policy are provided on-site to accommodate additional demand associated with the expansion.

6.3 BICYCLE PARKING

The bicycle parking provision required to support the expansion has been identified noting the requirements of Council's TAPS Policy as outlined below.

The bicycle parking provision rate required by the TAPS Policy is identified in Table 6.3.

Table 6.3: Bicycle Parking Provision Rate – TAPS Policy

Land Use	Required Provision Rate
Education Establishment	1 space per 5 enrolments (over grade 4)

The proposed bicycle parking provisions have been reviewed against the requirements of the TAPS Policy.

It is noted that TAPS Policy only requires bicycle parking for those students over grade 4 i.e. in grade 5 or higher. As the school caters for students in prep to grade 6 i.e. seven (7) grade levels, for the purposes of our review we have assumed that 2/7 of the additional enrolments will be in grades 5 or 6.

The bicycle parking provision required by the TAPS Policy for the proposed expansion is summarised in Table 6.4.

Table 6.4: Bicycle Parking Provision Review Summary – TAPS Policy

Stage	Yield	Required Spaces
1A & 1B	83 enrolments over grade 4	17
2 to 5	28 enrolments over grade 4	6
Total	**111 enrolments over grade 4**	**23**

Our review indicates that 17 bicycle parking spaces are required by the TAPS Policy for the proposed expansion. If demands warrant additional parking, it is recommended these spaces are provided.

6.4 SERVICING

It is again noted that it is currently expected that existing servicing arrangements will be maintained as part of the expansion.

However, if modified servicing arrangements are ultimately proposed, they should be reviewed to confirm that they will operate acceptably.

7. CODE RESPONSES

The new or modified traffic arrangements proposed as part of the expansion have been reviewed against the requirements of Council's TAPS Code.

A copy of our responses to each of the performance outcomes identified in the codes is included in **Appendix E**.

8. SUMMARY

Key findings of this TIA are summarised below:

- traffic analysis indicates that the expansion is not expected to significantly impact the operation of Moggill Road / Russell Terrace intersection (Intersection 1). No upgrades are required to mitigate development impacts;
- traffic analysis indicates that the Stage 1A and 1B expansions may impact the operation of the Moggill Road / Taringa Parade / Woodville Street intersection (Intersection 2). An upgrade has been identified to mitigate development impacts at the intersection. It is recommended that this upgrade is provided to support expansion Stage 1B. Alternatively, if agreed with relevant authorities, different works could be constructed, or a contribution could be made to offset expansion impacts;
- traffic analysis indicates that the Stage 1B expansion may impact the operation of the Moggill Road / Taringa Parade / Woodville Street intersection (Intersection 2). Upgrades at the intersection have been identified to mitigate impacts associated with this stage of the development;
- we recommend that once the Stage 2 expansion has been completed, the school develops a travel demand management plan (TDMP) with the aim to limit development related traffic impacts;
- council is proposing to upgrade the existing drop and go zone on Taringa Parade. We have assumed that the proposed upgrade will accommodate additional demands associated with the expansion. However once available, the plans should be reviewed to confirm that this is likely to be the case;
- notwithstanding the above point, we believe the operation of the Taringa Parade set-down/pick-up area during the afternoon school peak period could be improved with the implementation of a travel demand management plan (TDMP);
- we do not believe that the proposed expansion triggers the need for any modifications to the existing public transport network or triggers the need for new public transport services;
- although not considered to be necessitated by the proposed expansion, it is recommended that DET work with Council to have the existing footpath on the eastern side of Russell Terrace, in proximity to the Moore Park driveway access widened;
- although not considered to be necessitated by the proposed expansion, it is recommended that DET work with Council to have a pedestrian footpath constructed, connecting the footpath on the eastern side Russell Terrace to Moore Park;
- it is recommended that at least an additional 12 car parking spaces be provided on-site in accordance with Brisbane City Plan 2014, TAPS Policy requirements to accommodate additional demand associated with the expansion;
- it is recommended that an additional 23 bicycle parking spaces be provided on-site in accordance with Brisbane City Plan 2014, TAPS Policy requirements. If demands warrant additional parking, it is recommended these spaces are provided; and
- at this stage no modifications to the existing servicing arrangements are expected to be required. However, it is noted that if modified servicing arrangements are ultimately proposed, they should be reviewed to confirm that they will operate acceptably.

APPENDIX A

PROPOSED DEVELOPMENT PLANS

2.1 Master Planning - Indooroopilly State School Concept Plan

Buildings

A + E	New administration & library building with basement carparking
B	General Learning, uniform shop + toilets
C	General Learning, toilets + CON
D	General Learning
F	General Learning
G	General Learning with undercroft
H	General Learning
HALL	Full sized basketball/ netball, Stage, Music Room & General Learning
T	Canteen
1A	General Learning
1B	(Bottom Infill of 2 levels)
2	Undercover Area
3	Pool & Amenities
4	Covered Play Area
5	Covered Prep Area

Enrolment Capacity
Staging Proposal:

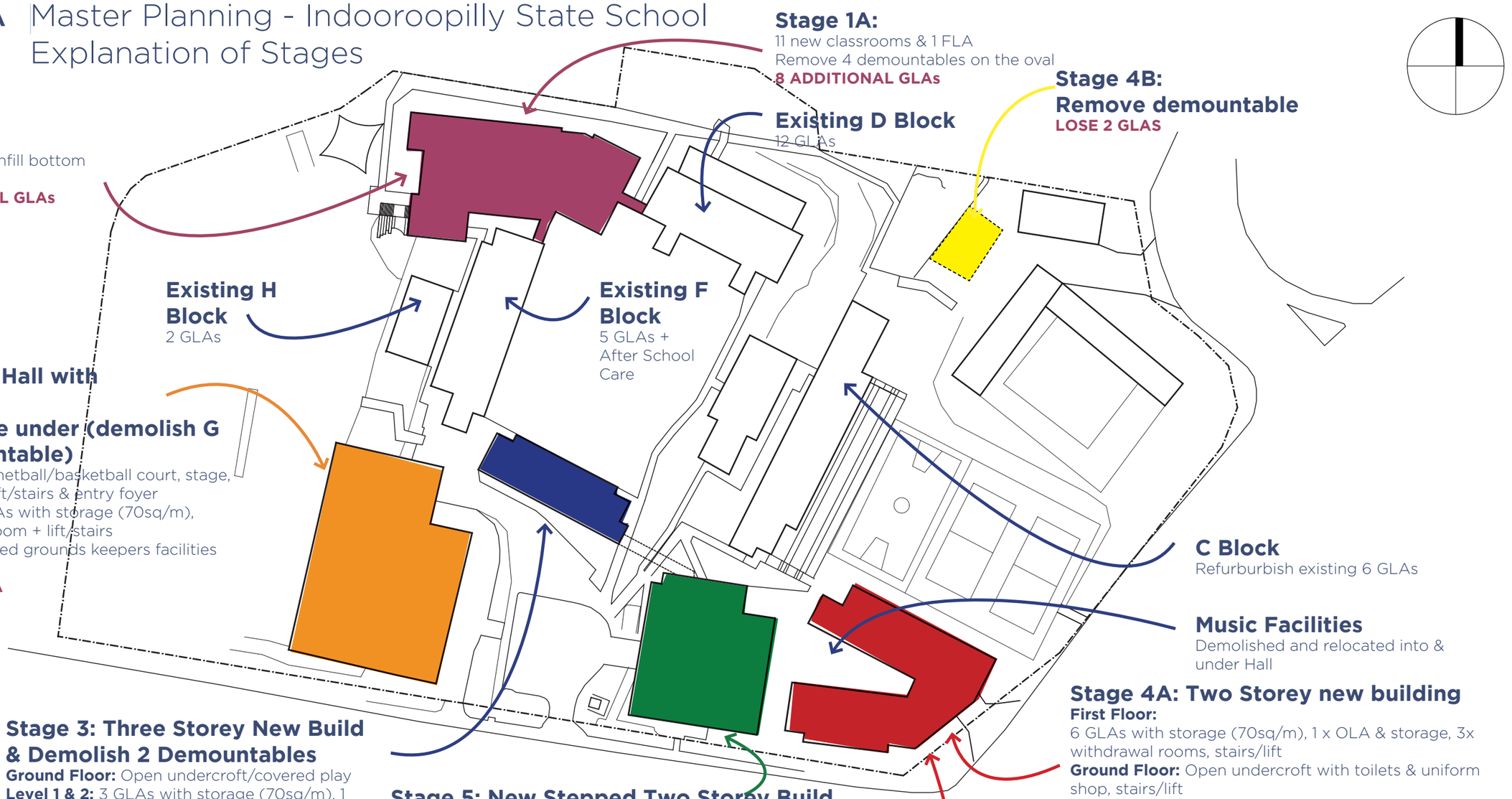
Current Capacity: 1,126
Stage 1A of new build: 1,304
Stage 1B of new build: 1,414
Masterplan Complete: 1,510

Legend

- Pedestrian
- Covered Walkways
- Covered Areas
- Driveway/Uncovered Parking
- Existing Buildings
- Refurbish Existing Building
- Stage 1A & Stage 1B New Build (top 2 levels infilled for Stage 1A & bottom 2 levels infilled for Stage 1B)
- Possible future development (3 storeys including undercroft)
- Possible future development (2 storeys - non teaching spaces with basement carpark)
- Possible future development (3 storeys)
- Upgrade existing stairs/ramp to be compliant with current standards
- New elevated walkway

Concept Plan 1:1000
April 2018

2.1A Master Planning - Indooroopilly State School Explanation of Stages



Stage 1A:
11 new classrooms & 1 FLA
Remove 4 demountables on the oval
8 ADDITIONAL GLAs

Stage 1B:
4 new GLAs (infill bottom two levels)
4 ADDITIONAL GLAs

Existing D Block
12 GLAs

Stage 4B:
Remove demountable
LOSE 2 GLAS

Existing H Block
2 GLAs

Existing F Block
5 GLAs + After School Care

Stage 2: New Hall with classrooms/ music/storage under (demolish G Block demountable)
Ground Floor: Full netball/basketball court, stage, amenitie, storage, lift/stairs & entry foyer
Undercroft: 3 x GLAs with storage (70sq/m), 1 x 90sq/m music room + lift/stairs
Oval Level: Relocated grounds keepers facilities + covered play area
1 ADDITIONAL GLA

C Block
Refurburbish existing 6 GLAs

Music Facilities
Demolished and relocated into & under Hall

Stage 4A: Two Storey new building
First Floor:
6 GLAs with storage (70sq/m), 1 x OLA & storage, 3x withdrawal rooms, stairs/lift
Ground Floor: Open undercroft with toilets & uniform shop, stairs/lift

Existing Block B to be demolished = 6 undersized classrooms with no storage, toilets & unfirom shop
NO ADDITIONAL GLAs GAINED

Stage 3: Three Storey New Build & Demolish 2 Demountables
Ground Floor: Open undercroft/covered play
Level 1 & 2: 3 GLAs with storage (70sq/m), 1 withdrawal space + lift/stairs
Can accomodate 6 GLAs in total
3 ADDITIONAL GLAs

Stage 5: New Stepped Two Storey Build
Non teaching space :
New Administration and Library Building (no classrooms)
Demolish Block A & Block E (lose 3 classrooms)
Basement carparking: 14 carpark basement carparkts (including two PWD carparks with access to lift and stairs)
LOSE 3 GLAS

Stage 4C: Infill to Block B undercroft
Ground Floor: open undercroft with toilets & uniform toilets, stairs/lift & 5 new GLAs (demountable is removed as part of this stage)
3 ADDITIONAL GLAs

Junior Platform Classroom numbers (after Stage 3 is completely infilled):
NEW BUILDING = 16 GLAs
H BLOCK = 2 GLAs
BLOCK F = 5 GLAs + Afterschool care
BLOCK D = 12 GLAs
Stage 3 = 6 GLAS
HALL = 3 GLAs + music facilities
Junior Platform = 44 GLAS in total

Senior Platform Classroom numbers (after Stage 5):
New classroom numbers = First Floor replaces the same classroom numbers as Block B but adds an OLA, lift and 3 withdrawal rooms
Classroom Numbers:
E BLOCK = 3 GLAs **lost**
STAGE 4 B BLOCK = 6 GLAs (First Floor infill only)
C BLOCK = 6 GLAs
DEMOUNTABLE M4 removed = 2 GLAS **lost**
STAGE 5 B BLOCK = 4 GLAs (Ground floor Infill)
Senior Platform = 11 GLAs in total (if 3 GLAs are lost with the demolition of Block E)

APPENDIX B

TRAFFIC SURVEY RESULTS

TDC
Traffic Data & Control

SURVEY INFORMATION

Site ID:	1			
Location:	Moggill Rd & Russell Tce, Indooroopilly			
Date:	1	/ May	/	2018
Time Period 1:	07:00	to	09:00	
Time Period 2:	15:00	to	18:00	

	Primary Classes:	Secondary Classes:
1	Light Vehicles	Pedestrians
2	Light Trucks (3-5)	None
3	Heavy Trucks (6-12)	
4	None	
5	None	

Weather Conditions 1: Fine **Weather Conditions 2:** Fine

Intersection Legs:		Ch	
	North	✓	Moggill Rd SB
	East		
	South	✓	Moggill Rd NB
	West	✓	Russell Tce EB

Output time interval: 15 mins

MAP

Site ID: 1

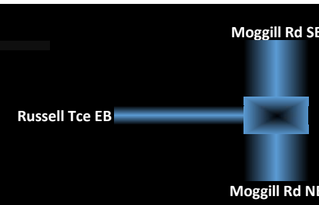
Location: Moggill Rd & Russell Tce, Indooroopilly

Date: 1-May-2018

Period 1 Time: 7:00 AM to 9:00 AM

Weather: Fine

Period 1 Peak Hour: 7:45 AM to 8:45 AM



TDC Traffic Data & Control

TOTALS AND PEAKS

Period 1 Total	1783	92	29	263	1	0	0	0	0	0	132	3	0	3179	126	7	0	0	0	66	1127	5	0	0	0	0	1	0	0	46	6748	2168	3447	1133
Period 1 Peak Hr	961	60	8	152	0	0	0	0	0	0	62	1	0	1592	63	3	0	0	0	44	585	1	0	0	0	0	1	0	0	25	3489	1181	1721	587

Time Starting	Moggill Rd SB Through Light Vehicles	Moggill Rd SB Through Light Trucks (3-5)	Moggill Rd SB Through Heavy Trucks (6-12)	Moggill Rd SB Right Light Vehicles	Moggill Rd SB Right Light Trucks (3-5)	Moggill Rd SB Right Heavy Trucks (6-12)	Moggill Rd SB U-turn Light Vehicles	Moggill Rd SB U-turn Light Trucks (3-5)	Moggill Rd SB U-turn Heavy Trucks (6-12)	Moggill Rd SB Cross 1 Pedestrians	Moggill Rd NB Left Light Vehicles	Moggill Rd NB Left Light Trucks (3-5)	Moggill Rd NB Left Heavy Trucks (6-12)	Moggill Rd NB Through Light Vehicles	Moggill Rd NB Through Light Trucks (3-5)	Moggill Rd NB Through Heavy Trucks (6-12)	Moggill Rd NB U-turn Light Vehicles	Moggill Rd NB U-turn Light Trucks (3-5)	Moggill Rd NB U-turn Heavy Trucks (6-12)	Moggill Rd NB Cross 1 Pedestrians	Russell Tce EB Left Light Vehicles	Russell Tce EB Left Light Trucks (3-5)	Russell Tce EB Left Heavy Trucks (6-12)	Russell Tce EB Right Light Vehicles	Russell Tce EB Right Light Trucks (3-5)	Russell Tce EB Right Heavy Trucks (6-12)	Russell Tce EB U-turn Light Vehicles	Russell Tce EB U-turn Light Trucks (3-5)	Russell Tce EB U-turn Heavy Trucks (6-12)	Russell Tce EB Cross 1 Pedestrians	GRAND TOTAL TOTALS	Moggill Rd SB TOTAL All Classes	Moggill Rd NB TOTAL All Classes	Russell Tce EB TOTAL All Classes
07:00	161	10	4	20	0	0	0	0	0	0	14	2	0	429	18	0	0	0	0	2	125	0	0	0	0	0	0	0	0	5	**783**	195	463	125
07:15	217	5	11	31	1	0	0	0	0	0	16	0	0	396	14	2	0	0	0	1	134	1	0	0	0	0	0	0	0	1	**828**	265	428	135
07:30	224	7	5	32	0	0	0	0	0	0	22	0	0	405	18	0	0	0	0	4	147	3	0	0	0	0	0	0	0	6	**863**	268	445	150
07:45	204	15	5	21	0	0	0	0	0	0	17	1	0	409	22	0	0	0	0	8	145	0	0	0	0	0	0	0	0	7	**839**	245	449	145
08:00	248	16	2	35	0	0	0	0	0	0	14	0	0	403	11	1	0	0	0	9	157	1	0	0	0	0	1	0	0	3	**889**	301	429	159
08:15	248	11	0	30	0	0	0	0	0	0	15	0	0	397	11	1	0	0	0	6	141	0	0	0	0	0	0	0	0	5	**854**	289	424	141
08:30	261	18	1	66	0	0	0	0	0	0	16	0	0	383	19	1	0	0	0	21	142	0	0	0	0	0	0	0	0	10	**907**	346	419	142
08:45	220	10	1	28	0	0	0	0	0	0	18	0	0	357	13	2	0	0	0	15	136	0	0	0	0	0	0	0	0	9	**785**	259	390	136

Site ID: 1

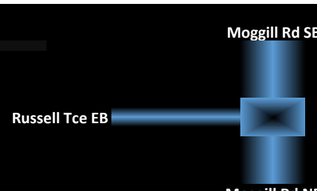
Location: Moggill Rd & Russell Tce, Indooroopilly

Date: 1-May-2018

Period 2 Time: 3:00 PM to 6:00 PM

Weather: Fine

Period 2 Peak Hour: 4:15 PM to 5:15 PM



TDC Traffic Data & Control

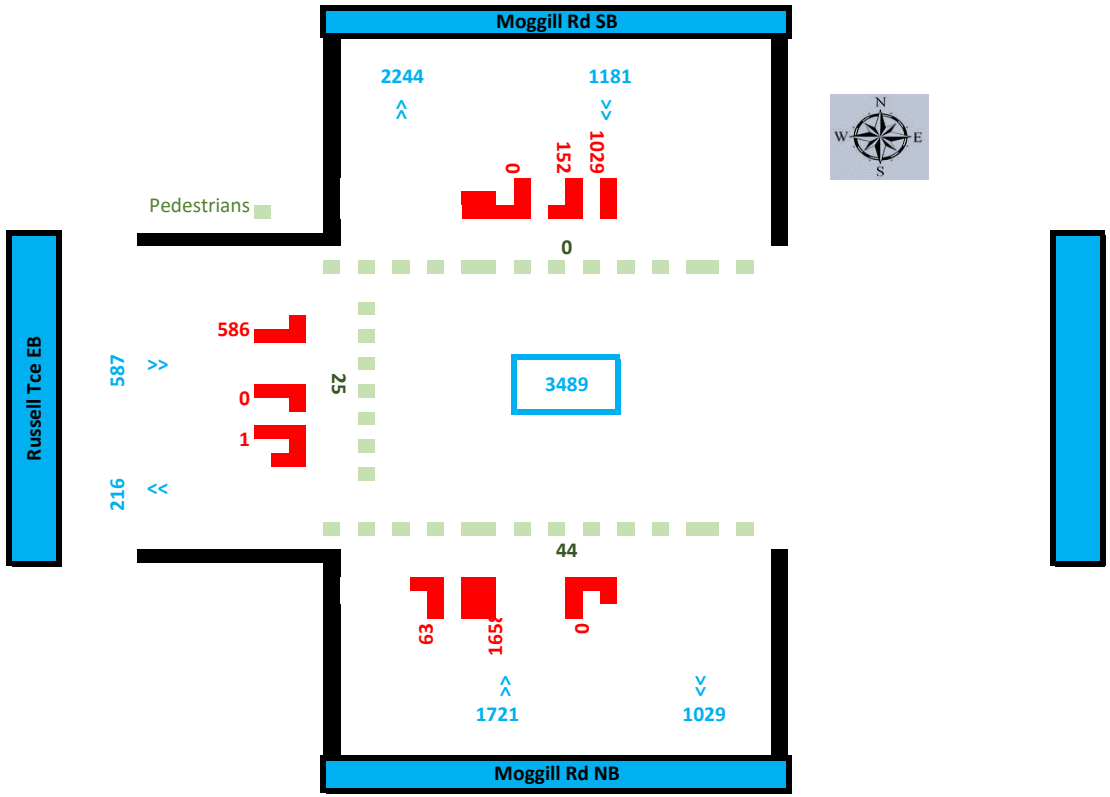
TOTALS AND PEAKS

Period 2 Total	5220	145	15	802	2	0	0	0	0	0	305	1	0	3213	100	9	0	0	0	86	719	1	0	0	0	0	0	0	0	58	10532	6184	3628	720
Period 2 Peak Hr	1878	44	3	276	0	0	0	0	0	0	105	0	0	1034	34	1	0	0	0	20	205	0	0	0	0	0	0	0	0	8	3580	2201	1174	205

Time Starting	Moggill Rd SB Through Light Vehicles	Moggill Rd SB Through Light Trucks (3-5)	Moggill Rd SB Through Heavy Trucks (6-12)	Moggill Rd SB Right Light Vehicles	Moggill Rd SB Right Light Trucks (3-5)	Moggill Rd SB Right Heavy Trucks (6-12)	Moggill Rd SB U-turn Light Vehicles	Moggill Rd SB U-turn Light Trucks (3-5)	Moggill Rd SB U-turn Heavy Trucks (6-12)	Moggill Rd SB Cross 1 Pedestrians	Moggill Rd NB Left Light Vehicles	Moggill Rd NB Left Light Trucks (3-5)	Moggill Rd NB Left Heavy Trucks (6-12)	Moggill Rd NB Through Light Vehicles	Moggill Rd NB Through Light Trucks (3-5)	Moggill Rd NB Through Heavy Trucks (6-12)	Moggill Rd NB U-turn Light Vehicles	Moggill Rd NB U-turn Light Trucks (3-5)	Moggill Rd NB U-turn Heavy Trucks (6-12)	Moggill Rd NB Cross 1 Pedestrians	Russell Tce EB Left Light Vehicles	Russell Tce EB Left Light Trucks (3-5)	Russell Tce EB Left Heavy Trucks (6-12)	Russell Tce EB Right Light Vehicles	Russell Tce EB Right Light Trucks (3-5)	Russell Tce EB Right Heavy Trucks (6-12)	Russell Tce EB U-turn Light Vehicles	Russell Tce EB U-turn Light Trucks (3-5)	Russell Tce EB U-turn Heavy Trucks (6-12)	Russell Tce EB Cross 1 Pedestrians	GRAND TOTAL TOTALS	Moggill Rd SB TOTAL All Classes	Moggill Rd NB TOTAL All Classes	Russell Tce EB TOTAL All Classes
15:00	347	8	3	39	0	0	0	0	0	0	22	0	0	300	12	0	0	0	0	31	99	0	0	0	0	0	0	0	0	16	**830**	397	334	99
15:15	388	10	4	53	1	0	0	0	0	0	14	0	0	300	12	1	0	0	0	9	103	0	0	0	0	0	0	0	0	12	**886**	456	327	103
15:30	406	25	2	55	0	0	0	0	0	0	18	0	0	329	13	2	0	0	0	11	51	0	0	0	0	0	0	0	0	6	**901**	488	362	51
15:45	438	14	1	59	1	0	0	0	0	0	23	0	0	228	4	3	0	0	0	7	53	0	0	0	0	0	0	0	0	8	**824**	513	258	53
16:00	440	17	0	67	0	0	0	0	0	0	20	0	0	225	9	0	0	0	0	8	39	1	0	0	0	0	0	0	0	5	**818**	524	254	40
16:15	479	12	0	58	0	0	0	0	0	0	23	0	0	255	9	0	0	0	0	7	43	0	0	0	0	0	0	0	0	2	**879**	549	287	43
16:30	494	13	2	70	0	0	0	0	0	0	28	0	0	241	13	1	0	0	0	4	43	0	0	0	0	0	0	0	0	4	**905**	579	283	43
16:45	480	11	0	74	0	0	0	0	0	0	24	0	0	290	5	0	0	0	0	9	51	0	0	0	0	0	0	0	0	1	**935**	565	319	51
17:00	425	8	1	74	0	0	0	0	0	0	30	0	0	248	7	0	0	0	0	0	68	0	0	0	0	0	0	0	0	1	**861**	508	285	68
17:15	438	10	1	79	0	0	0	0	0	0	39	1	0	247	2	0	0	0	0	0	51	0	0	0	0	0	0	0	0	2	**868**	528	289	51
17:30	423	7	0	87	0	0	0	0	0	0	33	0	0	265	7	1	0	0	0	0	60	0	0	0	0	0	0	0	0	1	**883**	517	306	60
17:45	462	10	1	87	0	0	0	0	0	0	31	0	0	285	7	1	0	0	0	0	58	0	0	0	0	0	0	0	0	0	**942**	560	324	58

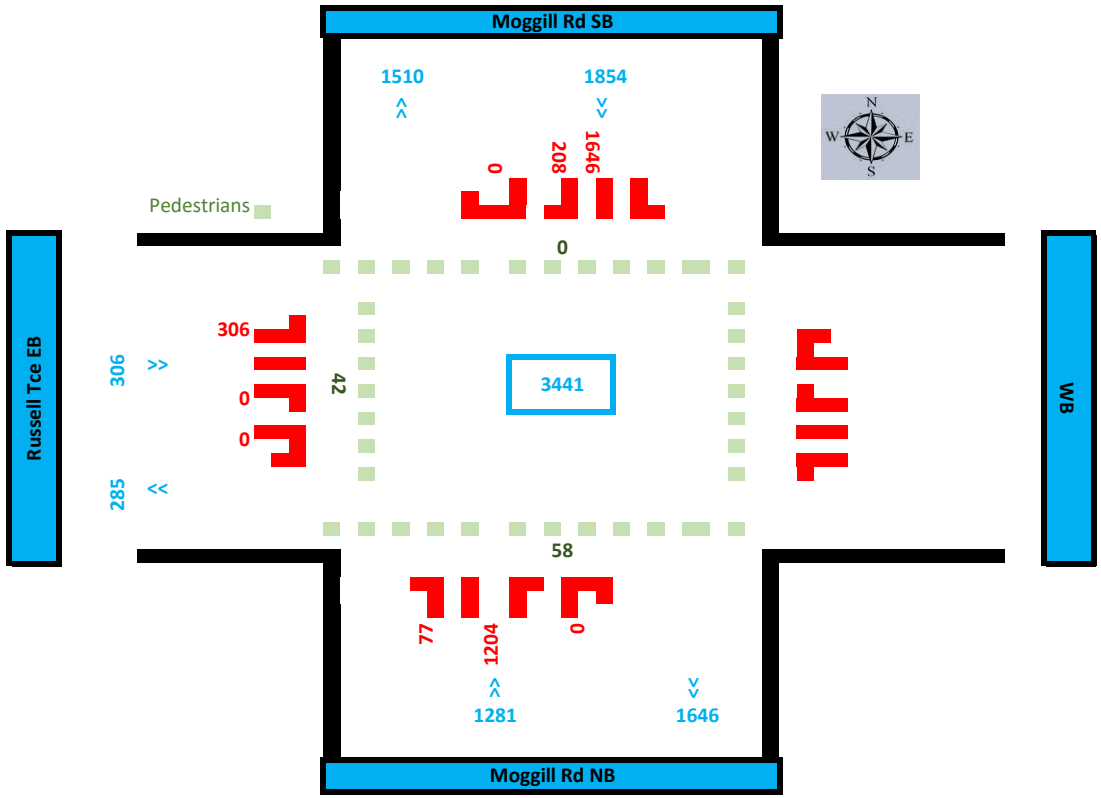
Turning Movement Count Summary

Site ID:	1
Location:	Moggill Rd & Russell Tce, Indooroopilly
Date:	1-May-2018
Surveyed Time:	7:00 AM to 9:00 AM
Weather:	Fine
Data for hour starting:	7:45 AM to 8:45 AM
Vehicle Class:	ALL VEHICLES



Turning Movement Count Summary

Site ID:	1
Location:	Moggill Rd & Russell Tce, Indooroopilly
Date:	1-May-2018
Surveyed Time:	3:00 PM to 6:00 PM
Weather:	Fine
Data for hour starting:	3:00 PM to 4:00 PM
Vehicle Class:	ALL VEHICLES



TDC
Traffic Data & Control

SURVEY INFORMATION

Site ID:	2			
Location:	Moggill Rd & Taringa Pde, Indooroopilly			
Date:	1	/ May	/ 2018	
Time Period 1:	07:00	to	09:00	
Time Period 2:	15:00	to	18:00	

	Primary Classes:	Secondary Classes:
1	Light Vehicles	Pedestrians
2	Light Trucks (3-5)	None
3	Heavy Trucks (6-12)	
4	Bicycles on Road	
5	None	

Weather Conditions 1: Fine **Weather Conditions 2:** Fine

Intersection Legs:

North	✓ Ch	Taringa Pde SB
East	✓ Ch	Moggill Rd WB
South	✓ Ch	Woodville St NB
West	✓ Ch	Moggill Rd EB

Output time interval: 15 mins

MAP

Site ID: 2

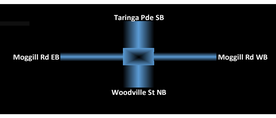
Location: Moggill Rd & Taringa Pde, Indooroopilly

Date: 1-May-2018

Period 1 Time: 7:00 AM to 9:00 AM

Weather: Fine

Period 1 Peak Hour: 7:45 AM to 8:45 AM



TDC Traffic Data & Control

TOTALS AND PEAKS

| | | |

Site ID: 2

Location: Moggill Rd & Taringa Pde, Indooroopilly

Date: 3-May-2018

Period 2 Time: 3:00 PM to 6:00 PM

Weather: Fine

Period 2 Peak Hour: 4:15 PM to 5:15 PM

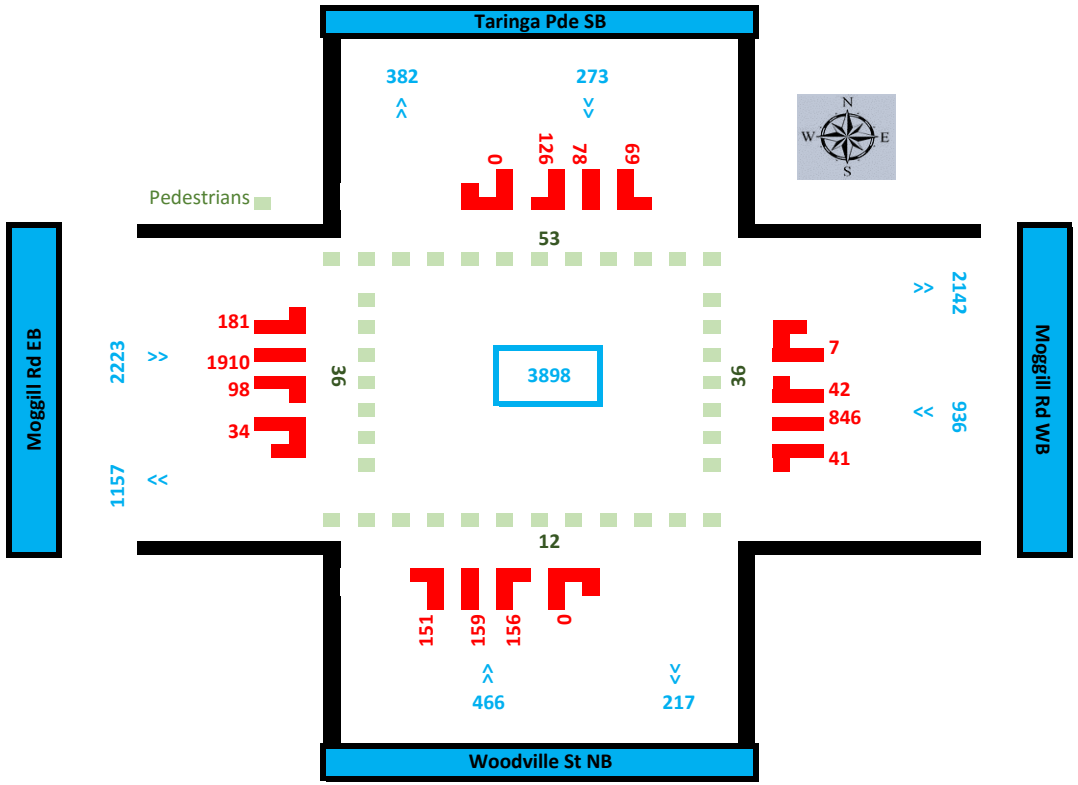
TDC
Traffic Data & Control

TOTALS AND PEAKS

| | | |

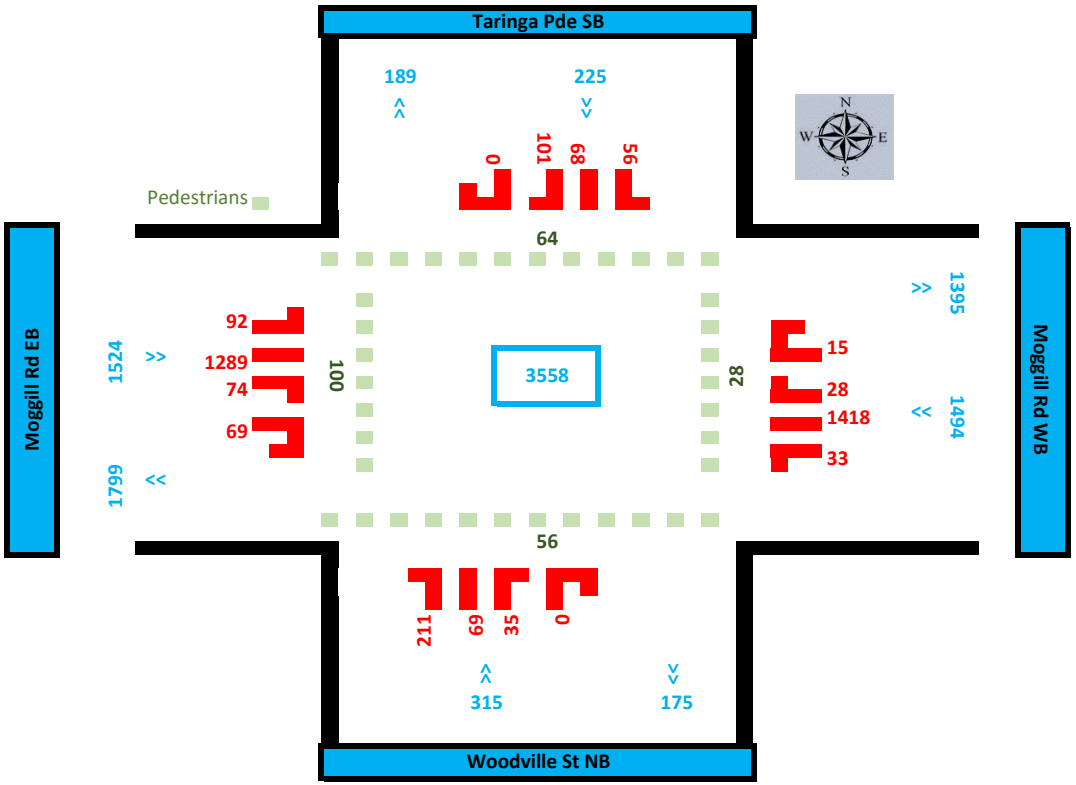
Turning Movement Count Summary

Site ID:	2
Location:	Moggill Rd & Taringa Pde, Indooroopilly
Date:	1-May-2018
Surveyed Time:	7:00 AM to 9:00 AM
Weather:	Fine
Data for hour starting:	7:45 AM to 8:45 AM
Vehicle Class:	ALL VEHICLES



Turning Movement Count Summary

Site ID:	2
Location:	Moggill Rd & Taringa Pde, Indooroopilly
Date:	1-May-2018
Surveyed Time:	3:00 PM to 6:00 PM
Weather:	Fine
Data for hour starting:	3:00 PM to 4:00 PM
Vehicle Class:	ALL VEHICLES



APPENDIX C

ASSESSED TRAFFIC VOLUMES

Project Information	
Project Name:	Indooroopilly State School
Project Number:	P3606
Prepared By:	Christy Luk
Reviewed By:	Nathan Edwards
Prepared Date:	2/07/2018
Reviewed Date:	2/07/2018
File Path:	P:\P3606 Indooroopilly State School TIA\Technical Work\Traffic Gen\

Table 1: Development Yields

Stage	Yield	Unit
1A & 1B	288	enrolments
2 to 5	96	enrolments

Table 2: Peak Period Traffic Generation Rates

Land Use	AM Peak	PM Peak	Unit	Source
Primary School	0.82	0.80	trips per enrolment	GTA Sydney School Traffic Gen Report

Table 3: Directional Traffic Distribution

Land Use	AM Peak			PM Peak		
	IN	OUT	TOTAL	IN	OUT	TOTAL
Primary School	60%	40%	100%	40%	60%	100%

Table 4: Traffic Generation

Stage	AM Peak			PM Peak		
	IN	OUT	TOTAL	IN	OUT	TOTAL
1A & 1B	142	94	236	92	138	230
2 to 5	47	31	79	31	46	77
Total	**189**	**126**	**315**	**123**	**184**	**307**

Table 5: Driveway / Street Use

Driveway / Street	%
Moggill Road - West	15%
Russell Terrace	10%
Taringa Parade	15%
Woodville Street	30%
Moggill Road - East	30%
Total	**100%**

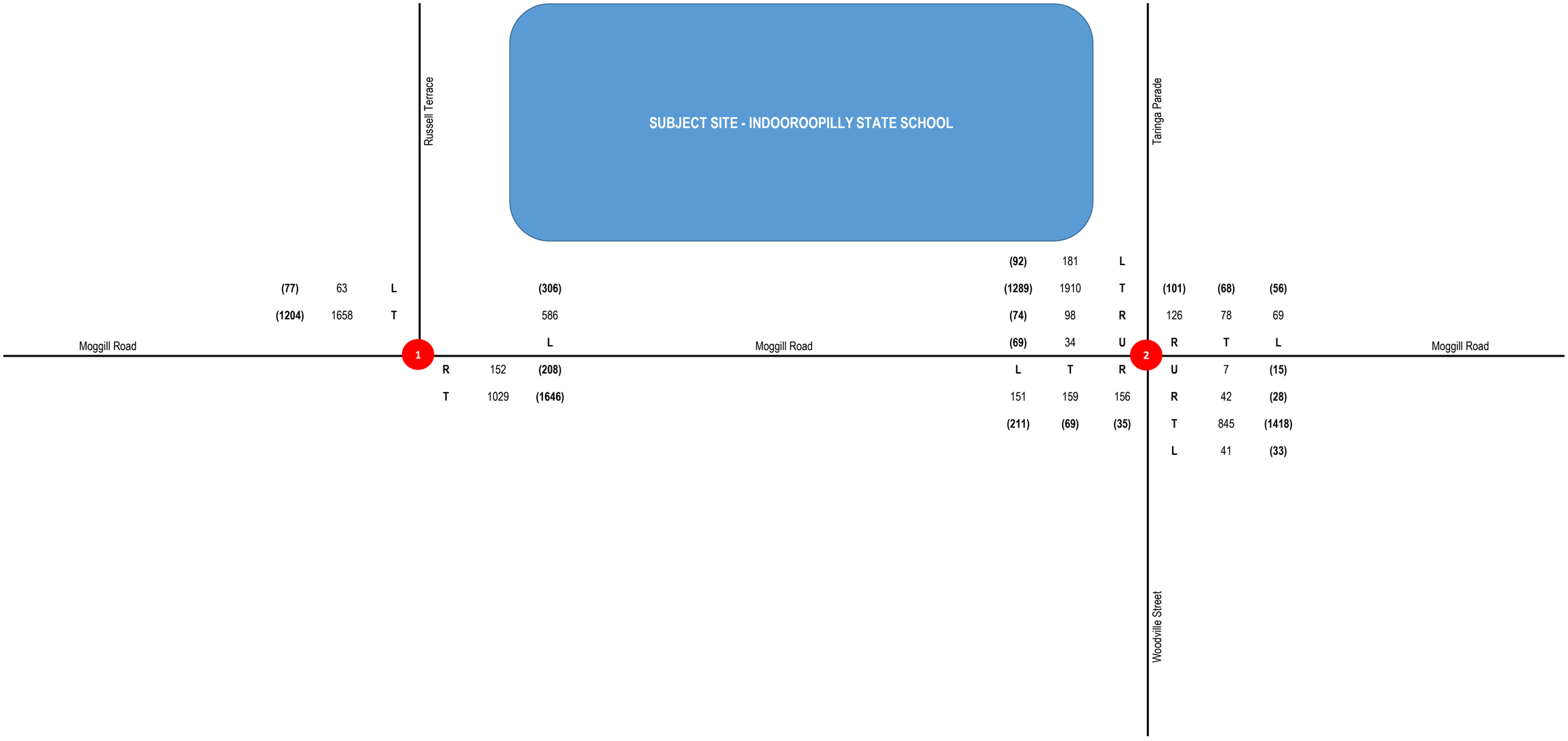
Table 6: Background Traffic Growth - Stages 1A & 1B

Road	%	Survey Year	Year of Opening	Year of Opening Growth Factor	10 Year Horizon	10 Year Horizon Growth Factor	Note
Moggill Road	1.0%	2018	2020	1.02	2030	1.12	Linear Growth
Russell Terrace	0.5%	2018	2020	1.01	2030	1.06	
Taringa Parade	0.5%	2018	2020	1.01	2030	1.06	
Woodville Street	1.0%	2018	2020	1.02	2030	1.12	

Table 7: Background Traffic Growth - Stages 2 to 5

Road	%	Survey Year	Year of Opening	Year of Opening Growth Factor	10 Year Horizon	10 Year Horizon Growth Factor	Note
Moggill Road	1.0%	2018	2025	1.07	2035	1.17	Linear Growth
Russell Terrace	0.5%	2018	2025	1.035	2035	1.085	
Taringa Parade	0.5%	2018	2025	1.035	2035	1.085	
Woodville Street	1.0%	2018	2025	1.07	2035	1.17	

TRAFFIC SURVEY VOLUMES



DOCUMENT CONTROL

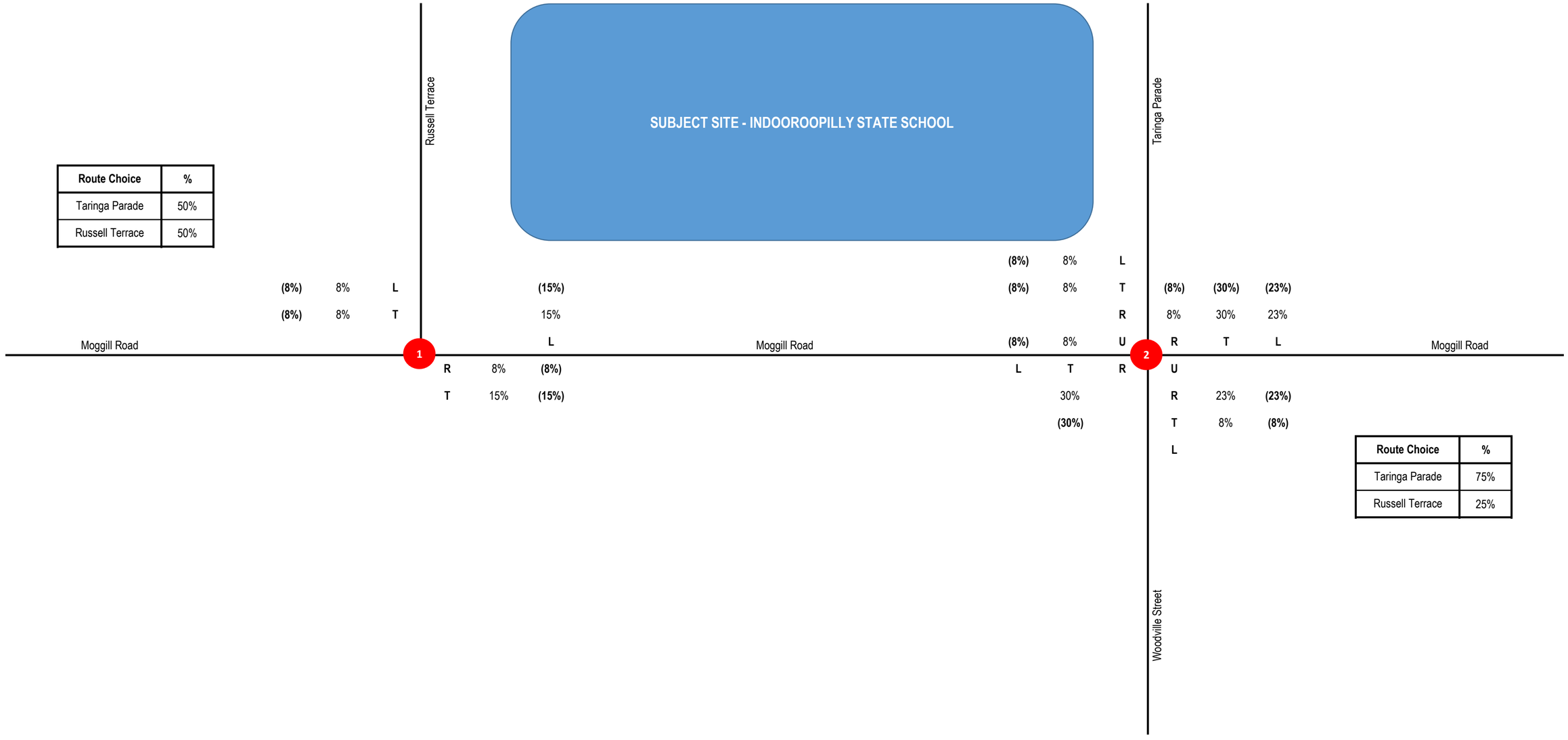
Job Number:	P3606	**Prepared By:**	Christy Luk	**Prepared Date:**	2/07/2018
Job Name:	Indooroopilly State School	**Reviewed By:**	Nathan Edwards	**Reviewed Date:**	2/07/2018
File Path:	P:\P3606 Indooroopilly State School TIA\Technical Work\Traffic Gen\	**AM Peak:**	7:45am - 8:45am		
		PM Peak:	3:00pm - 4:00pm		

LEGEND

##	AM Peak Hour Volumes	T	Through Turn Movement	L	Left Turn Movement
(##)	PM Peak Hour Volumes	R	Right Turn Movement	U	U-Turn Movement
1	Intersection ID				

BITZIOS consulting
traffic engineering - transport planning

DEVELOPMENT TRAFFIC DISTRIBUTION



Route Choice	%
Taringa Parade	50%
Russell Terrace	50%

Route Choice	%
Taringa Parade	75%
Russell Terrace	25%

DOCUMENT CONTROL

Job Number: P3606

Job Name: Indooroopilly State School

File Path: P:\P3606 Indooroopilly State School TIA\Technical Work\Traffic Gen\

Prepared By: Christy Luk

Reviewed By: Nathan Edwards

AM Peak: 7:45am - 8:45am

PM Peak: 3:00pm - 4:00pm

Prepared Date: 2/07/2018

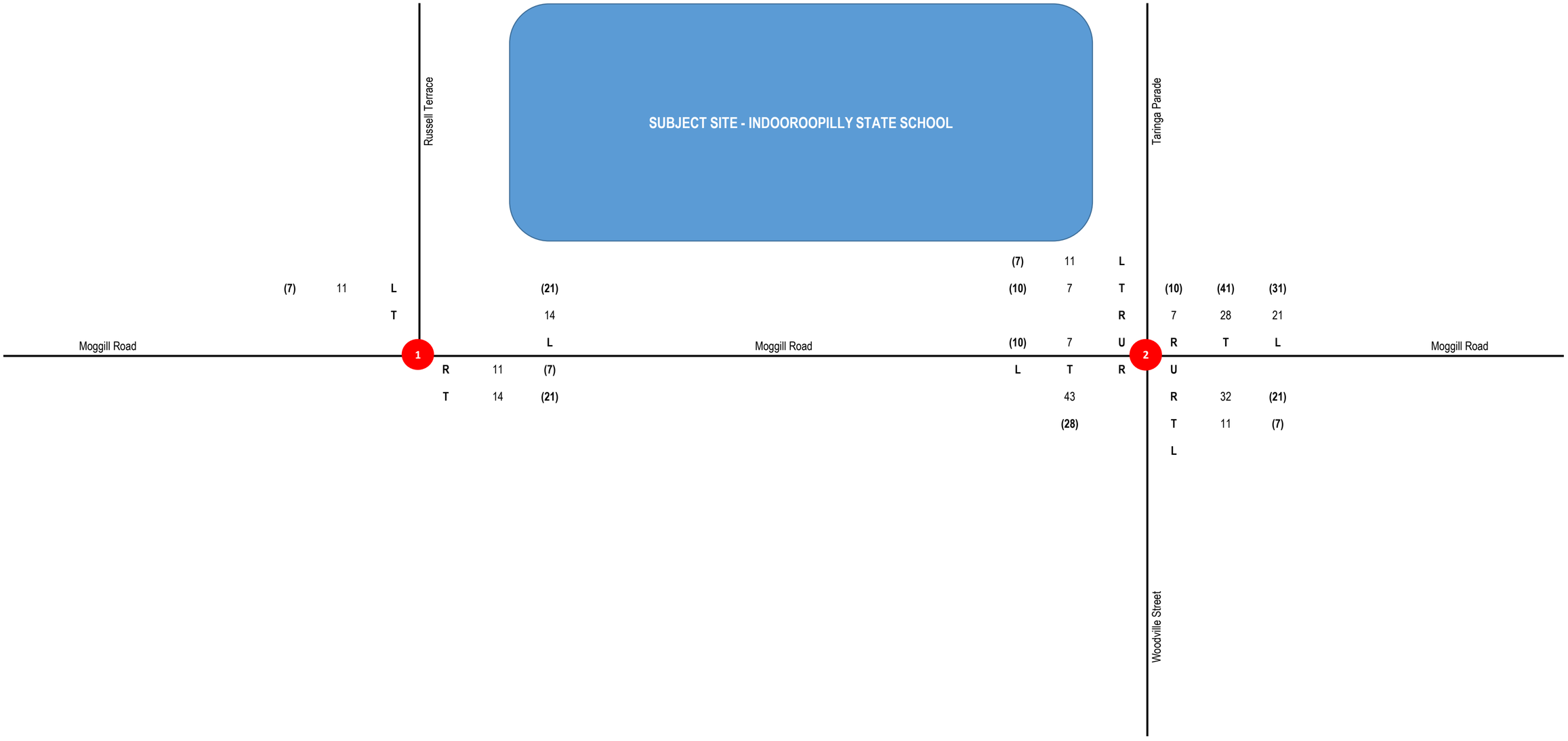
Reviewed Date: 2/07/2018

LEGEND

##	AM Peak Hour Volumes	T	Through Turn Movement	L	Left Turn Movement
(##)	PM Peak Hour Volumes	R	Right Turn Movement	U	U-Turn Movement
1	Intersection ID				

BITZIOS consulting
traffic engineering • transport planning

STAGE 1A & 1B EXPANSION VOLUMES



DOCUMENT CONTROL

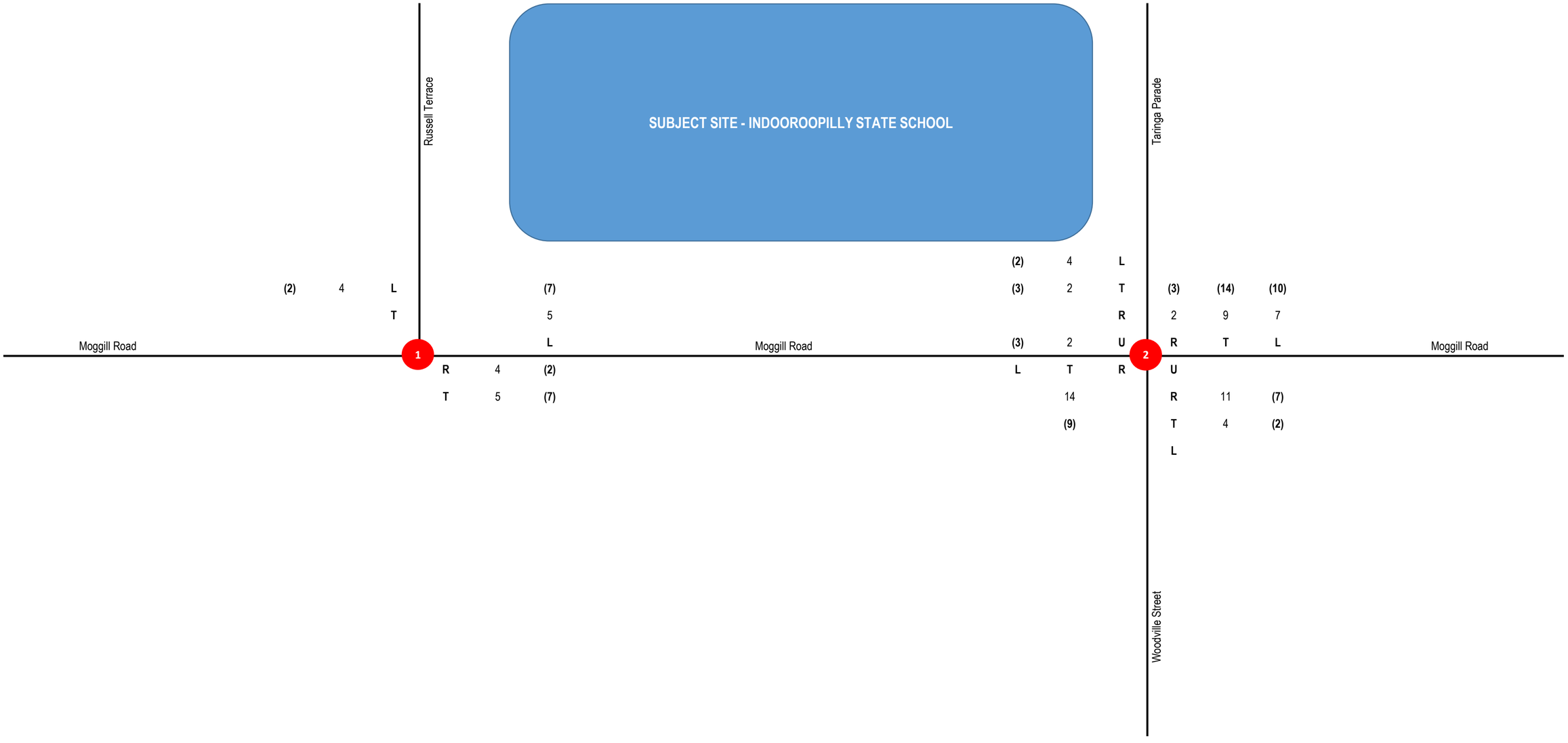
Job Number:	P3606	**Prepared By:**	Christy Luk	**Prepared Date:**	2/07/2018
Job Name:	Indooroopilly State School	**Reviewed By:**	Nathan Edwards	**Reviewed Date:**	2/07/2018
File Path:	P:\P3606 Indooroopilly State School TIA\Technical Work\Traffic Gen\	**AM Peak:**	7:45am - 8:45am		
		PM Peak:	3:00pm - 4:00pm		

LEGEND

##	AM Peak Hour Volumes	**T**	Through Turn Movement	**L**	Left Turn Movement
(##)	PM Peak Hour Volumes	**R**	Right Turn Movement	**U**	U-Turn Movement
1	Intersection ID				

BITZIOS consulting
traffic engineering - transport planning

STAGE 2 TO 5 EXPANSION VOLUMES



DOCUMENT CONTROL

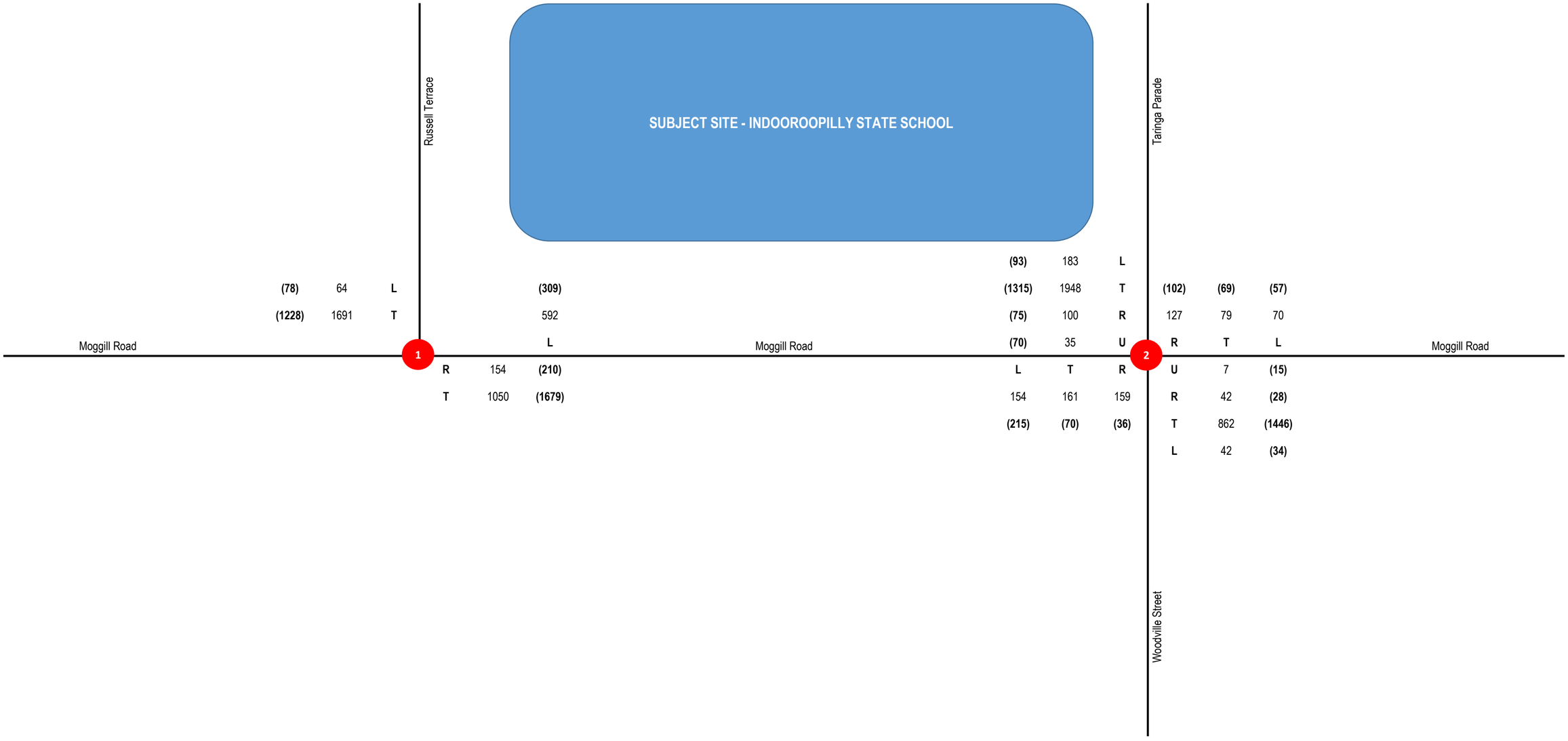
Job Number:	P3606	**Prepared By:**	Christy Luk	**Prepared Date:**	2/07/2018
Job Name:	Indooroopilly State School	**Reviewed By:**	Nathan Edwards	**Reviewed Date:**	2/07/2018
File Path:	P:\P3606 Indooroopilly State School TIA\Technical Work\Traffic Gen\	**AM Peak:**	7:45am - 8:45am		
		PM Peak:	3:00pm - 4:00pm		

LEGEND

##	AM Peak Hour Volumes	**T**	Through Turn Movement	**L**	Left Turn Movement
(##)	PM Peak Hour Volumes	**R**	Right Turn Movement	**U**	U-Turn Movement
1	Intersection ID				

BITZIOS consulting
traffic engineering - transport planning

2020 BACKGROUND TRAFFIC VOLUMES



DOCUMENT CONTROL

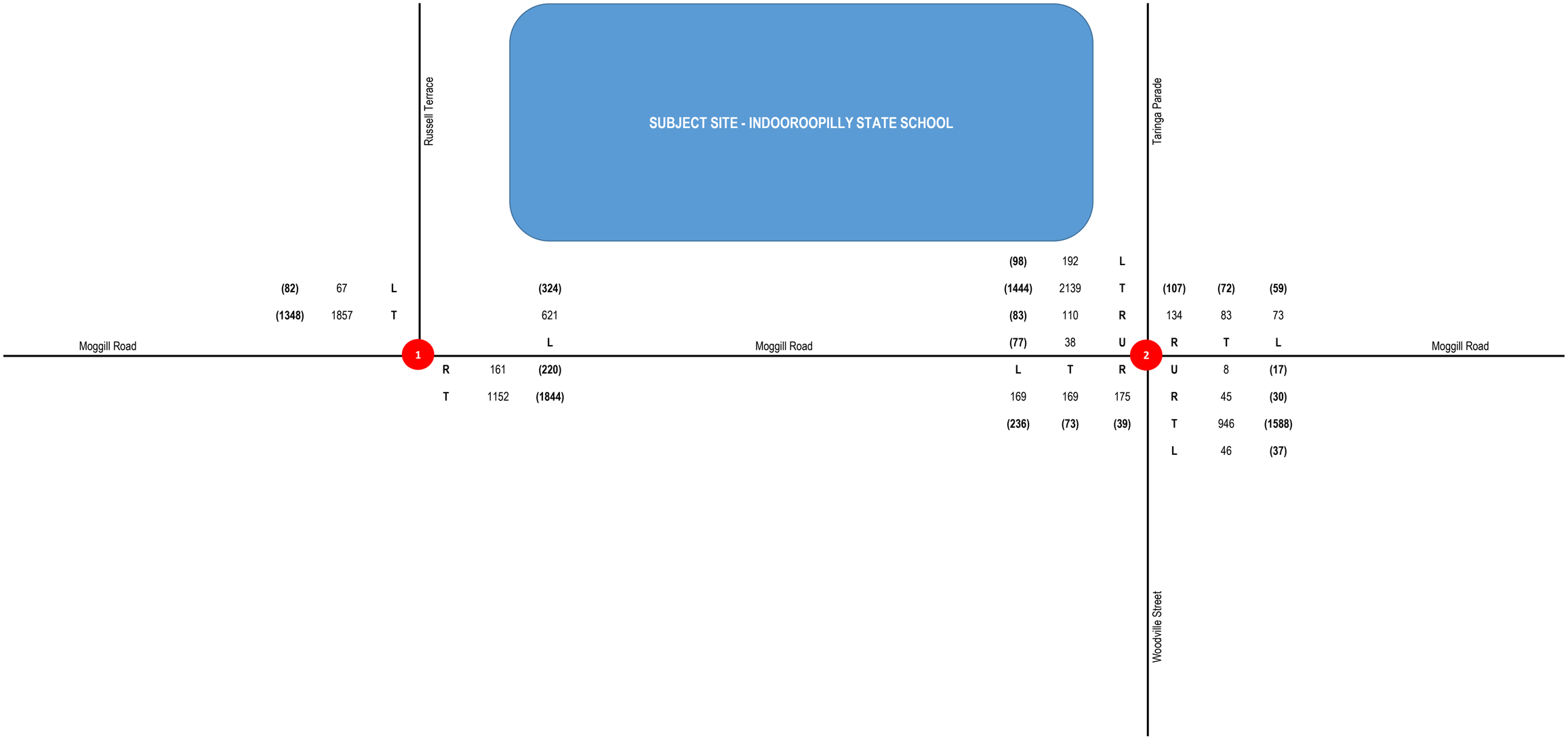
Job Number:	P3606	**Prepared By:**	Christy Luk	**Prepared Date:**	2/07/2018
Job Name:	Indooroopilly State School	**Reviewed By:**	Nathan Edwards	**Reviewed Date:**	2/07/2018
File Path:	P:\P3606 Indooroopilly State School TIA\Technical Work\Traffic Gen\	**AM Peak:**	7:45am - 8:45am		
		PM Peak:	3:00pm - 4:00pm		

LEGEND

##	AM Peak Hour Volumes	T	Through Turn Movement	L	Left Turn Movement
(##)	PM Peak Hour Volumes	R	Right Turn Movement	U	U-Turn Movement
1	Intersection ID				

BITZIOS consulting
traffic engineering - transport planning

2030 BACKGROUND TRAFFIC VOLUMES



DOCUMENT CONTROL

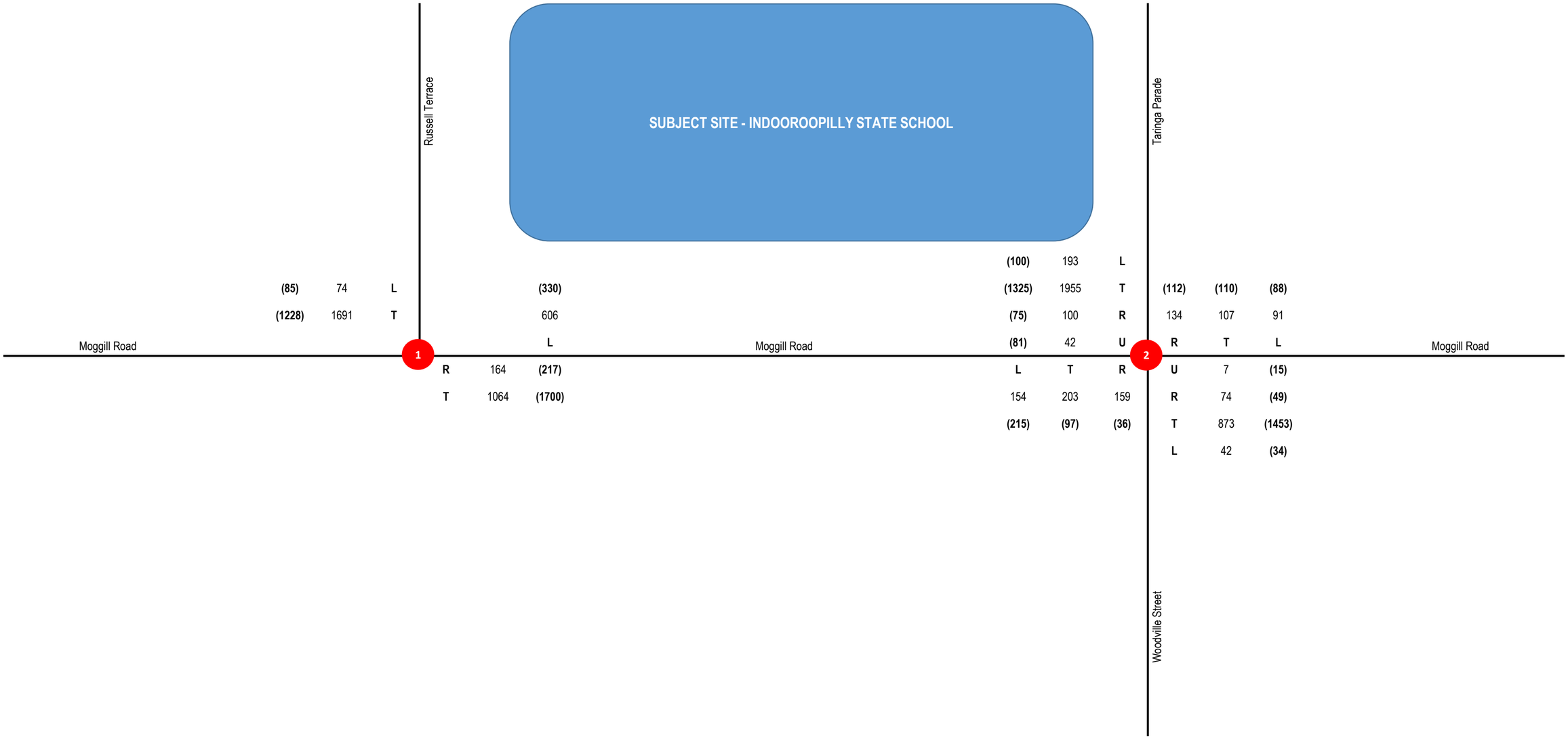
Job Number:	P3606	**Prepared By:**	Christy Luk	**Prepared Date:**	2/07/2018
Job Name:	Indooroopilly State School	**Reviewed By:**	Nathan Edwards	**Reviewed Date:**	2/07/2018
File Path:	P:\P3606 Indooroopilly State School TIA\Technical Work\Traffic Gen\	**AM Peak:**	7:45am - 8:45am		
		PM Peak:	3:00pm - 4:00pm		

LEGEND

##	AM Peak Hour Volumes	T	Through Turn Movement	L	Left Turn Movement
(##)	PM Peak Hour Volumes	R	Right Turn Movement	U	U-Turn Movement
1	Intersection ID				

BITZIOS consulting
traffic engineering - transport planning

2020 BACKGROUND & STAGE 1A & 1B EXPANSION TRAFFIC VOLUMES



DOCUMENT CONTROL

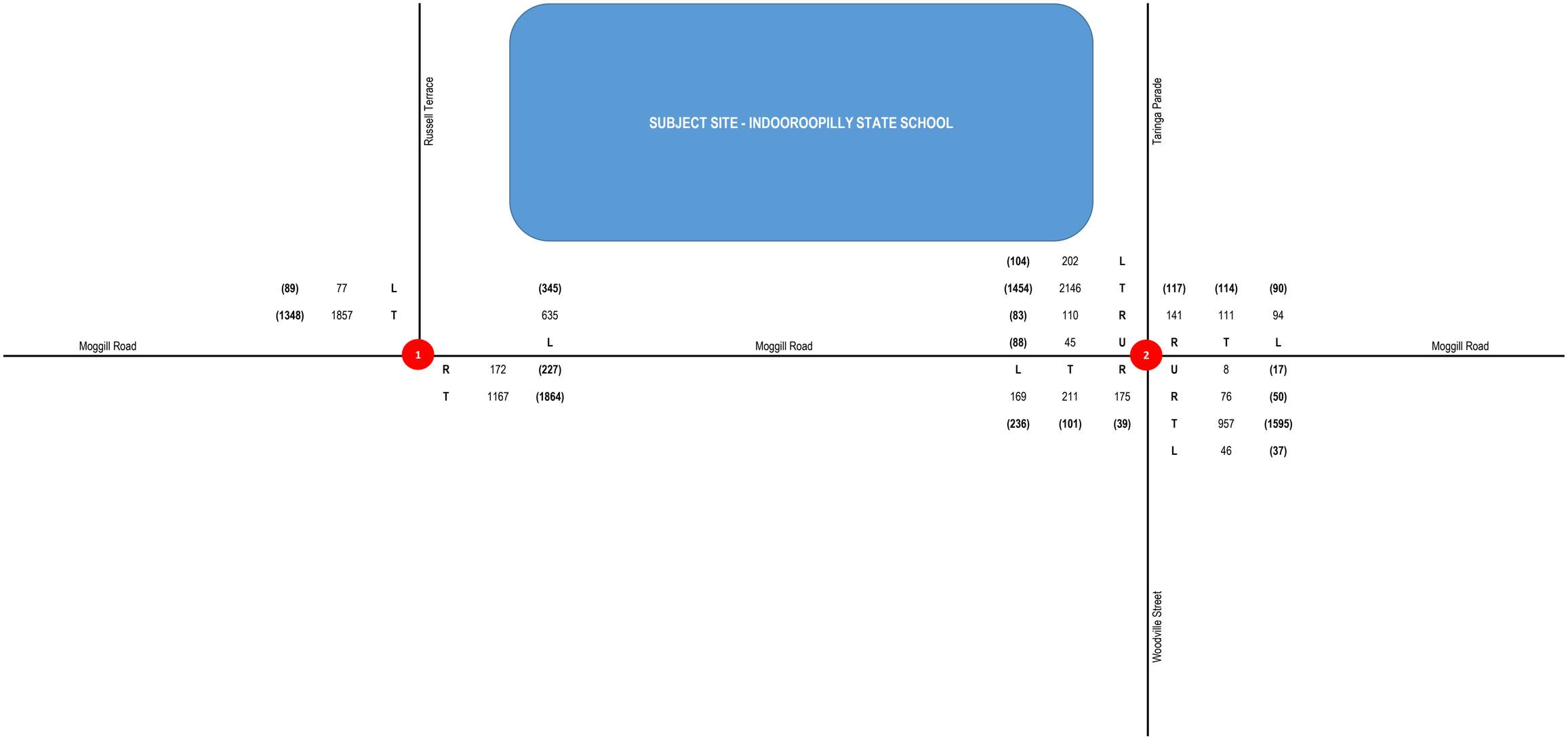
Job Number:	P3606	**Prepared By:**	Christy Luk	**Prepared Date:**	2/07/2018
Job Name:	Indooroopilly State School	**Reviewed By:**	Nathan Edwards	**Reviewed Date:**	2/07/2018
File Path:	P:\P3606 Indooroopilly State School TIA\Technical Work\Traffic Gen\	**AM Peak:**	7:45am - 8:45am		
		PM Peak:	3:00pm - 4:00pm		

LEGEND

##	AM Peak Hour Volumes	T	Through Turn Movement	L	Left Turn Movement
(##)	PM Peak Hour Volumes	R	Right Turn Movement	U	U-Turn Movement
1	Intersection ID				

BITZIOS consulting
traffic engineering - transport planning

2030 BACKGROUND & STAGE 1A & 1B EXPANSION TRAFFIC VOLUMES



DOCUMENT CONTROL

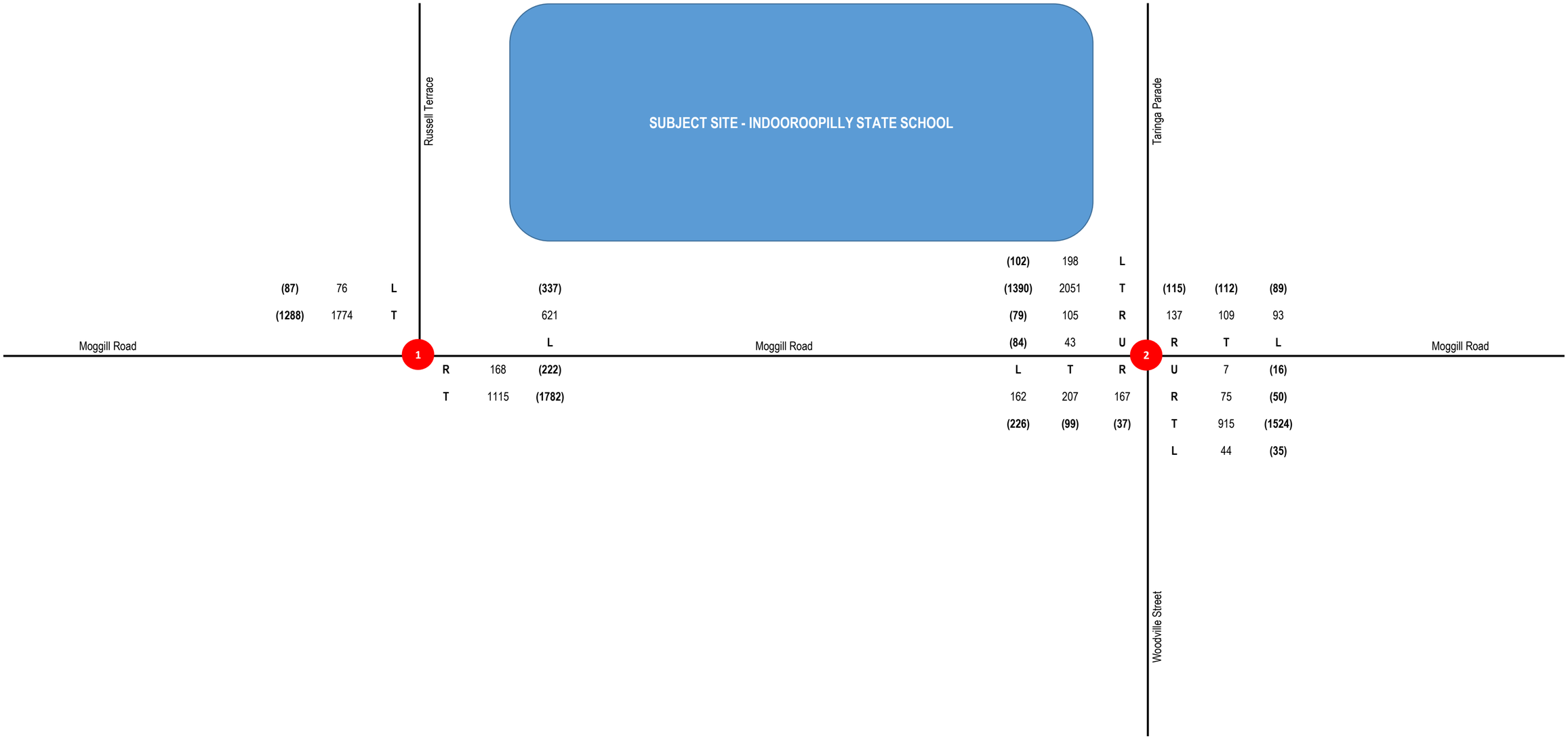
Job Number:	P3606	**Prepared By:**	Christy Luk	**Prepared Date:**	2/07/2018
Job Name:	Indooroopilly State School	**Reviewed By:**	Nathan Edwards	**Reviewed Date:**	2/07/2018
File Path:	P:\P3606 Indooroopilly State School TIA\Technical Work\Traffic Gen\	**AM Peak:**	7:45am - 8:45am		
		PM Peak:	3:00pm - 4:00pm		

LEGEND

##	AM Peak Hour Volumes	T	Through Turn Movement	L	Left Turn Movement
(##)	PM Peak Hour Volumes	R	Right Turn Movement	U	U-Turn Movement
1	Intersection ID				

BITZIOS consulting
traffic engineering - transport planning

2025 BACKGROUND TRAFFIC VOLUMES



DOCUMENT CONTROL

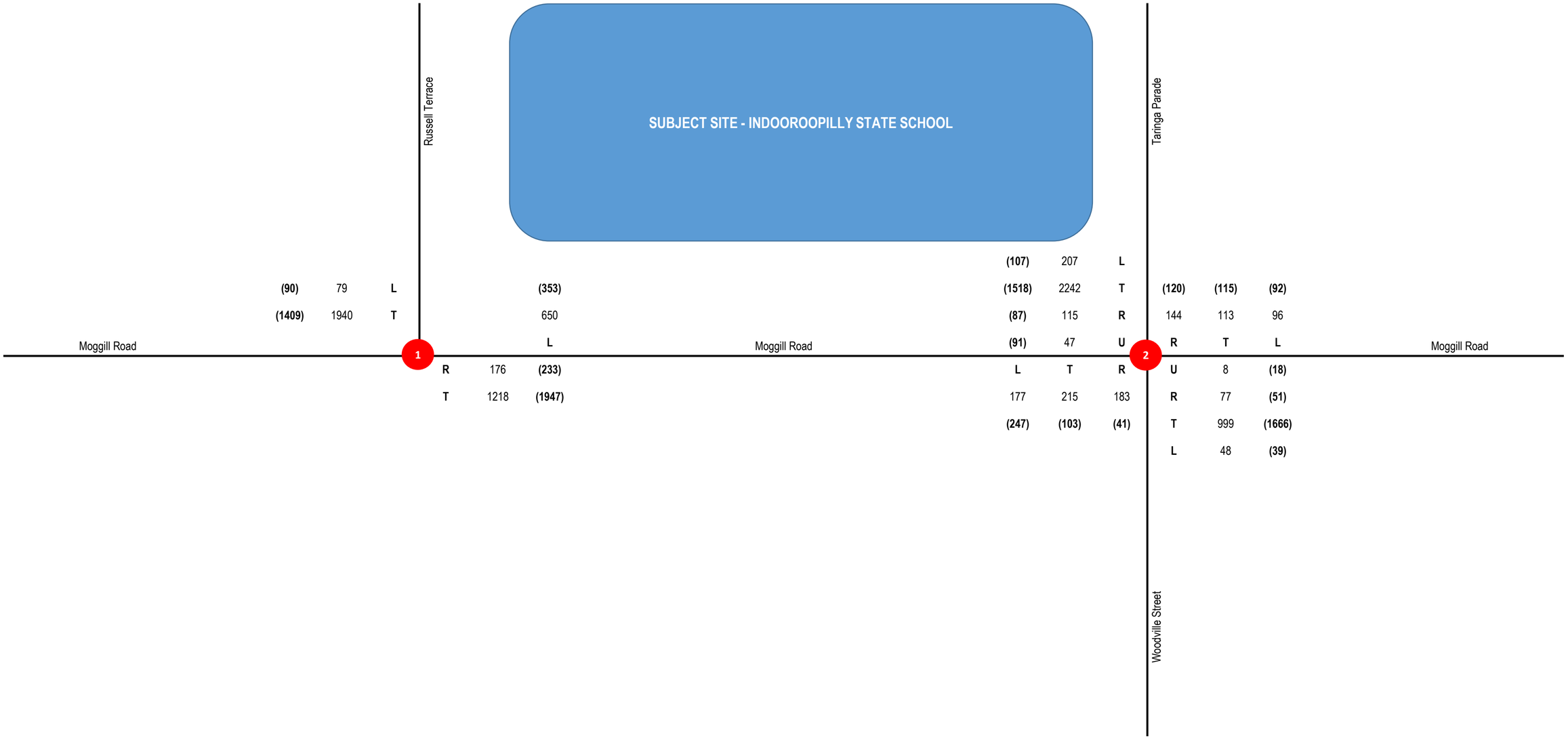
Job Number:	P3606	**Prepared By:**	Christy Luk	**Prepared Date:**	2/07/2018
Job Name:	Indooroopilly State School	**Reviewed By:**	Nathan Edwards	**Reviewed Date:**	2/07/2018
File Path:	P:\P3606 Indooroopilly State School TIA\Technical Work\Traffic Gen\	**AM Peak:**	7:45am - 8:45am		
		PM Peak:	3:00pm - 4:00pm		

LEGEND

##	AM Peak Hour Volumes	T	Through Turn Movement	L	Left Turn Movement
(##)	PM Peak Hour Volumes	R	Right Turn Movement	U	U-Turn Movement
1	Intersection ID				

BITZIOS consulting
traffic engineering - transport planning

2035 BACKGROUND TRAFFIC VOLUMES



DOCUMENT CONTROL

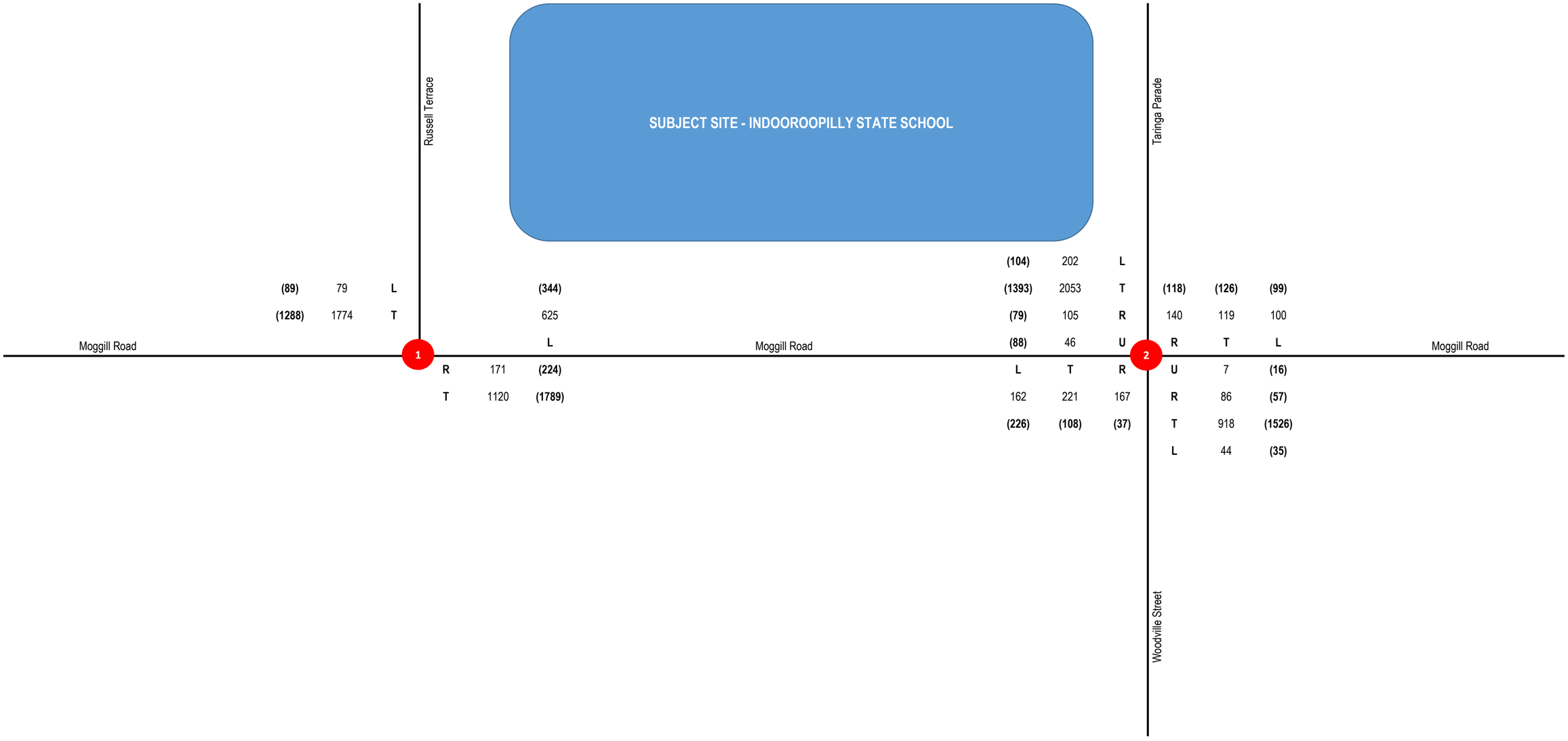
Job Number:	P3606	**Prepared By:**	Christy Luk	**Prepared Date:**	2/07/2018
Job Name:	Indooroopilly State School	**Reviewed By:**	Nathan Edwards	**Reviewed Date:**	2/07/2018
File Path:	P:\P3606 Indooroopilly State School TIA\Technical Work\Traffic Gen\	**AM Peak:**	7:45am - 8:45am		
		PM Peak:	3:00pm - 4:00pm		

LEGEND

##	AM Peak Hour Volumes	**T**	Through Turn Movement	**L**	Left Turn Movement
(##)	PM Peak Hour Volumes	**R**	Right Turn Movement	**U**	U-Turn Movement
1	Intersection ID				

BITZIOS consulting
traffic engineering - transport planning

2025 BACKGROUND & STAGE 2 TO 5 EXPANSION TRAFFIC VOLUMES



DOCUMENT CONTROL

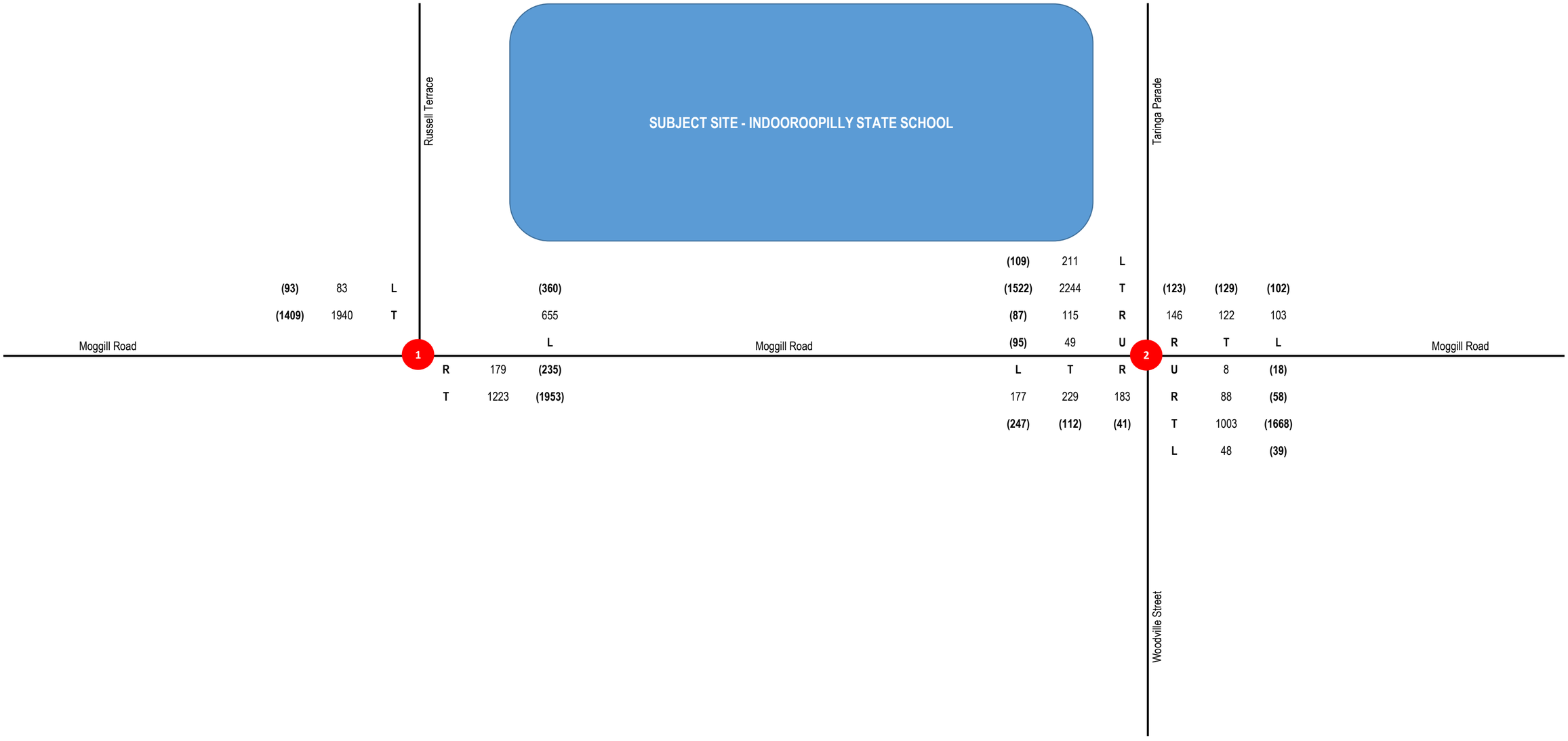
Job Number:	P3606	**Prepared By:**	Christy Luk	**Prepared Date:**	2/07/2018
Job Name:	Indooroopilly State School	**Reviewed By:**	Nathan Edwards	**Reviewed Date:**	2/07/2018
File Path:	P:\P3606 Indooroopilly State School TIA\Technical Work\Traffic Gen\	**AM Peak:**	7:45am - 8:45am		
		PM Peak:	3:00pm - 4:00pm		

LEGEND

##	AM Peak Hour Volumes	**T**	Through Turn Movement	**L**	Left Turn Movement
(##)	PM Peak Hour Volumes	**R**	Right Turn Movement	**U**	U-Turn Movement
1	Intersection ID				

BITZIOS consulting
traffic engineering - transport planning

2035 BACKGROUND & STAGE 2 TO 5 EXPANSION TRAFFIC VOLUMES



DOCUMENT CONTROL

Job Number:	P3606	**Prepared By:**	Christy Luk	**Prepared Date:**	2/07/2018
Job Name:	Indooroopilly State School	**Reviewed By:**	Nathan Edwards	**Reviewed Date:**	2/07/2018
File Path:	P:\P3606 Indooroopilly State School TIA\Technical Work\Traffic Gen\	**AM Peak:**	7:45am - 8:45am		
		PM Peak:	3:00pm - 4:00pm		

LEGEND

##	AM Peak Hour Volumes	T	Through Turn Movement	L	Left Turn Movement
(##)	PM Peak Hour Volumes	R	Right Turn Movement	U	U-Turn Movement
1	Intersection ID				

BITZIOS consulting
traffic engineering - transport planning

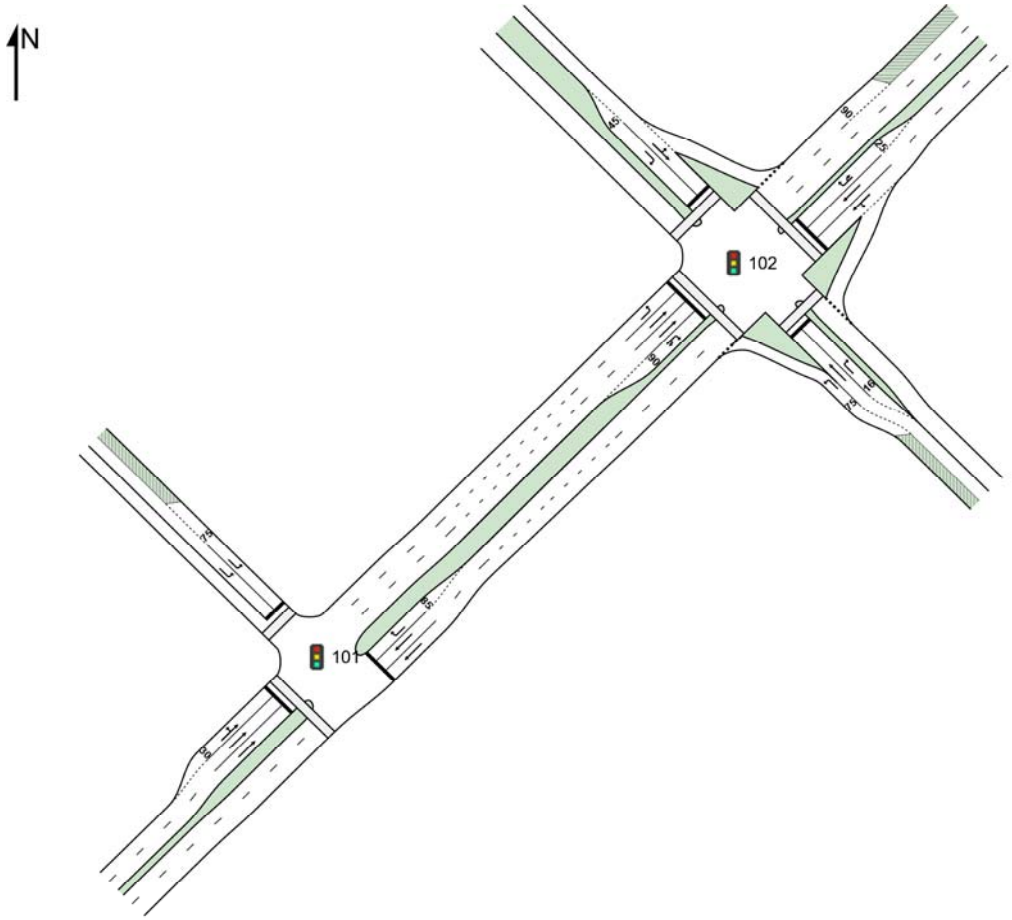
APPENDIX D

SIDRA ANALYSIS RESULTS

NETWORK LAYOUT

Network: N101 [2018 AM Survey]

New Network



SITES IN NETWORK	
Site ID	**Site Name**
101	2018_AM_Survey - Intersection 1
102	2018_AM_Survey - Intersection 2

PHASING SUMMARY

Site: 102 [2018_AM_Survey - Intersection 2]

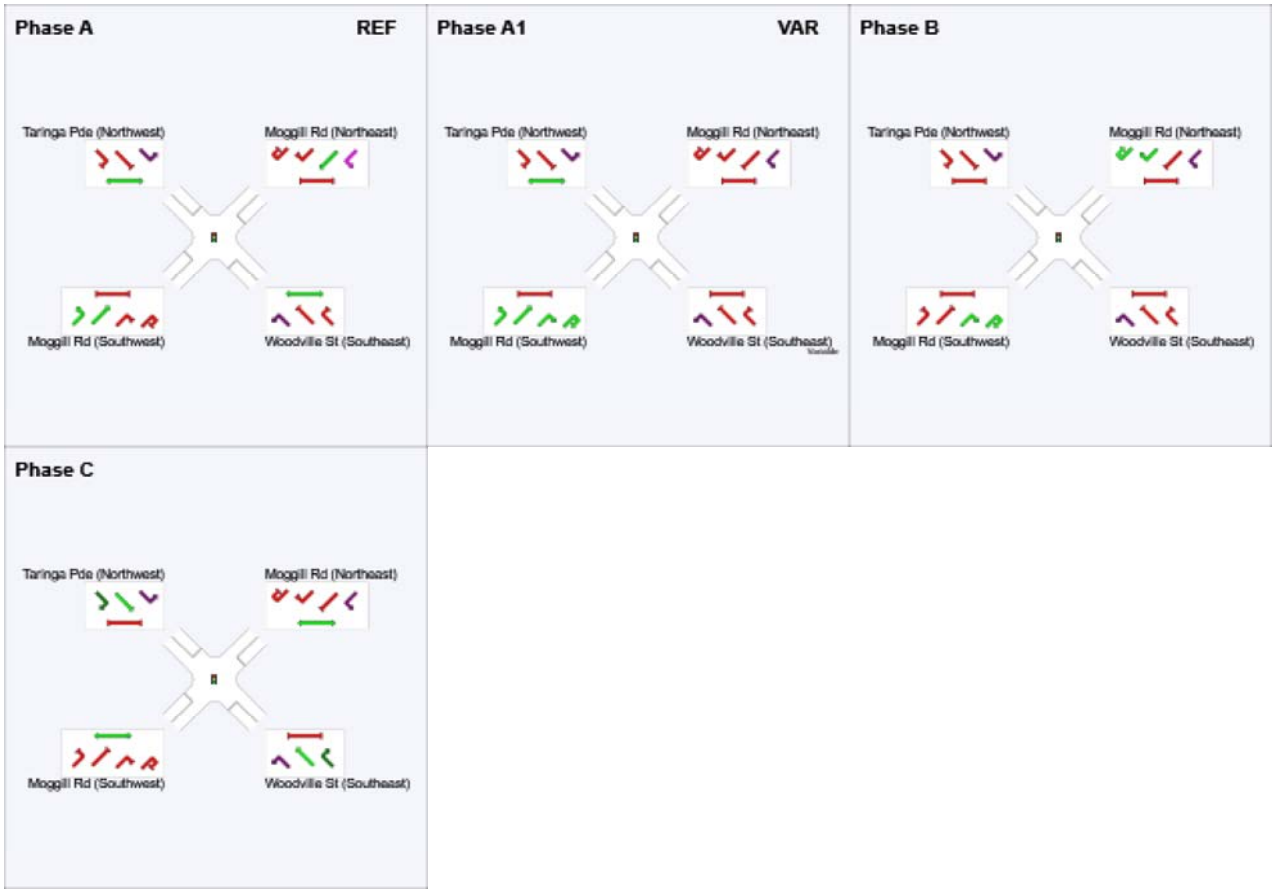
Network: N101 [2018 AM Survey]

Int: Moggill Road / Taringa Parade / Woodville Street
Project Number: P3606
Project: Indooroopilly State School TIA
Signals - Fixed Time Coordinated Cycle Time = 150 seconds (Network Cycle Time - Program)

Phase Times determined by the program
Sequence: Adopted Phasing
Reference Phase: Phase A
Input Sequence: A, A1*, A2*, B, C
Output Sequence: A, A1*, B, C
(* Variable Phase)

Phase Timing Results

Phase	A	A1	B	C
Phase Change Time (sec)	12	105	126	138
Green Time (sec)	87	15	6	18
Yellow Time (sec)	4	4	4	4
All-Red Time (sec)	2	2	2	2
Phase Time (sec)	93	21	12	24
Phase Split	62%	14%	8%	16%



REF: Reference Phase
VAR: Variable Phase

Undetected Movement Phase Transition Applied

MOVEMENT SUMMARY

Site: 102 [2018_AM_Survey - Intersection 2]

Network: N101 [2018 AM Survey]

Int: Moggill Road / Taringa Parade / Woodville Street
Project Number: P3606
Project: Indooroopilly State School TIA
Signals - Fixed Time Coordinated Cycle Time = 150 seconds (Network Cycle Time - Program)

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Arrival 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
SouthEast: Woodville St (Southeast)													
21	L2	154	3.0	154	3.0	0.168	9.8	LOS A	3.0	21.4	0.35	0.62	39.7
22	T1	162	3.0	162	3.0	1.167	292.1	LOS F	23.5	168.5	1.00	1.53	9.8
23	R2	159	3.0	159	3.0	1.340	443.7	LOS F	29.6	212.5	1.00	1.68	6.0
Approach		476	3.0	476	3.0	1.340	251.4	LOS F	29.6	212.5	0.79	1.28	9.2
NorthEast: Moggill Rd (Northeast)													
24	L2	42	3.0	42	3.0	0.435	22.3	LOS C	19.1	137.5	0.60	0.57	35.3
25	T1	862	3.0	862	3.0	0.435	18.5	LOS B	19.1	137.5	0.59	0.54	25.3
26	R2	43	3.0	43	3.0	0.737	88.6	LOS F	4.0	28.6	1.00	0.85	18.9
26u	U	7	0.0	7	0.0	0.737	90.0	LOS F	4.0	28.6	1.00	0.85	17.8
Approach		954	3.0	954	3.0	0.737	22.4	LOS C	19.1	137.5	0.62	0.56	25.0
NorthWest: Taringa Pde (Northwest)													
27	L2	70	3.0	70	3.0	1.720	703.6	LOS F	33.7	242.2	1.00	1.87	4.0
28	T1	80	3.0	80	3.0	1.720	700.4	LOS F	33.7	242.2	1.00	1.87	4.7
29	R2	129	3.0	129	3.0	2.461	1409.5	LOS F	41.6	298.7	1.00	2.41	1.3
Approach		279	3.0	279	3.0	2.461	1028.5	LOS F	41.6	298.7	1.00	2.12	2.5
SouthWest: Moggill Rd (Southwest)													
30	L2	185	3.0	177	3.0	0.168	14.1	LOS B	5.9	42.1	0.50	0.65	32.2
31	T1	1949	3.0	1870	3.0	0.984	39.8	LOS D	25.0	179.5	0.74	0.81	20.5
32	R2	100	3.0	96	3.0	0.442	63.7	LOS E	8.5	60.4	0.93	0.79	20.4
32u	U	36	0.0	34	0.0	0.442	64.9	LOS E	8.5	60.4	0.93	0.79	6.2
Approach		2269	3.0	2177 N1	3.0	0.984	39.2	LOS D	25.0	179.5	0.73	0.80	21.1
All Vehicles		3978	3.0	3886 N1	3.0	2.461	131.9	LOS F	41.6	298.7	0.73	0.89	10.6

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
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.
Network Model Accuracy Level (largest change in degree of saturation for any lane): 0.7 %
Number of Iterations: 15 (maximum specified: 15)

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

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate per ped
P5	SouthEast Full Crossing	53	16.8	LOS B	0.1	0.1	0.47	0.47
P6	NorthEast Full Crossing	53	69.3	LOS F	0.2	0.2	0.96	0.96
P7	NorthWest Full Crossing	53	9.0	LOS A	0.1	0.1	0.35	0.35
P8	SouthWest Full Crossing	53	69.3	LOS F	0.2	0.2	0.96	0.96

All Pedestrians	211	41.1	LOS E	0.69	0.69

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

SIDRA INTERSECTION 7.0 | Copyright © 2000-2016 Akcelik and Associates Pty Ltd | sidrasolutions.com

PHASING SUMMARY

Site: 101 [2018_AM_Survey - Intersection 1]

Network: N101 [2018 AM Survey]

Int: Moggill Road / Russell Terrace
Project Number: P3606
Project: Indooroopilly State School TIA
Signals - Fixed Time Coordinated Cycle Time = 150 seconds (Network Cycle Time - Program)

Phase Times determined by the program
Sequence: Adopted Phasing
Reference Phase: Phase A
Input Sequence: A, B, C
Output Sequence: A, B, C

Phase Timing Results

Phase	A	B	C
Phase Change Time (sec)	0	109	128
Green Time (sec)	103	13	16
Yellow Time (sec)	4	4	4
All-Red Time (sec)	2	2	2
Phase Time (sec)	109	19	22
Phase Split	73%	13%	15%

REF: Reference Phase
VAR: Variable Phase

SIDRA INTERSECTION 7.0 | Copyright © 2000-2016 Akcelik and Associates Pty Ltd | sidrasolutions.com

MOVEMENT SUMMARY

Site: 101 [2018_AM_Survey - Intersection 1]

Network: N101 [2018 AM Survey]

Int: Moggill Road / Russell Terrace
Project Number: P3606
Project: Indooroopilly State School TIA
Signals - Fixed Time Coordinated Cycle Time = 150 seconds (Network Cycle Time - Program)

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Arrival 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
NorthEast: Moggill Rd (Northeast)													
25	T1	1039	3.0	972	3.0	0.321	1.0	LOS A	2.3	16.4	0.07	0.06	39.0
26	R2	154	3.0	144	3.0	0.351	65.1	LOS E	9.9	71.1	1.00	0.82	18.6
Approach		1193	3.0	1115 N1	3.0	0.351	9.3	LOS A	9.9	71.1	0.19	0.16	33.0
NorthWest: Russell Tce (Northwest)													
27	L2	592	3.0	592	3.0	1.128	226.8	LOS F	49.6	356.4	1.00	1.46	6.8
Approach		592	3.0	592	3.0	1.128	226.8	LOS F	49.6	356.4	1.00	1.46	6.8
SouthWest: Moggill Rd (Southwest)													
30	L2	64	3.0	64	3.0	1.056	165.3	LOS F	84.2	604.9	1.00	1.42	12.9
31	T1	1675	3.0	1675	3.0	1.056	152.9	LOS F	87.1	625.4	1.00	1.46	6.9
Approach		1738	3.0	1738	3.0	1.056	153.3	LOS F	87.1	625.4	1.00	1.46	7.1
All Vehicles		3523	3.0	3446 N1	3.1	1.128	119.3	LOS F	87.1	625.4	0.74	1.04	9.8

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
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.
Network Model Accuracy Level (largest change in degree of saturation for any lane): 0.7 %
Number of Iterations: 15 (maximum specified: 15)

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

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate per ped
P7	NorthWest Full Crossing	53	9.4	LOS A	0.1	0.1	0.35	0.35
P8	SouthWest Full Crossing	53	69.3	LOS F	0.2	0.2	0.96	0.96
All Pedestrians		105	39.3	LOS D			0.66	0.66

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

SIDRA INTERSECTION 7.0 | Copyright © 2000-2016 Akcelik and Associates Pty Ltd | sidrasolutions.com

MOVEMENT SUMMARY

Site: 102 [2018_PM_Survey - Intersection 2]

Network: N101 [2018 PM Survey]

Int: Moggill Road / Taringa Parade / Woodville Street
Project Number: P3606
Project: Indooroopilly State School TIA
Signals - Fixed Time Coordinated Cycle Time = 140 seconds (Network Cycle Time - User-Given)

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Arrival 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
SouthEast: Woodville St (Southeast)													
21	L2	215	3.0	215	3.0	0.368	18.4	LOS B	6.9	49.4	0.62	0.72	33.6
22	T1	70	3.0	70	3.0	0.314	61.8	LOS E	4.4	31.8	0.95	0.74	25.5
23	R2	36	3.0	36	3.0	0.229	69.1	LOS E	2.3	16.7	0.96	0.73	22.6
Approach		321	3.0	321	3.0	0.368	33.5	LOS C	6.9	49.4	0.73	0.73	28.6
NorthEast: Moggill Rd (Northeast)													
24	L2	34	3.0	34	3.0	0.673	23.6	LOS C	34.5	248.0	0.73	0.68	34.8
25	T1	1447	3.0	1447	3.0	0.673	19.8	LOS B	34.5	248.0	0.71	0.66	24.7
26	R2	29	3.0	29	3.0	0.645	82.2	LOS F	3.3	23.3	1.00	0.80	20.0
26u	U	16	0.0	16	0.0	0.645	83.6	LOS F	3.3	23.3	1.00	0.80	19.0
Approach		1525	3.0	1525	3.0	0.673	21.7	LOS C	34.5	248.0	0.72	0.67	24.7
NorthWest: Taringa Pde (Northwest)													
27	L2	57	3.0	57	3.0	0.547	51.9	LOS D	6.8	48.8	0.98	0.83	24.6
28	T1	69	3.0	69	3.0	0.547	48.7	LOS D	6.8	48.8	0.98	0.83	27.9
29	R2	103	3.0	103	3.0	0.691	73.4	LOS E	7.2	52.0	1.00	0.85	15.6
Approach		230	3.0	230	3.0	0.691	60.6	LOS E	7.2	52.0	0.99	0.84	21.8
SouthWest: Moggill Rd (Southwest)													
30	L2	94	3.0	94	3.0	0.092	12.7	LOS B	2.6	18.4	0.44	0.61	32.8
31	T1	1315	3.0	1315	3.0	0.737	10.2	LOS B	25.0	179.5	0.53	0.48	32.2
32	R2	76	3.0	76	3.0	0.673	68.4	LOS E	10.1	71.4	1.00	0.83	19.7
32u	U	73	0.0	73	0.0	0.673	69.6	LOS E	10.1	71.4	1.00	0.83	5.8
Approach		1557	2.9	1557	2.9	0.737	16.0	LOS B	25.0	179.5	0.56	0.52	29.3
All Vehicles		3633	2.9	3633	2.9	0.737	22.7	LOS C	34.5	248.0	0.67	0.62	26.6

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
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.
Network Model Accuracy Level (largest change in degree of saturation for any lane): 0.7 %
Number of Iterations: 12 (maximum specified: 15)

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate per ped
P5	SouthEast Full Crossing	53	14.7	LOS B	0.1	0.1	0.46	0.46
P6	NorthEast Full Crossing	53	64.3	LOS F	0.2	0.2	0.96	0.96
P7	NorthWest Full Crossing	53	5.7	LOS A	0.1	0.1	0.29	0.29
P8	SouthWest Full Crossing	53	64.3	LOS F	0.2	0.2	0.96	0.96
All Pedestrians		211	37.2	LOS D			0.67	0.67

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

SIDRA INTERSECTION 7.0 | Copyright © 2000-2016 Akcelik and Associates Pty Ltd | sidrasolutions.com

PHASING SUMMARY

Site: 102 [2018_PM_Survey - Intersection 2]

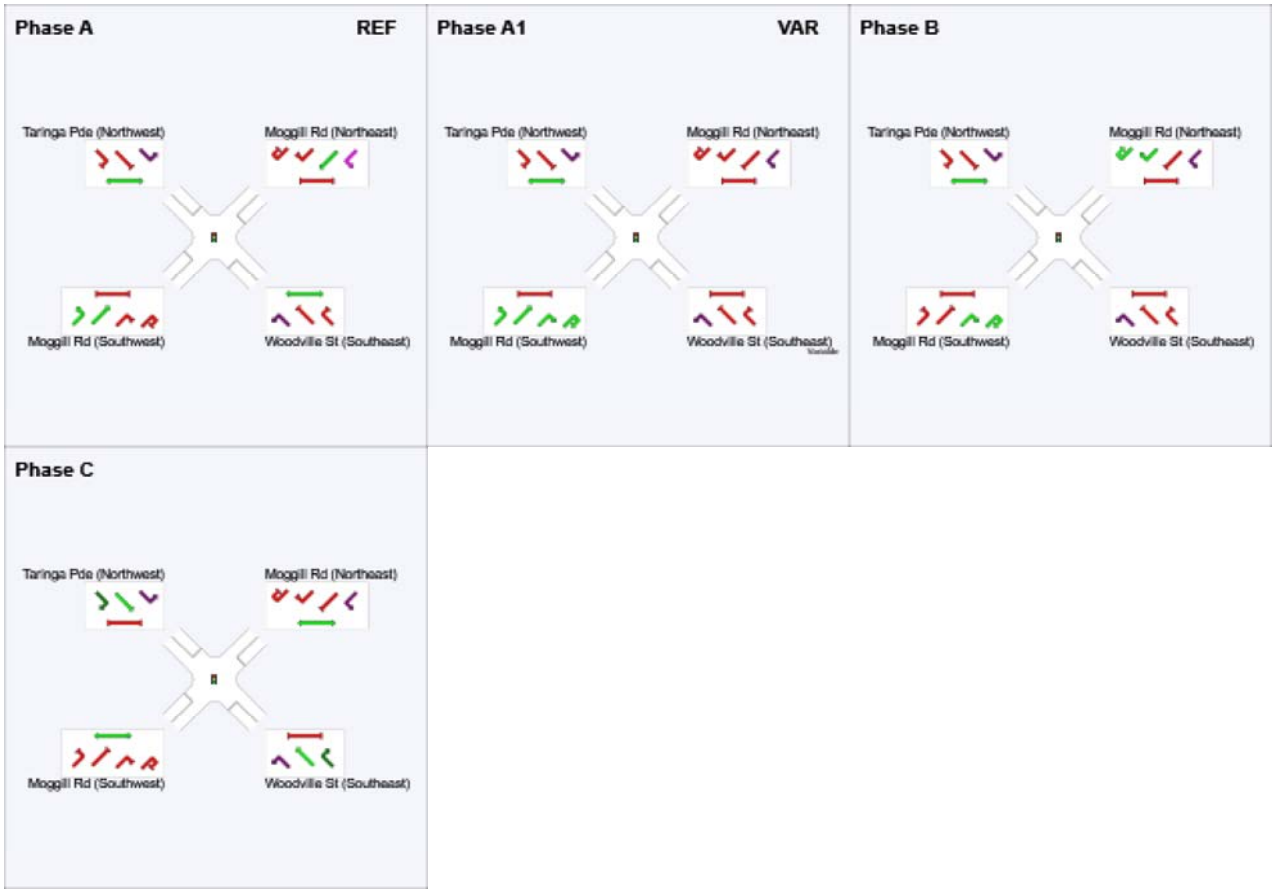
Network: N101 [2018 PM Survey]

Int: Moggill Road / Taringa Parade / Woodville Street
Project Number: P3606
Project: Indooroopilly State School TIA
Signals - Fixed Time Coordinated Cycle Time = 140 seconds (Network Cycle Time - User-Given)

Phase Times determined by the program
Sequence: Adopted Phasing
Reference Phase: Phase A
Input Sequence: A, A1*, A2*, B, C
Output Sequence: A, A1*, B, C
(* Variable Phase)

Phase Timing Results

Phase	A	A1	B	C
Phase Change Time (sec)	0	90	104	116
Green Time (sec)	84	8	6	18
Yellow Time (sec)	4	4	4	4
All-Red Time (sec)	2	2	2	2
Phase Time (sec)	90	14	12	24
Phase Split	64%	10%	9%	17%



REF: Reference Phase
VAR: Variable Phase

Undetected Movement Phase Transition Applied

MOVEMENT SUMMARY

Site: 101 [2018_PM_Survey - Intersection 1]

Network: N101 [2018 PM Survey]

Int: Moggill Road / Russell Terrace
Project Number: P3606
Project: Indooroopilly State School TIA
Signals - Fixed Time Coordinated Cycle Time = 140 seconds (Network Cycle Time - User-Given)

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Arrival 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
NorthEast: Moggill Rd (Northeast)													
25	T1	1663	3.0	1663	3.0	0.534	2.2	LOS A	12.5	89.8	0.18	0.17	38.0
26	R2	210	3.0	210	3.0	0.560	59.4	LOS E	13.7	98.4	1.00	0.84	19.5
Approach		1873	3.0	1873	3.0	0.560	8.6	LOS A	13.7	98.4	0.27	0.24	33.4
NorthWest: Russell Tce (Northwest)													
27	L2	309	3.0	309	3.0	0.413	54.7	LOS D	9.2	66.0	0.91	0.79	18.4
Approach		309	3.0	309	3.0	0.413	54.7	LOS D	9.2	66.0	0.91	0.79	18.4
SouthWest: Moggill Rd (Southwest)													
30	L2	78	3.0	78	3.0	0.558	12.3	LOS B	12.5	89.8	0.43	0.43	35.7
31	T1	1216	3.0	1216	3.0	0.558	9.5	LOS A	12.5	90.0	0.46	0.43	30.6
Approach		1294	3.0	1294	3.0	0.558	9.7	LOS A	12.5	90.0	0.46	0.43	31.2
All Vehicles		3476	3.0	3476	3.0	0.560	13.1	LOS B	13.7	98.4	0.40	0.36	30.2

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
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.
Network Model Accuracy Level (largest change in degree of saturation for any lane): 0.7 %
Number of Iterations: 12 (maximum specified: 15)

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate per ped
P7	NorthWest Full Crossing	21	8.2	LOS A	0.0	0.0	0.34	0.34
P8	SouthWest Full Crossing	26	64.2	LOS F	0.1	0.1	0.96	0.96
All Pedestrians		47	39.3	LOS D			0.68	0.68

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

SIDRA INTERSECTION 7.0 | Copyright © 2000-2016 Akcelik and Associates Pty Ltd | sidrasolutions.com

PHASING SUMMARY

Site: 101 [2018_PM_Survey - Intersection 1]

Network: N101 [2018 PM Survey]

Int: Moggill Road / Russell Terrace
Project Number: P3606
Project: Indooroopilly State School TIA
Signals - Fixed Time Coordinated Cycle Time = 140 seconds (Network Cycle Time - User-Given)

Phase Times determined by the program
Sequence: Adopted Phasing
Reference Phase: Phase A
Input Sequence: A, B, C
Output Sequence: A, B, C

Phase Timing Results

Phase	A	B	C
Phase Change Time (sec)	13	117	136
Green Time (sec)	98	13	13
Yellow Time (sec)	4	4	4
All-Red Time (sec)	2	2	2
Phase Time (sec)	104	19	17
Phase Split	74%	14%	12%

REF: Reference Phase
VAR: Variable Phase

SIDRA INTERSECTION 7.0 | Copyright © 2000-2016 Akcelik and Associates Pty Ltd | sidrasolutions.com

MOVEMENT SUMMARY

Site: 101 [2020_AM_BG - Intersection 1]

Network: N101 [2020 AM BG]

Int: Moggill Road / Russell Terrace
Project Number: P3606
Project: Indooroopilly State School TIA
Signals - Fixed Time Coordinated Cycle Time = 150 seconds (Network Cycle Time - Program)

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Arrival 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
NorthEast: Moggill Rd (Northeast)													
25	T1	1061	3.0	992	3.0	0.327	1.0	LOS A	2.4	16.9	0.07	0.06	39.0
26	R2	156	3.0	145	3.0	0.356	65.2	LOS E	10.0	72.1	1.00	0.82	18.6
Approach		1216	3.0	1137 N1	3.0	0.356	9.2	LOS A	10.0	72.1	0.19	0.16	33.0
NorthWest: Russell Tce (Northwest)													
27	L2	598	3.0	598	3.0	1.140	236.3	LOS F	51.3	368.2	1.00	1.49	6.6
Approach		598	3.0	598	3.0	1.140	236.3	LOS F	51.3	368.2	1.00	1.49	6.6
SouthWest: Moggill Rd (Southwest)													
30	L2	65	3.0	65	3.0	1.077	181.4	LOS F	89.8	644.8	1.00	1.48	12.0
31	T1	1708	3.0	1708	3.0	1.077	168.8	LOS F	92.8	666.4	1.00	1.53	6.3
Approach		1773	3.0	1773	3.0	1.077	169.3	LOS F	92.8	666.4	1.00	1.53	6.6
All Vehicles		3587	3.0	3508 N1	3.1	1.140	128.8	LOS F	92.8	666.4	0.74	1.08	9.3

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
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.
Network Model Accuracy Level (largest change in degree of saturation for any lane): 0.7 %
Number of Iterations: 15 (maximum specified: 15)

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

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate per ped
P7	NorthWest Full Crossing	53	9.4	LOS A	0.1	0.1	0.35	0.35
P8	SouthWest Full Crossing	53	69.3	LOS F	0.2	0.2	0.96	0.96
All Pedestrians		105	39.3	LOS D			0.66	0.66

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

SIDRA INTERSECTION 7.0 | Copyright © 2000-2016 Akcelik and Associates Pty Ltd | sidrasolutions.com

PHASING SUMMARY

Site: 101 [2020_AM_BG - Intersection 1]

Network: N101 [2020 AM BG]

Int: Moggill Road / Russell Terrace
Project Number: P3606
Project: Indooroopilly State School TIA
Signals - Fixed Time Coordinated Cycle Time = 150 seconds (Network Cycle Time - Program)

Phase Times determined by the program
Sequence: Adopted Phasing
Reference Phase: Phase A
Input Sequence: A, B, C
Output Sequence: A, B, C

Phase Timing Results

Phase	A	B	C
Phase Change Time (sec)	0	109	128
Green Time (sec)	103	13	16
Yellow Time (sec)	4	4	4
All-Red Time (sec)	2	2	2
Phase Time (sec)	109	19	22
Phase Split	73%	13%	15%

REF: Reference Phase
VAR: Variable Phase

SIDRA INTERSECTION 7.0 | Copyright © 2000-2016 Akcelik and Associates Pty Ltd | sidrasolutions.com

MOVEMENT SUMMARY

Site: 102 [2020_AM_BG - Intersection 2]

Network: N101 [2020 AM BG]

Int: Moggill Road / Taringa Parade / Woodville Street
Project Number: P3606
Project: Indooroopilly State School TIA
Signals - Fixed Time Coordinated Cycle Time = 150 seconds (Network Cycle Time - Program)

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Arrival 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
SouthEast: Woodville St (Southeast)													
21	L2	157	3.0	157	3.0	0.173	9.8	LOS A	3.1	21.9	0.36	0.62	39.7
22	T1	164	3.0	164	3.0	1.184	306.8	LOS F	24.5	176.0	1.00	1.56	9.4
23	R2	162	3.0	162	3.0	1.364	464.2	LOS F	31.0	222.4	1.00	1.71	5.8
Approach		484	3.0	484	3.0	1.364	263.1	LOS F	31.0	222.4	0.79	1.30	8.9
NorthEast: Moggill Rd (Northeast)													
24	L2	43	3.0	43	3.0	0.444	22.4	LOS C	19.6	141.1	0.61	0.57	35.3
25	T1	880	3.0	880	3.0	0.444	18.7	LOS B	19.6	141.1	0.60	0.55	25.2
26	R2	43	3.0	43	3.0	0.737	88.6	LOS F	4.0	28.6	1.00	0.85	18.9
26u	U	7	0.0	7	0.0	0.737	90.0	LOS F	4.0	28.6	1.00	0.85	17.8
Approach		973	3.0	973	3.0	0.737	22.4	LOS C	19.6	141.1	0.62	0.56	25.0
NorthWest: Taringa Pde (Northwest)													
27	L2	71	3.0	71	3.0	1.743	724.5	LOS F	34.8	249.6	1.00	1.88	3.9
28	T1	81	3.0	81	3.0	1.743	721.3	LOS F	34.8	249.6	1.00	1.88	4.6
29	R2	130	3.0	130	3.0	2.480	1427.1	LOS F	42.1	302.3	1.00	2.42	1.3
Approach		282	3.0	282	3.0	2.480	1046.9	LOS F	42.1	302.3	1.00	2.13	2.4
SouthWest: Moggill Rd (Southwest)													
30	L2	187	3.0	176	3.0	0.167	14.0	LOS B	5.8	41.8	0.49	0.65	32.2
31	T1	1988	3.0	1876	3.0	0.987	41.2	LOS D	25.0	179.5	0.74	0.82	20.2
32	R2	102	3.0	96	3.0	0.444	63.7	LOS E	8.5	60.8	0.93	0.79	20.4
32u	U	37	0.0	35	0.0	0.444	65.0	LOS E	8.5	60.8	0.93	0.79	6.2
Approach		2313	3.0	2183 N1	3.0	0.987	40.4	LOS D	25.0	179.5	0.73	0.81	20.8
All Vehicles		4051	3.0	3921 N1	3.1	2.480	135.7	LOS F	42.1	302.3	0.73	0.90	10.4

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
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.
Network Model Accuracy Level (largest change in degree of saturation for any lane): 0.7 %
Number of Iterations: 15 (maximum specified: 15)

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

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate per ped
P5	SouthEast Full Crossing	53	16.8	LOS B	0.1	0.1	0.47	0.47
P6	NorthEast Full Crossing	53	69.3	LOS F	0.2	0.2	0.96	0.96
P7	NorthWest Full Crossing	53	9.0	LOS A	0.1	0.1	0.35	0.35
P8	SouthWest Full Crossing	53	69.3	LOS F	0.2	0.2	0.96	0.96

All Pedestrians	211	41.1	LOS E	0.69	0.69

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

SIDRA INTERSECTION 7.0 | Copyright © 2000-2016 Akcelik and Associates Pty Ltd | sidrasolutions.com

PHASING SUMMARY

Site: 102 [2020_AM_BG - Intersection 2]

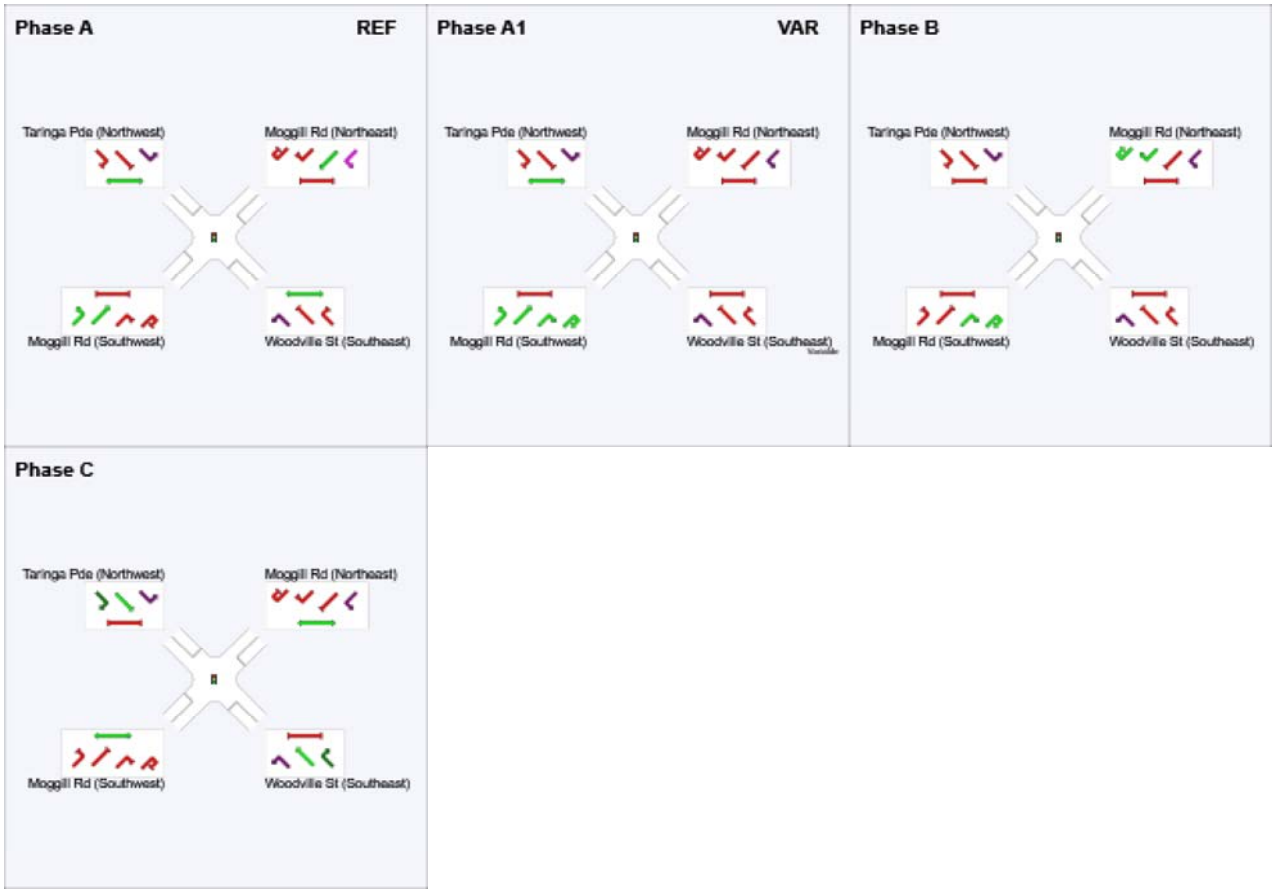
Network: N101 [2020 AM BG]

Int: Moggill Road / Taringa Parade / Woodville Street
Project Number: P3606
Project: Indooroopilly State School TIA
Signals - Fixed Time Coordinated Cycle Time = 150 seconds (Network Cycle Time - Program)

Phase Times determined by the program
Sequence: Adopted Phasing
Reference Phase: Phase A
Input Sequence: A, A1*, A2*, B, C
Output Sequence: A, A1*, B, C
(* Variable Phase)

Phase Timing Results

Phase	A	A1	B	C
Phase Change Time (sec)	12	105	126	138
Green Time (sec)	87	15	6	18
Yellow Time (sec)	4	4	4	4
All-Red Time (sec)	2	2	2	2
Phase Time (sec)	93	21	12	24
Phase Split	62%	14%	8%	16%



REF: Reference Phase
VAR: Variable Phase

Undetected Movement Phase Transition Applied

MOVEMENT SUMMARY

Site: 101 [2020_PM_BG - Intersection 1]

Network: N101 [2020 PM BG]

Int: Moggill Road / Russell Terrace
Project Number: P3606
Project: Indooroopilly State School TIA
Signals - Fixed Time Coordinated Cycle Time = 140 seconds (Network Cycle Time - User-Given)

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	Demand Flows HV %	Arrival Flows Total veh/h	Arrival Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
NorthEast: Moggill Rd (Northeast)													
25	T1	1696	3.0	1696	3.0	0.545	2.2	LOS A	12.9	92.8	0.18	0.17	38.0
26	R2	212	3.0	212	3.0	0.565	59.3	LOS E	13.8	99.2	1.00	0.84	19.5
Approach		1908	3.0	1908	3.0	0.565	8.5	LOS A	13.8	99.2	0.28	0.25	33.4
NorthWest: Russell Tce (Northwest)													
27	L2	312	3.0	312	3.0	0.423	54.9	LOS D	9.4	67.6	0.91	0.79	18.3
Approach		312	3.0	312	3.0	0.423	54.9	LOS D	9.4	67.6	0.91	0.79	18.3
SouthWest: Moggill Rd (Southwest)													
30	L2	79	3.0	79	3.0	0.580	12.4	LOS B	12.8	92.1	0.44	0.43	35.7
31	T1	1240	3.0	1240	3.0	0.580	9.7	LOS A	12.9	92.3	0.47	0.44	30.5
Approach		1319	3.0	1319	3.0	0.580	9.8	LOS A	12.9	92.3	0.47	0.44	31.1
All Vehicles		3539	3.0	3539	3.0	0.580	13.1	LOS B	13.8	99.2	0.40	0.36	30.2

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
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.
Network Model Accuracy Level (largest change in degree of saturation for any lane): 1.0 %
Number of Iterations: 10 (maximum specified: 15)

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Average Back of Queue Distance m	Prop. Queued	Effective Stop Rate per ped
P7	NorthWest Full Crossing	21	8.2	LOS A	0.0	0.0	0.34	0.34
P8	SouthWest Full Crossing	26	64.2	LOS F	0.1	0.1	0.96	0.96
All Pedestrians		47	39.3	LOS D			0.68	0.68

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

SIDRA INTERSECTION 7.0 | Copyright © 2000-2016 Akcelik and Associates Pty Ltd | sidrasolutions.com

PHASING SUMMARY

Site: 101 [2020_PM_BG - Intersection 1]

Network: N101 [2020 PM BG]

Int: Moggill Road / Russell Terrace
Project Number: P3606
Project: Indooroopilly State School TIA
Signals - Fixed Time Coordinated Cycle Time = 140 seconds (Network Cycle Time - User-Given)

Phase Times determined by the program
Sequence: Adopted Phasing
Reference Phase: Phase A
Input Sequence: A, B, C
Output Sequence: A, B, C

Phase Timing Results

Phase	A	B	C
Phase Change Time (sec)	13	117	136
Green Time (sec)	98	13	13
Yellow Time (sec)	4	4	4
All-Red Time (sec)	2	2	2
Phase Time (sec)	104	19	17
Phase Split	74%	14%	12%

REF: Reference Phase
VAR: Variable Phase

SIDRA INTERSECTION 7.0 | Copyright © 2000-2016 Akcelik and Associates Pty Ltd | sidrasolutions.com

MOVEMENT SUMMARY

Site: 102 [2020_PM_BG - Intersection 2]

Network: N101 [2020 PM BG]

Int: Moggill Road / Taringa Parade / Woodville Street
Project Number: P3606
Project: Indooroopilly State School TIA
Signals - Fixed Time Coordinated Cycle Time = 140 seconds (Network Cycle Time - User-Given)

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Arrival 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
SouthEast: Woodville St (Southeast)													
21	L2	219	3.0	219	3.0	0.383	19.0	LOS B	7.2	51.7	0.64	0.73	33.2
22	T1	71	3.0	71	3.0	0.320	61.9	LOS E	4.5	32.3	0.95	0.74	25.5
23	R2	37	3.0	37	3.0	0.232	69.1	LOS E	2.4	17.1	0.96	0.74	22.6
Approach		328	3.0	328	3.0	0.383	34.0	LOS C	7.2	51.7	0.74	0.73	28.4
NorthEast: Moggill Rd (Northeast)													
24	L2	35	3.0	35	3.0	0.686	23.9	LOS C	35.7	256.3	0.74	0.69	34.7
25	T1	1476	3.0	1476	3.0	0.686	20.0	LOS C	35.7	256.3	0.72	0.67	24.6
26	R2	29	3.0	29	3.0	0.645	82.2	LOS F	3.3	23.3	1.00	0.80	20.0
26u	U	16	0.0	16	0.0	0.645	83.6	LOS F	3.3	23.3	1.00	0.80	19.0
Approach		1555	3.0	1555	3.0	0.686	21.9	LOS C	35.7	256.3	0.73	0.67	24.6
NorthWest: Taringa Pde (Northwest)													
27	L2	58	3.0	58	3.0	0.557	52.4	LOS D	6.9	49.8	0.98	0.84	24.5
28	T1	70	3.0	70	3.0	0.557	49.2	LOS D	6.9	49.8	0.98	0.84	27.8
29	R2	104	3.0	104	3.0	0.702	73.7	LOS E	7.3	52.7	1.00	0.86	15.5
Approach		233	3.0	233	3.0	0.702	61.0	LOS E	7.3	52.7	0.99	0.85	21.7
SouthWest: Moggill Rd (Southwest)													
30	L2	95	3.0	95	3.0	0.093	12.7	LOS B	2.6	18.7	0.44	0.61	32.8
31	T1	1342	3.0	1342	3.0	0.752	11.3	LOS B	25.0	179.5	0.53	0.49	31.5
32	R2	77	3.0	77	3.0	0.683	68.7	LOS E	10.2	72.7	1.00	0.84	19.6
32u	U	74	0.0	74	0.0	0.683	69.9	LOS E	10.2	72.7	1.00	0.84	5.8
Approach		1587	2.9	1587	2.9	0.752	16.8	LOS B	25.0	179.5	0.57	0.53	28.9
All Vehicles		3702	2.9	3702	2.9	0.752	23.2	LOS C	35.7	256.3	0.68	0.63	26.4

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
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.
Network Model Accuracy Level (largest change in degree of saturation for any lane): 1.0 %
Number of Iterations: 10 (maximum specified: 15)

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate per ped
P5	SouthEast Full Crossing	53	14.7	LOS B	0.1	0.1	0.46	0.46
P6	NorthEast Full Crossing	53	64.3	LOS F	0.2	0.2	0.96	0.96
P7	NorthWest Full Crossing	53	5.7	LOS A	0.1	0.1	0.29	0.29
P8	SouthWest Full Crossing	53	64.3	LOS F	0.2	0.2	0.96	0.96
All Pedestrians		211	37.2	LOS D			0.67	0.67

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

SIDRA INTERSECTION 7.0 | Copyright © 2000-2016 Akcelik and Associates Pty Ltd | sidrasolutions.com

PHASING SUMMARY

Site: 102 [2020_PM_BG - Intersection 2]

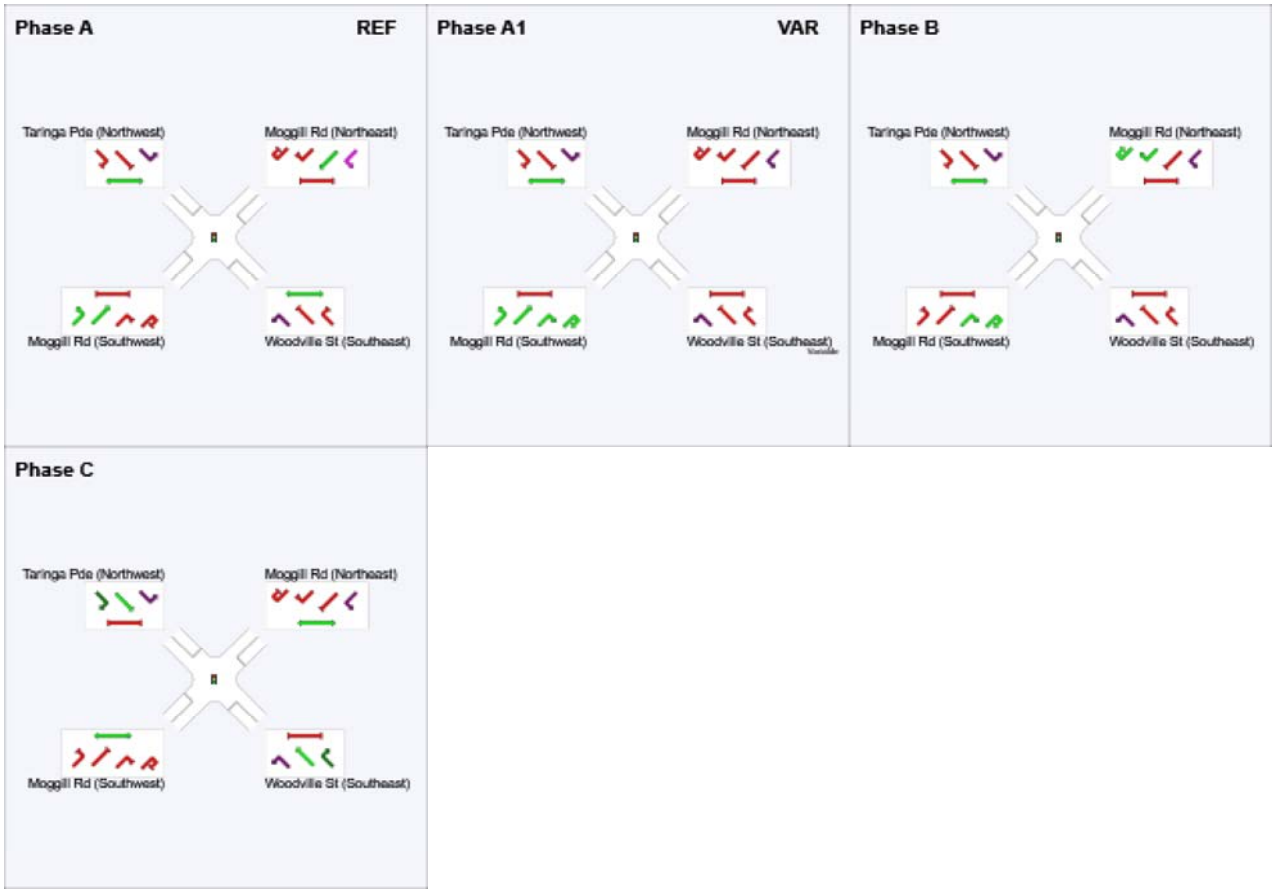
Network: N101 [2020 PM BG]

Int: Moggill Road / Taringa Parade / Woodville Street
Project Number: P3606
Project: Indooroopilly State School TIA
Signals - Fixed Time Coordinated Cycle Time = 140 seconds (Network Cycle Time - User-Given)

Phase Times determined by the program
Sequence: Adopted Phasing
Reference Phase: Phase A
Input Sequence: A, A1*, A2*, B, C
Output Sequence: A, A1*, B, C
(* Variable Phase)

Phase Timing Results

Phase	A	A1	B	C
Phase Change Time (sec)	0	90	104	116
Green Time (sec)	84	8	6	18
Yellow Time (sec)	4	4	4	4
All-Red Time (sec)	2	2	2	2
Phase Time (sec)	90	14	12	24
Phase Split	64%	10%	9%	17%



REF: Reference Phase
VAR: Variable Phase

Undetected Movement Phase Transition Applied

MOVEMENT SUMMARY

Site: 101 [2020_AM_BG+DEV - Intersection 1]

Network: N101 [2020 AM BG+DEV]

Int: Moggill Road / Russell Terrace
Project Number: P3606
Project: Indooroopilly State School TIA
Signals - Fixed Time Coordinated Cycle Time = 150 seconds (Network Cycle Time - Program)

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Arrival 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
NorthEast: Moggill Rd (Northeast)													
25	T1	1075	3.0	999	3.0	0.330	1.1	LOS A	2.8	19.9	0.08	0.07	39.0
26	R2	166	3.0	154	3.0	0.377	64.9	LOS E	10.6	76.0	0.99	0.82	18.6
Approach		1240	3.0	1153 N1	3.0	0.377	9.6	LOS A	10.6	76.0	0.20	0.17	32.8
NorthWest: Russell Tce (Northwest)													
27	L2	612	3.0	612	3.0	1.167	258.8	LOS F	55.2	396.1	1.00	1.54	6.1
Approach		612	3.0	612	3.0	1.167	258.8	LOS F	55.2	396.1	1.00	1.54	6.1
SouthWest: Moggill Rd (Southwest)													
30	L2	75	3.0	75	3.0	1.083	186.6	LOS F	91.5	657.0	1.00	1.50	11.8
31	T1	1708	3.0	1708	3.0	1.083	174.0	LOS F	94.7	679.7	1.00	1.55	6.1
Approach		1783	3.0	1783	3.0	1.083	174.5	LOS F	94.7	679.7	1.00	1.55	6.4
All Vehicles		3635	3.0	3548 N1	3.1	1.167	135.5	LOS F	94.7	679.7	0.74	1.10	8.9

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
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.
Network Model Accuracy Level (largest change in degree of saturation for any lane): 0.7 %
Number of Iterations: 15 (maximum specified: 15)

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

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate per ped
P7	NorthWest Full Crossing	53	9.4	LOS A	0.1	0.1	0.35	0.35
P8	SouthWest Full Crossing	53	69.3	LOS F	0.2	0.2	0.96	0.96
All Pedestrians		105	39.3	LOS D			0.66	0.66

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

SIDRA INTERSECTION 7.0 | Copyright © 2000-2016 Akcelik and Associates Pty Ltd | sidrasolutions.com

PHASING SUMMARY

Site: 101 [2020_AM_BG+DEV - Intersection 1]

Network: N101 [2020 AM BG+DEV]

Int: Moggill Road / Russell Terrace
Project Number: P3606
Project: Indooroopilly State School TIA
Signals - Fixed Time Coordinated Cycle Time = 150 seconds (Network Cycle Time - Program)

Phase Times determined by the program
Sequence: Adopted Phasing
Reference Phase: Phase A
Input Sequence: A, B, C
Output Sequence: A, B, C

Phase Timing Results

Phase	A	B	C
Phase Change Time (sec)	0	109	128
Green Time (sec)	103	13	16
Yellow Time (sec)	4	4	4
All-Red Time (sec)	2	2	2
Phase Time (sec)	109	19	22
Phase Split	73%	13%	15%

REF: Reference Phase
VAR: Variable Phase

MOVEMENT SUMMARY

Site: 102 [2020_AM_BG+DEV - Intersection 2]

Network: N101 [2020 AM BG+DEV]

Int: Moggill Road / Taringa Parade / Woodville Street
Project Number: P3606
Project: Indooroopilly State School TIA
Signals - Fixed Time Coordinated Cycle Time = 150 seconds (Network Cycle Time - Program)

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Arrival 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
SouthEast: Woodville St (Southeast)													
21	L2	157	3.0	157	3.0	0.177	10.2	LOS B	3.2	22.6	0.36	0.62	39.4
22	T1	207	3.0	207	3.0	1.397	485.8	LOS F	41.0	294.7	1.00	1.96	6.5
23	R2	162	3.0	162	3.0	1.460	558.2	LOS F	34.1	244.7	1.00	1.83	4.9
Approach		527	3.0	527	3.0	1.460	366.1	LOS F	41.0	294.7	0.81	1.52	6.9
NorthEast: Moggill Rd (Northeast)													
24	L2	43	3.0	43	3.0	0.463	22.7	LOS C	20.8	149.6	0.62	0.58	35.1
25	T1	891	3.0	891	3.0	0.463	18.8	LOS B	20.8	149.6	0.60	0.55	25.1
26	R2	76	3.0	76	3.0	1.195	273.9	LOS F	12.5	89.5	1.00	1.46	8.8
26u	U	7	0.0	7	0.0	1.195	275.3	LOS F	12.5	89.5	1.00	1.46	7.7
Approach		1017	3.0	1017	3.0	1.195	39.8	LOS D	20.8	149.6	0.63	0.63	19.6
NorthWest: Taringa Pde (Northwest)													
27	L2	93	3.0	93	3.0	2.315	1240.9	LOS F	57.4	412.2	1.00	2.21	2.4
28	T1	109	3.0	109	3.0	2.315	1237.7	LOS F	57.4	412.2	1.00	2.21	2.8
29	R2	137	3.0	137	3.0	2.617	1550.3	LOS F	45.6	327.4	1.00	2.48	1.2
Approach		339	3.0	339	3.0	2.617	1364.8	LOS F	57.4	412.2	1.00	2.32	2.0
SouthWest: Moggill Rd (Southwest)													
30	L2	197	3.0	184	3.0	0.174	14.2	LOS B	6.1	44.1	0.50	0.65	32.1
31	T1	1995	3.0	1863	3.0	0.984	39.7	LOS D	25.0	179.5	0.73	0.81	20.5
32	R2	102	3.0	95	3.0	0.468	64.1	LOS E	8.9	63.7	0.93	0.80	20.3
32u	U	44	0.0	41	0.0	0.468	65.4	LOS E	8.9	63.7	0.93	0.80	6.1
Approach		2338	2.9	2183 N1	2.9	0.984	39.1	LOS D	25.0	179.5	0.73	0.79	21.1
All Vehicles		4220	3.0	4065 N1	3.1	2.617	192.1	LOS F	57.4	412.2	0.74	0.97	8.1

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
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.
Network Model Accuracy Level (largest change in degree of saturation for any lane): 0.7 %
Number of Iterations: 15 (maximum specified: 15)

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

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate per ped
P5	SouthEast Full Crossing	53	16.8	LOS B	0.1	0.1	0.47	0.47
P6	NorthEast Full Crossing	53	69.3	LOS F	0.2	0.2	0.96	0.96
P7	NorthWest Full Crossing	53	9.0	LOS A	0.1	0.1	0.35	0.35
P8	SouthWest Full Crossing	53	69.3	LOS F	0.2	0.2	0.96	0.96

All Pedestrians	211	41.1	LOS E	0.69	0.69

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

SIDRA INTERSECTION 7.0 | Copyright © 2000-2016 Akcelik and Associates Pty Ltd | sidrasolutions.com

PHASING SUMMARY

Site: 102 [2020_AM_BG+DEV - Intersection 2]

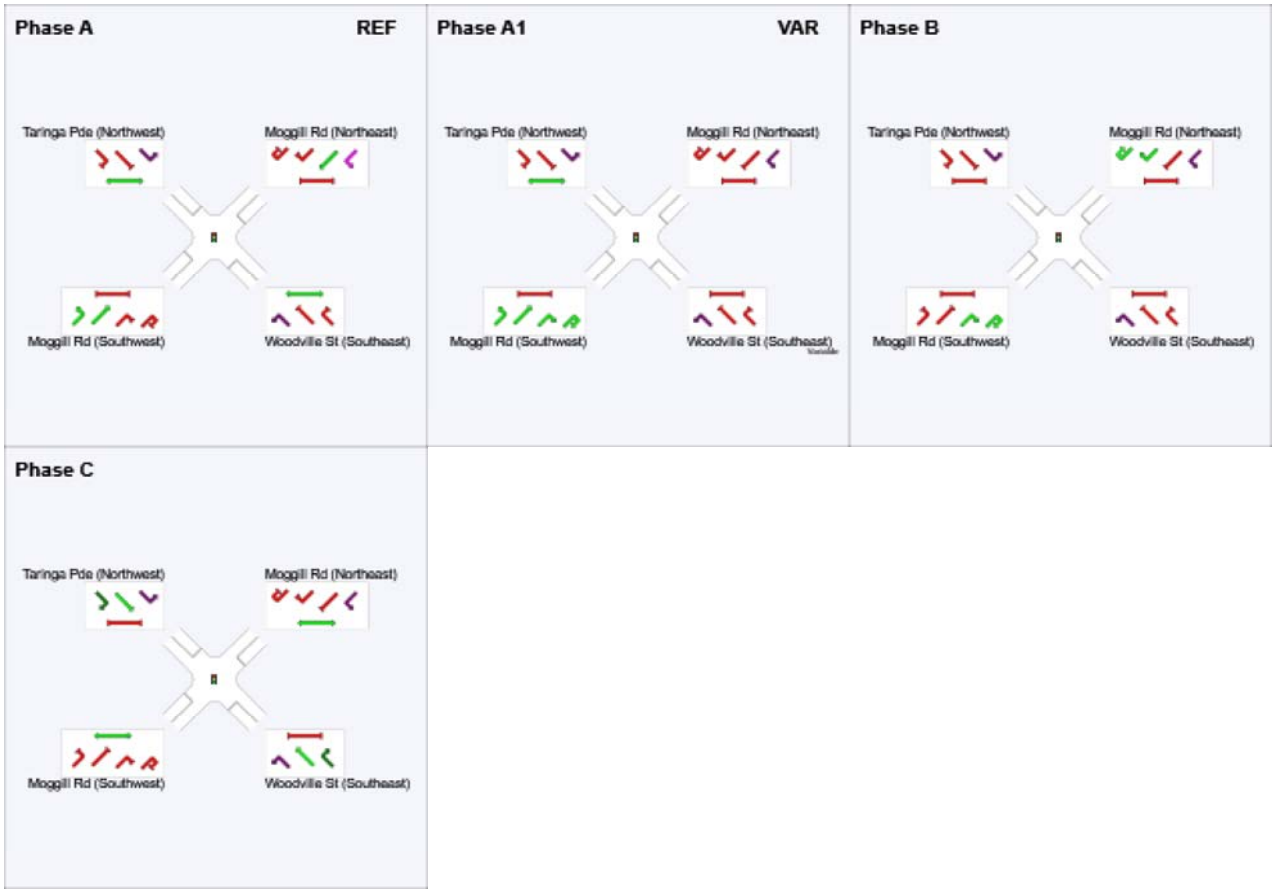
Network: N101 [2020 AM BG+DEV]

Int: Moggill Road / Taringa Parade / Woodville Street
Project Number: P3606
Project: Indooroopilly State School TIA
Signals - Fixed Time Coordinated Cycle Time = 150 seconds (Network Cycle Time - Program)

Phase Times determined by the program
Sequence: Adopted Phasing
Reference Phase: Phase A
Input Sequence: A, A1*, A2*, B, C
Output Sequence: A, A1*, B, C
(* Variable Phase)

Phase Timing Results

Phase	A	A1	B	C
Phase Change Time (sec)	12	105	126	138
Green Time (sec)	87	15	6	18
Yellow Time (sec)	4	4	4	4
All-Red Time (sec)	2	2	2	2
Phase Time (sec)	93	21	12	24
Phase Split	62%	14%	8%	16%



REF: Reference Phase
VAR: Variable Phase

Undetected Movement Phase Transition Applied

MOVEMENT SUMMARY

Site: 101 [2020_PM_BG+DEV - Intersection 1]

Network: N101 [2020 PM BG+DEV]

Int: Moggill Road / Russell Terrace
Project Number: P3606
Project: Indooroopilly State School TIA
Signals - Fixed Time Coordinated Cycle Time = 140 seconds (Network Cycle Time - User-Given)

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	Demand Flows HV %	Arrival Flows Total veh/h	Arrival Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
NorthEast: Moggill Rd (Northeast)													
25	T1	1717	3.0	1717	3.0	0.551	2.1	LOS A	13.9	99.9	0.19	0.18	38.1
26	R2	219	3.0	219	3.0	0.604	59.2	LOS E	14.3	102.4	1.00	0.84	19.6
Approach		1936	3.0	1936	3.0	0.604	8.6	LOS A	14.3	102.4	0.29	0.26	33.4
NorthWest: Russell Tce (Northwest)													
27	L2	333	3.0	333	3.0	0.501	56.9	LOS E	11.1	79.5	0.94	0.80	18.0
Approach		333	3.0	333	3.0	0.501	56.9	LOS E	11.1	79.5	0.94	0.80	18.0
SouthWest: Moggill Rd (Southwest)													
30	L2	86	3.0	86	3.0	0.607	12.0	LOS B	12.9	92.4	0.43	0.43	35.9
31	T1	1240	3.0	1240	3.0	0.607	9.6	LOS A	13.8	99.3	0.48	0.44	30.6
Approach		1326	3.0	1326	3.0	0.607	9.7	LOS A	13.8	99.3	0.47	0.44	31.2
All Vehicles		3596	3.0	3596	3.0	0.607	13.5	LOS B	14.3	102.4	0.41	0.38	30.0

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
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.
Network Model Accuracy Level (largest change in degree of saturation for any lane): 0.9 %
Number of Iterations: 10 (maximum specified: 15)

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Average Back of Queue Distance m	Prop. Queued	Effective Stop Rate per ped
P7	NorthWest Full Crossing	21	7.9	LOS A	0.0	0.0	0.34	0.34
P8	SouthWest Full Crossing	26	64.2	LOS F	0.1	0.1	0.96	0.96
All Pedestrians		47	39.2	LOS D			0.68	0.68

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

SIDRA INTERSECTION 7.0 | Copyright © 2000-2016 Akcelik and Associates Pty Ltd | sidrasolutions.com

PHASING SUMMARY

Site: 101 [2020_PM_BG+DEV - Intersection 1]

Network: N101 [2020 PM BG+DEV]

Int: Moggill Road / Russell Terrace
Project Number: P3606
Project: Indooroopilly State School TIA
Signals - Fixed Time Coordinated Cycle Time = 140 seconds (Network Cycle Time - User-Given)

Phase Times determined by the program
Sequence: Adopted Phasing
Reference Phase: Phase A
Input Sequence: A, B, C
Output Sequence: A, B, C

Phase Timing Results

Phase	A	B	C
Phase Change Time (sec)	13	118	136
Green Time (sec)	99	12	13
Yellow Time (sec)	4	4	4
All-Red Time (sec)	2	2	2
Phase Time (sec)	105	18	17
Phase Split	75%	13%	12%

REF: Reference Phase
VAR: Variable Phase

Normal Movement	Permitted/Opposed
Slip/Bypass-Lane Movement	Opposed Slip/Bypass-Lane
Stopped Movement	Turn On Red
Other Movement Class Running	Other Movement Class Stopped
Mixed Running & Stopped Movement Classes	
Undetected Movement	Phase Transition Applied

SIDRA INTERSECTION 7.0 | Copyright © 2000-2016 Akcelik and Associates Pty Ltd | sidrasolutions.com

MOVEMENT SUMMARY

Site: 102 [2020_PM_BG+DEV - Intersection 2]

Network: N101 [2020 PM BG+DEV]

Int: Moggill Road / Taringa Parade / Woodville Street
Project Number: P3606
Project: Indooroopilly State School TIA
Signals - Fixed Time Coordinated Cycle Time = 140 seconds (Network Cycle Time - User-Given)

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Arrival 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
SouthEast: Woodville St (Southeast)													
21	L2	219	3.0	219	3.0	0.428	21.7	LOS C	8.0	57.3	0.70	0.75	31.7
22	T1	99	3.0	99	3.0	0.457	61.9	LOS E	6.3	45.1	0.96	0.76	25.5
23	R2	37	3.0	37	3.0	0.274	71.7	LOS E	2.4	17.6	0.97	0.74	22.2
Approach		355	3.0	355	3.0	0.457	38.1	LOS D	8.0	57.3	0.80	0.75	27.5
NorthEast: Moggill Rd (Northeast)													
24	L2	35	3.0	35	3.0	0.682	23.2	LOS C	35.5	254.5	0.72	0.68	35.0
25	T1	1483	3.0	1483	3.0	0.682	18.9	LOS B	35.5	254.5	0.70	0.65	25.1
26	R2	50	3.0	50	3.0	0.327	66.1	LOS E	4.2	30.1	0.96	0.76	22.2
26u	U	16	0.0	16	0.0	0.327	67.5	LOS E	4.2	30.1	0.96	0.76	21.4
Approach		1583	3.0	1583	3.0	0.682	21.0	LOS C	35.5	254.5	0.71	0.66	25.1
NorthWest: Taringa Pde (Northwest)													
27	L2	90	3.0	90	3.0	0.828	69.4	LOS E	13.4	96.0	1.00	1.04	21.6
28	T1	112	3.0	112	3.0	0.828	66.2	LOS E	13.4	96.0	1.00	1.04	24.6
29	R2	114	3.0	114	3.0	0.830	80.1	LOS F	8.6	61.5	1.00	0.97	14.7
Approach		316	3.0	316	3.0	0.830	72.1	LOS E	13.4	96.0	1.00	1.02	20.5
SouthWest: Moggill Rd (Southwest)													
30	L2	102	3.0	102	3.0	0.114	17.6	LOS B	3.4	24.3	0.53	0.65	30.6
31	T1	1352	3.0	1352	3.0	0.865	20.7	LOS C	25.0	179.5	0.66	0.63	26.8
32	R2	77	3.0	77	3.0	0.873	82.4	LOS F	12.4	88.1	1.00	0.96	17.5
32u	U	85	0.0	85	0.0	0.873	83.6	LOS F	12.4	88.1	1.00	0.96	4.9
Approach		1616	2.8	1616	2.8	0.873	26.8	LOS C	25.0	179.5	0.69	0.66	24.6
All Vehicles		3870	2.9	3870	2.9	0.873	29.2	LOS C	35.5	254.5	0.73	0.70	24.5

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
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.
Network Model Accuracy Level (largest change in degree of saturation for any lane): 0.9 %
Number of Iterations: 10 (maximum specified: 15)

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate per ped
P5	SouthEast Full Crossing	53	13.8	LOS B	0.1	0.1	0.44	0.44
P6	NorthEast Full Crossing	53	64.3	LOS F	0.2	0.2	0.96	0.96
P7	NorthWest Full Crossing	53	6.0	LOS A	0.1	0.1	0.29	0.29
P8	SouthWest Full Crossing	53	64.3	LOS F	0.2	0.2	0.96	0.96
All Pedestrians		211	37.1	LOS D			0.66	0.66

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

SIDRA INTERSECTION 7.0 | Copyright © 2000-2016 Akcelik and Associates Pty Ltd | sidrasolutions.com

PHASING SUMMARY

Site: 102 [2020_PM_BG+DEV - Intersection 2]

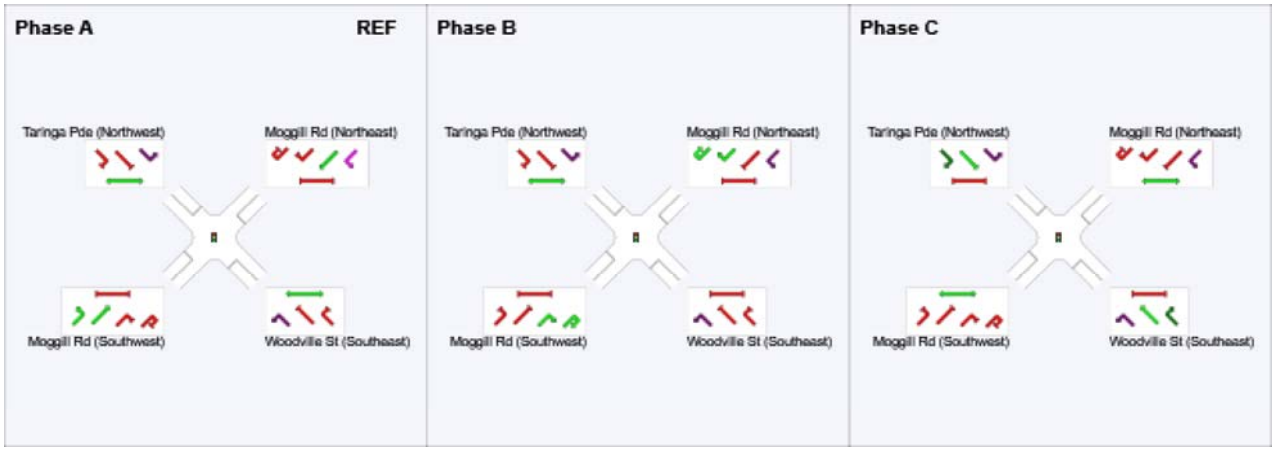
Network: N101 [2020 PM BG+DEV]

Int: Moggill Road / Taringa Parade / Woodville Street
Project Number: P3606
Project: Indooroopilly State School TIA
Signals - Fixed Time Coordinated Cycle Time = 140 seconds (Network Cycle Time - User-Given)

Phase Times determined by the program
Sequence: Adopted Phasing
Reference Phase: Phase A
Input Sequence: A, A1*, A2*, B, C
Output Sequence: A, B, C
(* Variable Phase)

Phase Timing Results

Phase	A	B	C
Phase Change Time (sec)	0	92	115
Green Time (sec)	86	17	19
Yellow Time (sec)	4	4	4
All-Red Time (sec)	2	2	2
Phase Time (sec)	92	23	25
Phase Split	66%	16%	18%



REF: Reference Phase
VAR: Variable Phase

	Normal Movement		Permitted/Opposed
	Slip/Bypass-Lane Movement		Opposed Slip/Bypass-Lane
	Stopped Movement		Turn On Red
	Other Movement Class Running		Other Movement Class Stopped
	Mixed Running & Stopped Movement Classes		
	Undetected Movement		Phase Transition Applied

SIDRA INTERSECTION 7.0 | Copyright © 2000-2016 Akcelik and Associates Pty Ltd | sidrasolutions.com

MOVEMENT SUMMARY

Site: 101 [2030_AM_BG - Intersection 1]

Network: N101 [2030 AM BG]

Int: Moggill Road / Russell Terrace
Project Number: P3606
Project: Indooroopilly State School TIA
Signals - Fixed Time Coordinated Cycle Time = 150 seconds (Network Cycle Time - Program)

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Arrival 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
NorthEast: Moggill Rd (Northeast)													
25	T1	1164	3.0	1085	3.0	0.358	1.1	LOS A	2.9	21.2	0.08	0.07	38.9
26	R2	163	3.0	152	3.0	0.371	65.0	LOS E	10.4	74.9	0.99	0.82	18.6
Approach		1326	3.0	1237 N1	3.0	0.371	9.0	LOS A	10.4	74.9	0.19	0.16	33.2
NorthWest: Russell Tce (Northwest)													
27	L2	627	3.0	627	3.0	1.196	283.3	LOS F	59.4	426.4	1.00	1.60	5.6
Approach		627	3.0	627	3.0	1.196	283.3	LOS F	59.4	426.4	1.00	1.60	5.6
SouthWest: Moggill Rd (Southwest)													
30	L2	68	3.0	68	3.0	1.180	266.6	LOS F	118.9	853.9	1.00	1.80	9.0
31	T1	1876	3.0	1876	3.0	1.180	253.8	LOS F	122.5	879.4	1.00	1.84	4.4
Approach		1943	3.0	1943	3.0	1.180	254.3	LOS F	122.5	879.4	1.00	1.84	4.6
All Vehicles		3897	3.0	3808 N1	3.1	1.196	179.3	LOS F	122.5	879.4	0.74	1.26	7.1

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
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.
Network Model Accuracy Level (largest change in degree of saturation for any lane): 0.9 %
Number of Iterations: 14 (maximum specified: 15)

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

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate per ped
P7	NorthWest Full Crossing	53	9.4	LOS A	0.1	0.1	0.35	0.35
P8	SouthWest Full Crossing	53	69.3	LOS F	0.2	0.2	0.96	0.96
All Pedestrians		105	39.3	LOS D			0.66	0.66

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

SIDRA INTERSECTION 7.0 | Copyright © 2000-2016 Akcelik and Associates Pty Ltd | sidrasolutions.com

PHASING SUMMARY

Site: 101 [2030_AM_BG - Intersection 1]

Network: N101 [2030 AM BG]

Int: Moggill Road / Russell Terrace
Project Number: P3606
Project: Indooroopilly State School TIA
Signals - Fixed Time Coordinated Cycle Time = 150 seconds (Network Cycle Time - Program)

Phase Times determined by the program
Sequence: Adopted Phasing
Reference Phase: Phase A
Input Sequence: A, B, C
Output Sequence: A, B, C

Phase Timing Results

Phase	A	B	C
Phase Change Time (sec)	0	109	128
Green Time (sec)	103	13	16
Yellow Time (sec)	4	4	4
All-Red Time (sec)	2	2	2
Phase Time (sec)	109	19	22
Phase Split	73%	13%	15%

REF: Reference Phase
VAR: Variable Phase

SIDRA INTERSECTION 7.0 | Copyright © 2000-2016 Akcelik and Associates Pty Ltd | sidrasolutions.com

MOVEMENT SUMMARY

Site: 102 [2030_AM_BG - Intersection 2]

Network: N101 [2030 AM BG]

Int: Moggill Road / Taringa Parade / Woodville Street
Project Number: P3606
Project: Indooroopilly State School TIA
Signals - Fixed Time Coordinated Cycle Time = 150 seconds (Network Cycle Time - Program)

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Arrival 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
SouthEast: Woodville St (Southeast)													
21	L2	172	3.0	172	3.0	0.214	13.0	LOS B	4.3	31.2	0.44	0.65	37.2
22	T1	172	3.0	172	3.0	1.262	375.9	LOS F	29.1	208.8	1.00	1.70	8.0
23	R2	179	3.0	179	3.0	1.482	568.5	LOS F	38.2	274.5	1.00	1.86	4.8
Approach		523	3.0	523	3.0	1.482	322.1	LOS F	38.2	274.5	0.82	1.41	7.5
NorthEast: Moggill Rd (Northeast)													
24	L2	47	3.0	47	3.0	0.481	23.3	LOS C	22.0	157.7	0.62	0.59	34.9
25	T1	965	3.0	965	3.0	0.481	19.1	LOS B	22.0	157.7	0.61	0.56	25.0
26	R2	46	3.0	46	3.0	0.799	90.2	LOS F	4.4	31.4	1.00	0.90	18.8
26u	U	8	0.0	8	0.0	0.799	91.6	LOS F	4.4	31.4	1.00	0.90	17.6
Approach		1067	3.0	1067	3.0	0.799	22.9	LOS C	22.0	157.7	0.63	0.58	24.7
NorthWest: Taringa Pde (Northwest)													
27	L2	74	3.0	74	3.0	1.829	788.4	LOS F	40.6	291.3	1.00	1.78	3.6
28	T1	85	3.0	85	3.0	1.829	785.2	LOS F	40.6	291.3	1.00	1.78	4.2
29	R2	137	3.0	137	3.0	2.617	1550.3	LOS F	45.6	327.4	1.00	2.48	1.2
Approach		296	3.0	296	3.0	2.617	1139.5	LOS F	45.6	327.4	1.00	2.10	2.2
SouthWest: Moggill Rd (Southwest)													
30	L2	196	3.0	172	3.0	0.163	13.7	LOS B	5.5	39.6	0.48	0.65	32.3
31	T1	2183	3.0	1916	3.0	1.008	53.7	LOS D	25.0	179.5	0.86	0.98	17.5
32	R2	112	3.0	99	3.0	0.470	64.9	LOS E	8.8	62.9	0.94	0.80	20.2
32u	U	40	0.0	35	0.0	0.470	66.2	LOS E	8.8	62.9	0.94	0.80	6.1
Approach		2531	3.0	2221 N1	2.9	1.008	51.3	LOS D	25.0	179.5	0.84	0.94	18.4
All Vehicles		4417	3.0	4107 N1	3.2	2.617	156.8	LOS F	45.6	327.4	0.79	0.99	9.3

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
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.
Network Model Accuracy Level (largest change in degree of saturation for any lane): 0.9 %
Number of Iterations: 14 (maximum specified: 15)

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

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate per ped
P5	SouthEast Full Crossing	53	16.4	LOS B	0.1	0.1	0.47	0.47
P6	NorthEast Full Crossing	53	69.3	LOS F	0.2	0.2	0.96	0.96
P7	NorthWest Full Crossing	53	9.0	LOS A	0.1	0.1	0.35	0.35
P8	SouthWest Full Crossing	53	69.3	LOS F	0.2	0.2	0.96	0.96

All Pedestrians	211	41.0	LOS E	0.68	0.68

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

SIDRA INTERSECTION 7.0 | Copyright © 2000-2016 Akcelik and Associates Pty Ltd | sidrasolutions.com

PHASING SUMMARY

Site: 102 [2030_AM_BG - Intersection 2]

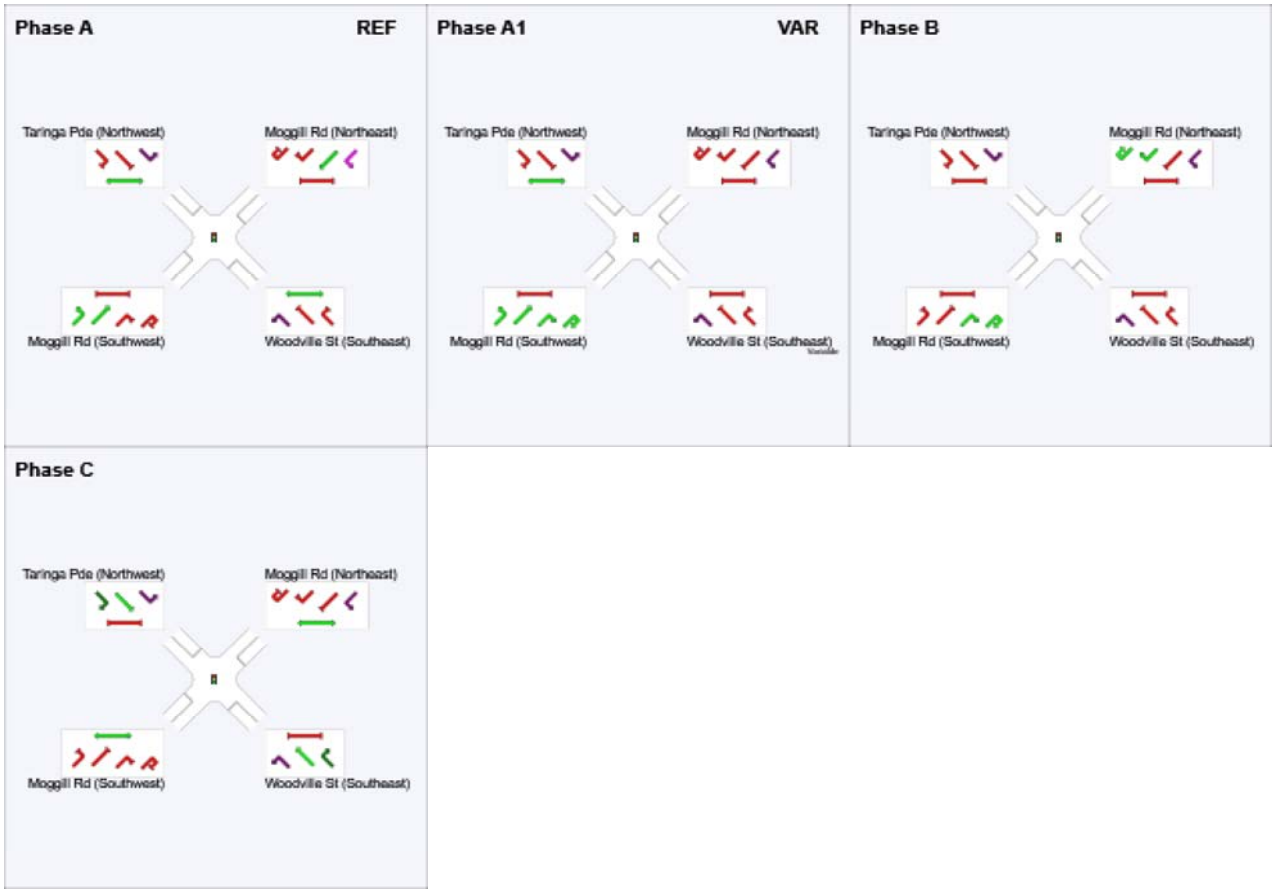
Network: N101 [2030 AM BG]

Int: Moggill Road / Taringa Parade / Woodville Street
Project Number: P3606
Project: Indooroopilly State School TIA
Signals - Fixed Time Coordinated Cycle Time = 150 seconds (Network Cycle Time - Program)

Phase Times determined by the program
Sequence: Adopted Phasing
Reference Phase: Phase A
Input Sequence: A, A1*, A2*, B, C
Output Sequence: A, A1*, B, C
(* Variable Phase)

Phase Timing Results

Phase	A	A1	B	C
Phase Change Time (sec)	13	107	127	139
Green Time (sec)	88	14	6	18
Yellow Time (sec)	4	4	4	4
All-Red Time (sec)	2	2	2	2
Phase Time (sec)	94	20	12	24
Phase Split	63%	13%	8%	16%



REF: Reference Phase
VAR: Variable Phase

Undetected Movement Phase Transition Applied

MOVEMENT SUMMARY

Site: 101 [2030_PM_BG - Intersection 1]

Network: N101 [2030 PM BG]

Int: Moggill Road / Russell Terrace
Project Number: P3606
Project: Indooroopilly State School TIA
Signals - Fixed Time Coordinated Cycle Time = 140 seconds (Network Cycle Time - User-Given)

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	Demand Flows HV %	Arrival Flows Total veh/h	Arrival Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
NorthEast: Moggill Rd (Northeast)													
25	T1	1863	3.0	1863	3.0	0.598	2.3	LOS A	15.1	108.2	0.20	0.19	37.9
26	R2	222	3.0	222	3.0	0.634	61.5	LOS E	14.7	105.6	1.00	0.84	19.2
Approach		2085	3.0	2085	3.0	0.634	8.6	LOS A	15.1	108.2	0.28	0.25	33.4
NorthWest: Russell Tce (Northwest)													
27	L2	327	3.0	327	3.0	0.477	57.2	LOS E	10.2	73.2	0.93	0.80	17.9
Approach		327	3.0	327	3.0	0.477	57.2	LOS E	10.2	73.2	0.93	0.80	17.9
SouthWest: Moggill Rd (Southwest)													
30	L2	83	3.0	83	3.0	0.638	11.8	LOS B	13.7	98.3	0.43	0.43	36.0
31	T1	1362	3.0	1362	3.0	0.638	9.3	LOS A	15.0	107.8	0.47	0.44	30.8
Approach		1444	3.0	1444	3.0	0.638	9.4	LOS A	15.0	107.8	0.47	0.44	31.4
All Vehicles		3857	3.0	3857	3.0	0.638	13.0	LOS B	15.1	108.2	0.41	0.37	30.2

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
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.
Network Model Accuracy Level (largest change in degree of saturation for any lane): 1.0 %
Number of Iterations: 8 (maximum specified: 15)

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Average Back of Queue Distance m	Prop. Queued	Effective Stop Rate per ped
P7	NorthWest Full Crossing	21	7.6	LOS A	0.0	0.0	0.33	0.33
P8	SouthWest Full Crossing	26	64.2	LOS F	0.1	0.1	0.96	0.96
All Pedestrians		47	39.0	LOS D			0.68	0.68

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

SIDRA INTERSECTION 7.0 | Copyright © 2000-2016 Akcelik and Associates Pty Ltd | sidrasolutions.com

PHASING SUMMARY

Site: 101 [2030_PM_BG - Intersection 1]

Network: N101 [2030 PM BG]

Int: Moggill Road / Russell Terrace
Project Number: P3606
Project: Indooroopilly State School TIA
Signals - Fixed Time Coordinated Cycle Time = 140 seconds (Network Cycle Time - User-Given)

Phase Times determined by the program
Sequence: Adopted Phasing
Reference Phase: Phase A
Input Sequence: A, B, C
Output Sequence: A, B, C

Phase Timing Results

Phase	A	B	C
Phase Change Time (sec)	13	119	136
Green Time (sec)	100	11	13
Yellow Time (sec)	4	4	4
All-Red Time (sec)	2	2	2
Phase Time (sec)	106	17	17
Phase Split	76%	12%	12%

REF: Reference Phase
VAR: Variable Phase

SIDRA INTERSECTION 7.0 | Copyright © 2000-2016 Akcelik and Associates Pty Ltd | sidrasolutions.com

MOVEMENT SUMMARY

Site: 101 [2030_AM_BG+DEV - Intersection 1]

Network: N101 [2030 AM BG+DEV]

Int: Moggill Road / Russell Terrace
Project Number: P3606
Project: Indooroopilly State School TIA
Signals - Fixed Time Coordinated Cycle Time = 150 seconds (Network Cycle Time - Program)

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Arrival 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
NorthEast: Moggill Rd (Northeast)													
25	T1	1179	3.0	1094	3.0	0.361	1.2	LOS A	3.4	24.5	0.08	0.08	38.9
26	R2	174	3.0	161	3.0	0.394	64.8	LOS E	11.1	79.4	0.99	0.82	18.6
Approach		1353	3.0	1255 N1	3.0	0.394	9.4	LOS A	11.1	79.4	0.20	0.17	32.9
NorthWest: Russell Tce (Northwest)													
27	L2	641	3.0	641	3.0	1.223	306.5	LOS F	63.4	455.1	1.00	1.65	5.3
Approach		641	3.0	641	3.0	1.223	306.5	LOS F	63.4	455.1	1.00	1.65	5.3
SouthWest: Moggill Rd (Southwest)													
30	L2	78	3.0	78	3.0	1.186	272.3	LOS F	120.7	866.9	1.00	1.81	8.9
31	T1	1876	3.0	1876	3.0	1.186	259.4	LOS F	124.4	893.4	1.00	1.86	4.3
Approach		1954	3.0	1954	3.0	1.186	260.0	LOS F	124.4	893.4	1.00	1.86	4.6
All Vehicles		3947	3.0	3850 N1	3.1	1.223	186.0	LOS F	124.4	893.4	0.74	1.28	6.9

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
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.
Network Model Accuracy Level (largest change in degree of saturation for any lane): 0.9 %
Number of Iterations: 14 (maximum specified: 15)

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

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate per ped
P7	NorthWest Full Crossing	53	9.4	LOS A	0.1	0.1	0.35	0.35
P8	SouthWest Full Crossing	53	69.3	LOS F	0.2	0.2	0.96	0.96
All Pedestrians		105	39.3	LOS D			0.66	0.66

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

SIDRA INTERSECTION 7.0 | Copyright © 2000-2016 Akcelik and Associates Pty Ltd | sidrasolutions.com

PHASING SUMMARY

Site: 101 [2030_AM_BG+DEV - Intersection 1]

Network: N101 [2030 AM BG+DEV]

Int: Moggill Road / Russell Terrace
Project Number: P3606
Project: Indooroopilly State School TIA
Signals - Fixed Time Coordinated Cycle Time = 150 seconds (Network Cycle Time - Program)

Phase Times determined by the program
Sequence: Adopted Phasing
Reference Phase: Phase A
Input Sequence: A, B, C
Output Sequence: A, B, C

Phase Timing Results

Phase	A	B	C
Phase Change Time (sec)	0	109	128
Green Time (sec)	103	13	16
Yellow Time (sec)	4	4	4
All-Red Time (sec)	2	2	2
Phase Time (sec)	109	19	22
Phase Split	73%	13%	15%

REF: Reference Phase
VAR: Variable Phase

Normal Movement	Permitted/Opposed
Slip/Bypass-Lane Movement	Opposed Slip/Bypass-Lane
Stopped Movement	Turn On Red
Other Movement Class Running	Other Movement Class Stopped
Mixed Running & Stopped Movement Classes	
Undetected Movement	Phase Transition Applied

SIDRA INTERSECTION 7.0 | Copyright © 2000-2016 Akcelik and Associates Pty Ltd | sidrasolutions.com

MOVEMENT SUMMARY

Site: 102 [2030_AM_BG+DEV - Intersection 2]

Network: N101 [2030 AM BG+DEV]

Int: Moggill Road / Taringa Parade / Woodville Street
Project Number: P3606
Project: Indooroopilly State School TIA
Signals - Fixed Time Coordinated Cycle Time = 150 seconds (Network Cycle Time - Program)

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Arrival 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
SouthEast: Woodville St (Southeast)													
21	L2	172	3.0	172	3.0	0.219	13.8	LOS B	4.6	32.7	0.46	0.66	36.6
22	T1	215	3.0	215	3.0	1.476	558.6	LOS F	45.9	329.8	1.00	2.07	5.7
23	R2	179	3.0	179	3.0	1.581	664.8	LOS F	41.2	296.1	1.00	1.97	4.2
Approach		566	3.0	566	3.0	1.581	426.2	LOS F	45.9	329.8	0.83	1.61	6.0
NorthEast: Moggill Rd (Northeast)													
24	L2	47	3.0	47	3.0	0.500	23.6	LOS C	23.2	166.5	0.63	0.60	34.8
25	T1	977	3.0	977	3.0	0.500	19.2	LOS B	23.2	166.5	0.61	0.56	24.9
26	R2	78	3.0	78	3.0	1.243	316.2	LOS F	14.0	100.6	1.00	1.53	7.9
26u	U	8	0.0	8	0.0	1.243	317.6	LOS F	14.0	100.6	1.00	1.53	6.8
Approach		1109	3.0	1109	3.0	1.243	42.4	LOS D	23.2	166.5	0.64	0.64	18.9
NorthWest: Taringa Pde (Northwest)													
27	L2	96	3.0	96	3.0	2.400	1303.4	LOS F	64.4	462.4	1.00	2.04	2.3
28	T1	113	3.0	113	3.0	2.400	1300.2	LOS F	64.4	462.4	1.00	2.04	2.7
29	R2	144	3.0	144	3.0	2.754	1673.5	LOS F	49.1	352.5	1.00	2.53	1.1
Approach		353	3.0	353	3.0	2.754	1453.2	LOS F	64.4	462.4	1.00	2.24	1.8
SouthWest: Moggill Rd (Southwest)													
30	L2	206	3.0	179	3.0	0.170	13.8	LOS B	5.8	41.8	0.49	0.65	32.3
31	T1	2190	3.0	1905	3.0	1.006	52.5	LOS D	25.0	179.5	0.86	0.97	17.8
32	R2	112	3.0	98	3.0	0.493	65.3	LOS E	9.2	65.7	0.94	0.80	20.1
32u	U	47	0.0	41	0.0	0.493	66.5	LOS E	9.2	65.7	0.94	0.80	6.0
Approach		2556	2.9	2223 N1	2.9	1.006	50.2	LOS D	25.0	179.5	0.84	0.93	18.6
All Vehicles		4584	3.0	4252 N1	3.2	2.754	214.8	LOS F	64.4	462.4	0.80	1.06	7.3

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
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.
Network Model Accuracy Level (largest change in degree of saturation for any lane): 0.9 %
Number of Iterations: 14 (maximum specified: 15)

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

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate per ped
P5	SouthEast Full Crossing	53	16.4	LOS B	0.1	0.1	0.47	0.47
P6	NorthEast Full Crossing	53	69.3	LOS F	0.2	0.2	0.96	0.96
P7	NorthWest Full Crossing	53	9.0	LOS A	0.1	0.1	0.35	0.35
P8	SouthWest Full Crossing	53	69.3	LOS F	0.2	0.2	0.96	0.96

All Pedestrians	211	41.0	LOS E	0.68	0.68

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

SIDRA INTERSECTION 7.0 | Copyright © 2000-2016 Akcelik and Associates Pty Ltd | sidrasolutions.com

PHASING SUMMARY

Site: 102 [2030_AM_BG+DEV - Intersection 2]

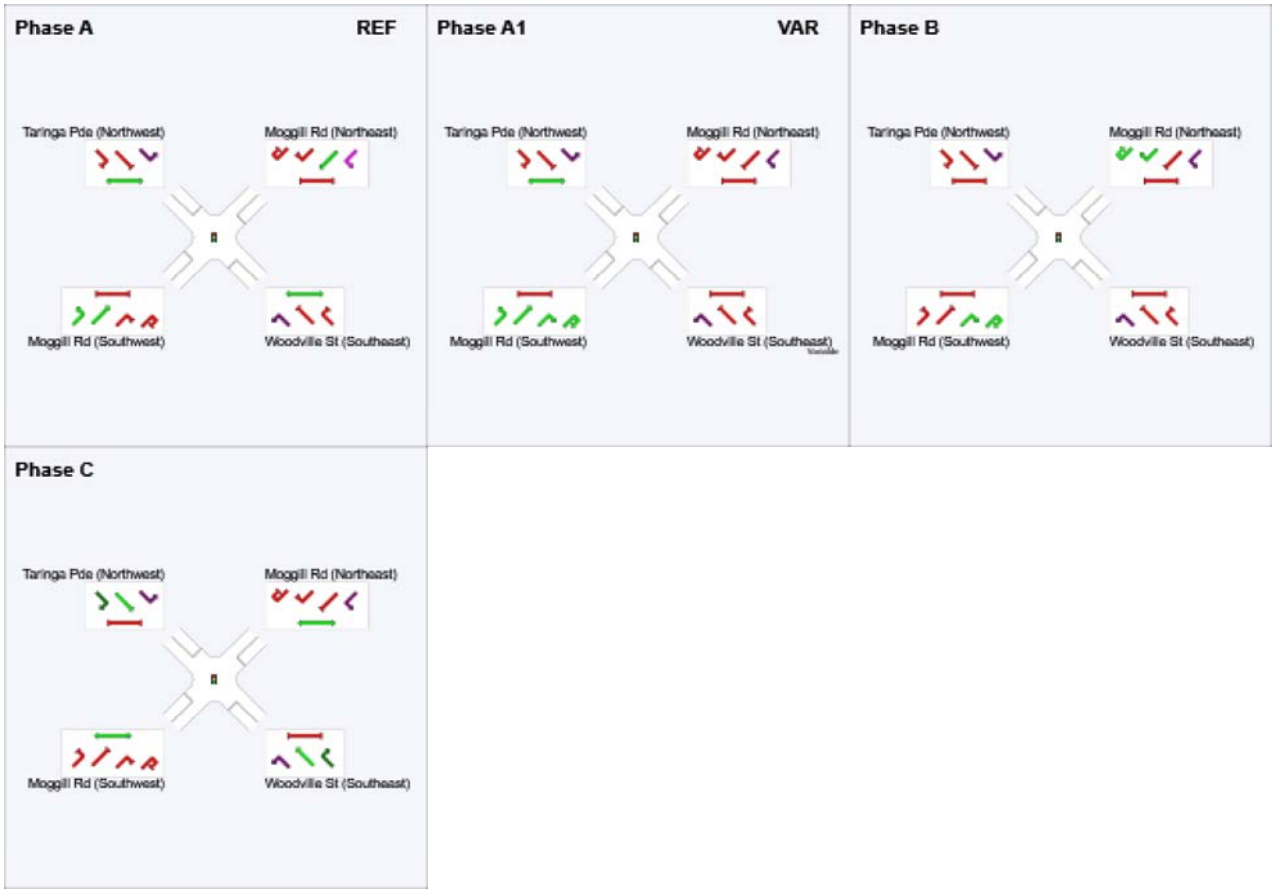
Network: N101 [2030 AM BG+DEV]

Int: Moggill Road / Taringa Parade / Woodville Street
Project Number: P3606
Project: Indooroopilly State School TIA
Signals - Fixed Time Coordinated Cycle Time = 150 seconds (Network Cycle Time - Program)

Phase Times determined by the program
Sequence: Adopted Phasing
Reference Phase: Phase A
Input Sequence: A, A1*, A2*, B, C
Output Sequence: A, A1*, B, C
(* Variable Phase)

Phase Timing Results

Phase	A	A1	B	C
Phase Change Time (sec)	13	107	127	139
Green Time (sec)	88	14	6	18
Yellow Time (sec)	4	4	4	4
All-Red Time (sec)	2	2	2	2
Phase Time (sec)	94	20	12	24
Phase Split	63%	13%	8%	16%



REF: Reference Phase
VAR: Variable Phase

Undetected Movement Phase Transition Applied

MOVEMENT SUMMARY

Site: 101 [2030_PM_BG+DEV - Intersection 1]

Network: N101 [2030 PM BG+DEV]

Int: Moggill Road / Russell Terrace
Project Number: P3606
Project: Indooroopilly State School TIA
Signals - Fixed Time Coordinated Cycle Time = 140 seconds (Network Cycle Time - User-Given)

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Arrival 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
NorthEast: Moggill Rd (Northeast)													
25	T1	1883	3.0	1883	3.0	0.605	2.4	LOS A	16.3	116.7	0.21	0.20	37.8
26	R2	229	3.0	229	3.0	0.654	61.3	LOS E	15.2	108.9	1.00	0.84	19.2
Approach		2112	3.0	2112	3.0	0.654	8.8	LOS A	16.3	116.7	0.29	0.27	33.2
NorthWest: Russell Tce (Northwest)													
27	L2	348	3.0	348	3.0	0.525	57.9	LOS E	11.3	81.4	0.95	0.81	17.8
Approach		348	3.0	348	3.0	0.525	57.9	LOS E	11.3	81.4	0.95	0.81	17.8
SouthWest: Moggill Rd (Southwest)													
30	L2	90	3.0	90	3.0	0.659	11.8	LOS B	13.9	99.7	0.43	0.43	35.9
31	T1	1362	3.0	1362	3.0	0.659	9.5	LOS A	16.0	114.6	0.48	0.45	30.6
Approach		1452	3.0	1452	3.0	0.659	9.6	LOS A	16.0	114.6	0.48	0.45	31.3
All Vehicles		3912	3.0	3912	3.0	0.659	13.5	LOS B	16.3	116.7	0.42	0.38	30.0

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
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.
Network Model Accuracy Level (largest change in degree of saturation for any lane): 0.5 %
Number of Iterations: 12 (maximum specified: 15)

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate per ped
P7	NorthWest Full Crossing	21	7.6	LOS A	0.0	0.0	0.33	0.33
P8	SouthWest Full Crossing	26	64.2	LOS F	0.1	0.1	0.96	0.96
All Pedestrians		47	39.0	LOS D			0.68	0.68

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

SIDRA INTERSECTION 7.0 | Copyright © 2000-2016 Akcelik and Associates Pty Ltd | sidrasolutions.com

PHASING SUMMARY

Site: 101 [2030_PM_BG+DEV - Intersection 1]

Network: N101 [2030 PM BG+DEV]

Int: Moggill Road / Russell Terrace
Project Number: P3606
Project: Indooroopilly State School TIA
Signals - Fixed Time Coordinated Cycle Time = 140 seconds (Network Cycle Time - User-Given)

Phase Times determined by the program
Sequence: Adopted Phasing
Reference Phase: Phase A
Input Sequence: A, B, C
Output Sequence: A, B, C

Phase Timing Results

Phase	A	B	C
Phase Change Time (sec)	13	119	136
Green Time (sec)	100	11	13
Yellow Time (sec)	4	4	4
All-Red Time (sec)	2	2	2
Phase Time (sec)	106	17	17
Phase Split	76%	12%	12%

REF: Reference Phase
VAR: Variable Phase

MOVEMENT SUMMARY

Site: 102 [2030_PM_BG+DEV - Intersection 2]

Network: N101 [2030 PM BG+DEV]

Int: Moggill Road / Taringa Parade / Woodville Street
Project Number: P3606
Project: Indooroopilly State School TIA
Signals - Fixed Time Coordinated Cycle Time = 140 seconds (Network Cycle Time - User-Given)

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Arrival 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
SouthEast: Woodville St (Southeast)													
21	L2	241	3.0	241	3.0	0.572	32.9	LOS C	11.5	82.3	0.87	0.81	26.7
22	T1	103	3.0	103	3.0	0.461	60.9	LOS E	6.5	46.6	0.95	0.76	25.6
23	R2	40	3.0	40	3.0	0.283	70.8	LOS E	2.6	18.9	0.97	0.74	22.3
Approach		384	3.0	384	3.0	0.572	44.3	LOS D	11.5	82.3	0.90	0.79	25.6
NorthEast: Moggill Rd (Northeast)													
24	L2	38	3.0	38	3.0	0.832	29.7	LOS C	50.0	359.3	0.88	0.83	32.6
25	T1	1628	3.0	1628	3.0	0.832	26.0	LOS C	50.0	359.3	0.86	0.80	22.0
26	R2	51	3.0	51	3.0	0.975	106.3	LOS F	6.0	42.6	1.00	1.10	17.2
26u	U	18	0.0	18	0.0	0.975	107.7	LOS F	6.0	42.6	1.00	1.10	16.0
Approach		1734	3.0	1734	3.0	0.975	29.3	LOS C	50.0	359.3	0.86	0.82	21.8
NorthWest: Taringa Pde (Northwest)													
27	L2	92	3.0	92	3.0	0.820	68.6	LOS E	13.7	98.7	1.00	1.03	21.7
28	T1	116	3.0	116	3.0	0.820	65.4	LOS E	13.7	98.7	1.00	1.03	24.8
29	R2	119	3.0	119	3.0	0.924	92.4	LOS F	9.8	70.4	1.00	1.11	13.4
Approach		328	3.0	328	3.0	0.924	76.2	LOS E	13.7	98.7	1.00	1.06	19.9
SouthWest: Moggill Rd (Southwest)													
30	L2	106	3.0	106	3.0	0.106	13.1	LOS B	2.9	20.9	0.44	0.62	32.6
31	T1	1484	3.0	1484	3.0	0.858	13.5	LOS B	25.0	179.5	0.57	0.53	30.2
32	R2	85	3.0	85	3.0	0.821	75.0	LOS E	13.0	92.2	1.00	0.92	18.6
32u	U	93	0.0	93	0.0	0.821	76.2	LOS E	13.0	92.2	1.00	0.92	5.4
Approach		1767	2.8	1767	2.8	0.858	19.7	LOS B	25.0	179.5	0.60	0.57	27.5
All Vehicles		4213	2.9	4213	2.9	0.975	30.3	LOS C	50.0	359.3	0.77	0.73	24.0

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
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.
Network Model Accuracy Level (largest change in degree of saturation for any lane): 0.5 %
Number of Iterations: 12 (maximum specified: 15)

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate per ped
P5	SouthEast Full Crossing	53	16.1	LOS B	0.1	0.1	0.48	0.48
P6	NorthEast Full Crossing	53	64.3	LOS F	0.2	0.2	0.96	0.96
P7	NorthWest Full Crossing	53	6.3	LOS A	0.1	0.1	0.30	0.30
P8	SouthWest Full Crossing	53	64.3	LOS F	0.2	0.2	0.96	0.96
All Pedestrians		211	37.7	LOS D			0.67	0.67

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

SIDRA INTERSECTION 7.0 | Copyright © 2000-2016 Akcelik and Associates Pty Ltd | sidrasolutions.com

PHASING SUMMARY

Site: 102 [2030_PM_BG+DEV - Intersection 2]

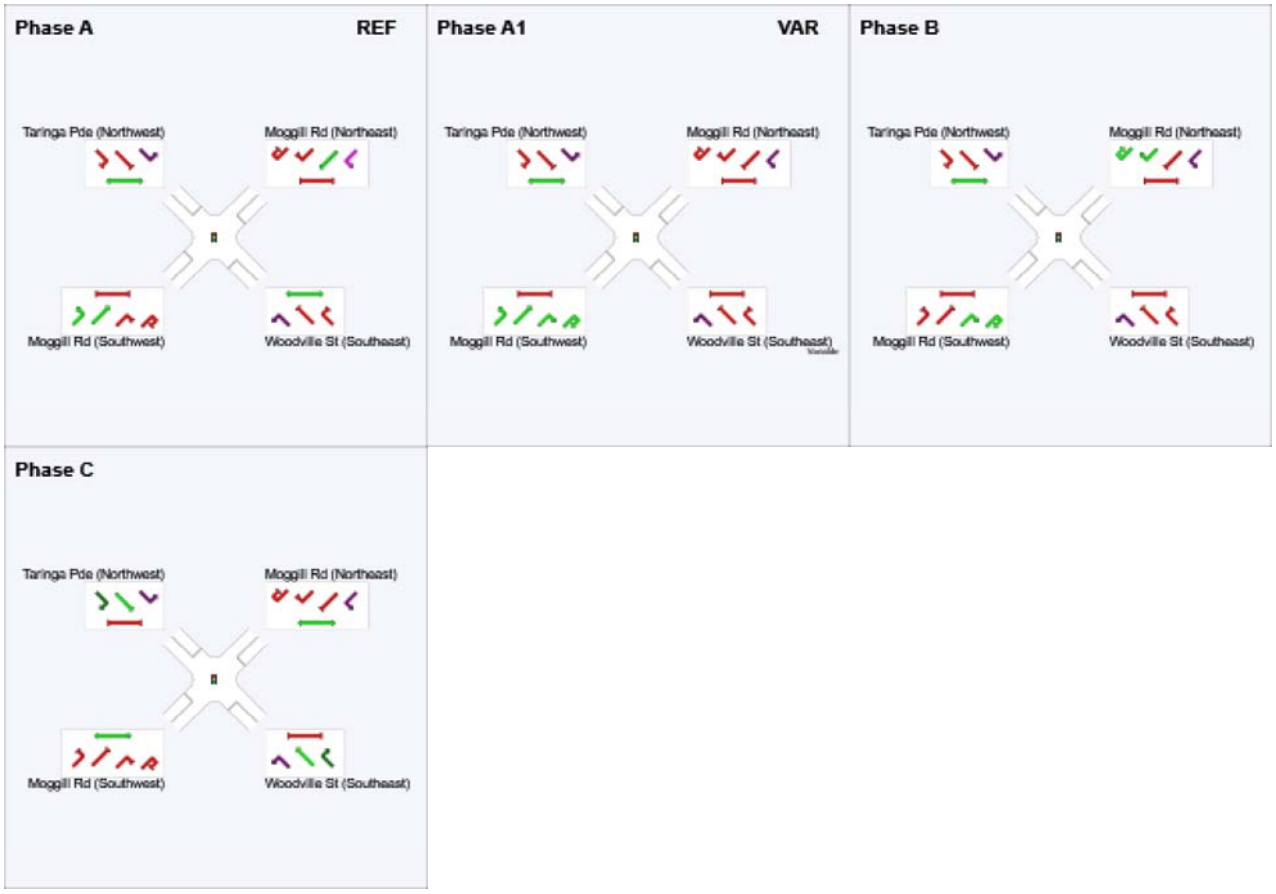
Network: N101 [2030 PM BG+DEV]

Int: Moggill Road / Taringa Parade / Woodville Street
Project Number: P3606
Project: Indooroopilly State School TIA
Signals - Fixed Time Coordinated Cycle Time = 140 seconds (Network Cycle Time - User-Given)

Phase Times determined by the program
Sequence: Adopted Phasing
Reference Phase: Phase A
Input Sequence: A, A1*, A2*, B, C
Output Sequence: A, A1*, B, C
(* Variable Phase)

Phase Timing Results

Phase	A	A1	B	C
Phase Change Time (sec)	0	87	102	114
Green Time (sec)	81	9	6	20
Yellow Time (sec)	4	4	4	4
All-Red Time (sec)	2	2	2	2
Phase Time (sec)	87	15	12	26
Phase Split	62%	11%	9%	19%



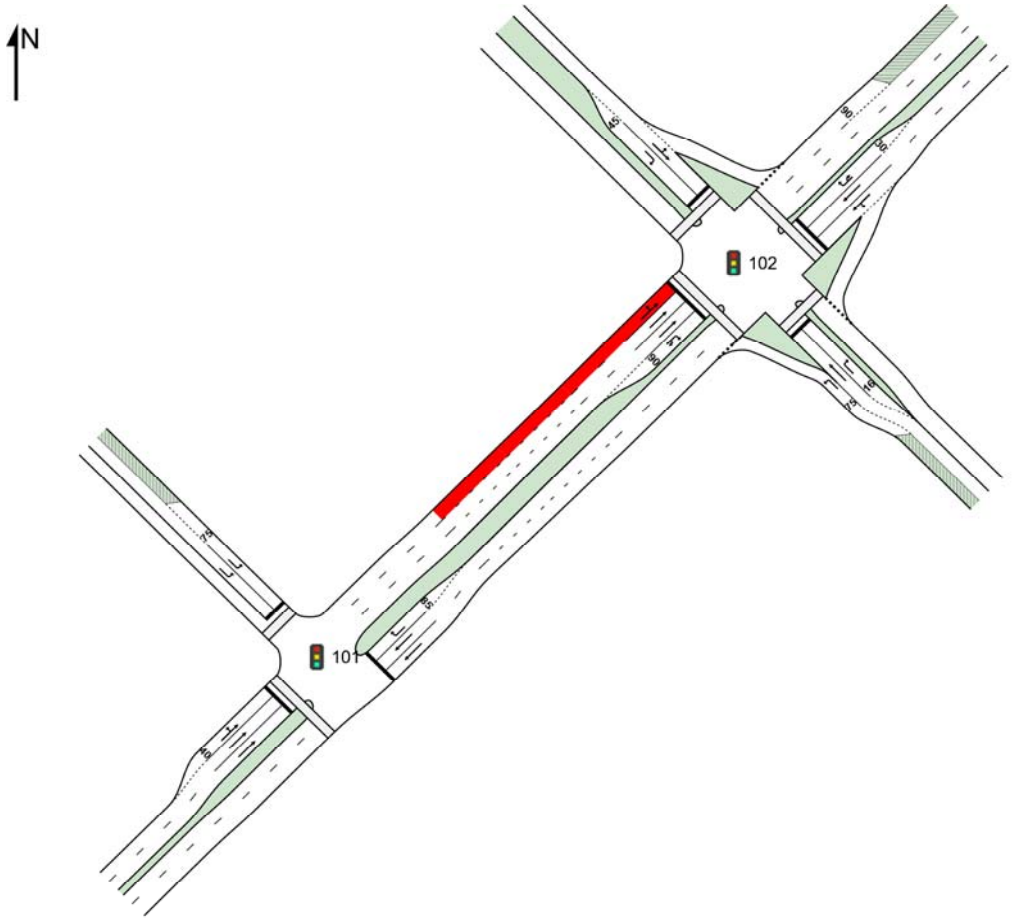
REF: Reference Phase
VAR: Variable Phase

 Undetected Movement Phase Transition Applied

NETWORK LAYOUT

Network: N101 [2020 AM BG+DEV - Upgrade - Lane Reconfig]

New Network



SITES IN NETWORK	
Site ID	**Site Name**
101	2020_AM_BG+DEV - Intersection 1 - Upgrade - Lane Reconfig
102	2020_AM_BG+DEV - Intersection 2 - Upgrade - Lane Reconfig

MOVEMENT SUMMARY

Site: 101 [2020_AM_BG+DEV - Intersection 1 - Upgrade - Lane Reconfig]

Network: N101 [2020 AM BG+DEV - Upgrade - Lane Reconfig]

Int: Moggill Road / Russell Terrace
Project Number: P3606
Project: Indooroopilly State School TIA
Signals - Fixed Time Coordinated Cycle Time = 150 seconds (Network Cycle Time - Program)

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	Demand Flows HV %	Arrival Flows Total veh/h	Arrival Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
NorthEast: Moggill Rd (Northeast)													
25	T1	1075	3.0	1074	3.0	0.354	0.5	LOS A	1.2	8.4	0.03	0.03	39.5
26	R2	166	3.0	166	3.0	0.394	66.5	LOS E	11.6	83.2	1.00	0.83	18.4
Approach		1240	3.0	1239 N1	3.0	0.394	9.3	LOS A	11.6	83.2	0.16	0.14	33.0
NorthWest: Russell Tce (Northwest)													
27	L2	612	3.0	612	3.0	1.150	244.3	LOS F	53.1	381.4	1.00	1.51	6.4
Approach		612	3.0	612	3.0	1.150	244.3	LOS F	53.1	381.4	1.00	1.51	6.4
SouthWest: Moggill Rd (Southwest)													
30	L2	75	3.0	75	3.0	0.898	38.2	LOS D	27.8	199.6	0.50	0.61	27.5
31	T1	1708	3.0	1708	3.0	0.898	36.4	LOS D	57.3	411.5	0.72	0.79	18.6
Approach		1783	3.0	1783	3.0	0.898	36.4	LOS D	57.3	411.5	0.71	0.78	19.2
All Vehicles		3635	3.0	3634 N1	3.0	1.150	62.2	LOS E	57.3	411.5	0.57	0.68	15.4

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
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.
Network Model Accuracy Level (largest change in degree of saturation for any lane): 0.6 %
Number of Iterations: 14 (maximum specified: 15)

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

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Average Back of Queue Distance m	Prop. Queued	Effective Stop Rate per ped
P7	NorthWest Full Crossing	53	9.7	LOS A	0.1	0.1	0.36	0.36
P8	SouthWest Full Crossing	53	69.3	LOS F	0.2	0.2	0.96	0.96
All Pedestrians		105	39.5	LOS D			0.66	0.66

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

SIDRA INTERSECTION 7.0 | Copyright © 2000-2016 Akcelik and Associates Pty Ltd | sidrasolutions.com

PHASING SUMMARY

Site: 101 [2020_AM_BG+DEV - Intersection 1 - Upgrade - Lane Reconfig]

Network: N101 [2020 AM BG+DEV - Upgrade - Lane Reconfig]

Int: Moggill Road / Russell Terrace
Project Number: P3606
Project: Indooroopilly State School TIA
Signals - Fixed Time Coordinated Cycle Time = 150 seconds (Network Cycle Time - Program)

Phase Times determined by the program
Sequence: Adopted Phasing
Reference Phase: Phase A
Input Sequence: A, B, C
Output Sequence: A, B, C

Phase Timing Results

Phase	A	B	C
Phase Change Time (sec)	0	108	128
Green Time (sec)	102	14	16
Yellow Time (sec)	4	4	4
All-Red Time (sec)	2	2	2
Phase Time (sec)	108	20	22
Phase Split	72%	13%	15%

REF: Reference Phase
VAR: Variable Phase

Normal Movement	Permitted/Opposed
Slip/Bypass-Lane Movement	Opposed Slip/Bypass-Lane
Stopped Movement	Turn On Red
Other Movement Class Running	Other Movement Class Stopped
Mixed Running & Stopped Movement Classes	
Undetected Movement	Phase Transition Applied

MOVEMENT SUMMARY

Site: 102 [2020_AM_BG+DEV - Intersection 2 - Upgrade - Lane Reconfig]

Network: N101 [2020 AM BG+DEV - Upgrade - Lane Reconfig]

Int: Moggill Road / Taringa Parade / Woodville Street
Project Number: P3606
Project: Indooroopilly State School TIA
Signals - Fixed Time Coordinated Cycle Time = 150 seconds (Network Cycle Time - Program)

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Arrival 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
SouthEast: Woodville St (Southeast)													
21	L2	157	3.0	157	3.0	0.211	14.5	LOS B	4.0	28.4	0.52	0.67	36.2
22	T1	207	3.0	207	3.0	0.896	77.8	LOS E	16.2	116.5	0.95	1.03	22.9
23	R2	162	3.0	162	3.0	1.000	184.3	LOS F	16.8	120.8	1.00	1.14	12.3
Approach		527	3.0	527	3.0	1.000	91.7	LOS F	16.8	120.8	0.84	0.96	18.9
NorthEast: Moggill Rd (Northeast)													
24	L2	43	3.0	43	3.0	0.521	29.5	LOS C	24.2	173.4	0.72	0.66	32.6
25	T1	891	3.0	891	3.0	0.521	25.3	LOS C	24.2	173.4	0.70	0.63	22.3
26	R2	76	3.0	76	3.0	1.195	273.9	LOS F	12.5	89.5	1.00	1.46	8.8
26u	U	7	0.0	7	0.0	1.195	275.3	LOS F	12.5	89.5	1.00	1.46	7.7
Approach		1017	3.0	1017	3.0	1.195	45.8	LOS D	24.2	173.4	0.72	0.70	18.1
NorthWest: Taringa Pde (Northwest)													
27	L2	93	3.0	93	3.0	1.475	488.6	LOS F	36.7	263.8	1.00	1.89	5.5
28	T1	109	3.0	109	3.0	1.475	485.4	LOS F	36.7	263.8	1.00	1.89	6.5
29	R2	137	3.0	137	3.0	0.970	111.1	LOS F	12.9	92.5	1.00	1.17	11.8
Approach		339	3.0	339	3.0	1.475	335.2	LOS F	36.7	263.8	1.00	1.60	7.0
SouthWest: Moggill Rd (Southwest)													
30	L2	197	3.0	191	3.0	0.379	19.2	LOS B	14.7	105.8	0.60	0.63	30.6
31	T1	1995	3.0	1938	3.0	0.757	14.2	LOS B	25.0	179.5	0.58	0.55	29.8
32	R2	102	3.0	99	3.0	0.526	66.6	LOS E	9.9	70.5	0.99	0.81	19.9
32u	U	44	0.0	43	0.0	0.526	67.8	LOS E	9.9	70.5	0.99	0.81	5.9
Approach		2338	2.9	2271 N1	2.9	0.757	17.9	LOS B	25.0	179.5	0.61	0.57	28.5
All Vehicles		4220	3.0	4153 N1	3.0	1.475	60.0	LOS E	36.7	263.8	0.70	0.74	18.1

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
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.
Network Model Accuracy Level (largest change in degree of saturation for any lane): 0.6 %
Number of Iterations: 14 (maximum specified: 15)

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

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate per ped
P5	SouthEast Full Crossing	53	21.9	LOS C	0.1	0.1	0.54	0.54
P6	NorthEast Full Crossing	53	60.9	LOS F	0.2	0.2	0.90	0.90
P7	NorthWest Full Crossing	53	13.7	LOS B	0.1	0.1	0.43	0.43

P8	SouthWest Full Crossing	53	60.9	LOS F	0.2	0.2	0.90	0.90
All Pedestrians		211	39.3	LOS D			0.69	0.69

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

SIDRA INTERSECTION 7.0 | Copyright © 2000-2016 Akcelik and Associates Pty Ltd | sidrasolutions.com

PHASING SUMMARY

Site: 102 [2020_AM_BG+DEV - Intersection 2 - Upgrade - Lane Reconfig]

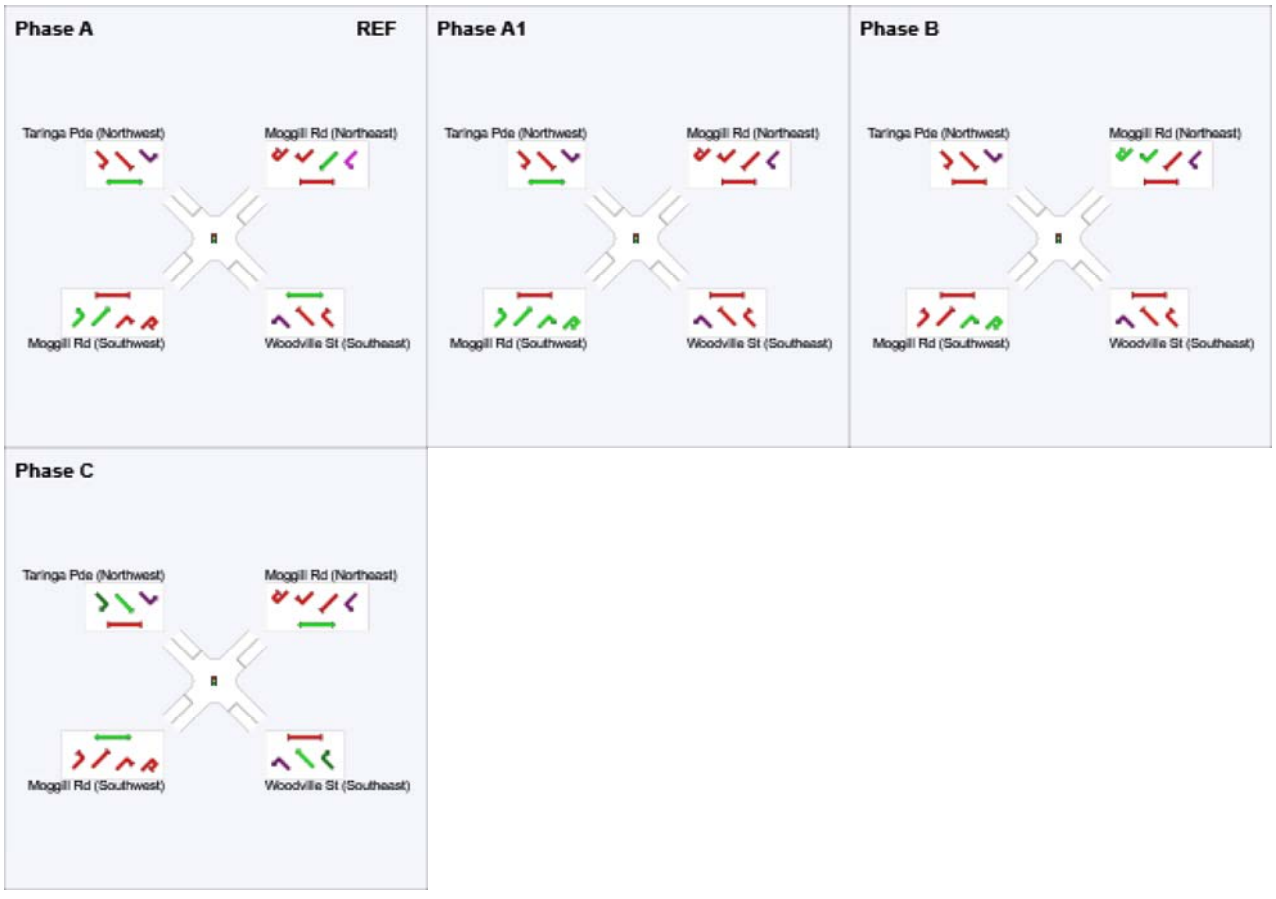
Network: N101 [2020 AM BG+DEV - Upgrade - Lane Reconfig]

Int: Moggill Road / Taringa Parade / Woodville Street
Project Number: P3606
Project: Indooroopilly State School TIA
Signals - Fixed Time Coordinated Cycle Time = 150 seconds (Network Cycle Time - Program)

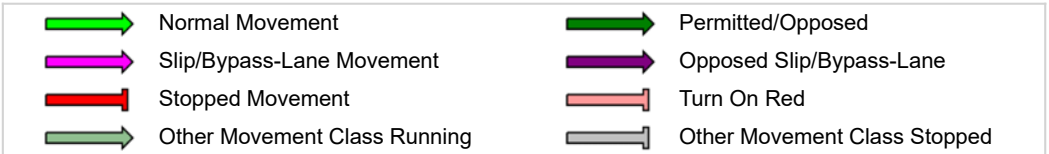
Phase Times determined by the program
Sequence: Adopted Phasing
Reference Phase: Phase A
Input Sequence: A, A1, A2*, B, C
Output Sequence: A, A1, B, C
(* Variable Phase)

Phase Timing Results

Phase	A	A1	B	C
Phase Change Time (sec)	12	95	114	126
Green Time (sec)	77	13	6	30
Yellow Time (sec)	4	4	4	4
All-Red Time (sec)	2	2	2	2
Phase Time (sec)	83	19	12	36
Phase Split	55%	13%	8%	24%



REF: Reference Phase
VAR: Variable Phase



Mixed Running & Stopped Movement Classes

Undetected Movement

Phase Transition Applied

SIDRA INTERSECTION 7.0 | Copyright © 2000-2016 Akcelik and Associates Pty Ltd | sidrasolutions.com

MOVEMENT SUMMARY

Site: 101 [2020_PM_BG+DEV - Intersection 1 - Upgrade - Lane Reconfig]

Network: N101 [2020 PM BG+DEV - Upgrade - Lane Reconfig]

Int: Moggill Road / Russell Terrace
Project Number: P3606
Project: Indooroopilly State School TIA
Signals - Fixed Time Coordinated Cycle Time = 140 seconds (Network Cycle Time - User-Given)

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	Demand Flows HV %	Arrival Flows Total veh/h	Arrival Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
NorthEast: Moggill Rd (Northeast)													
25	T1	1717	3.0	1717	3.0	0.551	2.1	LOS A	13.9	99.9	0.19	0.18	38.1
26	R2	219	3.0	219	3.0	0.604	60.0	LOS E	14.4	103.1	1.00	0.84	19.4
Approach		1936	3.0	1936	3.0	0.604	8.7	LOS A	14.4	103.1	0.29	0.26	33.3
NorthWest: Russell Tce (Northwest)													
27	L2	333	3.0	333	3.0	0.596	58.5	LOS E	13.5	96.9	0.96	0.82	17.7
Approach		333	3.0	333	3.0	0.596	58.5	LOS E	13.5	96.9	0.96	0.82	17.7
SouthWest: Moggill Rd (Southwest)													
30	L2	86	3.0	86	3.0	0.605	11.8	LOS B	11.8	84.4	0.42	0.42	35.9
31	T1	1240	3.0	1240	3.0	0.605	9.9	LOS A	18.6	133.2	0.49	0.46	30.3
Approach		1326	3.0	1326	3.0	0.605	10.0	LOS B	18.6	133.2	0.49	0.46	31.0
All Vehicles		3596	3.0	3596	3.0	0.605	13.8	LOS B	18.6	133.2	0.42	0.38	29.8

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
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.
Network Model Accuracy Level (largest change in degree of saturation for any lane): 0.8 %
Number of Iterations: 12 (maximum specified: 15)

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Average Back of Queue Distance m	Prop. Queued	Effective Stop Rate per ped
P7	NorthWest Full Crossing	21	7.9	LOS A	0.0	0.0	0.34	0.34
P8	SouthWest Full Crossing	26	64.2	LOS F	0.1	0.1	0.96	0.96
All Pedestrians		47	39.2	LOS D			0.68	0.68

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

SIDRA INTERSECTION 7.0 | Copyright © 2000-2016 Akcelik and Associates Pty Ltd | sidrasolutions.com

PHASING SUMMARY

Site: 101 [2020_PM_BG+DEV - Intersection 1 - Upgrade - Lane Reconfig]

Network: N101 [2020 PM BG+DEV - Upgrade - Lane Reconfig]

Int: Moggill Road / Russell Terrace
Project Number: P3606
Project: Indooroopilly State School TIA
Signals - Fixed Time Coordinated Cycle Time = 140 seconds (Network Cycle Time - User-Given)

Phase Times determined by the program
Sequence: Adopted Phasing
Reference Phase: Phase A
Input Sequence: A, B, C
Output Sequence: A, B, C

Phase Timing Results

Phase	A	B	C
Phase Change Time (sec)	13	118	136
Green Time (sec)	99	12	13
Yellow Time (sec)	4	4	4
All-Red Time (sec)	2	2	2
Phase Time (sec)	105	18	17
Phase Split	75%	13%	12%

REF: Reference Phase
VAR: Variable Phase

Normal Movement	Permitted/Opposed
Slip/Bypass-Lane Movement	Opposed Slip/Bypass-Lane
Stopped Movement	Turn On Red
Other Movement Class Running	Other Movement Class Stopped
Mixed Running & Stopped Movement Classes	
Undetected Movement	Phase Transition Applied

MOVEMENT SUMMARY

Site: 102 [2020_PM_BG+DEV - Intersection 2 - Upgrade - Lane Reconfig]

Network: N101 [2020 PM BG+DEV - Upgrade - Lane Reconfig]

Int: Moggill Road / Taringa Parade / Woodville Street
Project Number: P3606
Project: Indooroopilly State School TIA
Signals - Fixed Time Coordinated Cycle Time = 140 seconds (Network Cycle Time - User-Given)

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Arrival 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
SouthEast: Woodville St (Southeast)													
21	L2	219	3.0	219	3.0	0.422	22.6	LOS C	8.1	58.3	0.71	0.75	31.3
22	T1	99	3.0	99	3.0	0.457	61.9	LOS E	6.3	45.1	0.96	0.76	25.5
23	R2	37	3.0	37	3.0	0.274	71.7	LOS E	2.4	17.6	0.97	0.74	22.2
Approach		355	3.0	355	3.0	0.457	38.6	LOS D	8.1	58.3	0.81	0.75	27.3
NorthEast: Moggill Rd (Northeast)													
24	L2	35	3.0	35	3.0	0.715	26.1	LOS C	38.1	273.7	0.77	0.73	33.9
25	T1	1483	3.0	1483	3.0	0.715	21.8	LOS C	38.1	273.7	0.75	0.70	23.8
26	R2	50	3.0	50	3.0	0.264	61.5	LOS E	4.0	28.8	0.93	0.76	22.9
26u	U	16	0.0	16	0.0	0.264	62.9	LOS E	4.0	28.8	0.93	0.76	22.3
Approach		1583	3.0	1583	3.0	0.715	23.5	LOS C	38.1	273.7	0.76	0.70	24.0
NorthWest: Taringa Pde (Northwest)													
27	L2	90	3.0	90	3.0	0.828	66.3	LOS E	13.4	96.0	1.00	1.01	22.0
28	T1	112	3.0	112	3.0	0.828	63.2	LOS E	13.4	96.0	1.00	1.01	25.2
29	R2	114	3.0	114	3.0	0.830	80.1	LOS F	8.6	61.5	1.00	0.97	14.7
Approach		316	3.0	316	3.0	0.830	70.2	LOS E	13.4	96.0	1.00	1.00	20.8
SouthWest: Moggill Rd (Southwest)													
30	L2	102	3.0	102	3.0	0.277	19.6	LOS B	8.5	60.8	0.54	0.56	30.6
31	T1	1352	3.0	1352	3.0	0.553	17.1	LOS B	23.9	171.9	0.59	0.54	28.3
32	R2	77	3.0	77	3.0	0.707	68.7	LOS E	11.1	78.3	1.00	0.85	19.6
32u	U	85	0.0	85	0.0	0.707	69.9	LOS E	11.1	78.3	1.00	0.85	5.8
Approach		1616	2.8	1616	2.8	0.707	22.5	LOS C	23.9	171.9	0.63	0.57	26.3
All Vehicles		3870	2.9	3870	2.9	0.830	28.3	LOS C	38.1	273.7	0.73	0.68	24.8

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
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.
Network Model Accuracy Level (largest change in degree of saturation for any lane): 0.8 %
Number of Iterations: 12 (maximum specified: 15)

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate per ped
P5	SouthEast Full Crossing	53	15.6	LOS B	0.1	0.1	0.47	0.47
P6	NorthEast Full Crossing	53	64.3	LOS F	0.2	0.2	0.96	0.96
P7	NorthWest Full Crossing	53	6.0	LOS A	0.1	0.1	0.29	0.29
P8	SouthWest Full Crossing	53	64.3	LOS F	0.2	0.2	0.96	0.96

All Pedestrians	211	37.5	LOS D	0.67	0.67

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

SIDRA INTERSECTION 7.0 | Copyright © 2000-2016 Akcelik and Associates Pty Ltd | sidrasolutions.com

PHASING SUMMARY

Site: 102 [2020_PM_BG+DEV - Intersection 2 - Upgrade - Lane Reconfig]

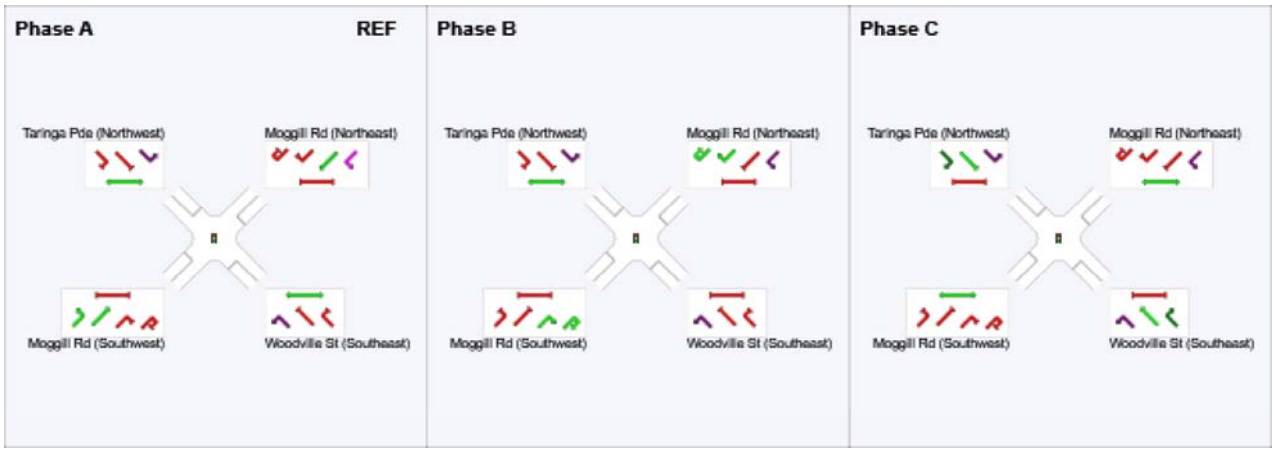
Network: N101 [2020 PM BG+DEV - Upgrade - Lane Reconfig]

Int: Moggill Road / Taringa Parade / Woodville Street
Project Number: P3606
Project: Indooroopilly State School TIA
Signals - Fixed Time Coordinated Cycle Time = 140 seconds (Network Cycle Time - User-Given)

Phase Times determined by the program
Sequence: Adopted Phasing
Reference Phase: Phase A
Input Sequence: A, A1*, A2*, B, C
Output Sequence: A, B, C
(* Variable Phase)

Phase Timing Results

Phase	A	B	C
Phase Change Time (sec)	0	88	115
Green Time (sec)	82	21	19
Yellow Time (sec)	4	4	4
All-Red Time (sec)	2	2	2
Phase Time (sec)	88	27	25
Phase Split	63%	19%	18%



REF: Reference Phase
VAR: Variable Phase

Normal Movement	Permitted/Opposed
Slip/Bypass-Lane Movement	Opposed Slip/Bypass-Lane
Stopped Movement	Turn On Red
Other Movement Class Running	Other Movement Class Stopped
Mixed Running & Stopped Movement Classes	
Undetected Movement	Phase Transition Applied

MOVEMENT SUMMARY

Site: 101 [2030_AM_BG+DEV - Intersection 1 - Upgrade - Lane Reconfig]

Network: N101 [2030 AM BG+DEV - Upgrade - Lane Reconfig]

Int: Moggill Road / Russell Terrace
Project Number: P3606
Project: Indooroopilly State School TIA
Signals - Fixed Time Coordinated Cycle Time = 150 seconds (Network Cycle Time - Program)

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	Demand Flows HV %	Arrival Flows Total veh/h	Arrival Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
NorthEast: Moggill Rd (Northeast)													
25	T1	1179	3.0	1166	3.0	0.385	0.5	LOS A	1.5	11.0	0.04	0.03	39.5
26	R2	174	3.0	172	3.0	0.420	67.8	LOS E	12.1	87.0	1.00	0.83	18.2
Approach		1353	3.0	1338 N1	3.0	0.420	9.2	LOS A	12.1	87.0	0.16	0.14	33.1
NorthWest: Russell Tce (Northwest)													
27	L2	641	3.0	641	3.0	1.252	330.8	LOS F	65.3	469.1	1.00	1.71	4.9
Approach		641	3.0	641	3.0	1.252	330.8	LOS F	65.3	469.1	1.00	1.71	4.9
SouthWest: Moggill Rd (Southwest)													
30	L2	78	3.0	78	3.0	1.191	276.4	LOS F	117.9	846.4	1.00	1.83	8.8
31	T1	1876	3.0	1876	3.0	1.191	263.1	LOS F	126.0	904.7	1.00	1.88	4.3
Approach		1954	3.0	1954	3.0	1.191	263.6	LOS F	126.0	904.7	1.00	1.88	4.5
All Vehicles		3947	3.0	3932 N1	3.0	1.252	188.0	LOS F	126.0	904.7	0.71	1.26	6.9

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
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.
Network Model Accuracy Level (largest change in degree of saturation for any lane): 0.9 %
Number of Iterations: 14 (maximum specified: 15)

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

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Average Back of Queue Distance m	Prop. Queued	Effective Stop Rate per ped
P7	NorthWest Full Crossing	53	9.4	LOS A	0.1	0.1	0.35	0.35
P8	SouthWest Full Crossing	53	69.3	LOS F	0.2	0.2	0.96	0.96
All Pedestrians		105	39.3	LOS D			0.66	0.66

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

PHASING SUMMARY

Site: 101 [2030_AM_BG+DEV - Intersection 1 - Upgrade - Lane Reconfig]

Network: N101 [2030 AM BG+DEV - Upgrade - Lane Reconfig]

Int: Moggill Road / Russell Terrace
Project Number: P3606
Project: Indooroopilly State School TIA
Signals - Fixed Time Coordinated Cycle Time = 150 seconds (Network Cycle Time - Program)

Phase Times determined by the program
Sequence: Adopted Phasing
Reference Phase: Phase A
Input Sequence: A, B, C
Output Sequence: A, B, C

Phase Timing Results

Phase	A	B	C
Phase Change Time (sec)	0	109	128
Green Time (sec)	103	13	16
Yellow Time (sec)	4	4	4
All-Red Time (sec)	2	2	2
Phase Time (sec)	109	19	22
Phase Split	73%	13%	15%

REF: Reference Phase
VAR: Variable Phase

Normal Movement	Permitted/Opposed
Slip/Bypass-Lane Movement	Opposed Slip/Bypass-Lane
Stopped Movement	Turn On Red
Other Movement Class Running	Other Movement Class Stopped
Mixed Running & Stopped Movement Classes	
Undetected Movement	Phase Transition Applied

MOVEMENT SUMMARY

Site: 102 [2030_AM_BG+DEV - Intersection 2 - Upgrade - Lane Reconfig]

Network: N101 [2030 AM BG+DEV - Upgrade - Lane Reconfig]

Int: Moggill Road / Taringa Parade / Woodville Street
Project Number: P3606
Project: Indooroopilly State School TIA
Signals - Fixed Time Coordinated Cycle Time = 150 seconds (Network Cycle Time - Program)

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Arrival 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
SouthEast: Woodville St (Southeast)													
21	L2	172	3.0	172	3.0	0.233	14.1	LOS B	4.2	30.4	0.52	0.67	36.4
22	T1	215	3.0	215	3.0	0.960	97.2	LOS F	19.0	136.6	0.96	1.15	20.5
23	R2	179	3.0	179	3.0	1.045	209.3	LOS F	20.5	147.1	1.00	1.22	11.1
Approach		566	3.0	566	3.0	1.045	107.2	LOS F	20.5	147.1	0.84	1.03	17.2
NorthEast: Moggill Rd (Northeast)													
24	L2	47	3.0	47	3.0	0.555	28.8	LOS C	26.6	190.7	0.72	0.67	32.9
25	T1	977	3.0	977	3.0	0.555	24.6	LOS C	26.6	190.7	0.70	0.64	22.5
26	R2	78	3.0	78	3.0	1.243	316.2	LOS F	14.0	100.6	1.00	1.53	7.9
26u	U	8	0.0	8	0.0	1.243	317.6	LOS F	14.0	100.6	1.00	1.53	6.8
Approach		1109	3.0	1109	3.0	1.243	47.4	LOS D	26.6	190.7	0.72	0.71	17.7
NorthWest: Taringa Pde (Northwest)													
27	L2	96	3.0	96	3.0	2.093	1044.3	LOS F	54.5	391.2	1.00	2.24	2.8
28	T1	113	3.0	113	3.0	2.093	1041.1	LOS F	54.5	391.2	1.00	2.24	3.3
29	R2	144	3.0	144	3.0	1.064	166.9	LOS F	16.8	120.7	1.00	1.36	8.7
Approach		353	3.0	353	3.0	2.093	685.7	LOS F	54.5	391.2	1.00	1.88	3.7
SouthWest: Moggill Rd (Southwest)													
30	L2	206	3.0	177	3.0	0.378	20.6	LOS C	15.8	113.2	0.64	0.65	30.1
31	T1	2190	3.0	1879	3.0	0.754	18.2	LOS B	25.0	179.5	0.68	0.63	27.8
32	R2	112	3.0	96	3.0	0.550	68.5	LOS E	9.3	66.0	0.95	0.80	19.5
32u	U	47	0.0	41	0.0	0.550	69.8	LOS E	9.3	66.0	0.95	0.80	5.8
Approach		2556	2.9	2193 N1	2.9	0.754	21.6	LOS C	25.0	179.5	0.69	0.65	26.9
All Vehicles		4584	3.0	4222 N1	3.2	2.093	95.4	LOS F	54.5	391.2	0.75	0.82	13.6

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
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.
Network Model Accuracy Level (largest change in degree of saturation for any lane): 0.9 %
Number of Iterations: 14 (maximum specified: 15)

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

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate per ped
P5	SouthEast Full Crossing	53	20.8	LOS C	0.1	0.1	0.53	0.53
P6	NorthEast Full Crossing	53	60.9	LOS F	0.2	0.2	0.90	0.90
P7	NorthWest Full Crossing	53	13.7	LOS B	0.1	0.1	0.43	0.43

P8	SouthWest Full Crossing	53	60.9	LOS F	0.2	0.2	0.90	0.90
All Pedestrians		211	39.1	LOS D			0.69	0.69

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

SIDRA INTERSECTION 7.0 | Copyright © 2000-2016 Akcelik and Associates Pty Ltd | sidrasolutions.com

PHASING SUMMARY

Site: 102 [2030_AM_BG+DEV - Intersection 2 - Upgrade - Lane Reconfig]

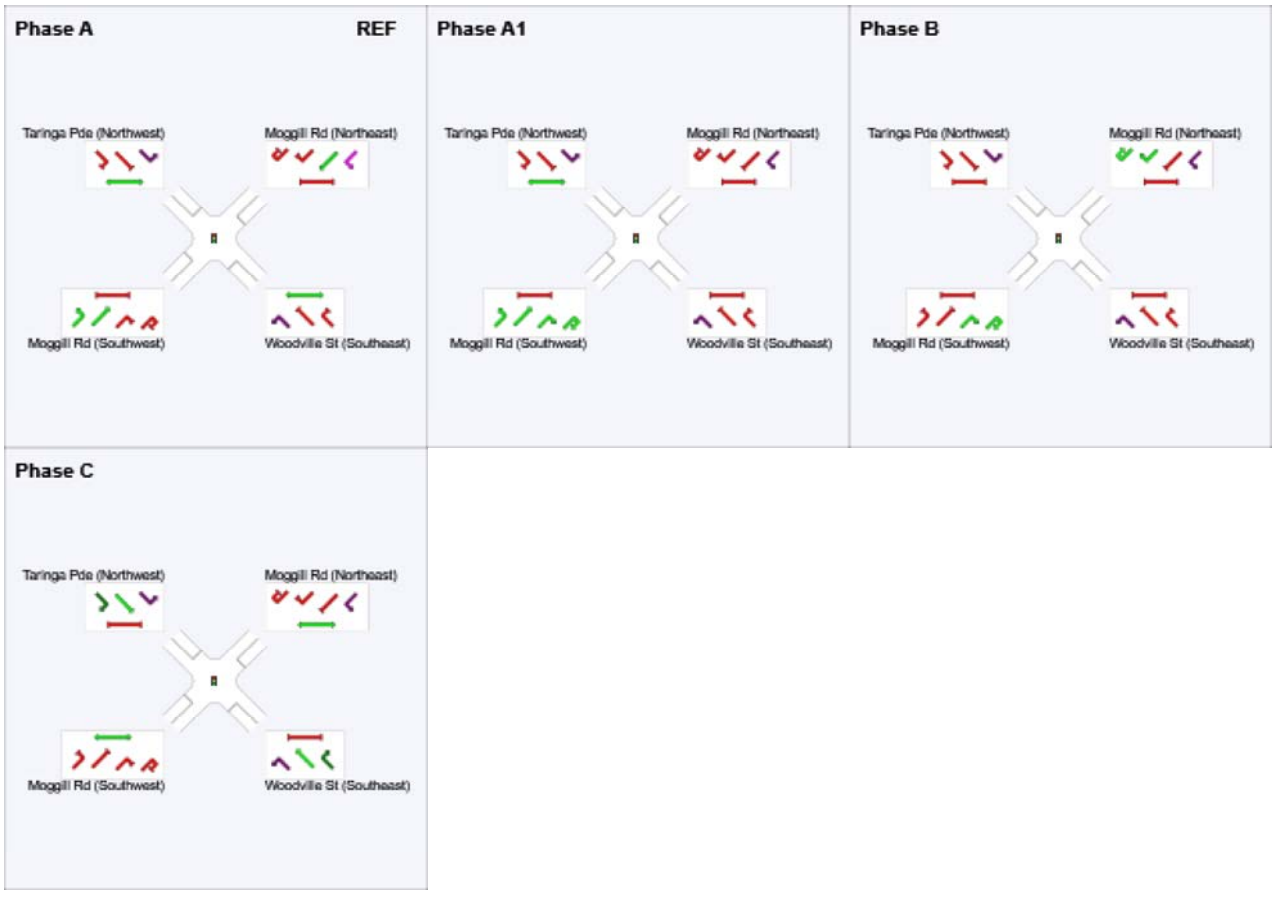
Network: N101 [2030 AM BG+DEV - Upgrade - Lane Reconfig]

Int: Moggill Road / Taringa Parade / Woodville Street
Project Number: P3606
Project: Indooroopilly State School TIA
Signals - Fixed Time Coordinated Cycle Time = 150 seconds (Network Cycle Time - Program)

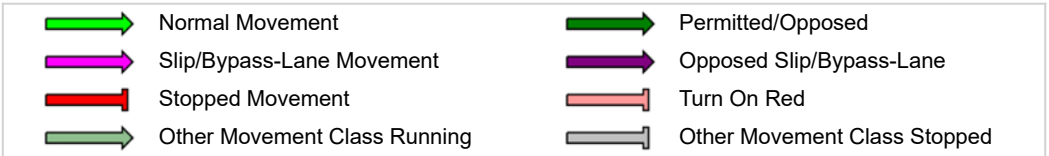
Phase Times determined by the program
Sequence: Adopted Phasing
Reference Phase: Phase A
Input Sequence: A, A1, A2*, B, C
Output Sequence: A, A1, B, C
(* Variable Phase)

Phase Timing Results

Phase	A	A1	B	C
Phase Change Time (sec)	13	98	115	127
Green Time (sec)	79	11	6	30
Yellow Time (sec)	4	4	4	4
All-Red Time (sec)	2	2	2	2
Phase Time (sec)	85	17	12	36
Phase Split	57%	11%	8%	24%



REF: Reference Phase
VAR: Variable Phase



Mixed Running & Stopped Movement Classes

Undetected Movement

Phase Transition Applied

SIDRA INTERSECTION 7.0 | Copyright © 2000-2016 Akcelik and Associates Pty Ltd | sidrasolutions.com

MOVEMENT SUMMARY

Site: 101 [2030_PM_BG+DEV - Intersection 1 - Upgrade - Lane Reconfig]

Network: N101 [2030 PM BG+DEV - Upgrade - Lane Reconfig]

Int: Moggill Road / Russell Terrace
Project Number: P3606
Project: Indooroopilly State School TIA
Signals - Fixed Time Coordinated Cycle Time = 140 seconds (Network Cycle Time - User-Given)

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	Demand Flows HV %	Arrival Flows Total veh/h	Arrival Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
NorthEast: Moggill Rd (Northeast)													
25	T1	1883	3.0	1883	3.0	0.605	2.4	LOS A	16.3	116.8	0.21	0.20	37.8
26	R2	229	3.0	229	3.0	0.872	74.9	LOS E	17.0	122.0	1.00	0.95	17.2
Approach		2112	3.0	2112	3.0	0.872	10.3	LOS B	17.0	122.0	0.29	0.28	32.3
NorthWest: Russell Tce (Northwest)													
27	L2	348	3.0	348	3.0	0.884	81.4	LOS F	17.7	127.2	1.00	1.02	14.5
Approach		348	3.0	348	3.0	0.884	81.4	LOS F	17.7	127.2	1.00	1.02	14.5
SouthWest: Moggill Rd (Southwest)													
30	L2	90	3.0	90	3.0	0.737	9.2	LOS A	12.2	87.3	0.36	0.37	37.1
31	T1	1362	3.0	1362	3.0	0.737	7.7	LOS A	19.1	137.0	0.47	0.45	32.0
Approach		1452	3.0	1452	3.0	0.737	7.8	LOS A	19.1	137.0	0.46	0.44	32.6
All Vehicles		3912	3.0	3912	3.0	0.884	15.7	LOS B	19.1	137.0	0.42	0.41	28.8

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
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.
Network Model Accuracy Level (largest change in degree of saturation for any lane): 25.4 %
Number of Iterations: 15 (maximum specified: 15)

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Average Back of Queue Distance m	Prop. Queued	Effective Stop Rate per ped
P7	NorthWest Full Crossing	21	5.4	LOS A	0.0	0.0	0.28	0.28
P8	SouthWest Full Crossing	26	64.2	LOS F	0.1	0.1	0.96	0.96
All Pedestrians		47	38.1	LOS D			0.66	0.66

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

SIDRA INTERSECTION 7.0 | Copyright © 2000-2016 Akcelik and Associates Pty Ltd | sidrasolutions.com

PHASING SUMMARY

Site: 101 [2030_PM_BG+DEV - Intersection 1 - Upgrade - Lane Reconfig]

Network: N101 [2030 PM BG+DEV - Upgrade - Lane Reconfig]

Int: Moggill Road / Russell Terrace
Project Number: P3606
Project: Indooroopilly State School TIA
Signals - Fixed Time Coordinated Cycle Time = 140 seconds (Network Cycle Time - User-Given)

Phase Times determined by the program
Sequence: Adopted Phasing
Reference Phase: Phase A
Input Sequence: A, B, C
Output Sequence: A, B, C

Phase Timing Results

Phase	A	B	C
Phase Change Time (sec)	13	126	136
Green Time (sec)	107	4	13
Yellow Time (sec)	4	4	4
All-Red Time (sec)	2	2	2
Phase Time (sec)	113	10	17
Phase Split	81%	7%	12%

REF: Reference Phase
VAR: Variable Phase

SIDRA INTERSECTION 7.0 | Copyright © 2000-2016 Akcelik and Associates Pty Ltd | sidrasolutions.com

MOVEMENT SUMMARY

Site: 102 [2030_PM_BG+DEV - Intersection 2 - Upgrade - Lane Reconfig]

Network: N101 [2030 PM BG+DEV - Upgrade - Lane Reconfig]

Int: Moggill Road / Taringa Parade / Woodville Street
Project Number: P3606
Project: Indooroopilly State School TIA
Signals - Fixed Time Coordinated Cycle Time = 140 seconds (Network Cycle Time - User-Given)

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Arrival 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
SouthEast: Woodville St (Southeast)													
21	L2	241	3.0	241	3.0	0.639	37.6	LOS D	12.2	87.8	0.94	0.83	25.0
22	T1	103	3.0	103	3.0	0.418	58.7	LOS E	6.4	45.6	0.94	0.76	26.0
23	R2	40	3.0	40	3.0	0.250	68.3	LOS E	2.6	18.5	0.95	0.74	22.7
Approach		384	3.0	384	3.0	0.639	46.4	LOS D	12.2	87.8	0.94	0.80	25.1
NorthEast: Moggill Rd (Northeast)													
24	L2	38	3.0	38	3.0	0.888	38.3	LOS D	60.8	436.8	0.95	0.94	29.9
25	T1	1628	3.0	1628	3.0	0.888	36.7	LOS D	60.8	436.8	0.92	0.92	18.6
26	R2	51	3.0	51	3.0	0.975	106.3	LOS F	6.0	42.6	1.00	1.10	17.2
26u	U	18	0.0	18	0.0	0.975	107.7	LOS F	6.0	42.6	1.00	1.10	16.0
Approach		1734	3.0	1734	3.0	0.975	39.5	LOS D	60.8	436.8	0.93	0.93	18.8
NorthWest: Taringa Pde (Northwest)													
27	L2	92	3.0	92	3.0	0.750	59.2	LOS E	12.9	92.7	1.00	0.93	23.2
28	T1	116	3.0	116	3.0	0.750	56.0	LOS E	12.9	92.7	1.00	0.93	26.5
29	R2	119	3.0	119	3.0	0.902	88.9	LOS F	9.7	69.7	1.00	1.09	13.8
Approach		328	3.0	328	3.0	0.902	68.9	LOS E	12.9	92.7	1.00	0.99	21.0
SouthWest: Moggill Rd (Southwest)													
30	L2	106	3.0	106	3.0	0.264	13.5	LOS B	6.6	47.0	0.39	0.45	33.4
31	T1	1484	3.0	1484	3.0	0.527	11.2	LOS B	19.4	139.5	0.46	0.43	31.5
32	R2	85	3.0	85	3.0	0.867	80.2	LOS F	13.6	96.4	1.00	0.96	17.8
32u	U	93	0.0	93	0.0	0.867	81.4	LOS F	13.6	96.4	1.00	0.96	5.1
Approach		1767	2.8	1767	2.8	0.867	18.3	LOS B	19.4	139.5	0.51	0.48	28.1
All Vehicles		4213	2.9	4213	2.9	0.975	33.5	LOS C	60.8	436.8	0.76	0.73	23.0

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
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.
Network Model Accuracy Level (largest change in degree of saturation for any lane): 25.4 %
Number of Iterations: 15 (maximum specified: 15)

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate per ped
P5	SouthEast Full Crossing	53	17.0	LOS B	0.1	0.1	0.49	0.49
P6	NorthEast Full Crossing	53	63.3	LOS F	0.2	0.2	0.95	0.95
P7	NorthWest Full Crossing	53	6.9	LOS A	0.1	0.1	0.31	0.31
P8	SouthWest Full Crossing	53	63.3	LOS F	0.2	0.2	0.95	0.95

All Pedestrians	211	37.6	LOS D	0.68	0.68

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

SIDRA INTERSECTION 7.0 | Copyright © 2000-2016 Akcelik and Associates Pty Ltd | sidrasolutions.com

PHASING SUMMARY

Site: 102 [2030_PM_BG+DEV - Intersection 2 - Upgrade - Lane Reconfig]

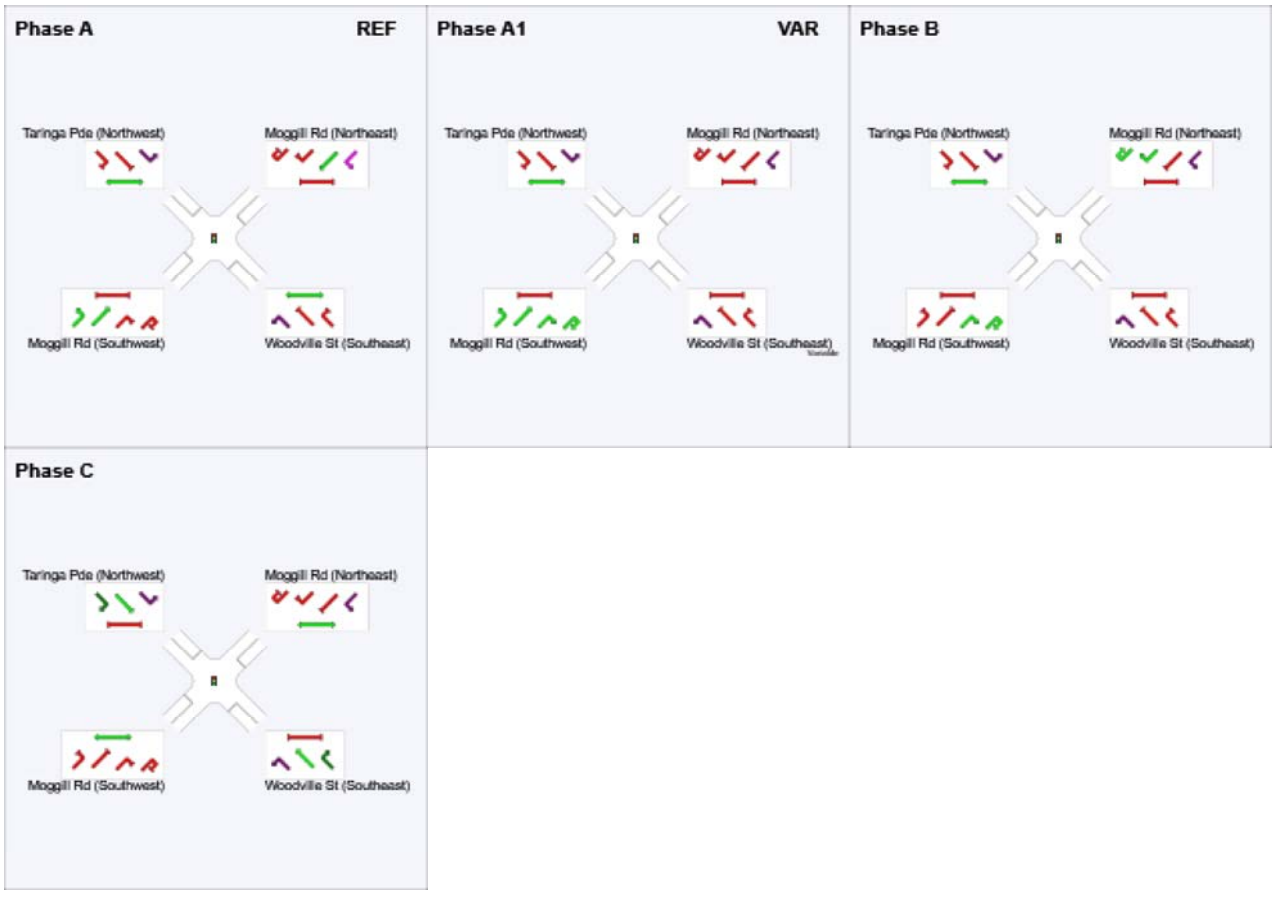
Network: N101 [2030 PM BG+DEV - Upgrade - Lane Reconfig]

Int: Moggill Road / Taringa Parade / Woodville Street
Project Number: P3606
Project: Indooroopilly State School TIA
Signals - Fixed Time Coordinated Cycle Time = 140 seconds (Network Cycle Time - User-Given)

Phase Times determined by the program
Sequence: Adopted Phasing
Reference Phase: Phase A
Input Sequence: A, A1*, A2*, B, C
Output Sequence: A, A1*, B, C
(* Variable Phase)

Phase Timing Results

Phase	A	A1	B	C
Phase Change Time (sec)	0	85	100	112
Green Time (sec)	79	9	6	22
Yellow Time (sec)	4	4	4	4
All-Red Time (sec)	2	2	2	2
Phase Time (sec)	85	15	12	28
Phase Split	61%	11%	9%	20%



REF: Reference Phase
VAR: Variable Phase

Normal Movement	Permitted/Opposed
Slip/Bypass-Lane Movement	Opposed Slip/Bypass-Lane
Stopped Movement	Turn On Red
Other Movement Class Running	Other Movement Class Stopped

Mixed Running & Stopped Movement Classes

Undetected Movement

Phase Transition Applied

MOVEMENT SUMMARY

Site: 101 [2025_AM_BG - Intersection 1 - Upgrade - Lane Reconfig]

Network: N101 [2025 AM BG - Upgrade - Lane Reconfig]

Int: Moggill Road / Russell Terrace
Project Number: P3606
Project: Indooroopilly State School TIA
Signals - Fixed Time Coordinated Cycle Time = 150 seconds (Network Cycle Time - Program)

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Arrival 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
NorthEast: Moggill Rd (Northeast)													
25	T1	1126	3.0	1123	3.0	0.371	0.5	LOS A	1.3	9.0	0.03	0.03	39.5
26	R2	170	3.0	169	3.0	0.414	67.7	LOS E	11.9	85.6	1.00	0.83	18.2
Approach		1296	3.0	1292 N1	3.0	0.414	9.3	LOS A	11.9	85.6	0.16	0.14	33.0
NorthWest: Russell Tce (Northwest)													
27	L2	627	3.0	627	3.0	1.219	302.3	LOS F	61.0	438.1	1.00	1.65	5.3
Approach		627	3.0	627	3.0	1.219	302.3	LOS F	61.0	438.1	1.00	1.65	5.3
SouthWest: Moggill Rd (Southwest)													
30	L2	77	3.0	77	3.0	0.909	42.5	LOS D	28.9	207.7	0.50	0.63	26.5
31	T1	1792	3.0	1792	3.0	0.909	38.4	LOS D	64.4	462.1	0.73	0.81	18.0
Approach		1869	3.0	1869	3.0	0.909	38.6	LOS D	64.4	462.1	0.72	0.80	18.6
All Vehicles		3792	3.0	3788 N1	3.0	1.219	72.3	LOS E	64.4	462.1	0.58	0.71	14.0

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
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.
Network Model Accuracy Level (largest change in degree of saturation for any lane): 0.8 %
Number of Iterations: 13 (maximum specified: 15)

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

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate per ped
P7	NorthWest Full Crossing	53	9.4	LOS A	0.1	0.1	0.35	0.35
P8	SouthWest Full Crossing	53	69.3	LOS F	0.2	0.2	0.96	0.96
All Pedestrians		105	39.3	LOS D			0.66	0.66

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

SIDRA INTERSECTION 7.0 | Copyright © 2000-2016 Akcelik and Associates Pty Ltd | sidrasolutions.com

PHASING SUMMARY

Site: 101 [2025_AM_BG - Intersection 1 - Upgrade - Lane Reconfig]

Network: N101 [2025 AM BG - Upgrade - Lane Reconfig]

Int: Moggill Road / Russell Terrace
Project Number: P3606
Project: Indooroopilly State School TIA
Signals - Fixed Time Coordinated Cycle Time = 150 seconds (Network Cycle Time - Program)

Phase Times determined by the program
Sequence: Adopted Phasing
Reference Phase: Phase A
Input Sequence: A, B, C
Output Sequence: A, B, C

Phase Timing Results

Phase	A	B	C
Phase Change Time (sec)	0	109	128
Green Time (sec)	103	13	16
Yellow Time (sec)	4	4	4
All-Red Time (sec)	2	2	2
Phase Time (sec)	109	19	22
Phase Split	73%	13%	15%

REF: Reference Phase
VAR: Variable Phase

Normal Movement		Permitted/Opposed	
Slip/Bypass-Lane Movement		Opposed Slip/Bypass-Lane	
Stopped Movement		Turn On Red	
Other Movement Class Running		Other Movement Class Stopped	
Mixed Running & Stopped Movement Classes			
Undetected Movement		Phase Transition Applied	

MOVEMENT SUMMARY

Site: 102 [2025_AM_BG - Intersection 2 - Upgrade - Lane Reconfig]

Network: N101 [2025 AM BG - Upgrade - Lane Reconfig]

Int: Moggill Road / Taringa Parade / Woodville Street
Project Number: P3606
Project: Indooroopilly State School TIA
Signals - Fixed Time Coordinated Cycle Time = 150 seconds (Network Cycle Time - Program)

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Arrival 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
SouthEast: Woodville St (Southeast)													
21	L2	165	3.0	165	3.0	0.218	13.6	LOS B	3.9	28.1	0.51	0.67	36.7
22	T1	211	3.0	211	3.0	0.928	85.9	LOS F	17.5	125.5	0.96	1.09	21.8
23	R2	170	3.0	170	3.0	1.007	186.8	LOS F	18.0	129.0	1.00	1.15	12.1
Approach		547	3.0	547	3.0	1.007	95.5	LOS F	18.0	129.0	0.83	0.98	18.5
NorthEast: Moggill Rd (Northeast)													
24	L2	45	3.0	45	3.0	0.545	29.8	LOS C	25.7	184.5	0.73	0.68	32.5
25	T1	934	3.0	934	3.0	0.545	25.6	LOS C	25.7	184.5	0.71	0.64	22.2
26	R2	77	3.0	77	3.0	1.210	286.5	LOS F	13.0	92.9	1.00	1.48	8.5
26u	U	7	0.0	7	0.0	1.210	287.9	LOS F	13.0	92.9	1.00	1.48	7.4
Approach		1062	3.0	1062	3.0	1.210	46.4	LOS D	25.7	184.5	0.73	0.71	18.0
NorthWest: Taringa Pde (Northwest)													
27	L2	95	3.0	95	3.0	2.063	1018.2	LOS F	53.2	381.8	1.00	2.22	2.8
28	T1	111	3.0	111	3.0	2.063	1015.0	LOS F	53.2	381.8	1.00	2.22	3.4
29	R2	140	3.0	140	3.0	1.013	132.3	LOS F	14.5	103.8	1.00	1.26	10.4
Approach		346	3.0	346	3.0	2.063	659.1	LOS F	53.2	381.8	1.00	1.83	3.8
SouthWest: Moggill Rd (Southwest)													
30	L2	202	3.0	194	3.0	0.396	19.4	LOS B	15.5	111.5	0.60	0.63	30.6
31	T1	2093	3.0	2009	3.0	0.790	14.2	LOS B	25.0	179.5	0.58	0.55	29.8
32	R2	107	3.0	103	3.0	0.541	66.7	LOS E	10.1	72.1	0.98	0.81	19.9
32u	U	45	0.0	43	0.0	0.541	68.0	LOS E	10.1	72.1	0.98	0.81	5.9
Approach		2447	2.9	2349 N1	2.9	0.790	17.9	LOS B	25.0	179.5	0.61	0.57	28.5
All Vehicles		4403	3.0	4304 N1	3.0	2.063	86.3	LOS F	53.2	381.8	0.70	0.76	14.5

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
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.
Network Model Accuracy Level (largest change in degree of saturation for any lane): 0.8 %
Number of Iterations: 13 (maximum specified: 15)

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

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate per ped
P5	SouthEast Full Crossing	53	21.9	LOS C	0.1	0.1	0.54	0.54
P6	NorthEast Full Crossing	53	60.9	LOS F	0.2	0.2	0.90	0.90
P7	NorthWest Full Crossing	53	13.7	LOS B	0.1	0.1	0.43	0.43
P8	SouthWest Full Crossing	53	60.9	LOS F	0.2	0.2	0.90	0.90

All Pedestrians	211	39.3	LOS D	0.69	0.69

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

SIDRA INTERSECTION 7.0 | Copyright © 2000-2016 Akcelik and Associates Pty Ltd | sidrasolutions.com

PHASING SUMMARY

Site: 102 [2025_AM_BG - Intersection 2 - Upgrade - Lane Reconfig]

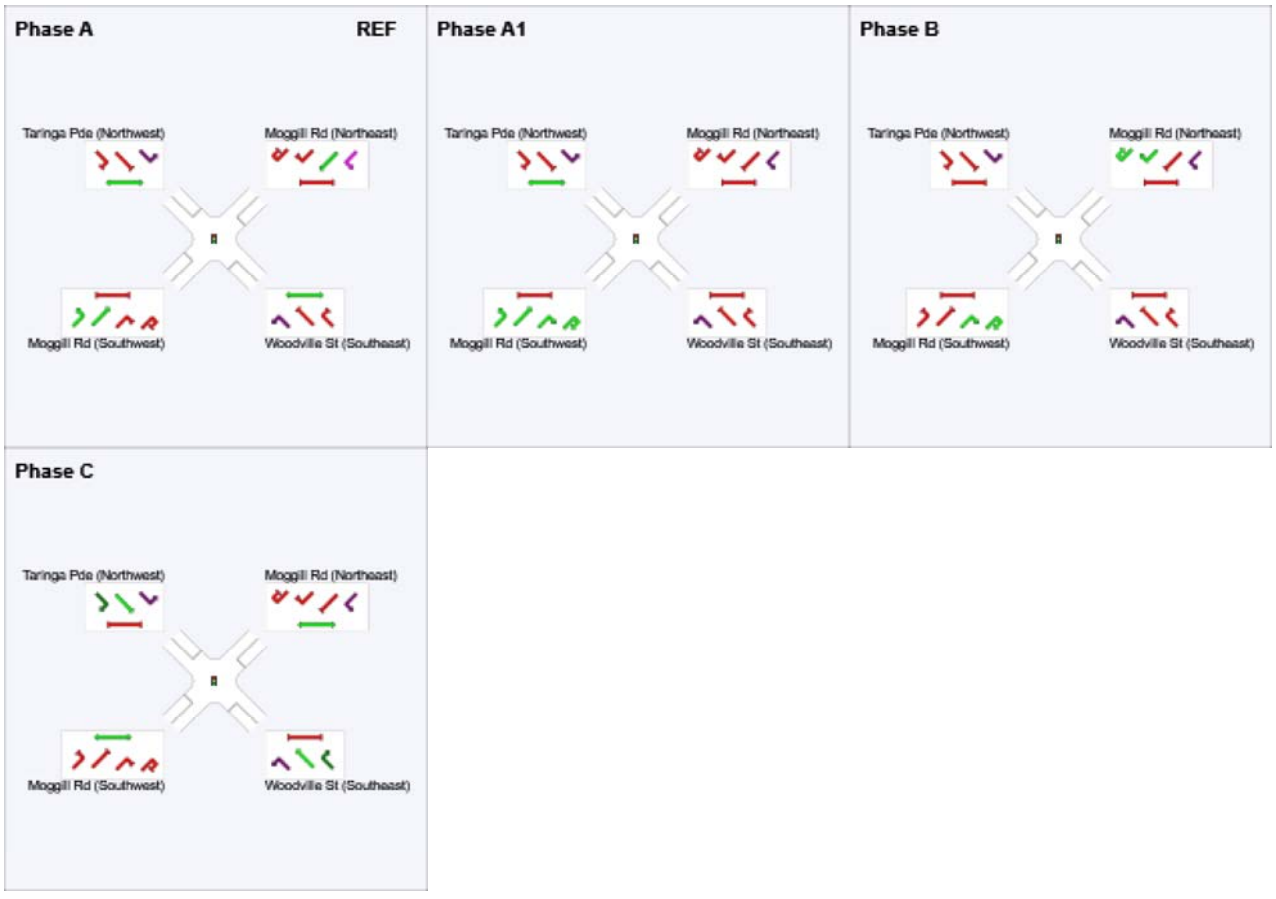
Network: N101 [2025 AM BG - Upgrade - Lane Reconfig]

Int: Moggill Road / Taringa Parade / Woodville Street
Project Number: P3606
Project: Indooroopilly State School TIA
Signals - Fixed Time Coordinated Cycle Time = 150 seconds (Network Cycle Time - Program)

Phase Times determined by the program
Sequence: Adopted Phasing
Reference Phase: Phase A
Input Sequence: A, A1, A2*, B, C
Output Sequence: A, A1, B, C
(* Variable Phase)

Phase Timing Results

Phase	A	A1	B	C
Phase Change Time (sec)	12	95	114	126
Green Time (sec)	77	13	6	30
Yellow Time (sec)	4	4	4	4
All-Red Time (sec)	2	2	2	2
Phase Time (sec)	83	19	12	36
Phase Split	55%	13%	8%	24%



REF: Reference Phase
VAR: Variable Phase

 Undetected Movement Phase Transition Applied

MOVEMENT SUMMARY

Site: 101 [2025_PM_BG - Intersection 1 - Upgrade - Lane Reconfig]

Network: N101 [2025 PM BG - Upgrade - Lane Reconfig]

Int: Moggill Road / Russell Terrace
Project Number: P3606
Project: Indooroopilly State School TIA
Signals - Fixed Time Coordinated Cycle Time = 140 seconds (Network Cycle Time - User-Given)

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Arrival 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
NorthEast: Moggill Rd (Northeast)													
25	T1	1800	3.0	1800	3.0	0.578	2.2	LOS A	15.0	108.1	0.20	0.19	38.0
26	R2	224	3.0	224	3.0	0.896	78.2	LOS E	17.0	122.1	1.00	0.98	16.8
Approach		2024	3.0	2024	3.0	0.896	10.6	LOS B	17.0	122.1	0.29	0.28	32.1
NorthWest: Russell Tce (Northwest)													
27	L2	340	3.0	340	3.0	0.907	85.9	LOS F	17.8	128.1	1.00	1.05	14.0
Approach		340	3.0	340	3.0	0.907	85.9	LOS F	17.8	128.1	1.00	1.05	14.0
SouthWest: Moggill Rd (Southwest)													
30	L2	88	3.0	88	3.0	0.529	8.6	LOS A	9.7	69.3	0.33	0.35	37.3
31	T1	1301	3.0	1301	3.0	0.529	6.0	LOS A	15.0	108.0	0.39	0.37	33.4
Approach		1389	3.0	1389	3.0	0.529	6.2	LOS A	15.0	108.0	0.38	0.37	33.9
All Vehicles		3754	3.0	3754	3.0	0.907	15.8	LOS B	17.8	128.1	0.39	0.38	28.7

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
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.
Network Model Accuracy Level (largest change in degree of saturation for any lane): 0.9 %
Number of Iterations: 10 (maximum specified: 15)

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate per ped
P7	NorthWest Full Crossing	21	5.2	LOS A	0.0	0.0	0.27	0.27
P8	SouthWest Full Crossing	26	64.2	LOS F	0.1	0.1	0.96	0.96
All Pedestrians		47	38.0	LOS D			0.65	0.65

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

SIDRA INTERSECTION 7.0 | Copyright © 2000-2016 Akcelik and Associates Pty Ltd | sidrasolutions.com

PHASING SUMMARY

Site: 101 [2025_PM_BG - Intersection 1 - Upgrade - Lane Reconfig]

Network: N101 [2025 PM BG - Upgrade - Lane Reconfig]

Int: Moggill Road / Russell Terrace
Project Number: P3606
Project: Indooroopilly State School TIA
Signals - Fixed Time Coordinated Cycle Time = 140 seconds (Network Cycle Time - User-Given)

Phase Times determined by the program
Sequence: Adopted Phasing
Reference Phase: Phase A
Input Sequence: A, B, C
Output Sequence: A, B, C

Phase Timing Results

Phase	A	B	C
Phase Change Time (sec)	13	127	136
Green Time (sec)	108	3	13
Yellow Time (sec)	4	4	4
All-Red Time (sec)	2	2	2
Phase Time (sec)	114	9	17
Phase Split	81%	6%	12%

REF: Reference Phase
VAR: Variable Phase

SIDRA INTERSECTION 7.0 | Copyright © 2000-2016 Akcelik and Associates Pty Ltd | sidrasolutions.com

MOVEMENT SUMMARY

Site: 102 [2025_PM_BG - Intersection 2 - Upgrade - Lane Reconfig]

Network: N101 [2025 PM BG - Upgrade - Lane Reconfig]

Int: Moggill Road / Taringa Parade / Woodville Street
Project Number: P3606
Project: Indooroopilly State School TIA
Signals - Fixed Time Coordinated Cycle Time = 140 seconds (Network Cycle Time - User-Given)

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Arrival 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
SouthEast: Woodville St (Southeast)													
21	L2	231	3.0	231	3.0	0.485	26.2	LOS C	9.5	68.0	0.78	0.78	29.5
22	T1	101	3.0	101	3.0	0.471	61.9	LOS E	6.4	46.1	0.96	0.76	25.5
23	R2	38	3.0	38	3.0	0.285	71.9	LOS E	2.5	18.1	0.97	0.74	22.2
Approach		369	3.0	369	3.0	0.485	40.7	LOS D	9.5	68.0	0.85	0.77	26.7
NorthEast: Moggill Rd (Northeast)													
24	L2	36	3.0	36	3.0	0.761	27.2	LOS C	42.6	305.6	0.81	0.76	33.5
25	T1	1555	3.0	1555	3.0	0.761	22.8	LOS C	42.6	305.6	0.79	0.73	23.3
26	R2	51	3.0	51	3.0	0.273	61.7	LOS E	4.2	29.8	0.93	0.76	22.9
26u	U	17	0.0	17	0.0	0.273	63.1	LOS E	4.2	29.8	0.93	0.76	22.3
Approach		1659	3.0	1659	3.0	0.761	24.5	LOS C	42.6	305.6	0.79	0.73	23.6
NorthWest: Taringa Pde (Northwest)													
27	L2	91	3.0	91	3.0	0.844	68.3	LOS E	13.8	99.1	1.00	1.03	21.7
28	T1	114	3.0	114	3.0	0.844	65.2	LOS E	13.8	99.1	1.00	1.03	24.8
29	R2	117	3.0	117	3.0	0.892	86.6	LOS F	9.3	66.5	1.00	1.06	14.0
Approach		322	3.0	322	3.0	0.892	73.9	LOS E	13.8	99.1	1.00	1.04	20.2
SouthWest: Moggill Rd (Southwest)													
30	L2	104	3.0	104	3.0	0.309	19.4	LOS B	9.5	68.5	0.55	0.56	30.7
31	T1	1418	3.0	1418	3.0	0.616	17.2	LOS B	25.0	179.5	0.60	0.55	28.3
32	R2	81	3.0	81	3.0	0.752	70.5	LOS E	11.8	83.4	1.00	0.87	19.3
32u	U	88	0.0	88	0.0	0.752	71.7	LOS E	11.8	83.4	1.00	0.87	5.7
Approach		1691	2.8	1691	2.8	0.752	22.7	LOS C	25.0	179.5	0.64	0.59	26.2
All Vehicles		4042	2.9	4042	2.9	0.892	29.2	LOS C	42.6	305.6	0.75	0.70	24.4

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
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.
Network Model Accuracy Level (largest change in degree of saturation for any lane): 0.9 %
Number of Iterations: 10 (maximum specified: 15)

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate per ped
P5	SouthEast Full Crossing	53	15.6	LOS B	0.1	0.1	0.47	0.47
P6	NorthEast Full Crossing	53	64.3	LOS F	0.2	0.2	0.96	0.96
P7	NorthWest Full Crossing	53	6.0	LOS A	0.1	0.1	0.29	0.29
P8	SouthWest Full Crossing	53	64.3	LOS F	0.2	0.2	0.96	0.96
All Pedestrians		211	37.5	LOS D			0.67	0.67

PHASING SUMMARY

Site: 102 [2025_PM_BG - Intersection 2 - Upgrade - Lane Reconfig]

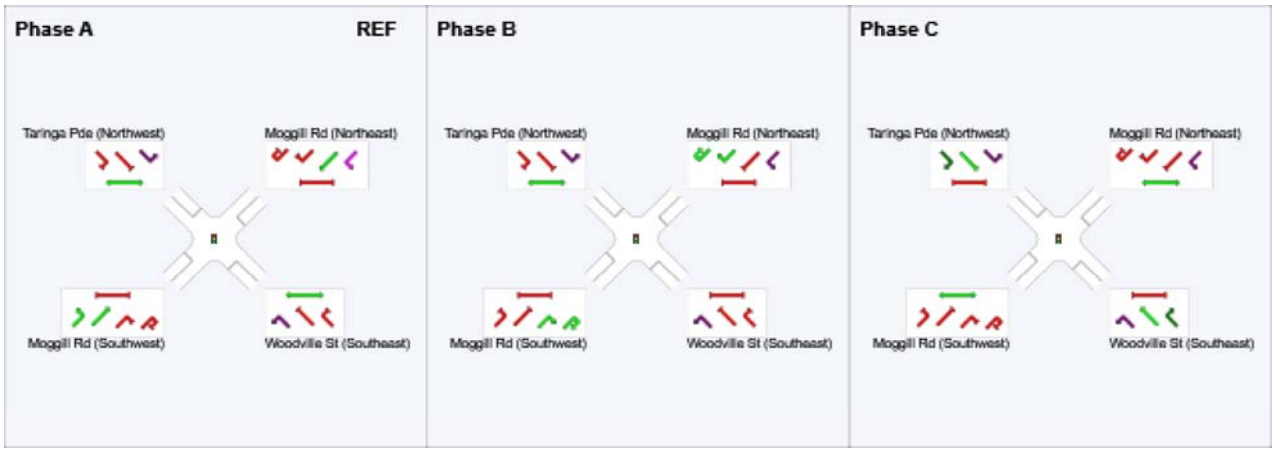
Network: N101 [2025 PM BG - Upgrade - Lane Reconfig]

Int: Moggill Road / Taringa Parade / Woodville Street
Project Number: P3606
Project: Indooroopilly State School TIA
Signals - Fixed Time Coordinated Cycle Time = 140 seconds (Network Cycle Time - User-Given)

Phase Times determined by the program
Sequence: Adopted Phasing
Reference Phase: Phase A
Input Sequence: A, A1*, A2*, B, C
Output Sequence: A, B, C
(* Variable Phase)

Phase Timing Results

Phase	A	B	C
Phase Change Time (sec)	0	88	115
Green Time (sec)	82	21	19
Yellow Time (sec)	4	4	4
All-Red Time (sec)	2	2	2
Phase Time (sec)	88	27	25
Phase Split	63%	19%	18%



REF: Reference Phase
VAR: Variable Phase

Normal Movement	Permitted/Opposed
Slip/Bypass-Lane Movement	Opposed Slip/Bypass-Lane
Stopped Movement	Turn On Red
Other Movement Class Running	Other Movement Class Stopped
Mixed Running & Stopped Movement Classes	
Undetected Movement	Phase Transition Applied

MOVEMENT SUMMARY

Site: 101 [2035_AM_BG - Intersection 1 - Upgrade - Lane Reconfig]

Network: N101 [2035 AM BG - Upgrade - Lane Reconfig]

Int: Moggill Road / Russell Terrace
Project Number: P3606
Project: Indooroopilly State School TIA
Signals - Fixed Time Coordinated Cycle Time = 150 seconds (Network Cycle Time - Program)

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Arrival 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
NorthEast: Moggill Rd (Northeast)													
25	T1	1230	3.0	1210	3.0	0.399	0.6	LOS A	1.7	12.4	0.04	0.04	39.5
26	R2	178	3.0	175	3.0	0.428	68.0	LOS E	12.3	88.7	1.00	0.83	18.2
Approach		1408	3.0	1385 N1	3.0	0.428	9.1	LOS A	12.3	88.7	0.16	0.14	33.1
NorthWest: Russell Tce (Northwest)													
27	L2	657	3.0	657	3.0	1.282	356.9	LOS F	69.6	500.0	1.00	1.77	4.6
Approach		657	3.0	657	3.0	1.282	356.9	LOS F	69.6	500.0	1.00	1.77	4.6
SouthWest: Moggill Rd (Southwest)													
30	L2	80	3.0	80	3.0	1.240	318.7	LOS F	131.4	943.6	1.00	1.97	7.8
31	T1	1960	3.0	1960	3.0	1.240	305.1	LOS F	140.5	1009.0	1.00	2.02	3.8
Approach		2039	3.0	2039	3.0	1.240	305.7	LOS F	140.5	1009.0	1.00	2.01	3.9
All Vehicles		4104	3.0	4081 N1	3.0	1.282	213.2	LOS F	140.5	1009.0	0.72	1.34	6.2

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
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.
Network Model Accuracy Level (largest change in degree of saturation for any lane): 0.8 %
Number of Iterations: 13 (maximum specified: 15)

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

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate per ped
P7	NorthWest Full Crossing	53	9.4	LOS A	0.1	0.1	0.35	0.35
P8	SouthWest Full Crossing	53	69.3	LOS F	0.2	0.2	0.96	0.96
All Pedestrians		105	39.3	LOS D			0.66	0.66

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

PHASING SUMMARY

Site: 101 [2035_AM_BG - Intersection 1 - Upgrade - Lane Reconfig]

Network: N101 [2035 AM BG - Upgrade - Lane Reconfig]

Int: Moggill Road / Russell Terrace
Project Number: P3606
Project: Indooroopilly State School TIA
Signals - Fixed Time Coordinated Cycle Time = 150 seconds (Network Cycle Time - Program)

Phase Times determined by the program
Sequence: Adopted Phasing
Reference Phase: Phase A
Input Sequence: A, B, C
Output Sequence: A, B, C

Phase Timing Results

Phase	A	B	C
Phase Change Time (sec)	0	109	128
Green Time (sec)	103	13	16
Yellow Time (sec)	4	4	4
All-Red Time (sec)	2	2	2
Phase Time (sec)	109	19	22
Phase Split	73%	13%	15%

REF: Reference Phase
VAR: Variable Phase

Normal Movement	Permitted/Opposed
Slip/Bypass-Lane Movement	Opposed Slip/Bypass-Lane
Stopped Movement	Turn On Red
Other Movement Class Running	Other Movement Class Stopped
Mixed Running & Stopped Movement Classes	
Undetected Movement	Phase Transition Applied

MOVEMENT SUMMARY

Site: 102 [2035_AM_BG - Intersection 2 - Upgrade - Lane Reconfig]

Network: N101 [2035 AM BG - Upgrade - Lane Reconfig]

Int: Moggill Road / Taringa Parade / Woodville Street
Project Number: P3606
Project: Indooroopilly State School TIA
Signals - Fixed Time Coordinated Cycle Time = 150 seconds (Network Cycle Time - Program)

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Arrival 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
SouthEast: Woodville St (Southeast)													
21	L2	181	3.0	181	3.0	0.246	14.4	LOS B	4.6	33.0	0.53	0.68	36.2
22	T1	219	3.0	219	3.0	0.992	112.4	LOS F	20.9	149.9	0.96	1.22	18.9
23	R2	187	3.0	187	3.0	1.082	235.1	LOS F	23.3	166.9	1.00	1.28	10.2
Approach		587	3.0	587	3.0	1.082	121.3	LOS F	23.3	166.9	0.84	1.07	15.9
NorthEast: Moggill Rd (Northeast)													
24	L2	49	3.0	49	3.0	0.571	28.5	LOS C	27.8	199.3	0.72	0.68	33.0
25	T1	1019	3.0	1019	3.0	0.571	24.4	LOS C	27.8	199.3	0.70	0.64	22.7
26	R2	79	3.0	79	3.0	1.258	328.8	LOS F	14.5	104.1	1.00	1.55	7.6
26u	U	8	0.0	8	0.0	1.258	330.2	LOS F	14.5	104.1	1.00	1.55	6.6
Approach		1155	3.0	1155	3.0	1.258	47.5	LOS D	27.8	199.3	0.73	0.71	17.7
NorthWest: Taringa Pde (Northwest)													
27	L2	98	3.0	98	3.0	2.135	1081.4	LOS F	56.3	404.5	1.00	2.26	2.7
28	T1	115	3.0	115	3.0	2.135	1078.2	LOS F	56.3	404.5	1.00	2.26	3.2
29	R2	147	3.0	147	3.0	1.110	202.0	LOS F	18.9	136.0	1.00	1.46	7.5
Approach		360	3.0	360	3.0	2.135	721.6	LOS F	56.3	404.5	1.00	1.93	3.5
SouthWest: Moggill Rd (Southwest)													
30	L2	211	3.0	174	3.0	0.379	20.6	LOS C	15.8	113.3	0.64	0.65	30.1
31	T1	2288	3.0	1885	3.0	0.755	18.3	LOS B	25.0	179.5	0.68	0.64	27.8
32	R2	117	3.0	97	3.0	0.577	69.7	LOS E	9.4	67.0	0.96	0.80	19.3
32u	U	49	0.0	41	0.0	0.577	71.0	LOS E	9.4	67.0	0.96	0.80	5.7
Approach		2666	2.9	2197 N1	2.9	0.755	21.7	LOS C	25.0	179.5	0.69	0.65	26.8
All Vehicles		4768	3.0	4299 N1	3.3	2.135	100.9	LOS F	56.3	404.5	0.75	0.83	13.1

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
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.
Network Model Accuracy Level (largest change in degree of saturation for any lane): 0.8 %
Number of Iterations: 13 (maximum specified: 15)

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

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate per ped
P5	SouthEast Full Crossing	53	20.3	LOS C	0.1	0.1	0.52	0.52
P6	NorthEast Full Crossing	53	60.9	LOS F	0.2	0.2	0.90	0.90
P7	NorthWest Full Crossing	53	13.7	LOS B	0.1	0.1	0.43	0.43
P8	SouthWest Full Crossing	53	60.9	LOS F	0.2	0.2	0.90	0.90

All Pedestrians	211	38.9	LOS D	0.69	0.69

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

SIDRA INTERSECTION 7.0 | Copyright © 2000-2016 Akcelik and Associates Pty Ltd | sidrasolutions.com

PHASING SUMMARY

Site: 102 [2035_AM_BG - Intersection 2 - Upgrade - Lane Reconfig]

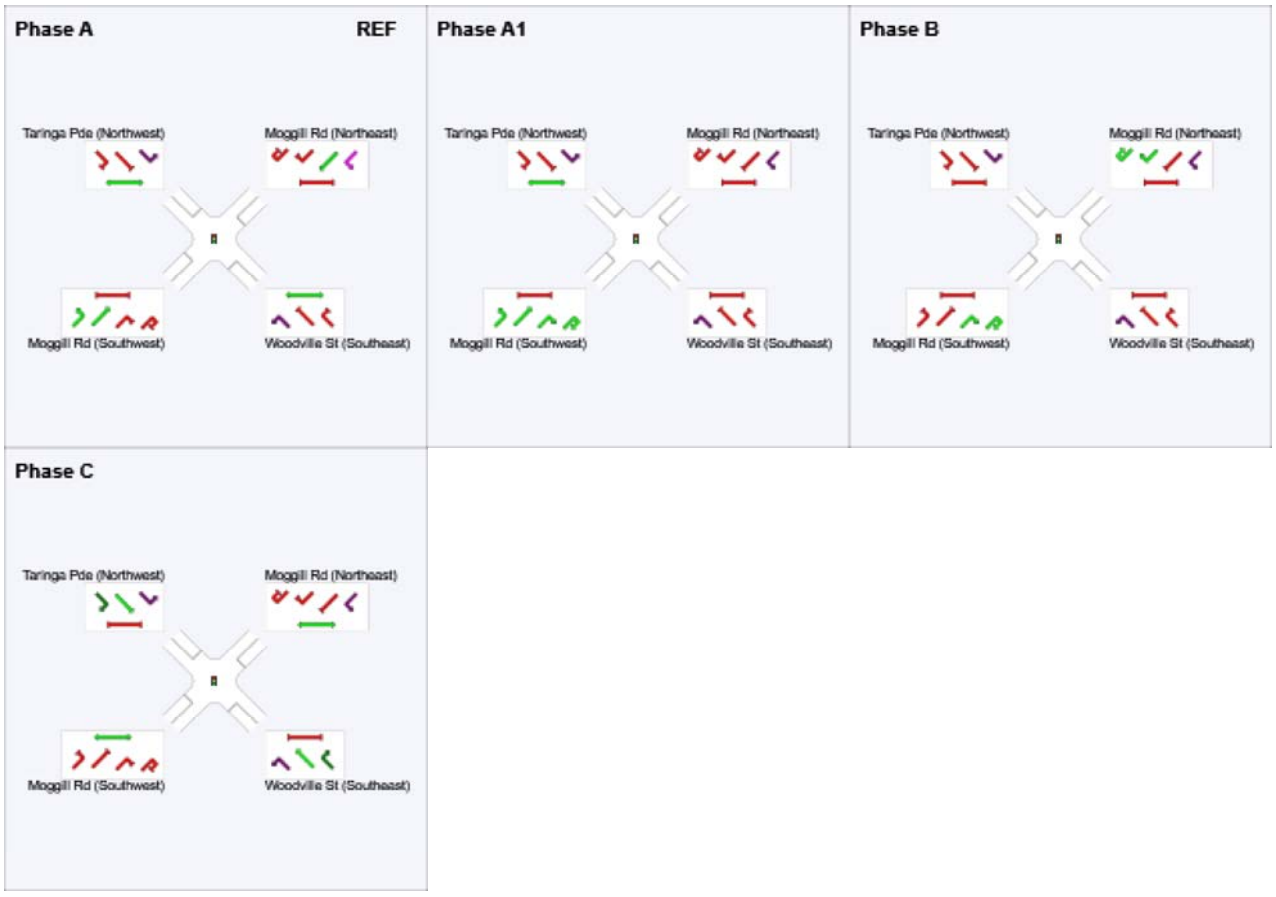
Network: N101 [2035 AM BG - Upgrade - Lane Reconfig]

Int: Moggill Road / Taringa Parade / Woodville Street
Project Number: P3606
Project: Indooroopilly State School TIA
Signals - Fixed Time Coordinated Cycle Time = 150 seconds (Network Cycle Time - Program)

Phase Times determined by the program
Sequence: Adopted Phasing
Reference Phase: Phase A
Input Sequence: A, A1, A2*, B, C
Output Sequence: A, A1, B, C
(* Variable Phase)

Phase Timing Results

Phase	A	A1	B	C
Phase Change Time (sec)	13	99	115	127
Green Time (sec)	80	10	6	30
Yellow Time (sec)	4	4	4	4
All-Red Time (sec)	2	2	2	2
Phase Time (sec)	86	16	12	36
Phase Split	57%	11%	8%	24%



REF: Reference Phase
VAR: Variable Phase

Undetected Movement Phase Transition Applied

MOVEMENT SUMMARY

Site: 101 [2035_PM_BG - Intersection 1 - Upgrade - Lane Reconfig]

Network: N101 [2035 PM BG - Upgrade - Lane Reconfig]

Int: Moggill Road / Russell Terrace
Project Number: P3606
Project: Indooroopilly State School TIA
Signals - Fixed Time Coordinated Cycle Time = 140 seconds (Network Cycle Time - User-Given)

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Arrival 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
NorthEast: Moggill Rd (Northeast)													
25	T1	1967	3.0	1967	3.0	0.632	2.5	LOS A	17.7	127.3	0.22	0.21	37.7
26	R2	235	3.0	235	3.0	0.648	61.1	LOS E	15.6	111.7	1.00	0.84	19.2
Approach		2202	3.0	2202	3.0	0.648	8.8	LOS A	17.7	127.3	0.30	0.27	33.2
NorthWest: Russell Tce (Northwest)													
27	L2	357	3.0	357	3.0	0.626	59.0	LOS E	14.3	102.5	0.97	0.83	17.6
Approach		357	3.0	357	3.0	0.626	59.0	LOS E	14.3	102.5	0.97	0.83	17.6
SouthWest: Moggill Rd (Southwest)													
30	L2	91	3.0	91	3.0	0.661	12.0	LOS B	12.7	91.1	0.43	0.43	35.8
31	T1	1423	3.0	1423	3.0	0.661	10.5	LOS B	24.8	177.7	0.52	0.49	29.9
Approach		1514	3.0	1514	3.0	0.661	10.6	LOS B	24.8	177.7	0.52	0.49	30.6
All Vehicles		4073	3.0	4073	3.0	0.661	13.8	LOS B	24.8	177.7	0.44	0.40	29.8

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
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.
Network Model Accuracy Level (largest change in degree of saturation for any lane): 0.6 %
Number of Iterations: 11 (maximum specified: 15)

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate per ped
P7	NorthWest Full Crossing	21	7.9	LOS A	0.0	0.0	0.34	0.34
P8	SouthWest Full Crossing	26	64.2	LOS F	0.1	0.1	0.96	0.96
All Pedestrians		47	39.2	LOS D			0.68	0.68

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

SIDRA INTERSECTION 7.0 | Copyright © 2000-2016 Akcelik and Associates Pty Ltd | sidrasolutions.com

PHASING SUMMARY

Site: 101 [2035_PM_BG - Intersection 1 - Upgrade - Lane Reconfig]

Network: N101 [2035 PM BG - Upgrade - Lane Reconfig]

Int: Moggill Road / Russell Terrace
Project Number: P3606
Project: Indooroopilly State School TIA
Signals - Fixed Time Coordinated Cycle Time = 140 seconds (Network Cycle Time - User-Given)

Phase Times determined by the program
Sequence: Adopted Phasing
Reference Phase: Phase A
Input Sequence: A, B, C
Output Sequence: A, B, C

Phase Timing Results

Phase	A	B	C
Phase Change Time (sec)	13	118	136
Green Time (sec)	99	12	13
Yellow Time (sec)	4	4	4
All-Red Time (sec)	2	2	2
Phase Time (sec)	105	18	17
Phase Split	75%	13%	12%

REF: Reference Phase
VAR: Variable Phase

Normal Movement	Permitted/Opposed
Slip/Bypass-Lane Movement	Opposed Slip/Bypass-Lane
Stopped Movement	Turn On Red
Other Movement Class Running	Other Movement Class Stopped
Mixed Running & Stopped Movement Classes	
Undetected Movement	Phase Transition Applied

MOVEMENT SUMMARY

Site: 102 [2035_PM_BG - Intersection 2 - Upgrade - Lane Reconfig]

Network: N101 [2035 PM BG - Upgrade - Lane Reconfig]

Int: Moggill Road / Taringa Parade / Woodville Street
Project Number: P3606
Project: Indooroopilly State School TIA
Signals - Fixed Time Coordinated Cycle Time = 140 seconds (Network Cycle Time - User-Given)

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Arrival 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
SouthEast: Woodville St (Southeast)													
21	L2	252	3.0	252	3.0	0.716	42.6	LOS D	14.0	100.7	0.98	0.87	23.5
22	T1	105	3.0	105	3.0	0.476	61.0	LOS E	6.6	47.6	0.95	0.76	25.6
23	R2	42	3.0	42	3.0	0.300	70.9	LOS E	2.8	19.9	0.97	0.74	22.3
Approach		399	3.0	399	3.0	0.716	50.4	LOS D	14.0	100.7	0.97	0.83	24.1
NorthEast: Moggill Rd (Northeast)													
24	L2	40	3.0	40	3.0	0.903	40.2	LOS D	65.8	472.7	0.96	0.96	29.3
25	T1	1700	3.0	1700	3.0	0.903	38.8	LOS D	65.8	472.7	0.93	0.94	18.1
26	R2	52	3.0	52	3.0	0.862	87.0	LOS F	5.5	39.0	1.00	0.97	19.3
26u	U	19	0.0	19	0.0	0.862	88.4	LOS F	5.5	39.0	1.00	0.97	18.2
Approach		1811	3.0	1811	3.0	0.903	40.7	LOS D	65.8	472.7	0.93	0.95	18.5
NorthWest: Taringa Pde (Northwest)													
27	L2	94	3.0	94	3.0	0.836	67.2	LOS E	14.2	101.7	1.00	1.02	21.9
28	T1	117	3.0	117	3.0	0.836	64.0	LOS E	14.2	101.7	1.00	1.02	25.0
29	R2	122	3.0	122	3.0	1.050	152.3	LOS F	13.2	95.0	1.00	1.38	9.4
Approach		334	3.0	334	3.0	1.050	97.3	LOS F	14.2	101.7	1.00	1.15	17.3
SouthWest: Moggill Rd (Southwest)													
30	L2	109	3.0	109	3.0	0.272	13.2	LOS B	7.6	54.9	0.43	0.48	33.6
31	T1	1549	3.0	1549	3.0	0.543	10.6	LOS B	22.8	163.7	0.48	0.45	31.8
32	R2	89	3.0	89	3.0	0.898	85.0	LOS F	14.7	104.2	1.00	0.99	17.2
32u	U	96	0.0	96	0.0	0.898	86.2	LOS F	14.7	104.2	1.00	0.99	4.8
Approach		1843	2.8	1843	2.8	0.898	18.3	LOS B	22.8	163.7	0.53	0.50	28.1
All Vehicles		4386	2.9	4386	2.9	1.050	36.5	LOS D	65.8	472.7	0.77	0.76	22.1

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
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.
Network Model Accuracy Level (largest change in degree of saturation for any lane): 0.6 %
Number of Iterations: 11 (maximum specified: 15)

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate per ped
P5	SouthEast Full Crossing	53	16.1	LOS B	0.1	0.1	0.48	0.48
P6	NorthEast Full Crossing	53	64.3	LOS F	0.2	0.2	0.96	0.96
P7	NorthWest Full Crossing	53	6.3	LOS A	0.1	0.1	0.30	0.30
P8	SouthWest Full Crossing	53	64.3	LOS F	0.2	0.2	0.96	0.96
All Pedestrians		211	37.7	LOS D			0.67	0.67

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

PHASING SUMMARY

Site: 102 [2035_PM_BG - Intersection 2 - Upgrade - Lane Reconfig]

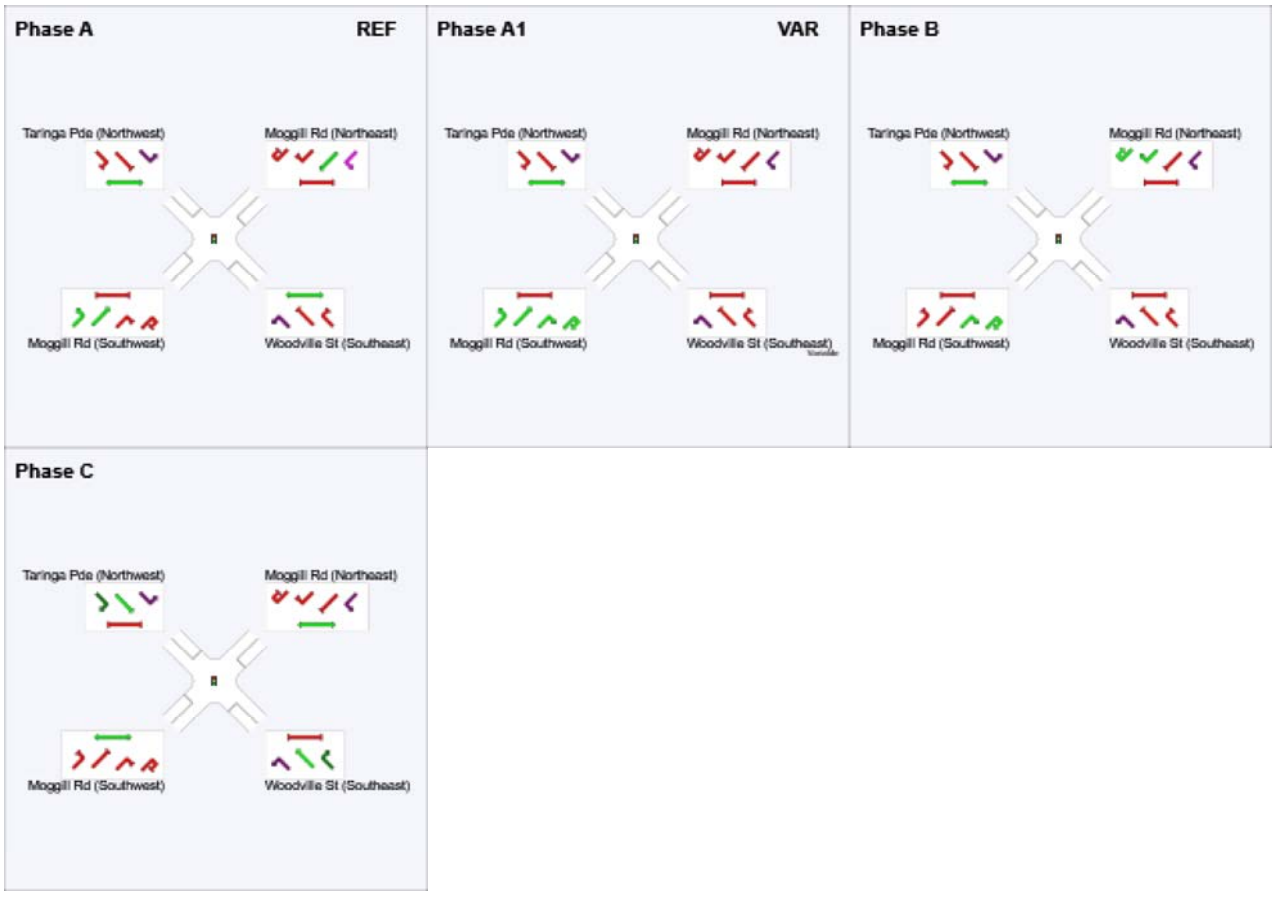
Network: N101 [2035 PM BG - Upgrade - Lane Reconfig]

Int: Moggill Road / Taringa Parade / Woodville Street
Project Number: P3606
Project: Indooroopilly State School TIA
Signals - Fixed Time Coordinated Cycle Time = 140 seconds (Network Cycle Time - User-Given)

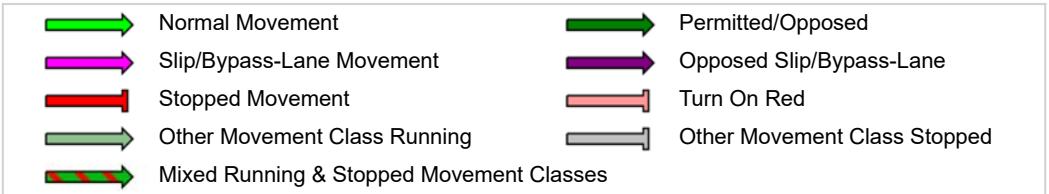
Phase Times determined by the program
Sequence: Adopted Phasing
Reference Phase: Phase A
Input Sequence: A, A1*, A2*, B, C
Output Sequence: A, A1*, B, C
(* Variable Phase)

Phase Timing Results

Phase	A	A1	B	C
Phase Change Time (sec)	0	87	101	114
Green Time (sec)	81	8	7	20
Yellow Time (sec)	4	4	4	4
All-Red Time (sec)	2	2	2	2
Phase Time (sec)	87	14	13	26
Phase Split	62%	10%	9%	19%



REF: Reference Phase
VAR: Variable Phase



 Undetected Movement Phase Transition Applied

MOVEMENT SUMMARY

Site: 101 [2025_AM_BG+DEV - Intersection 1 - Upgrade - Lane Reconfig]

Network: N101 [2025 AM BG+DEV - Upgrade - Lane Reconfig]

Int: Moggill Road / Russell Terrace
Project Number: P3606
Project: Indooroopilly State School TIA
Signals - Fixed Time Coordinated Cycle Time = 150 seconds (Network Cycle Time - Program)

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	Demand Flows HV %	Arrival Flows Total veh/h	Arrival Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
NorthEast: Moggill Rd (Northeast)													
25	T1	1131	3.0	1117	3.0	0.369	0.5	LOS A	1.2	8.9	0.03	0.03	39.5
26	R2	173	3.0	171	3.0	0.417	67.6	LOS E	12.0	86.2	1.00	0.83	18.2
Approach		1304	3.0	1287 N1	3.0	0.417	9.4	LOS A	12.0	86.2	0.16	0.14	32.9
NorthWest: Russell Tce (Northwest)													
27	L2	631	3.0	631	3.0	1.221	304.0	LOS F	61.7	443.2	1.00	1.65	5.3
Approach		631	3.0	631	3.0	1.221	304.0	LOS F	61.7	443.2	1.00	1.65	5.3
SouthWest: Moggill Rd (Southwest)													
30	L2	80	3.0	80	3.0	0.960	65.4	LOS E	37.3	267.9	0.50	0.74	22.1
31	T1	1792	3.0	1792	3.0	0.960	63.2	LOS E	80.1	575.1	0.77	0.96	13.3
Approach		1872	3.0	1872	3.0	0.960	63.3	LOS E	80.1	575.1	0.76	0.95	13.9
All Vehicles		3807	3.0	3790 N1	3.0	1.221	85.1	LOS F	80.1	575.1	0.60	0.79	12.6

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
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.
Network Model Accuracy Level (largest change in degree of saturation for any lane): 2.2 %
Number of Iterations: 15 (maximum specified: 15)

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

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Average Back of Queue Distance m	Prop. Queued	Effective Stop Rate per ped
P7	NorthWest Full Crossing	53	9.4	LOS A	0.1	0.1	0.35	0.35
P8	SouthWest Full Crossing	53	69.3	LOS F	0.2	0.2	0.96	0.96
All Pedestrians		105	39.3	LOS D			0.66	0.66

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

PHASING SUMMARY

Site: 101 [2025_AM_BG+DEV - Intersection 1 - Upgrade - Lane Reconfig]

Network: N101 [2025 AM BG+DEV - Upgrade - Lane Reconfig]

Int: Moggill Road / Russell Terrace
Project Number: P3606
Project: Indooroopilly State School TIA
Signals - Fixed Time Coordinated Cycle Time = 150 seconds (Network Cycle Time - Program)

Phase Times determined by the program
Sequence: Adopted Phasing
Reference Phase: Phase A
Input Sequence: A, B, C
Output Sequence: A, B, C

Phase Timing Results

Phase	A	B	C
Phase Change Time (sec)	0	109	128
Green Time (sec)	103	13	16
Yellow Time (sec)	4	4	4
All-Red Time (sec)	2	2	2
Phase Time (sec)	109	19	22
Phase Split	73%	13%	15%

REF: Reference Phase
VAR: Variable Phase

Normal Movement	Permitted/Opposed
Slip/Bypass-Lane Movement	Opposed Slip/Bypass-Lane
Stopped Movement	Turn On Red
Other Movement Class Running	Other Movement Class Stopped
Mixed Running & Stopped Movement Classes	
Undetected Movement	Phase Transition Applied

MOVEMENT SUMMARY

Site: 102 [2025_AM_BG+DEV - Intersection 2 - Upgrade - Lane Reconfig]

Network: N101 [2025 AM BG+DEV - Upgrade - Lane Reconfig]

Int: Moggill Road / Taringa Parade / Woodville Street
Project Number: P3606
Project: Indooroopilly State School TIA
Signals - Fixed Time Coordinated Cycle Time = 150 seconds (Network Cycle Time - Program)

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Arrival 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
SouthEast: Woodville St (Southeast)													
21	L2	165	3.0	165	3.0	0.216	13.8	LOS B	4.0	28.8	0.51	0.67	36.6
22	T1	226	3.0	226	3.0	0.976	104.2	LOS F	20.7	148.6	0.97	1.19	19.7
23	R2	170	3.0	170	3.0	1.032	205.7	LOS F	19.0	136.7	1.00	1.20	11.3
Approach		561	3.0	561	3.0	1.032	108.4	LOS F	20.7	148.6	0.84	1.04	17.2
NorthEast: Moggill Rd (Northeast)													
24	L2	45	3.0	45	3.0	0.552	29.9	LOS C	26.1	187.7	0.73	0.68	32.5
25	T1	937	3.0	937	3.0	0.552	25.7	LOS C	26.1	187.7	0.71	0.64	22.1
26	R2	88	3.0	88	3.0	1.367	426.4	LOS F	18.3	131.1	1.00	1.72	6.2
26u	U	7	0.0	7	0.0	1.367	427.8	LOS F	18.3	131.1	1.00	1.72	5.2
Approach		1077	3.0	1077	3.0	1.367	61.3	LOS E	26.1	187.7	0.74	0.74	15.4
NorthWest: Taringa Pde (Northwest)													
27	L2	102	3.0	102	3.0	2.236	1174.2	LOS F	61.1	438.9	1.00	2.32	2.5
28	T1	121	3.0	121	3.0	2.236	1171.1	LOS F	61.1	438.9	1.00	2.32	2.9
29	R2	143	3.0	143	3.0	1.115	206.3	LOS F	18.6	133.9	1.00	1.47	7.4
Approach		366	3.0	366	3.0	2.236	795.7	LOS F	61.1	438.9	1.00	1.99	3.3
SouthWest: Moggill Rd (Southwest)													
30	L2	206	3.0	197	3.0	0.390	19.3	LOS B	15.3	109.5	0.60	0.63	30.6
31	T1	2095	3.0	2003	3.0	0.779	14.0	LOS B	25.0	179.5	0.58	0.55	29.9
32	R2	107	3.0	102	3.0	0.552	66.9	LOS E	10.3	73.3	0.98	0.81	19.8
32u	U	48	0.0	46	0.0	0.552	68.2	LOS E	10.3	73.3	0.98	0.81	5.9
Approach		2457	2.9	2348 N1	2.9	0.779	17.8	LOS B	25.0	179.5	0.61	0.57	28.5
All Vehicles		4461	3.0	4353 N1	3.0	2.236	105.7	LOS F	61.1	438.9	0.70	0.79	12.7

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
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.
Network Model Accuracy Level (largest change in degree of saturation for any lane): 2.2 %
Number of Iterations: 15 (maximum specified: 15)

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

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate per ped
P5	SouthEast Full Crossing	53	21.9	LOS C	0.1	0.1	0.54	0.54
P6	NorthEast Full Crossing	53	60.9	LOS F	0.2	0.2	0.90	0.90
P7	NorthWest Full Crossing	53	13.7	LOS B	0.1	0.1	0.43	0.43

P8	SouthWest Full Crossing	53	60.9	LOS F	0.2	0.2	0.90	0.90
All Pedestrians		211	39.3	LOS D			0.69	0.69

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

SIDRA INTERSECTION 7.0 | Copyright © 2000-2016 Akcelik and Associates Pty Ltd | sidrasolutions.com

PHASING SUMMARY

Site: 102 [2025_AM_BG+DEV - Intersection 2 - Upgrade - Lane Reconfig]

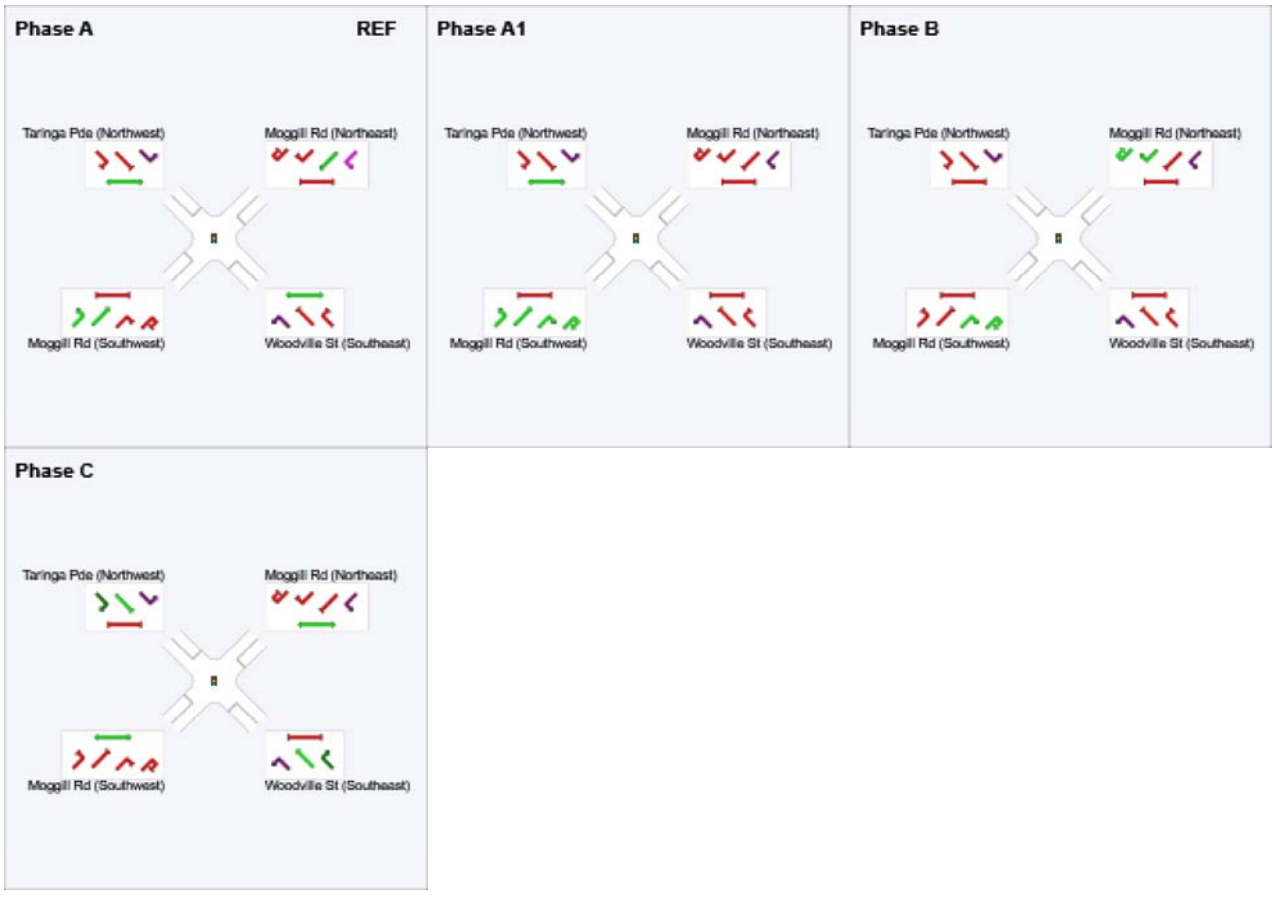
Network: N101 [2025 AM BG+DEV - Upgrade - Lane Reconfig]

Int: Moggill Road / Taringa Parade / Woodville Street
Project Number: P3606
Project: Indooroopilly State School TIA
Signals - Fixed Time Coordinated Cycle Time = 150 seconds (Network Cycle Time - Program)

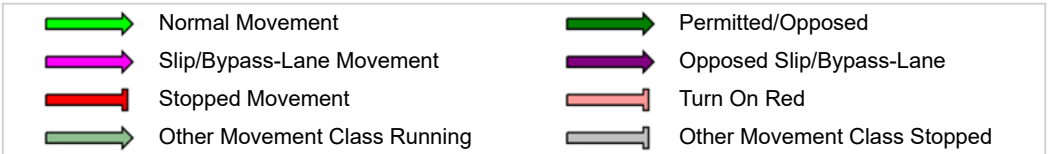
Phase Times determined by the program
Sequence: Adopted Phasing
Reference Phase: Phase A
Input Sequence: A, A1, A2*, B, C
Output Sequence: A, A1, B, C
(* Variable Phase)

Phase Timing Results

Phase	A	A1	B	C
Phase Change Time (sec)	12	95	114	126
Green Time (sec)	77	13	6	30
Yellow Time (sec)	4	4	4	4
All-Red Time (sec)	2	2	2	2
Phase Time (sec)	83	19	12	36
Phase Split	55%	13%	8%	24%



REF: Reference Phase
VAR: Variable Phase



Mixed Running & Stopped Movement Classes

Undetected Movement

Phase Transition Applied

SIDRA INTERSECTION 7.0 | Copyright © 2000-2016 Akcelik and Associates Pty Ltd | sidrasolutions.com

MOVEMENT SUMMARY

Site: 101 [2025_PM_BG+DEV - Intersection 1 - Upgrade - Lane Reconfig]

Network: N101 [2025 PM BG+DEV - Upgrade - Lane Reconfig]

Int: Moggill Road / Russell Terrace
Project Number: P3606
Project: Indooroopilly State School TIA
Signals - Fixed Time Coordinated Cycle Time = 140 seconds (Network Cycle Time - User-Given)

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	Demand Flows HV %	Arrival Flows Total veh/h	Arrival Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
NorthEast: Moggill Rd (Northeast)													
25	T1	1807	3.0	1807	3.0	0.580	2.3	LOS A	15.5	111.1	0.21	0.20	37.9
26	R2	226	3.0	226	3.0	0.861	73.8	LOS E	16.6	119.2	1.00	0.94	17.3
Approach		2033	3.0	2033	3.0	0.861	10.2	LOS B	16.6	119.2	0.30	0.28	32.4
NorthWest: Russell Tce (Northwest)													
27	L2	347	3.0	347	3.0	0.881	81.0	LOS F	17.6	126.5	1.00	1.02	14.6
Approach		347	3.0	347	3.0	0.881	81.0	LOS F	17.6	126.5	1.00	1.02	14.6
SouthWest: Moggill Rd (Southwest)													
30	L2	90	3.0	90	3.0	0.554	8.9	LOS A	10.0	72.2	0.34	0.36	37.2
31	T1	1301	3.0	1301	3.0	0.554	6.5	LOS A	15.9	114.0	0.40	0.38	33.0
Approach		1391	3.0	1391	3.0	0.554	6.7	LOS A	15.9	114.0	0.40	0.38	33.6
All Vehicles		3772	3.0	3772	3.0	0.881	15.4	LOS B	17.6	126.5	0.40	0.38	28.9

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
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.
Network Model Accuracy Level (largest change in degree of saturation for any lane): 0.9 %
Number of Iterations: 12 (maximum specified: 15)

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Average Back of Queue Distance m	Prop. Queued	Effective Stop Rate per ped
P7	NorthWest Full Crossing	21	5.4	LOS A	0.0	0.0	0.28	0.28
P8	SouthWest Full Crossing	26	64.2	LOS F	0.1	0.1	0.96	0.96
All Pedestrians		47	38.1	LOS D			0.66	0.66

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

SIDRA INTERSECTION 7.0 | Copyright © 2000-2016 Akcelik and Associates Pty Ltd | sidrasolutions.com

PHASING SUMMARY

Site: 101 [2025_PM_BG+DEV - Intersection 1 - Upgrade - Lane Reconfig]

Network: N101 [2025 PM BG+DEV - Upgrade - Lane Reconfig]

Int: Moggill Road / Russell Terrace
Project Number: P3606
Project: Indooroopilly State School TIA
Signals - Fixed Time Coordinated Cycle Time = 140 seconds (Network Cycle Time - User-Given)

Phase Times determined by the program
Sequence: Adopted Phasing
Reference Phase: Phase A
Input Sequence: A, B, C
Output Sequence: A, B, C

Phase Timing Results

Phase	A	B	C
Phase Change Time (sec)	13	126	136
Green Time (sec)	107	4	13
Yellow Time (sec)	4	4	4
All-Red Time (sec)	2	2	2
Phase Time (sec)	113	10	17
Phase Split	81%	7%	12%

REF: Reference Phase
VAR: Variable Phase

Normal Movement	Permitted/Opposed
Slip/Bypass-Lane Movement	Opposed Slip/Bypass-Lane
Stopped Movement	Turn On Red
Other Movement Class Running	Other Movement Class Stopped
Mixed Running & Stopped Movement Classes	
Undetected Movement	Phase Transition Applied

MOVEMENT SUMMARY

Site: 102 [2025_PM_BG+DEV - Intersection 2 - Upgrade - Lane Reconfig]

Network: N101 [2025 PM BG+DEV - Upgrade - Lane Reconfig]

Int: Moggill Road / Taringa Parade / Woodville Street
Project Number: P3606
Project: Indooroopilly State School TIA
Signals - Fixed Time Coordinated Cycle Time = 140 seconds (Network Cycle Time - User-Given)

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Arrival 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
SouthEast: Woodville St (Southeast)													
21	L2	231	3.0	231	3.0	0.501	29.4	LOS C	10.1	72.9	0.82	0.79	28.1
22	T1	110	3.0	110	3.0	0.446	59.0	LOS E	6.8	49.0	0.94	0.76	26.0
23	R2	38	3.0	38	3.0	0.252	69.4	LOS E	2.5	17.7	0.96	0.74	22.5
Approach		379	3.0	379	3.0	0.501	42.0	LOS D	10.1	72.9	0.87	0.78	26.4
NorthEast: Moggill Rd (Northeast)													
24	L2	36	3.0	36	3.0	0.803	30.1	LOS C	46.2	331.5	0.87	0.81	32.5
25	T1	1557	3.0	1557	3.0	0.803	25.5	LOS C	46.2	331.5	0.84	0.78	22.2
26	R2	58	3.0	58	3.0	0.300	61.9	LOS E	4.6	33.1	0.93	0.76	22.8
26u	U	17	0.0	17	0.0	0.300	63.3	LOS E	4.6	33.1	0.93	0.76	22.2
Approach		1668	3.0	1668	3.0	0.803	27.3	LOS C	46.2	331.5	0.84	0.78	22.6
NorthWest: Taringa Pde (Northwest)													
27	L2	101	3.0	101	3.0	0.820	65.7	LOS E	15.2	108.9	1.00	1.01	22.2
28	T1	129	3.0	129	3.0	0.820	62.5	LOS E	15.2	108.9	1.00	1.01	25.3
29	R2	120	3.0	120	3.0	0.812	77.9	LOS E	8.9	64.0	1.00	0.96	15.0
Approach		350	3.0	350	3.0	0.820	68.7	LOS E	15.2	108.9	1.00	0.99	21.1
SouthWest: Moggill Rd (Southwest)													
30	L2	106	3.0	106	3.0	0.326	20.8	LOS C	10.0	72.0	0.57	0.57	30.2
31	T1	1421	3.0	1421	3.0	0.651	19.7	LOS B	25.0	179.5	0.63	0.58	27.1
32	R2	81	3.0	81	3.0	0.784	72.3	LOS E	12.3	87.2	1.00	0.89	19.0
32u	U	93	0.0	93	0.0	0.784	73.6	LOS E	12.3	87.2	1.00	0.89	5.5
Approach		1701	2.8	1701	2.8	0.784	25.2	LOS C	25.0	179.5	0.66	0.61	25.2
All Vehicles		4097	2.9	4097	2.9	0.820	31.3	LOS C	46.2	331.5	0.78	0.73	23.8

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
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.
Network Model Accuracy Level (largest change in degree of saturation for any lane): 0.9 %
Number of Iterations: 12 (maximum specified: 15)

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate per ped
P5	SouthEast Full Crossing	53	17.0	LOS B	0.1	0.1	0.49	0.49
P6	NorthEast Full Crossing	53	63.3	LOS F	0.2	0.2	0.95	0.95
P7	NorthWest Full Crossing	53	6.9	LOS A	0.1	0.1	0.31	0.31
P8	SouthWest Full Crossing	53	63.3	LOS F	0.2	0.2	0.95	0.95

All Pedestrians	211	37.6	LOS D	0.68	0.68

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

SIDRA INTERSECTION 7.0 | Copyright © 2000-2016 Akcelik and Associates Pty Ltd | sidrasolutions.com

PHASING SUMMARY

Site: 102 [2025_PM_BG+DEV - Intersection 2 - Upgrade - Lane Reconfig]

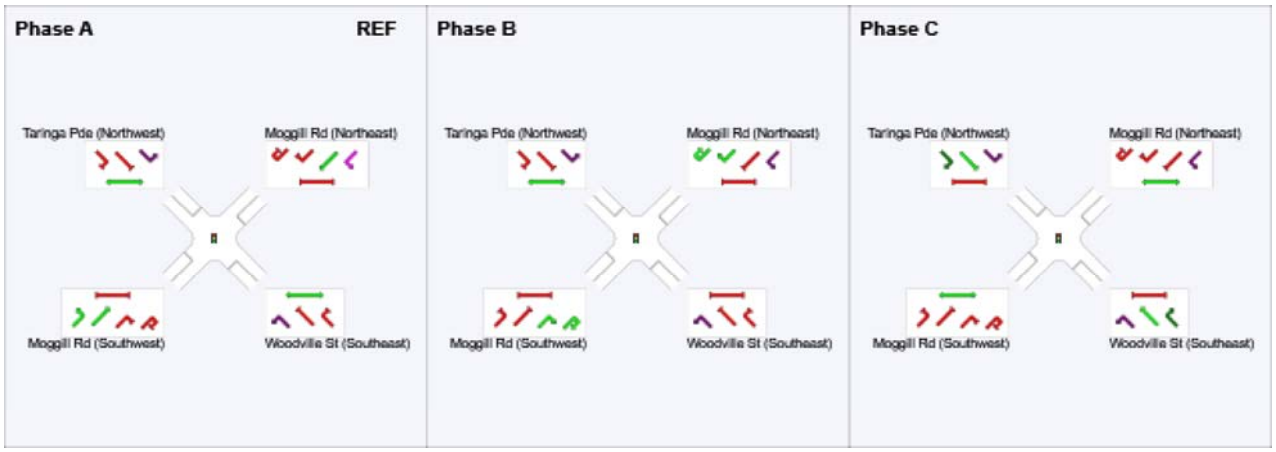
Network: N101 [2025 PM BG+DEV - Upgrade - Lane Reconfig]

Int: Moggill Road / Taringa Parade / Woodville Street
Project Number: P3606
Project: Indooroopilly State School TIA
Signals - Fixed Time Coordinated Cycle Time = 140 seconds (Network Cycle Time - User-Given)

Phase Times determined by the program
Sequence: Adopted Phasing
Reference Phase: Phase A
Input Sequence: A, A1*, A2*, B, C
Output Sequence: A, B, C
(* Variable Phase)

Phase Timing Results

Phase	A	B	C
Phase Change Time (sec)	0	85	112
Green Time (sec)	79	21	22
Yellow Time (sec)	4	4	4
All-Red Time (sec)	2	2	2
Phase Time (sec)	85	27	28
Phase Split	61%	19%	20%



REF: Reference Phase
VAR: Variable Phase

Normal Movement		Permitted/Opposed	
Slip/Bypass-Lane Movement		Opposed Slip/Bypass-Lane	
Stopped Movement		Turn On Red	
Other Movement Class Running		Other Movement Class Stopped	
Mixed Running & Stopped Movement Classes			
Undetected Movement		Phase Transition Applied	

MOVEMENT SUMMARY

Site: 101 [2035_AM_BG+DEV - Intersection 1 - Upgrade - Lane Reconfig]

Network: N101 [2035 AM BG+DEV - Upgrade - Lane Reconfig]

Int: Moggill Road / Russell Terrace
Project Number: P3606
Project: Indooroopilly State School TIA
Signals - Fixed Time Coordinated Cycle Time = 150 seconds (Network Cycle Time - Program)

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	Demand Flows HV %	Arrival Flows Total veh/h	Arrival Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
NorthEast: Moggill Rd (Northeast)													
25	T1	1235	3.0	1225	3.0	0.404	0.5	LOS A	1.4	10.4	0.04	0.03	39.5
26	R2	181	3.0	179	3.0	0.439	68.2	LOS E	12.7	91.0	1.00	0.83	18.1
Approach		1416	3.0	1405 N1	3.0	0.439	9.2	LOS A	12.7	91.0	0.16	0.13	33.1
NorthWest: Russell Tce (Northwest)													
27	L2	662	3.0	662	3.0	1.300	372.1	LOS F	71.5	513.5	1.00	1.80	4.4
Approach		662	3.0	662	3.0	1.300	372.1	LOS F	71.5	513.5	1.00	1.80	4.4
SouthWest: Moggill Rd (Southwest)													
30	L2	84	3.0	84	3.0	1.242	320.0	LOS F	131.7	945.8	1.00	1.97	7.8
31	T1	1960	3.0	1960	3.0	1.242	306.8	LOS F	141.2	1013.9	1.00	2.02	3.7
Approach		2043	3.0	2043	3.0	1.242	307.3	LOS F	141.2	1013.9	1.00	2.02	3.9
All Vehicles		4121	3.0	4110 N1	3.0	1.300	215.8	LOS F	141.2	1013.9	0.71	1.34	6.1

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
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.
Network Model Accuracy Level (largest change in degree of saturation for any lane): 0.6 %
Number of Iterations: 14 (maximum specified: 15)

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

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Average Back of Queue Distance m	Prop. Queued	Effective Stop Rate per ped
P7	NorthWest Full Crossing	53	9.4	LOS A	0.1	0.1	0.35	0.35
P8	SouthWest Full Crossing	53	69.3	LOS F	0.2	0.2	0.96	0.96
All Pedestrians		105	39.3	LOS D			0.66	0.66

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

PHASING SUMMARY

Site: 101 [2035_AM_BG+DEV - Intersection 1 - Upgrade - Lane Reconfig]

Network: N101 [2035 AM BG+DEV - Upgrade - Lane Reconfig]

Int: Moggill Road / Russell Terrace
Project Number: P3606
Project: Indooroopilly State School TIA
Signals - Fixed Time Coordinated Cycle Time = 150 seconds (Network Cycle Time - Program)

Phase Times determined by the program
Sequence: Adopted Phasing
Reference Phase: Phase A
Input Sequence: A, B, C
Output Sequence: A, B, C

Phase Timing Results

Phase	A	B	C
Phase Change Time (sec)	0	109	128
Green Time (sec)	103	13	16
Yellow Time (sec)	4	4	4
All-Red Time (sec)	2	2	2
Phase Time (sec)	109	19	22
Phase Split	73%	13%	15%

REF: Reference Phase
VAR: Variable Phase

Normal Movement		Permitted/Opposed	
Slip/Bypass-Lane Movement		Opposed Slip/Bypass-Lane	
Stopped Movement		Turn On Red	
Other Movement Class Running		Other Movement Class Stopped	
Mixed Running & Stopped Movement Classes			
Undetected Movement		Phase Transition Applied	

MOVEMENT SUMMARY

Site: 102 [2035_AM_BG+DEV - Intersection 2 - Upgrade - Lane Reconfig]

Network: N101 [2035 AM BG+DEV - Upgrade - Lane Reconfig]

Int: Moggill Road / Taringa Parade / Woodville Street
Project Number: P3606
Project: Indooroopilly State School TIA
Signals - Fixed Time Coordinated Cycle Time = 150 seconds (Network Cycle Time - Program)

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Arrival 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
SouthEast: Woodville St (Southeast)													
21	L2	181	3.0	181	3.0	0.258	15.7	LOS B	4.8	34.5	0.57	0.69	35.3
22	T1	234	3.0	234	3.0	0.942	89.0	LOS F	19.8	142.2	0.95	1.12	21.4
23	R2	187	3.0	187	3.0	1.011	190.3	LOS F	20.1	144.0	1.00	1.16	12.0
Approach		601	3.0	601	3.0	1.011	98.4	LOS F	20.1	144.0	0.85	1.00	18.2
NorthEast: Moggill Rd (Northeast)													
24	L2	49	3.0	49	3.0	0.593	30.1	LOS C	29.1	208.9	0.75	0.70	32.4
25	T1	1023	3.0	1023	3.0	0.593	25.8	LOS C	29.1	208.9	0.72	0.66	22.1
26	R2	90	3.0	90	3.0	1.415	469.3	LOS F	19.9	142.3	1.00	1.78	5.7
26u	U	8	0.0	8	0.0	1.415	470.7	LOS F	19.9	142.3	1.00	1.78	4.8
Approach		1171	3.0	1171	3.0	1.415	63.2	LOS E	29.1	208.9	0.75	0.76	15.0
NorthWest: Taringa Pde (Northwest)													
27	L2	105	3.0	105	3.0	2.297	1228.1	LOS F	63.6	456.7	1.00	2.34	2.4
28	T1	124	3.0	124	3.0	2.297	1224.9	LOS F	63.6	456.7	1.00	2.34	2.8
29	R2	149	3.0	149	3.0	1.012	132.8	LOS F	15.5	111.6	1.00	1.26	10.4
Approach		379	3.0	379	3.0	2.297	796.0	LOS F	63.6	456.7	1.00	1.91	3.3
SouthWest: Moggill Rd (Southwest)													
30	L2	215	3.0	174	3.0	0.385	22.2	LOS C	16.1	115.6	0.66	0.66	29.5
31	T1	2290	3.0	1855	3.0	0.768	20.2	LOS C	25.0	179.5	0.71	0.67	26.9
32	R2	117	3.0	95	3.0	0.603	70.9	LOS E	9.5	67.6	0.97	0.80	19.2
32u	U	52	0.0	42	0.0	0.603	72.1	LOS E	9.5	67.6	0.97	0.80	5.6
Approach		2674	2.9	2166 N1	2.9	0.768	23.6	LOS C	25.0	179.5	0.73	0.67	26.0
All Vehicles		4824	3.0	4316 N1	3.3	2.297	112.5	LOS F	63.6	456.7	0.77	0.85	12.2

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
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.
Network Model Accuracy Level (largest change in degree of saturation for any lane): 0.6 %
Number of Iterations: 14 (maximum specified: 15)

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

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate per ped
P5	SouthEast Full Crossing	53	21.4	LOS C	0.1	0.1	0.53	0.53
P6	NorthEast Full Crossing	53	58.2	LOS E	0.2	0.2	0.88	0.88
P7	NorthWest Full Crossing	53	15.0	LOS B	0.1	0.1	0.45	0.45

PHASING SUMMARY

Site: 102 [2035_AM_BG+DEV - Intersection 2 - Upgrade - Lane Reconfig]

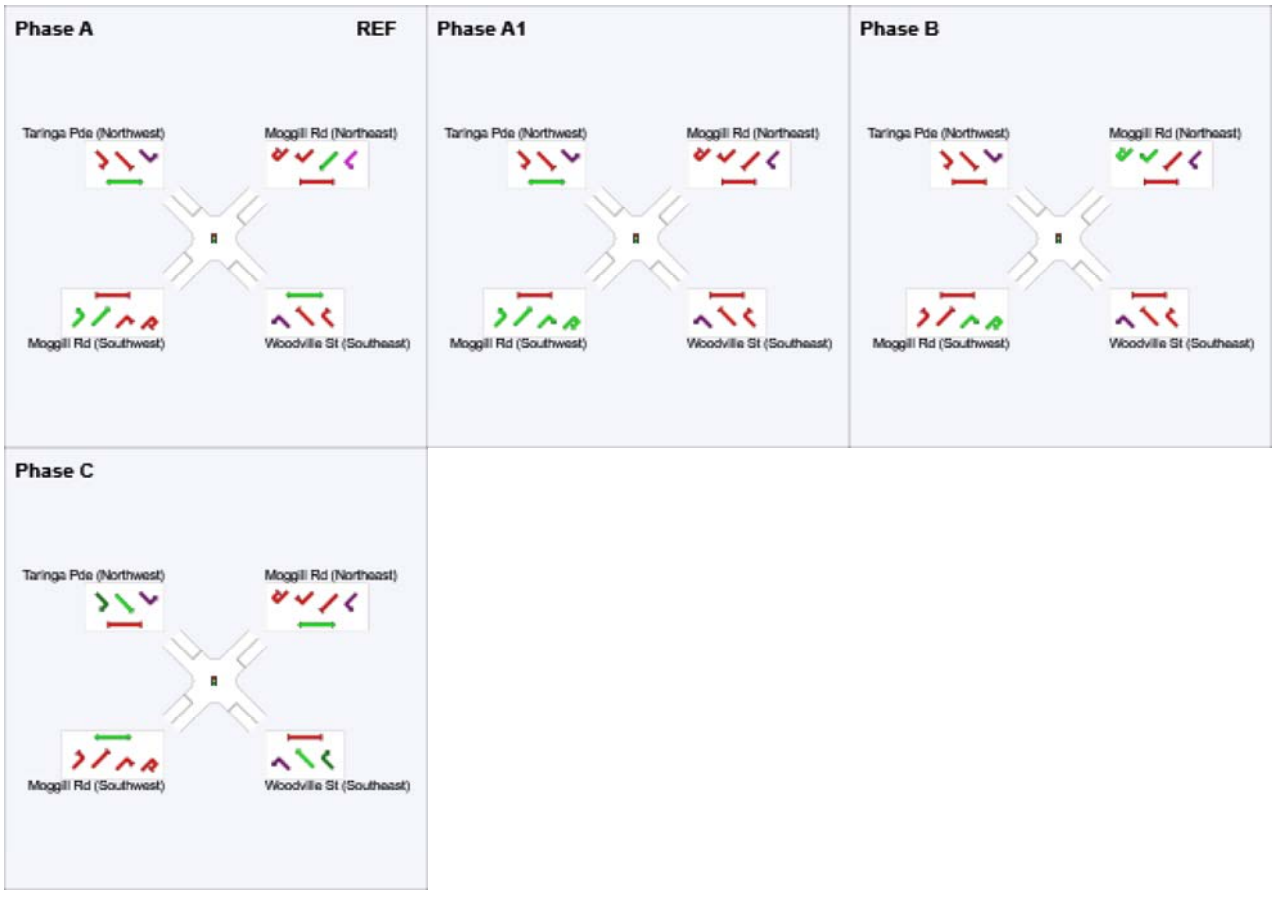
Network: N101 [2035 AM BG+DEV - Upgrade - Lane Reconfig]

Int: Moggill Road / Taringa Parade / Woodville Street
Project Number: P3606
Project: Indooroopilly State School TIA
Signals - Fixed Time Coordinated Cycle Time = 150 seconds (Network Cycle Time - Program)

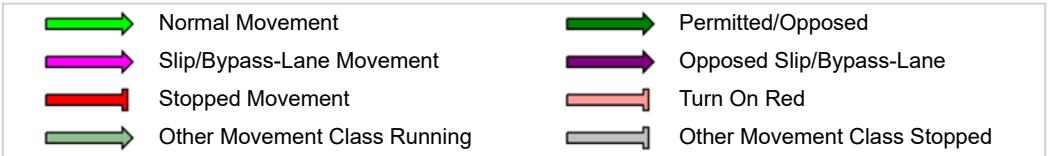
Phase Times determined by the program
Sequence: Adopted Phasing
Reference Phase: Phase A
Input Sequence: A, A1, A2*, B, C
Output Sequence: A, A1, B, C
(* Variable Phase)

Phase Timing Results

Phase	A	A1	B	C
Phase Change Time (sec)	13	97	112	124
Green Time (sec)	78	9	6	33
Yellow Time (sec)	4	4	4	4
All-Red Time (sec)	2	2	2	2
Phase Time (sec)	84	15	12	39
Phase Split	56%	10%	8%	26%



REF: Reference Phase
VAR: Variable Phase



MOVEMENT SUMMARY

Site: 101 [2035_PM_BG+DEV - Intersection 1 - Upgrade - Lane Reconfig]

Network: N101 [2035 PM BG+DEV - Upgrade - Lane Reconfig]

Int: Moggill Road / Russell Terrace
Project Number: P3606
Project: Indooroopilly State School TIA
Signals - Fixed Time Coordinated Cycle Time = 140 seconds (Network Cycle Time - User-Given)

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	Demand Flows HV %	Arrival Flows Total veh/h	Arrival Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
NorthEast: Moggill Rd (Northeast)													
25	T1	1973	3.0	1965	3.0	0.631	2.4	LOS A	17.0	122.1	0.21	0.20	37.8
26	R2	237	3.0	236	3.0	0.651	61.2	LOS E	15.6	112.3	1.00	0.84	19.2
Approach		2210	3.0	2201 N1	3.0	0.651	8.7	LOS A	17.0	122.1	0.30	0.27	33.3
NorthWest: Russell Tce (Northwest)													
27	L2	364	3.0	364	3.0	0.634	59.1	LOS E	14.5	104.0	0.97	0.83	17.6
Approach		364	3.0	364	3.0	0.634	59.1	LOS E	14.5	104.0	0.97	0.83	17.6
SouthWest: Moggill Rd (Southwest)													
30	L2	94	3.0	94	3.0	0.653	12.0	LOS B	12.6	90.7	0.43	0.43	35.8
31	T1	1423	3.0	1423	3.0	0.653	10.4	LOS B	24.6	176.4	0.52	0.49	30.0
Approach		1517	3.0	1517	3.0	0.653	10.5	LOS B	24.6	176.4	0.51	0.48	30.7
All Vehicles		4091	3.0	4082 N1	3.0	0.653	13.9	LOS B	24.6	176.4	0.44	0.40	29.7

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
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.
Network Model Accuracy Level (largest change in degree of saturation for any lane): 1.0 %
Number of Iterations: 8 (maximum specified: 15)

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

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Average Back of Queue Distance m	Prop. Queued	Effective Stop Rate per ped
P7	NorthWest Full Crossing	21	7.9	LOS A	0.0	0.0	0.34	0.34
P8	SouthWest Full Crossing	26	64.2	LOS F	0.1	0.1	0.96	0.96
All Pedestrians		47	39.2	LOS D			0.68	0.68

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

PHASING SUMMARY

Site: 101 [2035_PM_BG+DEV - Intersection 1 - Upgrade - Lane Reconfig]

Network: N101 [2035 PM BG+DEV - Upgrade - Lane Reconfig]

Int: Moggill Road / Russell Terrace
Project Number: P3606
Project: Indooroopilly State School TIA
Signals - Fixed Time Coordinated Cycle Time = 140 seconds (Network Cycle Time - User-Given)

Phase Times determined by the program
Sequence: Adopted Phasing
Reference Phase: Phase A
Input Sequence: A, B, C
Output Sequence: A, B, C

Phase Timing Results

Phase	A	B	C
Phase Change Time (sec)	13	118	136
Green Time (sec)	99	12	13
Yellow Time (sec)	4	4	4
All-Red Time (sec)	2	2	2
Phase Time (sec)	105	18	17
Phase Split	75%	13%	12%

REF: Reference Phase
VAR: Variable Phase

Normal Movement	Permitted/Opposed
Slip/Bypass-Lane Movement	Opposed Slip/Bypass-Lane
Stopped Movement	Turn On Red
Other Movement Class Running	Other Movement Class Stopped
Mixed Running & Stopped Movement Classes	
Undetected Movement	Phase Transition Applied

MOVEMENT SUMMARY

Site: 101 [2035_PM_BG+DEV - Intersection 1 - Upgrade - Lane Reconfig]

Network: N101 [2035 PM BG+DEV - Upgrade - Lane Reconfig]

Int: Moggill Road / Russell Terrace
Project Number: P3606
Project: Indooroopilly State School TIA
Signals - Fixed Time Coordinated Cycle Time = 140 seconds (Network Cycle Time - User-Given)

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	Demand Flows HV %	Arrival Flows Total veh/h	Arrival Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
NorthEast: Moggill Rd (Northeast)													
25	T1	1973	3.0	1965	3.0	0.631	2.4	LOS A	17.0	122.1	0.21	0.20	37.8
26	R2	237	3.0	236	3.0	0.651	61.2	LOS E	15.6	112.3	1.00	0.84	19.2
Approach		2210	3.0	2201 N1	3.0	0.651	8.7	LOS A	17.0	122.1	0.30	0.27	33.3
NorthWest: Russell Tce (Northwest)													
27	L2	364	3.0	364	3.0	0.634	59.1	LOS E	14.5	104.0	0.97	0.83	17.6
Approach		364	3.0	364	3.0	0.634	59.1	LOS E	14.5	104.0	0.97	0.83	17.6
SouthWest: Moggill Rd (Southwest)													
30	L2	94	3.0	94	3.0	0.653	12.0	LOS B	12.6	90.7	0.43	0.43	35.8
31	T1	1423	3.0	1423	3.0	0.653	10.4	LOS B	24.6	176.4	0.52	0.49	30.0
Approach		1517	3.0	1517	3.0	0.653	10.5	LOS B	24.6	176.4	0.51	0.48	30.7
All Vehicles		4091	3.0	4082 N1	3.0	0.653	13.9	LOS B	24.6	176.4	0.44	0.40	29.7

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
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.
Network Model Accuracy Level (largest change in degree of saturation for any lane): 1.0 %
Number of Iterations: 8 (maximum specified: 15)

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

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Average Back of Queue Distance m	Prop. Queued	Effective Stop Rate per ped
P7	NorthWest Full Crossing	21	7.9	LOS A	0.0	0.0	0.34	0.34
P8	SouthWest Full Crossing	26	64.2	LOS F	0.1	0.1	0.96	0.96
All Pedestrians		47	39.2	LOS D			0.68	0.68

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

PHASING SUMMARY

Site: 101 [2035_PM_BG+DEV - Intersection 1 - Upgrade - Lane Reconfig]

Network: N101 [2035 PM BG+DEV - Upgrade - Lane Reconfig]

Int: Moggill Road / Russell Terrace
Project Number: P3606
Project: Indooroopilly State School TIA
Signals - Fixed Time Coordinated Cycle Time = 140 seconds (Network Cycle Time - User-Given)

Phase Times determined by the program
Sequence: Adopted Phasing
Reference Phase: Phase A
Input Sequence: A, B, C
Output Sequence: A, B, C

Phase Timing Results

Phase	A	B	C
Phase Change Time (sec)	13	118	136
Green Time (sec)	99	12	13
Yellow Time (sec)	4	4	4
All-Red Time (sec)	2	2	2
Phase Time (sec)	105	18	17
Phase Split	75%	13%	12%

REF: Reference Phase
VAR: Variable Phase

Normal Movement	Permitted/Opposed
Slip/Bypass-Lane Movement	Opposed Slip/Bypass-Lane
Stopped Movement	Turn On Red
Other Movement Class Running	Other Movement Class Stopped
Mixed Running & Stopped Movement Classes	
Undetected Movement	Phase Transition Applied

MOVEMENT SUMMARY

Site: 102 [2035_PM_BG+DEV - Intersection 2 - Upgrade - Lane Reconfig]

Network: N101 [2035 PM BG+DEV - Upgrade - Lane Reconfig]

Int: Moggill Road / Taringa Parade / Woodville Street
Project Number: P3606
Project: Indooroopilly State School TIA
Signals - Fixed Time Coordinated Cycle Time = 140 seconds (Network Cycle Time - User-Given)

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	Demand Flows HV %	Arrival Flows Total veh/h	Arrival Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
SouthEast: Woodville St (Southeast)													
21	L2	252	3.0	252	3.0	0.734	44.1	LOS D	14.2	102.3	0.99	0.88	23.1
22	T1	114	3.0	114	3.0	0.496	60.2	LOS E	7.2	51.5	0.95	0.77	25.8
23	R2	42	3.0	42	3.0	0.304	71.0	LOS E	2.8	20.0	0.97	0.74	22.3
Approach		408	3.0	408	3.0	0.734	51.3	LOS D	14.2	102.3	0.98	0.83	24.0
NorthEast: Moggill Rd (Northeast)													
24	L2	40	3.0	40	3.0	0.901	40.7	LOS D	64.9	466.0	0.96	0.96	29.2
25	T1	1702	3.0	1702	3.0	0.901	38.7	LOS D	64.9	466.0	0.93	0.94	18.1
26	R2	59	3.0	59	3.0	0.943	97.0	LOS F	6.4	46.0	1.00	1.07	18.1
26u	U	19	0.0	19	0.0	0.943	98.4	LOS F	6.4	46.0	1.00	1.07	17.0
Approach		1820	3.0	1820	3.0	0.943	41.3	LOS D	64.9	466.0	0.93	0.95	18.4
NorthWest: Taringa Pde (Northwest)													
27	L2	104	3.0	104	3.0	0.888	74.3	LOS E	17.0	122.0	1.00	1.10	20.9
28	T1	132	3.0	132	3.0	0.888	71.1	LOS E	17.0	122.0	1.00	1.10	23.9
29	R2	126	3.0	126	3.0	1.010	127.1	LOS F	12.4	88.7	1.00	1.29	10.8
Approach		361	3.0	361	3.0	1.010	91.5	LOS F	17.0	122.0	1.00	1.16	18.1
SouthWest: Moggill Rd (Southwest)													
30	L2	111	3.0	111	3.0	0.276	13.6	LOS B	7.8	56.3	0.44	0.49	33.4
31	T1	1553	3.0	1553	3.0	0.551	11.2	LOS B	23.3	167.6	0.49	0.46	31.5
32	R2	89	3.0	89	3.0	0.900	85.1	LOS F	15.0	106.5	1.00	0.99	17.2
32u	U	100	0.0	100	0.0	0.900	86.3	LOS F	15.0	106.5	1.00	0.99	4.8
Approach		1853	2.8	1853	2.8	0.900	18.9	LOS B	23.3	167.6	0.54	0.51	27.8
All Vehicles		4442	2.9	4442	2.9	1.010	37.0	LOS D	64.9	466.0	0.78	0.77	22.0

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
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.
Network Model Accuracy Level (largest change in degree of saturation for any lane): 1.0 %
Number of Iterations: 8 (maximum specified: 15)

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Average Back of Queue Distance m	Prop. Queued	Effective Stop Rate per ped
P5	SouthEast Full Crossing	53	16.6	LOS B	0.1	0.1	0.49	0.49
P6	NorthEast Full Crossing	53	64.3	LOS F	0.2	0.2	0.96	0.96
P7	NorthWest Full Crossing	53	6.6	LOS A	0.1	0.1	0.31	0.31
P8	SouthWest Full Crossing	53	64.3	LOS F	0.2	0.2	0.96	0.96

PHASING SUMMARY

Site: 102 [2035_PM_BG+DEV - Intersection 2 - Upgrade - Lane Reconfig]

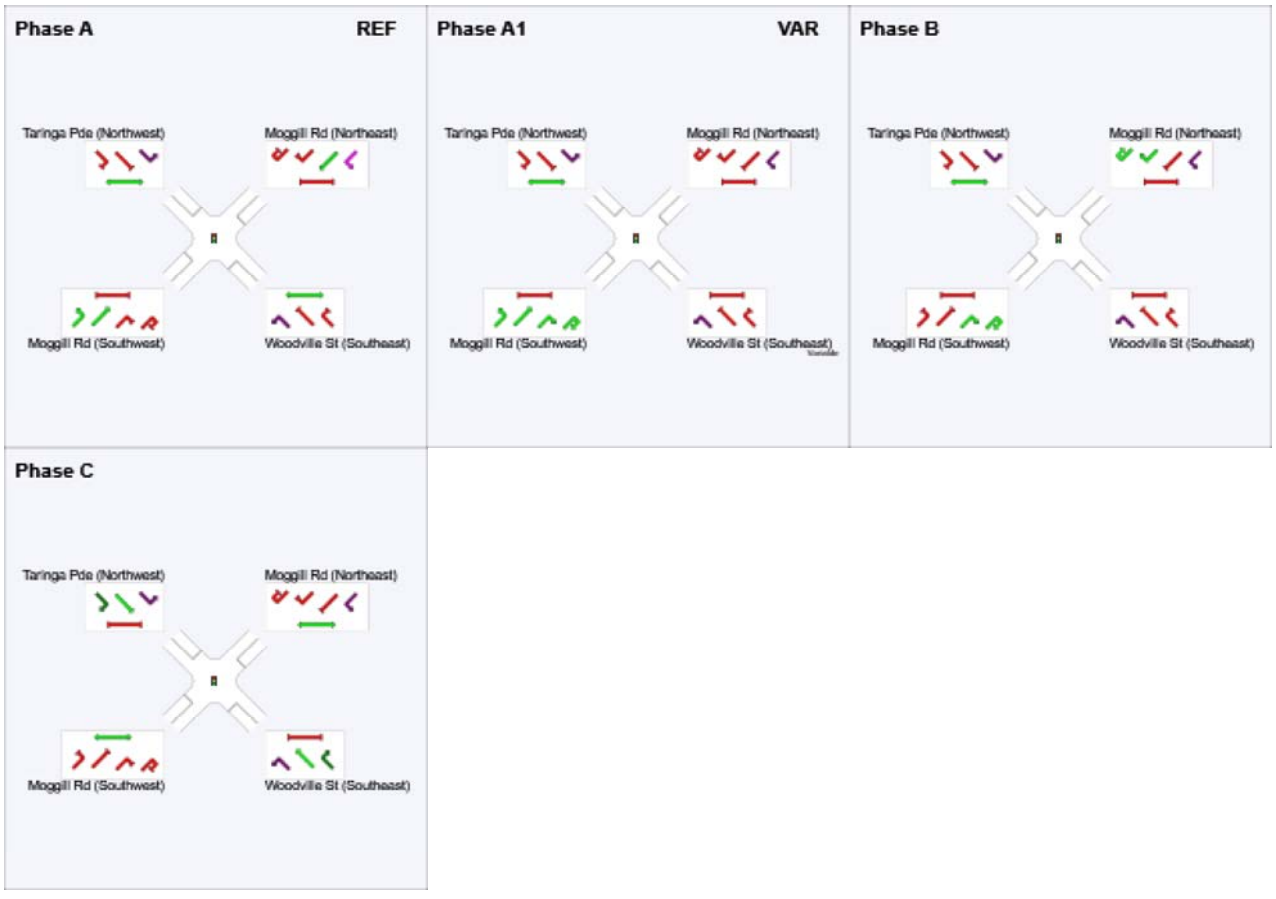
Network: N101 [2035 PM BG+DEV - Upgrade - Lane Reconfig]

Int: Moggill Road / Taringa Parade / Woodville Street
Project Number: P3606
Project: Indooroopilly State School TIA
Signals - Fixed Time Coordinated Cycle Time = 140 seconds (Network Cycle Time - User-Given)

Phase Times determined by the program
Sequence: Adopted Phasing
Reference Phase: Phase A
Input Sequence: A, A1*, A2*, B, C
Output Sequence: A, A1*, B, C
(* Variable Phase)

Phase Timing Results

Phase	A	A1	B	C
Phase Change Time (sec)	0	86	100	113
Green Time (sec)	80	8	7	21
Yellow Time (sec)	4	4	4	4
All-Red Time (sec)	2	2	2	2
Phase Time (sec)	86	14	13	27
Phase Split	61%	10%	9%	19%



REF: Reference Phase
VAR: Variable Phase

Normal Movement	Permitted/Opposed
Slip/Bypass-Lane Movement	Opposed Slip/Bypass-Lane
Stopped Movement	Turn On Red
Other Movement Class Running	Other Movement Class Stopped

APPENDIX E

CODE RESPONSES

Performance outcomes	Acceptable outcomes	Response
PO1 Development is designed: (a) to include a technically competent and accurate response to the transport and traffic elements of the development; (b) in accordance with the standards in the Transport, access, parking and servicing planning scheme policy; (c) to ensure the efficient operation and safety of the development and its surrounds. Note—The acceptable outcome and performance outcome can be demonstrated through a development application that: ▪ is accompanied by sufficient information, including computer modelling input and output data, to allow the proposed development to be properly assessed against the requirements of this code and the standards and guidelines of the Transport, access, parking and servicing planning scheme policy; ▪ is certified by a Registered Professional Engineer Queensland that all plans, documents and dimensioned drawings comply with the requirements of this code and the standards and guidelines of the Transport, access, parking and servicing planning scheme policy; ▪ ensures that any computer modelling input and output data are accurate, reasonable and carried out in accordance with sound traffic engineering practices.	**AO1** Development complies with the standards in the Transport, access, parking and servicing planning scheme policy.	**Complies with Performance Outcome** **Access** Refer **Sections 2** and **6.1** of the Traffic Report. No amendments to the existing crossovers are proposed or considered warranted. As such, no further assessment is required. **Parking** Refer **Section 6.2** of the Traffic Report. 14 car parking spaces are required by the TAPS Policy for the proposed expansion. It is recommended that at least 12 spaces (those required for staff) are provided on-site to accommodate additional demand associated with the expansion. **Servicing** Refer **Section 6.4** of the Traffic Report. Existing servicing arrangements are proposed to be maintained as part of the expansion. Whilst the expansion may mean that the subject site needs to be serviced more frequently, additional servicing areas are not considered necessary. **Qualifications** The traffic report has been prepared and reviewed by suitably qualified traffic engineers.
PO2 Development of a major size incorporates on-site provision for integration with the public transport network and the management of vehicles, public transport, pedestrians and cyclists, including providing appropriate pedestrian and cyclist linkages to adjoining uses, public areas and the transport network consistent with the planning by the State Government and Council.	**AO2** No acceptable outcome is prescribed.	**Not Applicable.** Development is not of a major size.

Performance outcomes	Acceptable outcomes	Response
PO3 Development provides vehicle access that is located and designed so as to have no significant impact on the safety, efficiency, function, convenience of use or capacity of the road network.	**AO3.1** Development provides site access that is located and designed in compliance with the standards in the Transport, access, parking and servicing planning scheme policy. **AO3.2** Development provides an easement for a vehicular access benefiting all adjoining landowners and the Council if the vehicular access services more than an individual development or premises.	**Complies with Performance Outcome** Refer **Sections 2** and **6.1** of the Traffic Report. No amendments to the existing crossovers are proposed or considered warranted. As such, no further assessment is required.
PO4 Development provides walking and cycle routes through the site which: (a) link to the external network and pedestrian and cyclist destinations such as schools, shopping centres, open space, public transport stations, shops and local activity centres along the safest, most direct and convenient routes; (b) encourage walking and cycling; (c) encourage walking and cycling; (d) provide a direct and legible network; Note—The Infrastructure design planning scheme policy provides additional guidance on how to comply with this performance outcome.	**AO4.1** Development provides walking and cycle routes which are constructed on the carriageway or through the site to: (a) create a walking or cycle route along the full frontage of the site; (b) connect to public transport and existing cycle and walking routes at the frontage or boundary of the site. **AO4.2** Development provides walking and cycle routes that are constructed in compliance with the standards in the Transport, access, parking and servicing planning scheme policy and the Infrastructure design planning scheme policy. **AO4.3** Development provides walking and cycle routes which do not include a potential entrapment area, blind corner or sudden change in level that restrict sightlines.	**Can Comply with Performance Outcome** Refer **Sections 5** and **6.3** of the Traffic Report. The site already has active transport connections to the external road network. No amendments to the existing arrangements are proposed or considered warranted. 23 bicycle parking spaces are required by the TAPS Policy for the proposed expansion. If demands warrant additional parking, it is recommended these spaces are provided..

Performance outcomes	Acceptable outcomes	Response
PO5 Development provides secure and convenient bicycle parking which: (a) for visitors is obvious and located close to the building's main entrance; (b) for employees is conveniently located to provide secure and convenient access between the bicycle storage area, end-of-trip facilities and the main area of the building; (c) is easily and safely accessible from outside the site; (d) does not impact adversely on visual amenity; (e) does not impede the movement of pedestrians or other vehicles; (f) is designed to comply with a recognised standard for the construction of bicycle facilities. Note—For a performance outcome relating to the number of bicycle parking spaces provided, the application must demonstrate how the needs of the intended users of the site differ from the standard rates in the Transport, access, parking and servicing planning scheme policy.	**AO5.1** Development provides on-site bicycle parking spaces in compliance with the standards in the standards in the Transport, access, parking and servicing planning scheme policy. **AO5.2** Development provides bicycle parking spaces for employees which are co-located with end-of-trip facilities (shower cubicles and lockers) in compliance with the Transport, access, parking and servicing planning scheme policy and AS 2890.3-1993 Bicycle parking facilities. **AO5.3** Development ensures that the location of visitor bicycle parking is discernible either by direct view or using signs from the street. **AO5.4** Development provides visitor bicycle parking which does not impede pedestrian movement. **AO5.5** Development provides bicycle parking which is constructed in compliance with the standards in the Transport, access, parking and servicing planning scheme policy.	**Can Comply with Performance Outcome** Refer **Section 6.3** of the Traffic Report. 23 bicycle parking spaces are required by the TAPS Policy for the proposed expansion. If demands warrant additional parking, it is recommended these spaces are provided.
PO6 Development provides shower cubicles and lockers in sufficient numbers to meet the needs and volume of predicted pedestrian and cyclist users. Note—For a performance outcome the application must demonstrate how the needs of the intended users of the site differ from the standard rates in the Transport, access, parking and servicing planning scheme policy.	**AO6** Development provides shower cubicles and lockers for pedestrians and cyclists in compliance with the standards in the Transport, access, parking and servicing planning scheme policy.	**Not Applicable**

Performance outcomes	Acceptable outcomes	Response
PO7 Development provides pedestrian and cyclist access to the site which is designed to provide safe movement and avoid unnecessary conflict between pedestrians, cyclists and motor vehicles.	**AO7** Development provides pedestrian and cycle access that is designed and constructed in compliance with the site access design guidelines, pedestrian facilities standards and cyclist facilities standards in the Transport, access, parking and servicing planning scheme policy.	Refer **Section 4** of the Traffic Report. The site already provides active transport connections within the site. No amendments to the existing arrangements are proposed or considered warranted.
PO8 Development provides pedestrian and cyclist access to and from the site which is located to take advantage of safe crossing points of the adjacent road system, key destinations and public transport facilities.	**AO8** No acceptable outcome is prescribed.	**Refer to response to PO7**
PO9 Development provides access driveways in the road area that are located, designed and controlled to: (a) minimise adverse impacts on the safety and operation of the transport network, including the movement of pedestrians and cyclists; (b) ensure the amenity of adjacent premises, from impacts such as noise and light.	**AO9.1** No acceptable outcome for access is prescribed, for a major development (as described in the Transport, access, parking and servicing planning scheme policy).	**Complies with Performance Outcome** Refer **Sections 2** and **6.1** of the Traffic Report. No amendments to the existing crossovers are proposed or considered warranted. As such, no further assessment is required.
	AO9.2 Development which is not a major development (as described in the Transport, access, parking and servicing planning scheme policy) provides a single site access driveway in the road area to the lowest order road to which the site has frontage.	
	AO9.3 Development ensures that sight distances to and from all proposed access driveways in the road area and intersections are in compliance with the standards in the Transport, access, parking and servicing planning scheme policy.	
	AO9.4	

Performance outcomes	Acceptable outcomes	Response
	Development provides access driveways in the road area which (a) are located, designed and controlled in compliance with the standards in the Transport, access, parking and servicing planning scheme policy; (b) are not provided through a bus stop, taxi rank or pedestrian crossing or refuge.	
	AO9.5 Development makes provision for shared access arrangements particularly where it is necessary to limit access points to a major road.	
PO10 Redevelopment provides for: (a) the closure of all access driveways in the road area that no longer comply with the standards in the Transport, access, parking and servicing planning scheme policy; (b) the reinstatement of adjacent footpaths.	**AO10** No acceptable outcome is prescribed.	**Not Applicable** Refer **Sections 2** and **6.1** of the Traffic Report. No amendments to the existing crossovers are proposed or considered warranted. As such, no further assessment is required.
PO11 Development provides that an internal approach to an access driveway in the road area is designed and located to provide for the safety of pedestrians and cyclists using paths adjacent to the frontage of the site, and motorists.	**AO11.1** Development provides sight distances to and from all proposed access driveways in the road area and intersections which are in compliance with the standards in the Transport, access, parking and servicing planning scheme policy.	Refer **Sections 2** and **6.1**of the Traffic Report. No amendments to the existing crossovers are proposed or considered warranted. As such, no further assessment is required.
	AO11.2 Development ensures that convex mirrors are only used in a site: (a) as a secondary support at access driveways; (b) in addition to acceptable sight splays that comply with the sight distances standards in the Transport, access, parking and servicing planning scheme policy.	

Performance outcomes	Acceptable outcomes	Response
PO12 Development in the City core and City frame as identified in Figure a provides car parking spaces at rates to discourage private car use and encourage walking, cycling and the use of public transport.	**AO12** Development in the City core and City frame as identified in Figure a provides maximum car-parking rates in compliance with the standards in the Transport, access, parking and servicing planning scheme policy. Note—For self-assessable development including an existing premises, no reduction to existing car parking is required to comply with a maximum car-parking rate in the Transport, access, parking and servicing planning scheme policy.	**Not Applicable** The site is not located in the City core or City frame.
PO13 Development outside of the City core and City frame as identified in Figure a provides on-site car parking spaces to accommodate the design peak parking demand without any overflow of car parking to an adjacent premises or adjacent street.	**AO13** Development outside of the City core and City frame as identified in Figure a: (a) provides on-site car parking spaces in compliance with the standards in the Transport, access, parking and servicing planning scheme policy; or (b) for self-assessable development does not result in on-street car parking if no parking standard is identified in the Transport, access, parking and servicing planning scheme policy. Note—For self-assessable development including an existing premises, no reduction to existing car parking is required to comply with a maximum car-parking rate in the Transport, access, parking and servicing planning scheme policy.	**Can Comply with Performance Outcome** Refer **Section 6.3** of the Traffic Report. 14 car parking spaces are required by the TAPS Policy for the proposed expansion. It is recommended that at least 12 spaces (those required for staff) are provided on-site to accommodate additional demand associated with the expansion.
PO14 Development ensures that the number of car parking spaces and design of the car parking area: (a) meet the combined design peak parking demand for	**AO14.1** Development provides a number of car parking spaces on site equalling the sum of the maximum design peak parking demand for the individual uses at any point in time.	**Can Comply with Performance Outcome** Refer **Section 6.3** of the Traffic Report. 14 car parking spaces are required by the TAPS Policy for the proposed expansion. It is recommended that at least 12 spaces (those required for staff) are provided

Performance outcomes	Acceptable outcomes	Response
residential, visitor and business parking; (b) allow for the temporal sharing of car-parking spaces for uses with different peak parking demands. Note—In order to demonstrate that adequate car parking is provided, a traffic impact assessment prepared in compliance with the Transport, access, parking and servicing planning scheme policy is to identify the appropriate number of car parking spaces to be provided.	**AO14.2** Development involving mixed use provides a non-residential car parking area with shared parking for all the businesses in the development.	on-site to accommodate additional demand associated with the expansion.
PO15 Development provides a car park layout which allows for on-site vehicle parking that: (a) is clearly defined, safe and easily accessible; (b) is designed to contain potential adverse impacts within the site; (c) does not detract from the aesthetics or amenity of an area; (d) discourages on-street parking if parking has an adverse traffic management safety or amenity impact; (e) is consistent with safe and convenient pedestrian and cyclist movement.	**AO15** Development provides parking bays, queue areas and manoeuvring areas which are designed for the design service vehicle to the standards in the Transport, access, parking and servicing planning scheme policy.	**Not Applicable** No new car parking areas are currently proposed.
PO16 Development creates a safe environment by incorporating the key elements of crime prevention through environmental design.	**AO16** Development incorporates the key elements of crime prevention through environmental design in its layout, building and structure design and landscaping by: (a) facilitating casual surveillance opportunities and including good sightlines to publicly accessible areas such as car parks, pathways, public toilets and communal areas; (b) defining different uses and ownerships through design and restricting access from non-residential uses into private residential dwellings;	**Not Applicable**

Performance outcomes	Acceptable outcomes	Response
	(c) promoting safety and minimising opportunities for graffiti and vandalism through exterior building design and orientation of buildings and use of active frontages; (d) ensuring publicly accessible areas such as car parks, pathways, public toilets and communal areas are well lit; (e) including way-finding cues; (f) minimising predictable routes and entrapment locations near public spaces such as car parks, public toilets, ATMs and communal areas. Note—For guidance in achieving the key elements of crime prevention through environmental design, refer to the Crime prevention through environmental design planning scheme policy.	
PO17 Development minimises the potential for graffiti and vandalism through access control, canvas reduction and easy maintenance selection.	**AO17** Development incorporates graffiti and vandalism prevention techniques in its layout, building and structure design and landscaping, by: (a) denying access to potential canvas through access control techniques; (b) reducing potential canvases through canvas reduction techniques; (c) ensuring graffiti can be readily and quickly removed through easy maintenance selection techniques. For guidance on graffiti and vandalism prevention techniques, refer to the Graffiti prevention planning scheme policy.	**Not Applicable**
PO18 Development is serviced by an adequate number and size of service vehicles.	**AO18** Development ensures that the number and size of design service vehicles selected for the site is in compliance with the standards in the Transport, access, parking and servicing planning scheme policy.	**Complies with Performance Outcome** Refer **Section 6.4** of the Traffic Report. Existing servicing arrangements are proposed to be maintained as part of the expansion. However, if modified servicing arrangements are

Performance outcomes	Acceptable outcomes	Response
		ultimately proposed, they should be reviewed to confirm that they will operate acceptably.
PO19 Development layout provides for services which: (a) are wholly within the site; (b) are clearly defined, safe and easily accessible; (c) are designed to contain potential adverse impacts of servicing within the site; (d) do not detract from the aesthetics or amenity of the surrounding area.	**AO19.1** Development ensures that a service bay provided on site: (a) is provided and designed to comply with the design vehicle table and service area design standards in the Transport, access, parking and servicing planning scheme policy; (b) is located away from street frontages and screened from adjoining premises.	**Complies with Performance Outcome** Refer **Section 5.6** of the Traffic Report. Existing servicing arrangements are proposed to be maintained as part of the expansion. However, if modified servicing arrangements are ultimately proposed, they should be reviewed to confirm that they will operate acceptably.
	AO19.2 Development provides on-site servicing facilities and associated on-site vehicle manoeuvring areas which are designed in compliance with the service area design standards in the Transport, access, parking and servicing planning scheme policy.	
	AO19.3 Development provides service areas for refuse collection in compliance with the standards in the Refuse planning scheme policy, Transport, access, parking and servicing planning scheme policy and the Infrastructure design planning scheme policy.	
PO20 Development provides service vehicle access routes to and from the site which minimise the impact on: (a) amenity and safety in residential areas; (b) streets not constructed to a standard that accommodate increased heavy vehicle movements.	**AO20** Development ensures that service vehicles use the shortest and most direct route to the major road network in compliance with the heavy vehicle standards in the Transport, access, parking and servicing planning scheme policy.	**Complies with Performance Outcome** Refer **Section 6.4** of the Traffic Report. Existing servicing arrangements are proposed to be maintained as part of the expansion. However, if modified servicing arrangements are ultimately proposed, they should be reviewed to confirm that they will operate acceptably.
If for development which is required to be serviced by a b-double (Austroad class 10 vehicle), multi-combination vehicle, over-dimensioned vehicle or any on vehicle		

Performance outcomes	Acceptable outcomes	Response
identified by the Queensland Government as requiring a permit to operate on the road (freight-dependent development)		
PO21 Development which is freight-dependent development ensures that the traffic generated by the development does not impact on: (a) the operation of the transport network; (b) the safety and amenity of a residential area; (c) a road not constructed to accommodate a non-standard vehicle such as a road only constructed to accommodate a vehicle that has a legal right of access to all roads including Austroads vehicles classes 1–9.	**AO21.1** Development which is freight-dependent development is located on a site which: (a) has frontage to or direct access to the freight network in the Road hierarchy overlay via roads in a zone in the Industry zones category; or (b) can be serviced by a route that can act as a primary freight access route and connect to an existing primary freight route without impacting on the safe operation of the road network in compliance with the heavy vehicle standards in the Transport, access, parking and servicing planning scheme policy.	**Not Applicable** The site will not require B-Double access.
	AO21.2 Development which is freight-dependent development provides any necessary upgrade to a road used as an access route in compliance with the Infrastructure design planning scheme policy.	

Appendix 14

Ecological Assessment

Department of Housing and Public Works

Queensland Government

ECOLOGICAL ASSESSMENT

INDOOROOPILLY STATE HIGH SCHOOL, INDOOROOPILLY

Prepared for
Queensland Department of Education

Biodiversity Assessment and Management Pty Ltd
PO Box 1376
CLEVELAND 4163

BAAM
ECOLOGICAL CONSULTANTS

Specialised ecological knowledge that reduces your risk

Document Control Sheet

File Number: 0459-001

Project Manager/s: Dr Penn Lloyd

Client: Altus Group on behalf of Queensland Department of Education

Project Title: Ecological Assessment, Indooroopilly State School, Indooroopilly

Project Author/s: Dr Penn Lloyd

Project Summary: An ecological assessment for an area where construction of additional classrooms is proposed at the Indooroopilly State School, Indooroopilly.

Draft Preparation History:

Draft No.	Date draft completed	Reviewed by	Issued by
0459-001 Draft A	27/04/2018	Paulette Jones	Dr Penn Lloyd

Revision/ Checking History Track:

Version	Date of Issue	Checked by	Issued by
0459-001 Version 0	09/05/2018	Jedd Appleton	Jedd Appleton

Document Distribution:

Destination	Revision							
	1	Date Dispatched	2	Date Dispatched	3	Date Dispatched	4	Date Dispatched
Client Copy 1 - digital	A	27/04/2018	0	09/05/2018				
Client Copy 1- hard copy								
PDF - server	A	27/04/2018	0	09/05/2018				
PDF – backup – archived	A	27/04/2018	0	09/05/2018				
Hard Copy - library								

NOTICE TO USERS OF THIS REPORT

Purpose of Report

Biodiversity Assessment and Management Pty Ltd has produced this report in its capacity as {consultants} for and on the request of Altus Group on behalf of Department of Education (the "Client") for the sole purpose of providing an ecological assessment for an area where construction of additional classrooms is proposed at the Indooroopilly State School, Indooroopilly (the "Specified Purpose"). This information and any recommendations in this report are particular to the Specified Purpose and are based on facts, matters and circumstances particular to the subject matter of the report and the Specified Purpose at the time of production. This report is not to be used, nor is it suitable, for any purpose other than the Specified Purpose. Biodiversity Assessment and Management Pty Ltd disclaims all liability for any loss and/or damage whatsoever arising either directly or indirectly as a result of any application, use or reliance upon the report for any purpose other than the Specified Purpose.

This report has been produced solely for the benefit of the Client. Biodiversity Assessment and Management Pty Ltd does not accept that a duty of care is owed to any party other than the Client. This report is not to be used by any third party other than as authorised in writing by Biodiversity Assessment and Management Pty Ltd and any such use shall continue to be limited to the Specified Purpose. Further, Biodiversity Assessment and Management Pty Ltd does not make any warranty, express or implied, or assume any legal liability or responsibility for any third party's use in whole or in part of the report or application or use of any other information or process disclosed in this report and to the full extent allowed by law excludes liability in contract, tort or otherwise, for any loss or damage sustained by any person or body corporate arising from or in connection with the supply or use of the whole part of the report through any cause whatsoever.

Biodiversity Assessment and Management Pty Ltd has used information provided to it by the Client and governmental registers, databases, departments and agencies in the preparation of this report. Biodiversity Assessment and Management Pty Ltd does not know, nor does it have any reason to suspect, that the information provided to it was false, inaccurate, incomplete or misleading at the time of its receipt. This report is supplied on the basis that while Biodiversity Assessment and Management Pty Ltd believes all the information in it is deemed reliable at the time of publication, it does not warrant its accuracy or completeness and to the full extent allowed by law excludes liability in contract, tort or otherwise, for any loss or damage sustained by any person or body corporate arising from or in connection with the supply or use of the whole or any part of the information in this report through any cause whatsoever.

Copyright and reproduction

This report and all indexes, schedules, annexures or appendices are subject to copyright pursuant to the Copyright Act 1968 (Cth). Subject to statutory defences, no third party may reproduce, publish, adapt or communicate to the public, in whole or in part, the content of this report without the express written consent of Biodiversity Assessment and Management Pty Ltd.

Signed on behalf of
Biodiversity Assessment and Management Pty Ltd

Date: 09/05/2018

Director

EXECUTIVE SUMMARY

PURPOSE OF THE STUDY

The purpose of this study is to provide an ecological assessment for an area where construction of additional classrooms is proposed at the Indooroopilly State School, located on a 3.2 ha lot (Lot 285/SP104042) in the Brisbane suburb of Indooroopilly. The assessment is required to assess potential constraints for the proposed development of the site and the impacts or risks of the development and subsequent site uses on flora and fauna species listed as endangered, vulnerable or near threatened (EVNT) under the *Nature Conservation Act 1992* (NC Act) and/or the *Environmental Protection and Biodiversity Conservation Act 1999* (EPBC Act) and their habitats.

STUDY APPROACH

The study combined a desktop review of biodiversity databases and regulatory mapping, with a brief observational flora and fauna survey of the study area on 19 April 2018. This was undertaken concurrently with a protected plants search of a portion of the study area that occurs within a high risk area under the State Government's protected plants trigger mapping.

KEY FINDINGS

The State Regional Ecosystem mapping identifies the vegetation within the proposed Project footprint as non-remnant, but with a patch of remnant RE 12.11.5 (*Corymbia citriodora* subsp. *variegata* woodland to open forest +/- *Eucalyptus siderophloia/E. crebra, E. carnea, E. acmenoides, E. propinqua* on metamorphics +/- interbedded volcanics) occurring in Moore Park on the northern boundary of the school site. A small patch of remnant RE 12.3.11 (*Eucalyptus tereticornis* +/- *Eucalyptus siderophloia, Corymbia intermedia* open forest on alluvial plains) also occurs along Witton Creek in Moore Park, within the 100 m buffer to the proposed development footprint. Remnant vegetation adjacent to the school is mapped by the State as essential habitat under the *Vegetation Management Act 1999* (VM Act) for two EVNT fauna species: Koala *Phascolarctos cinereus* and Tusked Frog *Adelotus brevis*.

The Indooroopilly State School is located on a 3.2 ha lot surrounded by roads associated with residential housing on the eastern and southern boundaries, and by a small patch of bushland in Moore Park on the north-eastern boundary. The lot has been comprehensively developed to accommodate school infrastructure, and there is no remnant vegetation within the school grounds. However, there is a cluster of retained native eucalypt trees within playground areas close to the northern boundary of the lot, including within the proposed development footprint for the new classroom block. The field survey confirmed the remnant vegetation along the northern boundary as RE 12.11.5 (listed as least concern under the *Vegetation Management Act 1999* (VM Act), with the State mapping boundaries approximately correct (see **Table 3.1** for the detailed vegetation site assessment results). Vegetation in the study area does not conform to any threatened ecological community under the EPBC Act.

No threatened or near threatened flora species were detected within the school grounds despite an extensive search of the area, and none are likely to occur based on the type and condition of the vegetation communities present. A cluster of three individuals of *Eucalyptus curtisii* (Plunkett Mallee, listed as near threatened under the NC Act) occur approximately 110 m from the proposed development footprint at the edge of a footpath between Taringa Parade and the patch of remnant bushland north of the school; as these appear to have been planted as part of rehabilitation plantings, they are not growing 'in the wild'. Essential habitat factors were confirmed as occurring within the study area for the two species for which essential habitat is mapped within the study area by the State.

No EVNT fauna species were detected during the field survey; however, based on an assessment of habitats present in the study area, database records of the species in the local

landscape and the site's position in an urbanised landscape, Tusked Frog (NC Act: vulnerable) is known to occur along Witton Creek but not within the proposed development area, Grey-headed Flying-fox *Pteropus poliocephalus* (EBPC Act: vulnerable) is likely to be a regular seasonal visitor to feed on flowering and fruiting trees, and two species, Powerful Owl (*Ninox strenua;* NC Act: vulnerable) and Swift Parrot (*Lathamus discolour*; EPBC Act: critically endangered; NC Act: endangered) have potential to occur as rare and transient visitors.

There were no active animal breeding places in any of the trees or shrubs proposed to be cleared. Furthermore, as all the trees are relatively young, none of them are hollow-bearing since their trunks have not reached a size capable of forming hollows. The principal habitat values that these trees provide are largely restricted to food resources for birds and mammals such as flowers, nectar and invertebrates.

ASSESSMENT OF IMPACTS

The Project proposes to remove 14 native trees within a non-remnant area but contiguous with a patch of remnant woodland. While the trees provide seasonal foraging resources for fauna, including seasonally for Grey-headed Flying-fox and possibly rarely for Swift Parrot, the small number of trees proposed to be cleared means that the magnitude of the impact is very small. When assessed against the criteria for the assessment of impact significance prescribed by the relevant guidelines for MNES and MSES, the Project is highly unlikely to result in a significant impact on any fauna species listed as threatened, near threatened or migratory under the EPBC Act and/or NC Act.

The Project activities are exempt from the VM Act, in accordance with Schedule 21 (Part 1, Section 1 (14)) of the *Planning Regulation 2017*, since the clearing of vegetation is for the construction or maintenance of necessary infrastructure for an educational facility. Notwithstanding this exemption, the Project will have no direct impact on any remnant vegetation or Essential Habitat that are protected MSES under the VM Act.

As the Project is assessed as unlikely to have a significant impact on any MNES or MSES, an offset in accordance with either the EPBC Act Environmental Offsets Policy (Commonwealth of Australia 2012) or Queensland Environmental Offsets Policy (State of Queensland 2017) is assessed as not being required.

Recommended management measures to mitigate any impacts of the proposed development on environmental values are provided.

ECOLOGICAL ASSESSMENT

INDOOROOPILLY STATE SCHOOL, INDOOROOPILLY

Table of Contents

1.0 INTRODUCTION 1
1.1 Background 1
1.2 Study Objectives 1

2.0 STUDY METHODS 1
2.1 Desktop Assessment 1
2.2 Field Survey 3
2.2.1 General survey 3
2.2.2 Protected plant survey 3
2.3 Data Analysis and Reporting 4
2.3.1 Assessment of Likelihood 4

3.0 RESULTS AND DISCUSSION 5
3.1 Flora and Vegetation Communities 5
3.1.1 Database search results 5
3.1.2 Field survey results 5
3.2 Fauna 9
3.2.1 Database search results 9
3.2.2 Field survey results 9
3.3 Watercourses and Wetlands 11

4.0 RECOMMENDED MITIGATION MEASURES 11

5.0 ASSESSMENT OF IMPACTS 12

6.0 CONFIRMATION OF EXEMPT CLEARING NOTIFICATION FORM AND SUBMISSION REQUIREMENTS 12
6.1 For Exempt Clearing in a 'High Risk' Area 12

7.0 REFERENCES 13

Table of Figures

Figure 1: Proposed development footprint and survey data

Table of Appendices

Appendix A: Protected Plants Flora Survey Trigger map, declaration letter and CV
Appendix B: Regulated Vegetation and Referable Wetland mapping for the study area
Appendix C: Protected Matters Search Tool database results for the study area
Appendix D: Wildlife Online database results for the study area
Appendix E: Koala Habitat in Southeast Queensland map for the study area
Appendix F: Fauna species list from the field survey
Appendix F: Brisbane City Plan 2014 environmental overlays

Table of Terms and Abbreviations

ALA	Atlas of Living Australia
BAAM	Biodiversity Assessment and Management Pty Ltd
EBPC Act	*Environmental Protection and Biodiversity Conservation Act 1999*
EVNT	endangered, vulnerable or near threatened
MNES	matter of national environmental significance
MSES	matter of state environmental significance
NC Act	*Nature Conservation Act 1992*
VM Act	*Vegetation Management Act 1999*

1.0 INTRODUCTION

1.1 BACKGROUND

The Queensland Department of Education is proposing to construct an additional classroom accommodation block at Indooroopilly State School, located on a 3.2 ha lot (Lot 285 on SP104042) on the corner of Russell Terrace and Taringa Parade in the Brisbane suburb of Indooroopilly (see **Figure 1** for a map of the area and the proposed location of the classroom block), as well as develop a Masterplan for the whole site. An ecological assessment, including a flora survey in accordance with the *Flora Survey Guidelines - Protected Plants* (State of Queensland 2016a) is required to assess potential constraints for the proposed development of the site and the impacts or risks of the development and subsequent site uses on flora and fauna.

1.2 STUDY OBJECTIVES

The main objectives of the study include to:

- Assess the likelihood that species listed as endangered, vulnerable or near threatened (EVNT) or migratory under the *Nature Conservation Act 1992* and/or the *Environmental Protection and Biodiversity Conservation Act 1999* or their habitat are present on the site and if so in what areas of the site and their regional and local significance.
- Assess regulated vegetation and other features protected under the *Vegetation Management Act 1999* (VM Act) and the *Planning Act 2016*, if present.
- Conduct a flora survey in accordance with the *Flora Survey Guidelines - Protected Plants.*
- Assess the extent of past clearing activities on the site (if any).
- Assess the likelihood that animal breeding places are present on the site and permit requirements if any.
- Confirm the location of any watercourses or High Environmental Significance or General Ecological Significance wetland areas, if present.
- Where relevant, identify non-juvenile koala habitat trees (NJKHT) within the study area and provide an estimate of the number NJKHT within the development area, and a count on the number of NJKHT to be removed as part of the proposed development.
- Identify any offset requirements (including an estimate of the potential cost/extent of the offset) that may apply if the site is developed.
- Detail any local government planning, statutory approval, licence, permit, notice or reporting requirements in relation to the proposed development.
- A statement in relation to habitat values to fauna of the site including any specific habitats and their regional and local significance.
- Provide recommendations for construction and operation of the proposed development to manage environmental risks.

2.0 STUDY METHODS

In order to identify and describe the terrestrial ecology values within the study area, the study combined a desktop assessment of available information with a targeted field survey.

2.1 DESKTOP ASSESSMENT

A desktop review was undertaken to broadly characterise the currently recognised terrestrial ecological values of the study area. The review included an assessment of the following information:

BAAM ECOLOGICAL CONSULTANTS

Client	Altus Group on behalf of Queensland Department of Education	
Project	Ecological Assessment Indooroopilly State School	
Design	BAAM	24.04.2018
Drawn	Bentline | MP	24.04.2018
Scale	1:2500	# 0459-001
Cad File	BAAM_Indooroopilly SS01.dwg	NTP 161
Title	Proposed Development Footprint and Survey Data	FIGURE 1

© Biodiversity Assessment and Management Pty Ltd. While every care is taken to ensure the accuracy of this data, Biodiversity Assessment and Management makes no representations or warranties about its accuracy, reliability, completeness or suitability for any particular purpose and disclaims all responsibility and all liability (including without limitation liability in negligence) for all expenses, losses, damages (including indirect consequential damage) and costs which might be incurred as a result of the data being inaccurate or incomplete in any way and for any reason.

- The Commonwealth EPBC Protected Matters Search Tool to identify any matters of national environmental significance (MNES) protected under the EPBC Act that may occur within the study area;
- State mapping of regulated vegetation, Koala habitat and wetlands to identify any matters of state environmental significance (MSES) currently recognised as occurring within the study area;
- The State Protected Plants Flora Survey Trigger Map to identify the areas required to be surveyed for protected plants to inform an application for a clearing permit or exemption notification under the NC Act;
- The Queensland Department of Environment and Heritage Protection (EHP) Wildlife Online database and Atlas of Living Australia (ALA) online database, to determine if any species listed as endangered, vulnerable or near threatened (EVNT) under the EPBC Act or NC Act have been previously recorded in the vicinity of the study area.

2.2 FIELD SURVEY

2.2.1 General survey

The field survey was conducted on 19 April 2018 by Dr Penn Lloyd (Principal Ecologist) in fine weather conditions with a moderate breeze. An observational survey was conducted to verify the currently recognised terrestrial ecological values obtained from the desktop review, whilst searching for the presence of any conservation significant flora or fauna species or their preferred habitats and undertake a general appraisal of on-ground values and noteworthy habitat features. A particular focus of the field survey was an appraisal of habitat values for several significant species considered likely to occur, and an assessment of vegetation and animal breeding places that may require removal as part of the proposed development activities. All birds, mammals, reptiles and frogs that were seen or heard were recorded. Signs of Koala presence were surveyed for by searching the bases of suitable food tree species (particularly *Eucalyptus tereticornis, E. microcorys* and *E. propinqua*, preferred food tree species in the area) for their distinctive scats and searching the trunks of smooth-barked eucalypts for scratches.

All trees within the proposed development footprint for the new classroom block were identified.

2.2.2 Protected plant survey

The whole of the Indooroopilly State School lot intersects with a high risk area on the Queensland Department of Environment and Science (DES) flora survey trigger map (**Appendix A**). Therefore, should any native vegetation clearing (including clearing restricted to the ground layer) be proposed within this area, targeted searches for flora species listed as Endangered, Vulnerable or Near Threatened (EVNT) under the Queensland *Nature Conservation Act 1992* (NC Act) are required to be undertaken in accordance with the Queensland *Flora Survey Guidelines - Protected Plants* (State of Queensland 2016a).

The flora survey covered the proposed development area as well as a buffer area of 100 m around the perimeter of the proposed development area. These total areas are hereafter referred to as the clearing impact areas.

In accordance with the *Flora Survey Guidelines - Protected Plants* (EHP, 2016a), the survey involved timed, random meander surveys of each habitat type within each clearing impact area. The number of meanders conducted is specified in **Section 3.2**, based on the type and patch size of the habitats present. For each random meander, a starting point was selected and the starting time noted. The area of interest was then traversed as a random meander, taking a GPS point every five minutes and all the while searching carefully for EVNT plant species. Whenever the survey was interrupted, the survey time was paused until the survey started again. Each random meander was terminated once no new species had been recorded for 30 minutes of active survey or when the entire area of the habitat type had been surveyed, whichever happened sooner. During each random meander, a

description of the vegetation structure, including noting the Regional Ecosystem was undertaken. No plant taxa that could not be identified during the field survey had potential to be an EVNT species; therefore, no specimens were collected.

The flora survey was commissioned to be undertaken in April 2018 in order to achieve critical Project timelines. The survey was undertaken following a season of good summer rainfall. Although this timing may fall outside the ideal time of year to survey for several of the target species, all species targeted in this survey are perennial species and were expected to have identifiable foliage present following good summer rainfall. Therefore, it was determined that an April survey was suitable to detect the species targeted.

Survey tracks and assessment sites are shown on **Figure 1**. Dr Penn Lloyd is suitably qualified to undertake protected plants assessments, and his declaration letter and *curriculum vitae*, required to be included in the survey report in accordance with State of Queensland (2016a) are provided in **Appendix A**.

2.3 DATA ANALYSIS AND REPORTING

Following the field survey, data were analysed and interpreted to enable an informed assessment of species presence/absence and the accuracy of current, statutory mapping of ecological values. Potential impacts to the identified values as a result of the proposed development of the study area were then identified.

2.3.1 Assessment of Likelihood

In order to assist in the determination of the study area's value to threatened species, a likelihood of occurrence exercise was completed. The assessment used the following four categories to determine the probability of conservation significant flora and fauna species occurring in the habitats available or previously available within the study area:

- **Known to occur**: the species was detected during field assessment, or is known from past surveys in the study area and is not now considered locally extinct.
- **Likely to occur**: a medium to high probability the species occurs in or regularly visits the study area because suitable habitat occurs, the study area is within the known distribution of the species, there are past records of the species in the vicinity, and the species is not considered locally extinct.
- **Potential to occur**: either: (a) there are no past records of the species in the vicinity but suitable habitat occurs and there is insufficient information on the distribution of the species (e.g. it is naturally rare and/or difficult to detect) to categorise the species as likely or unlikely to occur; or (b) there are past records of the species in the vicinity of the study area but habitat in the study area is marginal or spatially limited meaning that the species' presence on the study area would be transitory at best.
- **Unlikely to occur**: a very low probability that the species occurs in the study area because: (a) suitable habitat does not occur; or (b) the study area is outside the known distribution of the species; or (c) the species is considered locally extinct; or (d) there are no records of the species in the local region despite adequate survey effort; or (e) suitable habitat occurs, the study area is within the known distribution of the species and there are past records of the species in the vicinity but the species has not been observed despite sufficient spatial and temporal survey effort for detecting the species.

3.0 RESULTS AND DISCUSSION

3.1 FLORA AND VEGETATION COMMUNITIES

3.1.1 Database search results

The State Regional Ecosystem mapping (**Appendix B**, **Figure 1**) identifies the vegetation within the proposed Project footprint as non-remnant, but with a patch of remnant RE 12.11.5 (*Corymbia citriodora* subsp. *variegata* woodland to open forest +/- *Eucalyptus siderophloia/E. crebra, E. carnea, E. acmenoides, E. propinqua* on metamorphics +/- interbedded volcanics) occurring in Moore Park on the northern boundary of the school site. A small patch of remnant RE 12.3.11 (*Eucalyptus tereticornis* +/- *Eucalyptus siderophloia, Corymbia intermedia* open forest on alluvial plains) also occurs along Witton Creek in Moore Park, within the 100 m buffer to the proposed development footprint (**Figure 1**). The Protected Matters Search Tool database (**Appendix C**) identified the following two threatened ecological communities that may occur on or close to the site:

- Coastal Swamp Oak (*Casuarina glauca*) Forest of New South Wales and South East Queensland ecological community; and
- Lowland Rainforest of Subtropical Australia.

The Protected Matters Search Tool database (**Appendix C**) identified 16 flora species listed as threatened species under the EPBC Act that may occur in the study area; however the Wildlife Online database (**Appendix D**) has records for only two of these species within a 2 km radius of the study area. The Wildlife Online database has records for a further two flora species listed as threatened or near threatened under the NC Act within a 2 km radius of the study area. The likelihood of occurrence of these species in the study area is addressed in the next section.

The Brisbane City Plan 2014 biodiversity overlay (see **Appendix G**) currently maps vegetation in the north and west of the school grounds as 'high ecological significance'.

3.1.2 Field survey results

The Indooroopilly State School is located on a 3.2 ha lot surrounded by roads associated with residential housing on the eastern and southern boundaries, and by a small patch of bushland in Moore Park on the north-eastern boundary (**Figure 1**). The lot has been comprehensively developed to accommodate school infrastructure, and there is no remnant vegetation within the school grounds. However, there is a cluster of retained native eucalypt trees within playground areas close to the northern boundary of the lot, including within the proposed development footprint for the new classroom block. The field survey confirmed the remnant vegetation along the northern boundary as RE 12.11.5 (listed as least concern under the *Vegetation Management Act 1999* (VM Act), with the State mapping boundaries approximately correct (see **Table 3.1** for the detailed vegetation site assessment results). Vegetation in the study area does not conform to any threatened ecological community under the EPBC Act.

The field survey identified three different habitat types within the clearing impact area, which may contain preferred habitat for one or more of the EVNT flora species targeted for the protected flora survey (**Table 3.1**).

- Non-remnant areas with or without regrowth vegetation or residual native trees;
- *Corymbia citriodora* (Spotted Gum) dominated open forest to woodland on undulating to hilly terrain (corresponding to RE 12.11.5), located within the 100m buffer to the proposed development footprint; and
- *Eucalyptus* spp. dominated open forest and woodlands on alluvial soils (corresponding to RE 12.3.11), located within the 100m buffer to the proposed development footprint.

Table 3.1. Summary of quaternary site assessments of remnant vegetation within the study area.

Site	Description	Representative photo
Q1	**Regional Ecosystem:** Non-remnant **Canopy (T1):** Height range 15-25m; Median height 20m; Cover: 50%. *Eucalyptus propinqua* (d), *E. tereticornis, Corymbia citriodora, Lophostemon confertus.* **Sub-canopy (T2):** Height range 3-8m; Median height 4m; Cover: 10%. *Murraya paniculata** (cd), *Leucaena leucocephala** (cd), *Celtis sinensis**. **Shrub (S1):** Absent. **Groundcover:** Mostly concrete pathways or playground, some *Megathrysus maxima*, Commelina diffusa, Calyptocarpus vialis** at edges. **Notes**: Playground area with retained native eucalypt trees; location of the proposed new classroom block.	
Q2	**Regional Ecosystem:** Non-remnant. **Canopy (T1):** Height range 10-20m; Median height 15m; Cover: 100%. *Cinnamomum camphora** (cd), *Celtis sinensis** (cd). **Shrub (S1):** *Leucaena leucocephala** (d). **Notes**: Vegetation on western boundary of the school, dominated by introduced weed tree species.	
Q3	**Regional Ecosystem:** Non-remnant. **Canopy (T1):** Height range 12-22m; Median height 20m; Cover: 50%. *E. siderophloia* (d), *E. propinqua, E. acmenoides.* **Sub-canopy (T2):** Absent. **Shrub (S1):** Absent. **Groundcover:** Absent. **Notes**: Playground area with retained native eucalypt trees to the east of the proposed classroom block and located next to remnant RE 12.11.5 on the school boundary.	
Q4	**Notes**: Edge between remnant RE 12.11.5 and non-remnant; also the location of a drainage line that flows only during heavy rainfall.	

Site	Description	Representative photo
Q5	**Regional Ecosystem:** remnant 12.11.5 **Canopy (T1):** Height range 15-25m; Median height 23m; Cover: 60%. *Eucalyptus propinqua* (d on lower slope), *Corymbia citriodora* (d on uppers slope). **Sub-canopy (T2):** Height range 8-15m; Median height 12m; Cover: 50%. *Eucalyptus propinqua*, *E. acmenoides, Corymbia citriodora, Jagera pseudorhus.* **Sub-canopy (T3):** Height range 2-7m; Median height 4m; Cover: 40%. *Alphitonia excelsa, Acacia leiocalyx, A. disparrima, Exocarpos cupressoides.* **Shrub (S1):** Height range 0.5-2m; Median height 1.5m; Cover: 40%. *Ochna serrulata*, Acacia spp*. (d), *Lantana camara*, Senna pendula**. **Groundcover:** Height range 0-1m; Median height 0.5m; Cover: 70%. *Urochloa decumbens** (d)*, Megathyrsus maxima*, Lantana montevidensis*, Entolasia stricta, Ottochloa gracillima, Lomandra longifolia, L. confertifolia, Themeda triandra, Acrotriche aggregata, Parsonsia straminea, P. lanceolata, Lobelia purpurascens, Goodenia rotundifolia*. **Notes**: Ground layer patchily dominated by weeds.	
Q6	**Regional Ecosystem:** remnant 12.3.11 **Canopy (T1):** Height range 15-30m; Median height 25m; Cover: 30%. *Eucalyptus tereticornis* (d), *E. grandis, Casuarina cunninghamiana.* **Sub-canopy (T2):** Height range 3-14m; Median height 4m; Cover: 80%. *Waterhousea floribunda, Livistona australis, Syzygium australe, Guioa semiglauca, Melia azedarach, Flindersia schottiana, F. australis, Mallotus philippensis, Castanospermum australe*. **Shrub (S1):** Height range 0.5-3m; Median height 1.5m; Cover: 10%. **Groundcover:** Height range 0.1m; Median height 0.5m; Cover: 60%. *Lomandra hystrix (d), L. longifolia, Ruellia simplex*, Diplazium esculentum*, Ageratina riparia*, Sphagneticola trilobata*, Ruellia brevifolia**. **Notes**: Disturbed ground layer has a wide variety of introduced weeds. Creek waterway provides suitable habitat for Tusked Frog.	

Based on the type and size of the habitats represented, the minimum meander survey requirement was a total of four random meanders, and four meanders were undertaken (**Table 3.2**). The field survey tracks across the clearing impact area are shown in **Figure 1**, and a description of the vegetation associated with the survey meanders is provided in **Table 3.1**.

Table 3.2. Number of timed, random meander searches undertaken within each habitat type within the clearing impact area.

Habitat type	Area within the clearing impact area	Preferred habitat (target species)?	Minimum meander requirement	Meanders undertaken
Non-remnant areas with or without regrowth eucalypt vegetation or scattered eucalypt trees	>2ha but <10ha	*Eucalyptus curtisii*	2	2 (M1, M2)
Corymbia citriodora (Spotted Gum) dominated open forest to woodland on undulating to hilly terrain	<2 ha	*Eucalyptus curtisii*	1	1 (M3)
Eucalyptus spp. dominated open forest and woodlands on alluvial soils	<2 ha	*Macadamia integrifolia*	1	1 (M4)

Of interest, one near threatened flora species was detected during the survey although just outside of the clearing impact area. A group of three individuals of *Eucalyptus curtisii* (Plunkett Mallee) that appeared to have been planted as part of rehabilitation plantings at the edge of a footpath between Taringa Parade and the patch of remnant bushland north of the school (**Photo 3.1**). They comprise two trees with broken stems, 1.5 m and 4 m tall respectively, and a low shrub 0.5 m high. These individuals are located approximately 110 m from the proposed development footprint and outside the school grounds (**Figure 1**). As they are planted specimens they are not 'in the wild' and therefore do not considered under the NC Act. The field survey determined that no other threatened or near threatened species are likely to occur within the clearing impact area based on the type and condition of the vegetation communities present (**Table 3.3**).

Photo 3.1. Small *Eucalyptus curtisii* (Plunkett Mallee) tree that appears to have been planted in rehabilitation plantings at the edge of a public footpath to the north of the school.

Table 3.3. Assessment of the likelihood of occurrence in the study area of threatened or near threatened flora species with records within 5km of the study area.

Species	EPBC	NCA	Habitat	Likelihood of occurrence
Eucalyptus curtisii (Plunkett Mallee)		NT	The larger growth form occurs in mixed eucalypt forests; commonly associated species include *Corymbia citriodora* subsp. *variegata*, *C. trachyphloia* and *Callitris endlicheri* (EHP 2016).	**Known to occur**. Planted as part of rehabilitation plantings north of the school. Outside of clearing impact area and 'not in the wild'.
Gossia gonoclada	E	E	Lowland riparian rainforest, below the peak flood level, along permanent watercourses subject to tidal influence (QPWS 2001).	**Unlikely to occur**. No suitable habitat.
Lilaeopsis brisbanica		E	Tidal riverbanks in grey saline mud, in association with mangrove trees.	**Unlikely to occur**. No suitable habitat.
Macadamia integrifolia (Macadamia Nut)	V	V	Subtropical rainforest, preferring well-drained sites on hill crests, hill slopes, scree slopes, foot slopes and creek beds (SCC 2006)	**Unlikely to occur**. No suitable habitat.

Abbreviations: **EPBC** = status under the *Environment Protection and Biodiversity Conservation Act 1999* (Commonwealth); **NCA** = status under the *Nature Conservation Act 1992* (Queensland); E = Endangered; V = Vulnerable; NT = Near Threatened.

While no remnant vegetation occurs within the proposed development footprint a total of 14 mature eucalypt trees may be removed to accommodate the proposed development:

- *Eucalyptus propinqua* (Grey Gum) – 10 trees
- *Eucalyptus tereticornis* (Queensland Blue Gum) – 1 tree
- *Eucalyptus acmenoides* (White Mahogany) – 1 tree
- *Corymbia citriodora* (Spotted Gum) – 1 tree
- *Lophostemon confertus* (Brush Box) – 1 tree.

3.2 FAUNA

3.2.1 Database search results

The Protected Matters Search Tool database (**Appendix C**) identified 31 terrestrial vertebrate fauna species and one insect species listed as threatened species under the EPBC Act that may occur in the study area; however the Wildlife Online database (**Appendix D**) has records for only five of these species within a 2 km radius of the study area. The Wildlife Online database has records for a further five species listed as threatened or near threatened under the NC Act within a 2 km radius of the study area. The likelihood of occurrence of these species in the study area is addressed in the next section.

The Protected Matters Search Tool database (**Appendix C**) identified 25 fauna species listed as migratory species under the EPBC Act that may occur in the study area, and the Wildlife Online database (**Appendix D**) has records for seven migratory species within a 2 km radius of the study area.

Remnant vegetation on the northern boundary of the study area, outside of the school site, is mapped by the State as essential habitat under the VM Act for two EVNT fauna species: Koala and Tusked Frog (see **Appendix B**). The study area does not occur within a Koala Assessable Development Area and is mapped as 'generally not suitable' habitat for Koala in the State mapping of Koala habitat values relating to the *Planning Act 2016* (see **Appendix E**).

3.2.2 Field survey results

During the brief field survey a total of 14 bird species were recorded utilising habitats within or close to the school, all of which are common, generalist species that make use of urbanised habitats (see **Appendix F** for the species list). No signs of Koala were detected, but scats consistent with Common Brushtail Possum (*Trichosurus vulpecula*) and Common Ringtail Possum (*Pseudocheirus peregrinus*) were detected at the bases of some eucalypt trees.

Essential habitat factors were confirmed as occurring within mapped essential habitat to the north of the school grounds for the two species for which essential habitat is mapped within the study area by the State. No EVNT fauna species were detected during the field survey; however based on an assessment of habitats present in the study area, database records of the species in the local landscape and the site's position in an urbanised landscape, Grey-headed Flying-fox is likely to be a regular seasonal visitor to feed on flowering and fruiting trees, Tusked Frog is likely to occur along Witton Creek that flows along the western boundary of the school, and two species (Powerful Owl and Swift Parrot) have potential to occur as rare and transient visitors (**Table 3.4**).

The few native trees on the school grounds do not support important habitat for any listed migratory species as prescribed by Commonwealth of Australia (2015a, b).

Table 3.4. Assessment of the likelihood of occurrence in the study area of threatened or near threatened fauna species with records within 2km of the study area.

Species	EPBC	NCA	Habitat	Likelihood of occurrence
Adelotus brevis (Tusked Frog)		V	Breeds in ponds and slow moving sections of streams in rainforest, wet sclerophyll forest and grassland/pastureland (Robinson 1993; Czechura 1995; Curtis *et al.* 2012)	**Known to occur**. There is a 2013 record from Witton Creek in Moore Park (ALA 2018), where suitable habitat occurs; however no suitable habitat occurs within the proposed development area.
Pteropus poliocephalus (Grey-headed Flying-fox)	V	LC	Open eucalypt forests, woodlands, melaleuca swamps and banksia woodlands, particularly on more fertile alluvial soils. The establishment of a camp is only likely within riparian vegetation (Churchill 2008).	**Likely to occur**. Suitable feeding habitat (eucalypt trees) occurs and there are many records of the species in the local area but no roosting camp occurs; likely to be a regular visitor in small numbers to feed on flowering trees.
Lathamus discolor (Swift Parrot)	CE	E	Mainly dry open eucalypt forest and woodland, including those with Grey Box or River Red Gum (Higgins 1999).	**Potential to occur**. There are relatively old records of Swift Parrot from Mt Coot-tha and the Botanic Gardens to the north-west of the study area. Swift Parrot has potential to be a very rare visitor to feed on flowering eucalypts.
Ninox strenua (Powerful Owl)		V	Open sclerophyll forests and woodlands, sometimes with areas of dense forest nearby, mainly in sheltered gullies containing old-growth forest with a dense understorey (Higgins 1999).	**Potential to occur**. A breeding pair is resident in the Mt Coot-tha bushlands to the north-west, and there are records within 1km of the site on the western side of the M5 motorway to the west of the site. Powerful Owl may very occasionally visit the area while foraging, but the habitat is fairly marginal since it is embedded in such an urbanised landscape.
Calyptorhynchus lathami lathami (Glossy Black-Cockatoo, eastern)		V	Forests and woodlands, preferring habitats dominated by she-oaks (*Allocasuarina* spp.) in the canopy or middle stratum due to their dependence on she-oaks for food; nests in large eucalypt hollows (Higgins 1999).	**Unlikely to occur**. No suitable feeding habitat or nest hollows.
Erythrotriorchis radiatus (Red Goshawk)	V	E	Woodlands and forests, ideally with a mosaic of vegetation types and permanent water, particularly riverine forests (Marchant and Higgins 1993).	**Unlikely to occur**. Habitat unsuitable due to urbanisation and the species has been extirpated from Southeast Queensland.
Phaethon rubricauda (Red-tailed Tropicbird)		V	Open ocean and oceanic islands.	**Unlikely to occur**. No suitable habitat.
Podargus ocellatus plumiferus (Plumed Frogmouth)		V	Subtropical lowland rainforest.	**Unlikely to occur**. A very narrow strip of potentially suitable habitat along Witton Creek; however this habitat is too fragmented in a highly urbanised landscape to support the species.
Turnix melanogaster (Black-Breasted Button-quail)	V	V	Semi-evergreen vine thicket and low microphyll vine forest; also dry rainforest (softwood scrubs) of Brigalow Belt and scrubs on sandy coastal soils (Garnett *et al*. 2011).	**Unlikely to occur**. No suitable habitat.

Species	EPBC	NCA	Habitat	Likelihood of occurrence
Phascolarctos cinereus (Koala)	V	V	Eucalypt forests and woodlands (Martin *et al.* 2008).	**Unlikely to occur**. While suitable food trees are present, no evidence of Koala was detected and the species is unlikely to use the habitat due to it being highly fragmented and embedded in an urbanised landscape with many threatening processes (traffic, dogs).

Abbreviations: **EPBC** = status under the *Environment Protection and Biodiversity Conservation Act 1999* (Commonwealth); **NCA** = status under the *Nature Conservation Act 1992* (Queensland); CE = Critically Endangered; E = Endangered; V = Vulnerable; NT = Near Threatened; LC = Least Concern.

There were no active animal breeding places in any of the trees proposed to be cleared. Furthermore, as all the trees are relatively young, none of them are hollow-bearing since their trunks have not reached a size capable of forming hollows. The principal habitat values that these trees provide are largely restricted to food resources for birds and mammals such as flowers, nectar and invertebrates. One potential animal breeding place located close to the proposed development is an arboreal termite nest with an excavated tunnel in it located in a tree (see **Figure 1** for location); birds such as Sacred Kingfisher or Forest Kingfisher may use the cavity excavated into this nest as a nest site during their breeding season that may extend from August to March.

3.3 WATERCOURSES AND WETLANDS

No watercourse occurs within the school grounds; however Witton Creek, a minor watercourse, flows past the western boundary of the school grounds (**Figure 1**). No wetland areas of High Environmental Significance or General Ecological Significance occur within or adjacent to the school grounds (**Appendix B**).

The Brisbane City Plan 2014 waterway overlay (see **Appendix G**) maps the western boundary of the school as being within a citywide waterway corridor (associated with Witton Creek) and maps a portion of the northern boundary as being within a local waterway corridor. The latter is associated with a drainage line that flows only during heavy rainfall (see Q4 assessment site details in **Table 3.1**).

4.0 RECOMMENDED MITIGATION MEASURES

The following management measures are recommended to mitigate any impacts of the proposed development on environmental values:

- Install and maintain appropriate sediment controls during earthworks on the site to minimise the flow of sediment into Witton Creek, particularly during heavy rainfall events;
- Fell trees away from vegetation to be retained to avoid unnecessary impacts on retained vegetation;
- Ensure a qualified and experienced fauna spotter-catcher is present to check vegetation for arboreal fauna, and safely remove any fauna immediately prior to vegetation clearing, releasing any captured fauna nearby but outside the works area. If the fauna spotter discovers any animal breeding activity in the clearing area, the clearing would need to occur under a Damage Mitigation Permit issued by DES, which may be held either by the fauna spotter, clearing contractor or Department of Education; and
- Use native trees and shrubs in any landscape plantings to mitigate the loss of feeding resources associated with the native trees cleared for the proposed development.

5.0 ASSESSMENT OF IMPACTS

The assessment of the significance of impacts of an action on matters of national environmental significance (MNES) protected under the EPBC Act is prescribed by a variety of policy statements that provide guidelines for the assessment of impact significance (e.g. Commonwealth of Australia 2003, 2013, 2015a, b). The assessment of the significance of impacts of an action on matters of state environmental significance (MSES) protected under various statutes is prescribed by the Queensland Environmental Offsets Policy Significant Residual Impact Guideline (State of Queensland 2014).

The Project proposes to remove 14 native trees within a non-remnant area but contiguous with a patch of remnant woodland. While the trees provide seasonal foraging resources for fauna, including seasonally for Grey-headed Flying-fox and possibly rarely for Swift Parrot, the small number of trees proposed to be cleared means that the magnitude of the impact is very small. When assessed against the criteria for the assessment of impact significance prescribed by the relevant guidelines for MNES and MSES, the Project is highly unlikely to result in a significant impact on any fauna species listed as threatened, near threatened or migratory under the EPBC Act and/or NC Act.

The Project activities are exempt from the VM Act, in accordance with Schedule 21 (Part 1, Section 1 (14)) of the *Planning Regulation 2017*, since the clearing of vegetation is for the construction or maintenance of necessary infrastructure for an educational facility. Notwithstanding this exemption, the Project will have no direct impact on any remnant vegetation or Essential Habitat that are protected MSES under the VM Act.

As the Project is assessed as unlikely to have a significant impact on any MNES or MSES, an offset in accordance with either the EPBC Act Environmental Offsets Policy (Commonwealth of Australia 2012) or Queensland Environmental Offsets Policy (State of Queensland 2017) is assessed as not being required.

6.0 CONFIRMATION OF EXEMPT CLEARING NOTIFICATION FORM AND SUBMISSION REQUIREMENTS

6.1 FOR EXEMPT CLEARING IN A 'HIGH RISK' AREA

The *Flora Survey Guidelines – Protected Plants* (State of Queensland 2016a) stipulate that, where no EVNT species are identified within the clearing "impact" area (which includes the 100m buffer) within a mapped 'high risk' area, an exempt clearing notification form is required to be submitted to EHP for any vegetation clearing within a mapped high risk area. This Protected Flora Survey Report should accompany the notification form as an attachment.

Section 261ZA requires that the exemption form and supporting report are submitted at least one week before clearing commences, but no later than one year after the completion of the flora survey that was undertaken for the report (i.e. by 19 April 2019). Following submission of the exemption form, the applicant will receive a receipt of the submission providing approval for the clearing to commence (State of Queensland 2016b).

7.0 REFERENCES

ALA (2018). The Atlas of Living Australia online database. Available at: http://www.ala.org.au/.

Churchill, S (2008). Australian bats. 2nd edn. Allen & Unwin, Crows Nest.

Commonwealth of Australia (2003). EPBC Administrative Guidelines on Significance: Supplement for the Grey-headed Flying-fox. Department of the Environment and Heritage, Canberra.

Commonwealth of Australia (2012). Environment Protection and Biodiversity Conservation Act 1999 Environmental Offsets Policy. Department of the Environment, Canberra.

Commonwealth of Australia (2013). Significant impact guidelines 1.1: Matters of National Environmental Significance under the Environment Protection and Biodiversity Conservation Act 1999. Department of the Environment, Canberra.

Commonwealth of Australia (2015a). EPBC Act Policy Statement 3.21—Industry guidelines for avoiding, assessing and mitigating impacts on EPBC Act listed migratory shorebird species. Department of the Environment, Canberra.

Commonwealth of Australia (2015b). Draft referral guideline for 14 birds listed as migratory species under the EPBC Act. Department of the Environment, Canberra.

Curtis, LK, Dennis, AJ, McDonald, KR, Kyne, PM, Debus, SJS (2012). Queensland's Threatened Animals. CSIRO Publishing, Victoria.

Czechura, G (1995). 'Frogs.' In: M Ryan (ed.), Wildlife of Greater Brisbane. Queensland Museum, Brisbane. pp. 143-164.

EHP (2016). Plunkett mallee – *Eucalyptus curtisii*, WetlandInfo, Department of Environment and Heritage Protection, Queensland.

Garnett, ST, Szabo, JK and Dutson, G (2011). The Action Plan for Australian Birds 2010. CSIRO Publishing, Victoria.

Higgins, PJ (ed.) (1999). Handbook of Australian, New Zealand and Antarctic birds, Vol. 4, Parrots to dollarbird. Oxford University Press, Melbourne.

Leiper et al. (2008). Mountain to Mangroves revised edition. Society for Growing Australian Plants. Logan Branch.

Marchant, S and Higgins, PJ (eds.) (1993). Handbook of Australian, New Zealand and Antarctic birds, Vol. 2, Raptors to lapwings. Oxford University Press, Melbourne.

Martin, RW, Handasyde, KA and Krockenberger (2008).'Koala.' In: S Van Dyck and R Strahan (eds.), 'The mammals of Australia.' 3rd edn. Reed New Holland: Sydney. pp.198–201.

QPWS (2001). Recovery plan for the angle-stemmed myrtle *Austromyrtus gonoclada* 2001-2005. Report to Environment Australia, Canberra. Queensland Parks and Wildlife Service, Brisbane.

Robinson, M (1993). A Field Guide to Frogs of Australia. Australian Museum & Reed Books, Chatswood.

State of Queensland (2014). Queensland Environmental Offsets Policy Significant Residual Impact Guideline. Department of Environment and Heritage Protection, Brisbane.

State of Queensland (2016a). *Flora Survey Guidelines – Protected Plants* (Version 2.00). Department of Environment and Heritage Protection, Queensland Government, Brisbane.

State of Queensland (2016b). Protected Plants. https://www.ehp.qld.gov.au/licences-permits/plants-animals/protected-plants/index.html

State of Queensland (2017). Queensland Environmental Offsets Policy, Version 1.4. Department of Environment and Heritage Protection, Brisbane.

Sunshine Coast Council (SCC) (2006). Conservation Management Profile - Queensland nut tree *Macadamia integrifolia*.

APPENDIX A

Protected Plants Flora Survey Trigger map, declaration letter and CV

12/04/2018 16:59:03
Lot: 285 Plan: SP104042

Protected Plants Flora Survey Trigger Map

Legend

- Lot and Plan
- High risk area
- Cadastral line
  Property boundaries shown are provided as a locational aid only
- Freeways / motorways / highways
- Secondary roads / streets

N

0 40 80 120 160 200 m

This product is projected into:
GDA 1994 Queensland Albers

This map shows areas where particular provisions of the Nature Conservation Act 1992 apply to the clearing of protected plants.

This map is produced at a scale relevant to the size of the area selected and should be printed as A4 size in portrait orientation.

For further information or assistance with interpretation of this product, please contact the Department of Environment and Science at palm@ehp.qld.gov.au

Disclaimer:
While every care is taken to ensure the accuracy of the data used to generate this product, the Queensland Government makes no representations or warranties about its accuracy, reliability, completeness or suitability for any particular purpose and disclaim all responsibility and all liability (including without limitation, liability in negligence) for all expenses, losses, damages (including indirect or consequential damages) and costs which might be incurred as a consequence of reliance on the data, or as a result of the data being inaccurate or incomplete in any way and for any reason.

© The State of Queensland (Department of Environment and Science), 2018

Queensland Government

The revised Queensland *Flora Survey Guidelines – Protected Plants* (State of Queensland 2016) require (under Section 7.2) that the flora survey report must include certification by the suitably qualified person(s) whom led and coordinated the flora survey. The certification statement below fulfils this requirement.

I the undersigned certify that (a) I have adhered to all statutory requirements and flora survey guideline requirements, and (b) the flora survey report is an accurate and full account of the flora survey.

……
Dr Penn Lloyd (Principal Ecologist, Biodiversity Assessment and Management Pty Ltd)

Date: 26/04/2018

DR PENN LLOYD

PRINCIPAL ECOLOGIST

SPECIALISATION

- Ecological assessment, risk assessment, impact mitigation and impact assessment for mining, development and infrastructure projects.
- Survey and habitat assessment of terrestrial fauna and flora.
- Specialist migratory shorebird survey, impact assessment and management.
- Ecological monitoring, reporting, due diligence and practical management advice.
- Environmental value assessment and planning for management of biodiversity and ecological function, including the assessment and management of offsets.

EDUCATION & PROFESSIONAL QUALIFICATIONS

PhD Ornithology: University of Cape Town (1998); MSc Zoology: Rhodes University (1993); BSc Honours (majoring in Zoology and Botany): Rhodes University (1988).
Certified Environmental Practitioner (CEnvP) Ecology Specialist

KEY EXPERIENCE

Penn leads the ecology team at BAAM, has 25 years of field experience as a terrestrial ecologist, and has undertaken, managed or reviewed a wide variety of baseline studies, terrestrial ecology assessments for Environmental Impact Statements (EIS), and species and offsets management or monitoring plans/programs within the mining, infrastructure industrial and residential sectors. He has extensive experience with a wide variety of fauna and flora survey techniques, habitat mapping methodologies, impact assessment and reporting to ensure best practice ecological assessment to meet regulatory guidelines. Penn has published 60 peer-reviewed scientific publications in ecology and has authored 190 consultancy reports, including 24 protected plant surveys. He has completed projects throughout Queensland, in the Northern Territory, northern New South Wales, Victoria, South Africa, Papua New Guinea and Fiji.

RELEVANT FLORA EXPERIENCE

Targeted flora and protected plant surveys:

- Protected Plant Surveys: Blackwater Sustaining Stripping (8th Dragline) Study, for Advisian on behalf of BHP (2018); Beenleigh Quarry, Luscombe, for Holcim (Australia) (2018); Millmerran Solar Farm, Millmerran, for AECOM Australia Pty Ltd (2017); Nursery Road State Special School, for Hutchinson Builders (2017); M1 Upgrade Stage 2, for AECOM on behalf of the Department of Transport and Main Roads (DTMR) (2017); BMC Dragline Move Project, Moranbah, for Advisian on behalf of BHP Billiton Mitsui Coal (2017); Toowoomba Quarry, Toowoomba, for Holcim (Australia) Pty Ltd (2016); Coolum State High School, Coolum Beach, for Hutchinson Builders (2016); Wolffdene Quarry internal access road, for Groundwork Plus on behalf of Hanson Construction Materials Pty Ltd (2016); Wolffdene Quarry (Areas 1 and 3), for Groundwork Plus on behalf of Hanson (2016); Stage 2 Bulimba Creek Trunk Sewer, for MWH Global (2016); Green Mountains Campground, Lamington National Park, for O'Reilly's Rainforest Retreat (2016); Queensland Sport and Athletics Centre, 590 Mains Road, Nathan, for Department of Housing and Public Works (2016); Bruce Highway Upgrade Cooroy to Curra Section D (Keefton Road to Curra) P2 & P3 Geotechnical Investigations, for Jacobs on behalf of DTMR (2015); Lot 3 SP167885, Champions Way, Willowbank, for Duggan & Hede Pty Ltd (2014); O'Mara Road, Wellcamp, Toowoomba, for Duggan & Hede Pty Ltd (2014); Sunrock Quarry, Beerburrum, for Holcim (Australia) Pty Ltd (2014).
- Detailed Terrestrial Flora Surveys, Bruce Highway Cooroy to Curra (Section D: Woondum to Curra), for Advisian on behalf of Department of Transport and Main Roads (2016).

Flora impact management plans (IMPs), translocation plans and offset management plans

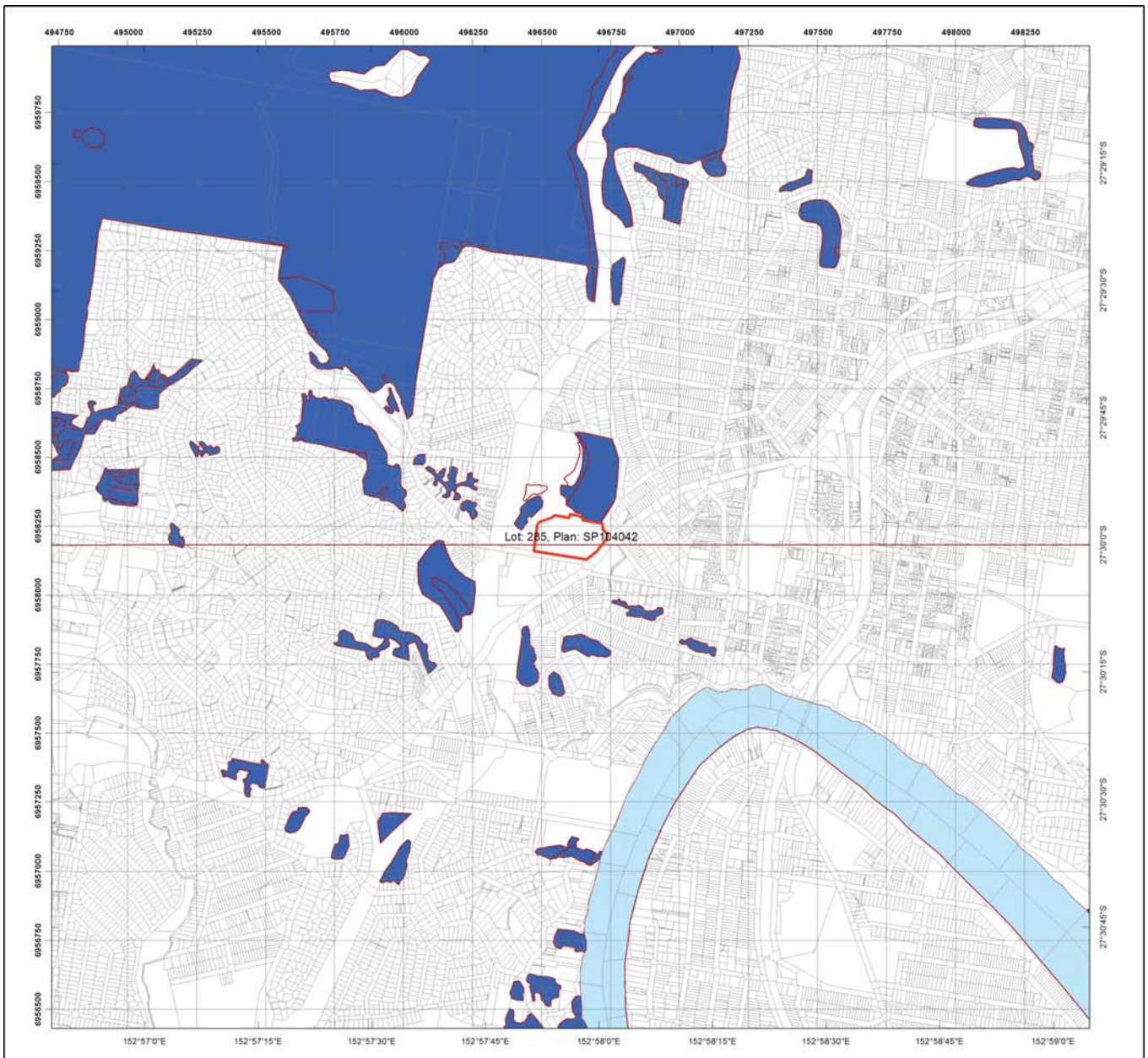
- *Marsdenia coronata* Protected Plant Impact Management Plans, Beenleigh Quarry. Report prepared for Holcim (Australia) (2018).
- Protected Plant Impact Management Plans, Areas 1 and 3, and Offset Area Management Plan, Wolffdene Quarry, for Groundwork Plus on behalf of Hanson Construction Materials Pty Ltd (2016).
- Significant flora translocation and monitoring, Gold Coast Airport Project LIFT, for Fulton Hogan (2016).
- *Macrozamia pauli-guilielmi* Translocation Plan, Bruce Highway Cooroy to Curra (Section D: Woondum to Curra), for Advisian on behalf of Department of Transport and Main Roads (2016).
- *Macrozamia pauli-guilielmi* Impact Management Plan, Bruce Highway Upgrade (Cooroy to Curra) Section D: Keefton Road to Curra P2 & P3 Geotechnical Investigations, for Jacobs on behalf of Department of Transport and Main Roads (2015).
- Offset Restoration and Management Plan, Great Keppel Island, for FRC Environmental on behalf of Tower Holdings (2014).
- *Melaleuca irbyana* Impact Management Plan, Lot 3 SP167885, Champions Way, Willowbank, for Duggan & Hede Pty Ltd (2014).

PROFESSIONAL HISTORY

2010–present	**BAAM:** Principal Ecologist
2009	**Meat & Livestock Australia:** Project Manager
2005–2008	**Percy FitzPatrick Institute, University of Cape Town:** Centre of Excellence Research Manager
2002–2004	**Montana Cooperative Wildlife Research Unit, University of Montana:** Post-doctoral Researcher

APPENDIX B

Regulated Vegetation and Referable Wetland mapping for the study area

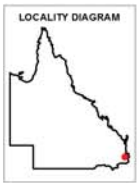


Proposed Regulated Vegetation Management Map

Please note, the Government has proposed changes to the Category C and Category R areas which are shown on this map. For more information on these changes, please refer to the Department's website.

Legend

- Lot and Plan
- Category A area (Vegetation offsets/compliance notices/VDecs)
- Category B area (Remnant vegetation)
- Category C area (High-value regrowth vegetation)
- Category R area (Reef regrowth watercourse vegetation)
- Category X area (Exempt clearing work on Freehold, Indigenous and Leasehold land)
- Proposed Category C (Proposed high-value regrowth)
- Proposed Category R (Proposed reef regrowth watercourse vegetation)
- Water
- Area not categorised
- Cadastral line
  Property boundaries shown are provided as a locational aid only

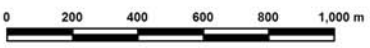


Disclaimer:
While every care is taken to ensure the accuracy of this product, the Department of Natural Resources, Mines and Energy makes no representations or warranties about its accuracy, reliability, completeness or suitability for any particular purpose and disclaims all responsibility and all liability (including without limitation, liability in negligence) for all expenses, losses, damages (including indirect or consequential damage) and costs which you might incurr as a result of the product being inaccurate or incomplete in any way and for any reason.

Additional information required for the assessment of vegetation values is provided in the accompanying "Vegetation Management Supporting map". For further information go to the web site: www.dnrme.qld.gov.au or contact the Department of Natural Resources, Mines and Energy.

Digital data for the proposed regulated vegetation management map is available from the Queensland Spatial Portal at http://www.information.qld.gov.au/

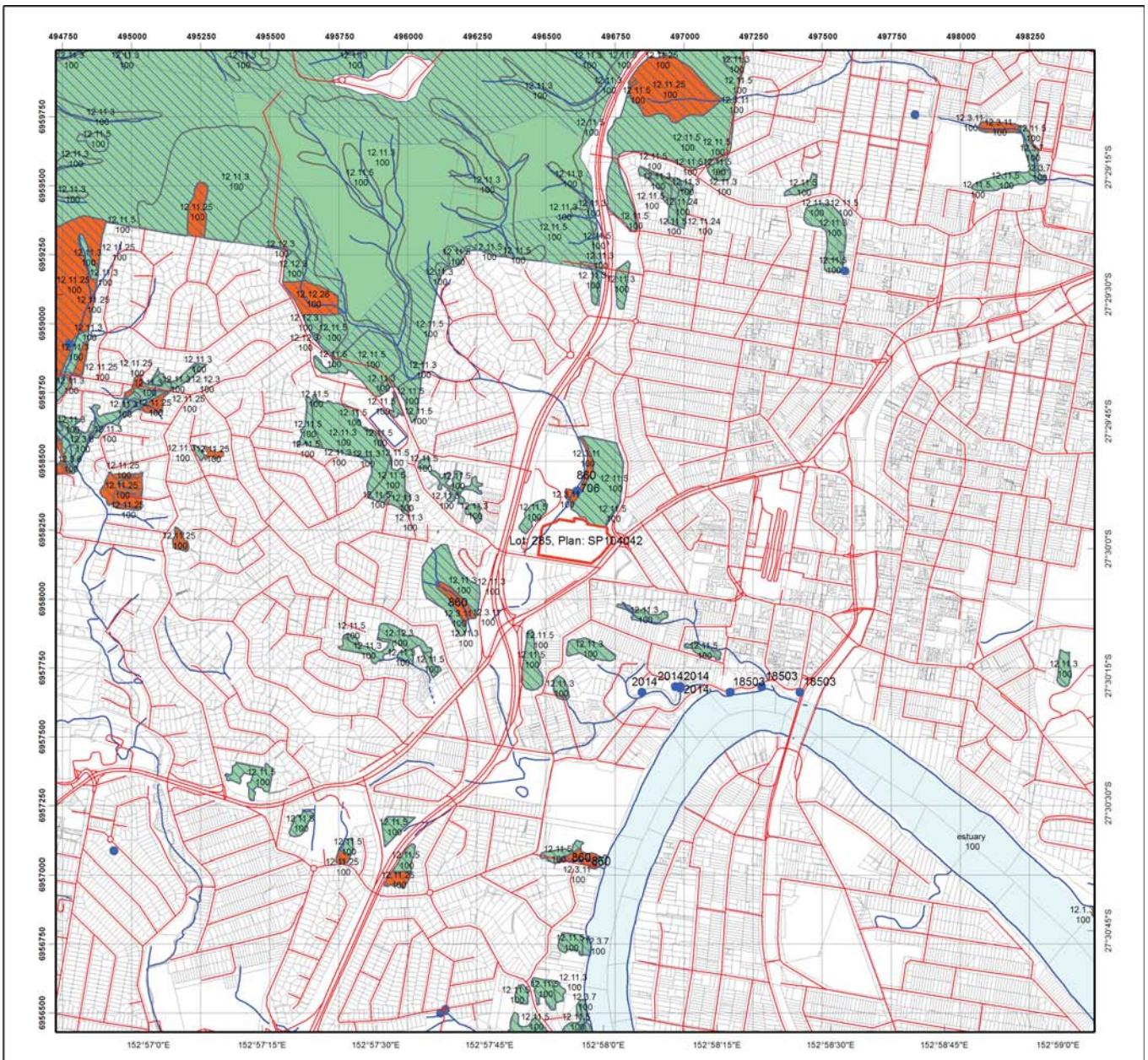
This map is updated on a monthly basis to ensure new PMAVs are included as they are approved.



Queensland Government

This product is projected into:
GDA 1994 MGA Zone 56

© The State of Queensland (Department of Natural Resources, Mines and Energy), 2018



Proposed Vegetation Management Supporting Map

Please note that proposed Category C is shown in the same colours as existing areas of Category C

Legend

- Lot and Plan
- Category A or B area containing endangered regional ecosystems
- Category A or B area containing of concern regional ecosystems
- Category A or B area that is a least concern regional ecosystem
- Category A or B area under Section 20AH
  These areas are edged in yellow and filled with the remnant RE Status
- Category C or proposed Category C area containing endangered regional ecosystems
- Category C or proposed Category C area containing of concern regional ecosystems
- Category C or proposed Category C area that is a least concern regional ecosystem
- Category C area under Section 20AI
  These areas are edged in purple and filled with the remnant RE Status
- Non Remnant
- Water
- Wetland on the vegetation management wetlands map
- Proposed essential habitat
- Essential habitat record
- Watercourses and drainage features on the vegetation management watercourse and drainage features map
  (Stream order shown as black number against stream where available)
- Roads
- National Parks, State Forest and other reserves
- Cadastral line
  Property boundaries shown are provided as a locational aid only

LOCALITY DIAGRAM

N

0 140 280 420 560 700 m

This product is projected into:
GDA 1994 MGA Zone 56

Labels for proposed essential habitat are centred on the area of enquiry.

Regional ecosystem linework has been compiled at a scale of 1:100 000, except in designated areas where a compilation scale of 1:50 000 is available. Linework should be used as a guide only. The positional accuracy of RE data mapped at a scale of 1:100 000 is +/- 100 metres.

Disclaimer:
While every care is taken to ensure the accuracy of this product, the Department of Natural Resources, Mines and Energy makes no representations or warranties about its accuracy, reliability, completeness or suitability for any particular purpose and disclaims all responsibility and all liability (including without limitation, liability in negligence) for all expenses, losses, damages (including indirect or consequential damage) and costs which you might incurr as a result of the product being inaccurate or incomplete in any way and for any reason.

Additional information may be required for the purposes of land clearing or assessment of a regional ecosystem map or PMAV applications. For further information go to the web site: www.dnrme.qld.gov.au or contact the Department of Natural Resources, Mines and Energy.

Digital data for the vegetation management watercourse and drainage feature map, proposed vegetation management wetlands map, proposed essential habitat map and the proposed vegetation management regional ecosystem map are available from the Queensland Spatial Portal at http://www.information.qld.gov.au/

Queensland Government

© The State of Queensland (Department of Natural Resources, Mines and Energy), 2018

The Government has proposed changes to essential habitat which are included below

Vegetation Management Act 1999 - Extract from the essential habitat database

Proposed essential habitat is required for assessment under the:

- State Development Assessment Provisions - State Code 16: Native vegetation clearing which sets out the matters of interest to the state for development assessment under the *Planning Act 2016*; and
- Accepted development vegetation clearing codes made under the *Vegetation Management Act 1999*

Proposed essential habitat for one or more of the following species is found on and within 1.1 km of the identified subject lot/s on the accompanying proposed essential habitat map.

This report includes proposed essential habitat in Category A, B and Category C areas, as well as proposed Category C areas.

The numeric labels on the proposed essential habitat map can be cross referenced with the database below to determine which essential habitat factors might exist for a particular species.

Proposed essential habitat is compiled from a combination of species habitat models and buffered species records.

The Department of Natural Resources, Mines and Energy website (http://www.dnrme.qld.gov.au) has more information on how the layer is applied under the State Development Assessment Provisions - State Code 16: Native vegetation clearing and the *Vegetation Management Act 1999*.

Regional ecosystem is a mandatory essential habitat factor, unless otherwise stated.

Proposed essential habitat, for protected wildlife, means a Category A area, a Category B area, a Category C area or proposed Category C area shown on the regulated vegetation management map-

1) that has at least 3 essential habitat factors for the protected wildlife that must include any essential habitat factors that are stated as mandatory for the protected wildlife in the essential habitat database; or

2) in which the protected wildlife, at any stage of its life cycle, is located.

Proposed essential habitat identifies endangered, vulnerable or near threatened native wildlife prescribed under the *Nature Conservation Act 1992*.

Proposed essential habitat in Category A and/or Category B and/or Category C and/or proposed Category C

Label	Scientific Name	Common Name	NCA Status	Vegetation Community	Altitude	Soils	Position in Landscape
706	Adelotus brevis	tusked frog	V	In cavities, under debris (logs, stones) in subtropical vine forest, tall open moist forest, heaths, Melaleuca swamp and pasturelands near puddles and streams.	Sea level to 1000m.	None	None
2014	Ornithoptera richmondia	Richmond birdwing	V	Lowland (including littoral & gallery) and upland subtropical rainforest with Paristolochia praevenosa and P. laheyana respectively; P. praevenosa occurs below 600m asl on basaltic slopes, creek banks, or on volcanic alluvial soils near watercourses, while P. laheyana occurs on basaltic ridges and slopes at >800m asl.	Sea level to >800m.	Basalt and volcanic alluvial substrates.	None
18503	Lilaeopsis brisbanica	None	E	On edge of mangroves, dominated by Aegiceras corniculata, with some Avicennia, Excoecaria	0 to 10 m	Mud on river banks (Hydrosols)	tidal riverbanks

Label	Regional Ecosystem (mandatory unless otherwise specified)
706	8.2.1, 8.2.2, 8.2.3, 8.2.4, 8.2.5, 8.2.6, 8.2.7, 8.2.8, 8.2.11, 8.2.12, 8.2.13, 8.2.14, 8.3.1, 8.3.2, 8.3.3, 8.3.5, 8.3.6, 8.3.8, 8.3.9, 8.3.10, 8.3.11, 8.3.13, 8.5.1, 8.5.2, 8.5.3, 8.5.5, 8.5.6, 8.8.1, 8.9.1, 8.10.1, 8.11.1, 8.11.2, 8.11.3, 8.11.4, 8.11.5, 8.11.6, 8.11.8, 8.12.1, 8.12.2, 8.12.3, 8.12.4, 8.12.5, 8.12.6, 8.12.7, 8.12.8, 8.12.9, 8.12.10, 8.12.11, 8.12.12, 8.12.14, 8.12.16, 8.12.17, 8.12.18, 8.12.19, 8.12.20, 8.12.22, 8.12.23, 8.12.25, 8.12.26, 8.12.27, 8.12.28, 8.12.29, 8.12.30, 8.12.31, 8.12.32, 11.2.1, 11.2.2, 11.2.3, 11.2.5, 11.3.1, 11.3.2, 11.3.3, 11.3.4, 11.3.5, 11.3.6, 11.3.7, 11.3.8, 11.3.9, 11.3.10, 11.3.11, 11.3.12, 11.3.13, 11.3.14, 11.3.15, 11.3.16, 11.3.17, 11.3.18, 11.3.19, 11.3.20, 11.3.23, 11.3.25, 11.3.26, 11.3.27, 11.3.28, 11.3.29, 11.3.30, 11.3.32, 11.3.33, 11.3.34, 11.3.35, 11.3.36, 11.3.37, 11.3.38, 11.3.39, 11.3.40, 11.4.1, 11.4.2, 11.4.3, 11.4.5, 11.4.6, 11.4.7, 11.4.8, 11.4.9, 11.4.10, 11.4.12, 11.4.13, 11.5.1, 11.5.2, 11.5.3, 11.5.4, 11.5.5, 11.5.7, 11.5.8, 11.5.9, 11.5.12, 11.5.13, 11.5.14, 11.5.15, 11.5.16, 11.5.17, 11.5.20, 11.5.21, 11.7.1, 11.7.2, 11.7.3, 11.7.4, 11.7.6, 11.7.7, 11.8.1, 11.8.2, 11.8.3, 11.8.4, 11.8.5, 11.8.6, 11.8.8, 11.8.9, 11.8.11, 11.8.12, 11.8.13, 11.8.14, 11.8.15, 11.9.1, 11.9.2, 11.9.3, 11.9.4, 11.9.5, 11.9.6, 11.9.7, 11.9.8, 11.9.9, 11.9.10, 11.9.13, 11.9.14, 11.10.1, 11.10.2, 11.10.4, 11.10.5, 11.10.6, 11.10.7, 11.10.8, 11.10.9, 11.10.11, 11.10.12, 11.10.13, 11.11.1, 11.11.2, 11.11.3, 11.11.4, 11.11.5, 11.11.6, 11.11.7, 11.11.8, 11.11.9, 11.11.10, 11.11.11, 11.11.12, 11.11.13, 11.11.14, 11.11.15, 11.11.16, 11.11.17, 11.11.18, 11.11.19, 11.11.20, 11.11.21, 12.11.24, 12.11.25, 12.11.26, 12.11.27, 12.11.28, 11.12.1, 11.12.2, 11.12.3, 11.12.4, 11.12.5, 11.12.6, 11.12.7, 11.12.8, 11.12.9, 11.12.10, 11.12.11, 11.12.12, 11.12.13, 11.12.14, 11.12.16, 11.12.17, 11.12.18, 11.12.19, 11.12.20, 11.12.21, 12.2.1, 12.2.2, 12.2.3, 12.2.4, 12.2.5, 12.2.6, 12.2.7, 12.2.8, 12.2.9, 12.2.10, 12.2.11, 12.2.12, 12.2.13, 12.3.1, 12.3.2, 12.3.3, 12.3.4, 12.3.5, 12.3.6, 12.3.7, 12.3.9, 12.3.10, 12.3.11, 12.3.12, 12.3.13, 12.3.14, 12.3.15, 12.3.16, 12.3.17, 12.3.18, 12.3.19, 12.3.20, 12.3.21, 12.5.1, 12.5.2, 12.5.3, 12.5.4, 12.5.5, 12.5.6, 12.5.7, 12.5.8, 12.5.10, 12.5.11, 12.5.12, 12.5.13, 12.7.1, 12.7.2, 12.8.1, 12.8.2, 12.8.3, 12.8.4, 12.8.5, 12.8.6, 12.8.7, 12.8.8, 12.8.9, 12.8.10, 12.8.11, 12.8.12, 12.8.13, 12.8.14, 12.8.16, 12.8.17, 12.8.18, 12.8.19, 12.8.20, 12.8.21, 12.8.22, 12.8.23, 12.8.24, 12.8.25, 12.8.26, 12.9-10.1, 12.9-10.2, 12.9-10.3, 12.9-10.4, 12.9-10.5, 12.9-10.6, 12.9-10.7, 12.9-10.8, 12.9-10.9, 12.9-10.12, 12.9-10.13, 12.9-10.14, 12.9-10.16, 12.9-10.17, 12.9-10.18, 12.9-10.19, 12.9-10.20, 12.9-10.21, 12.9-10.23, 12.9-10.24, 12.9-10.25, 12.9-10.26, 12.9-10.28, 12.9-10.29, 12.11.1, 12.11.2, 12.11.3, 12.11.4, 12.11.5, 12.11.6, 12.11.7, 12.11.8, 12.11.9, 12.11.10, 12.11.11, 12.11.12, 12.11.13, 12.11.14, 12.11.15, 12.11.16, 12.11.17, 12.11.18, 12.11.19, 12.11.20, 12.11.21, 12.11.22, 12.11.23, 12.12.1, 12.12.2, 12.12.3, 12.12.4, 12.12.5, 12.12.6, 12.12.7, 12.12.8, 12.12.9, 12.12.11, 12.12.12, 12.12.13, 12.12.14, 12.12.15, 12.12.16, 12.12.17, 12.12.18, 12.12.20, 12.12.21, 12.12.22, 12.12.23, 12.12.24, 12.12.25, 12.12.26, 12.12.27, 12.12.28, 13.3.1, 13.3.2, 13.3.3, 13.3.4, 13.3.5, 13.3.7, 13.9.2, 13.11.1, 13.11.2, 13.11.3, 13.11.4, 13.11.5, 13.11.6, 13.11.7, 13.11.8, 13.12.1, 13.12.2, 13.12.3, 13.12.4, 13.12.5, 13.12.8, 13.12.9, 13.12.10, 13.12.11
2014	12.2.1, 12.2.2, 12.2.3, 12.5.13, 12.8.3, 12.8.4, 12.8.5, 12.8.6, 12.8.7, 12.8.13, 12.8.18, 12.8.21, 12.8.22, 12.9-10.16, 12.11.1, 12.11.4, 12.11.10, 12.11.11, 12.11.12, 12.11.13, 12.12.1, 12.12.13, 12.12.16, 12.12.17, 12.12.18
18503	12.1.3

Map of Referable Wetlands
Wetland Protection Areas

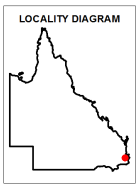
Lot and Plan

Cadastral Boundary

Wetland Protection Areas

Wetland

Trigger Area



N

Note:
This map shows the location of wetland protection areas which are defined under the Environmental Protection Regulation 2008. Within wetland protection areas, certain types of development involving high impact earthworks are made assessable under Schedule 3 of the Sustainable Planning Regulation 2009.

The Department of State Development, Manufacturing, Infrastructure and Planning is the State Assessment Referral Agency (SARA) under Schedule 7 of the Sustainable Planning Regulation 2009 for assessable development involving high impact earthworks within wetland protection areas. The Department of Environment and Science is a technical agency.

The policy outcome and assessment criteria for assessing these applications are described in the State Development Assessment Provisions (SDAP) *Module 11: Wetlands and wild rivers.*

This map is produced at a scale relevant to the size of the lot on plan identified and should be printed at A4 size in portrait orientation. Consideration of the effects of mapped scale is necessary when interpreting data at a large scale.

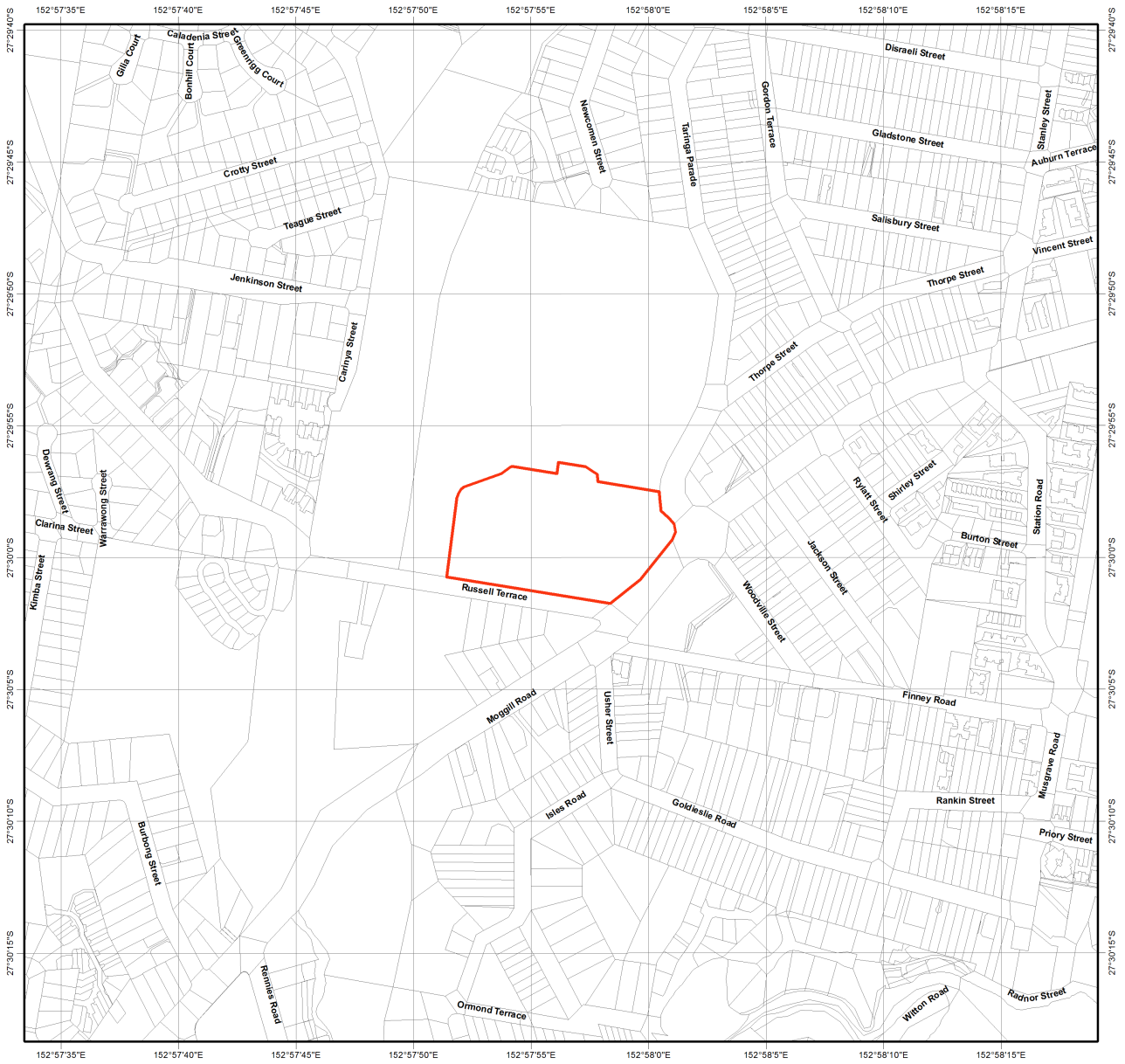
For further information or assistance with interpretation of this product, please contact the Department of Environment and Science, email planning.support@des.qld.gov.au.

0 60 120 180 240 300 m

This product is projected into GDA 1994 MGA Zone 56

© The State of Queensland, 2018

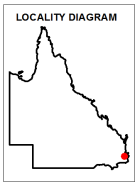
Queensland Government



Map of Referable Wetlands for the Environmental Protection Act 1994

Lot and Plan
Cadastral Boundary
HES Wetland
GES Wetland

LOCALITY DIAGRAM



N

Note:
This map shows the location of wetlands on the Map of Referable Wetlands which are defined under the Environmental Protection Regulation 2008.

Wetlands are assessed for ecological significance using the environmental values for wetlands in section 81A of the Environmental Protection Regulation 2008. Wetlands are considered either High Ecological Significance (HES) or of General Ecological Significance (GES) for the purposes of the environmental values.

This map is produced at a scale relevant to the size of the lot on plan identified and should be printed at A4 size in portrait orientation. Consideration of the effects of mapped scale is necessary when interpreting data at a large scale.

For further information or assistance with interpretation of this product, please contact the Department of Environment and Science, email planning.support@des.qld.gov.au.

0 60 120 180 240 300 m

This product is projected into GDA 1994 MGA Zone 56

© The State of Queensland, 2018

Queensland Government

APPENDIX C

Protected Matters Search Tool database results for the study area

EPBC Act Protected Matters Report

This report provides general guidance on matters of national environmental significance and other matters protected by the EPBC Act in the area you have selected.

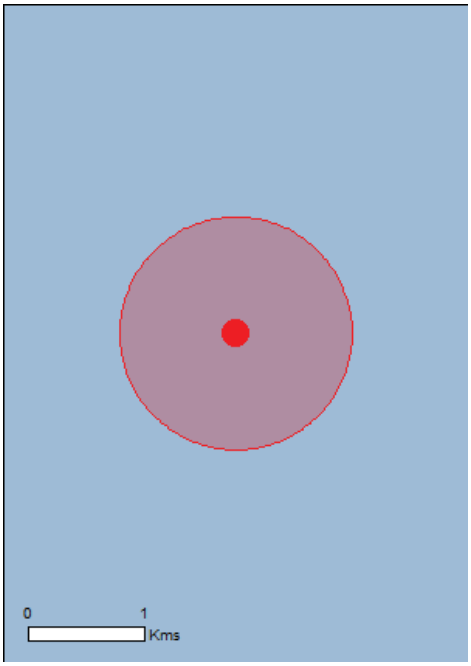
Information on the coverage of this report and qualifications on data supporting this report are contained in the caveat at the end of the report.

Information is available about Environment Assessments and the EPBC Act including significance guidelines, forms and application process details.

Report created: 12/04/18 17:04:57

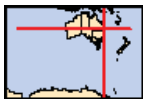
Summary
Details
- Matters of NES
- Other Matters Protected by the EPBC Act
- Extra Information

Caveat
Acknowledgements



This map may contain data which are ©Commonwealth of Australia (Geoscience Australia), ©PSMA 2010

Coordinates
Buffer: 1.0Km



Summary

Matters of National Environmental Significance

This part of the report summarises the matters of national environmental significance that may occur in, or may relate to, the area you nominated. Further information is available in the detail part of the report, which can be accessed by scrolling or following the links below. If you are proposing to undertake an activity that may have a significant impact on one or more matters of national environmental significance then you should consider the Administrative Guidelines on Significance.

World Heritage Properties:	None
National Heritage Places:	None
Wetlands of International Importance:	None
Great Barrier Reef Marine Park:	None
Commonwealth Marine Area:	None
Listed Threatened Ecological Communities:	2
Listed Threatened Species:	55
Listed Migratory Species:	34

Other Matters Protected by the EPBC Act

This part of the report summarises other matters protected under the Act that may relate to the area you nominated. Approval may be required for a proposed activity that significantly affects the environment on Commonwealth land, when the action is outside the Commonwealth land, or the environment anywhere when the action is taken on Commonwealth land. Approval may also be required for the Commonwealth or Commonwealth agencies proposing to take an action that is likely to have a significant impact on the environment anywhere.

The EPBC Act protects the environment on Commonwealth land, the environment from the actions taken on Commonwealth land, and the environment from actions taken by Commonwealth agencies. As heritage values of a place are part of the 'environment', these aspects of the EPBC Act protect the Commonwealth Heritage values of a Commonwealth Heritage place. Information on the new heritage laws can be found at http://www.environment.gov.au/heritage

A permit may be required for activities in or on a Commonwealth area that may affect a member of a listed threatened species or ecological community, a member of a listed migratory species, whales and other cetaceans, or a member of a listed marine species.

Commonwealth Land:	None
Commonwealth Heritage Places:	None
Listed Marine Species:	40
Whales and Other Cetaceans:	1
Critical Habitats:	None
Commonwealth Reserves Terrestrial:	None
Commonwealth Reserves Marine:	None

Extra Information

This part of the report provides information that may also be relevant to the area you have nominated.

State and Territory Reserves:	None
Regional Forest Agreements:	None
Invasive Species:	48
Nationally Important Wetlands:	None
Key Ecological Features (Marine)	None

Details

Matters of National Environmental Significance

Listed Threatened Ecological Communities [Resource Information]

For threatened ecological communities where the distribution is well known, maps are derived from recovery plans, State vegetation maps, remote sensing imagery and other sources. Where threatened ecological community distributions are less well known, existing vegetation maps and point location data are used to produce indicative distribution maps.

Name	Status	Type of Presence
Coastal Swamp Oak (Casuarina glauca) Forest of New South Wales and South East Queensland ecological community	Endangered	Community may occur within area
Lowland Rainforest of Subtropical Australia	Critically Endangered	Community may occur within area

Listed Threatened Species [Resource Information]

Name	Status	Type of Presence
Birds		
Anthochaera phrygia Regent Honeyeater [82338]	Critically Endangered	Foraging, feeding or related behaviour likely to occur within area
Botaurus poiciloptilus Australasian Bittern [1001]	Endangered	Species or species habitat likely to occur within area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area
Dasyornis brachypterus Eastern Bristlebird [533]	Endangered	Species or species habitat likely to occur within area
Diomedea antipodensis Antipodean Albatross [64458]	Vulnerable	Species or species habitat may occur within area
Diomedea antipodensis gibsoni Gibson's Albatross [82270]	Vulnerable	Species or species habitat may occur within area
Diomedea exulans Wandering Albatross [89223]	Vulnerable	Species or species habitat may occur within area
Erythrotriorchis radiatus Red Goshawk [942]	Vulnerable	Species or species habitat known to occur within area
Geophaps scripta scripta Squatter Pigeon (southern) [64440]	Vulnerable	Species or species habitat may occur within area
Lathamus discolor Swift Parrot [744]	Critically Endangered	Species or species habitat likely to occur within area

Name	Status	Type of Presence
Macronectes giganteus Southern Giant-Petrel, Southern Giant Petrel [1060]	Endangered	Species or species habitat may occur within area
Macronectes halli Northern Giant Petrel [1061]	Vulnerable	Species or species habitat may occur within area
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat may occur within area
Pachyptila turtur subantarctica Fairy Prion (southern) [64445]	Vulnerable	Species or species habitat likely to occur within area
Poephila cincta cincta Southern Black-throated Finch [64447]	Endangered	Species or species habitat may occur within area
Rostratula australis Australian Painted Snipe [77037]	Endangered	Species or species habitat likely to occur within area
Thalassarche cauta cauta Shy Albatross, Tasmanian Shy Albatross [82345]	Vulnerable	Species or species habitat may occur within area
Thalassarche cauta steadi White-capped Albatross [82344]	Vulnerable	Species or species habitat likely to occur within area
Thalassarche eremita Chatham Albatross [64457]	Endangered	Species or species habitat may occur within area
Thalassarche impavida Campbell Albatross, Campbell Black-browed Albatross [64459]	Vulnerable	Species or species habitat may occur within area
Thalassarche melanophris Black-browed Albatross [66472]	Vulnerable	Species or species habitat may occur within area
Thalassarche salvini Salvin's Albatross [64463]	Vulnerable	Species or species habitat may occur within area
Turnix melanogaster Black-breasted Button-quail [923]	Vulnerable	Species or species habitat likely to occur within area
Fish		
Epinephelus daemelii Black Rockcod, Black Cod, Saddled Rockcod [68449]	Vulnerable	Species or species habitat may occur within area
Insects		
Argynnis hyperbius inconstans Australian Fritillary [88056]	Critically Endangered	Species or species habitat may occur within area
Mammals		
Chalinolobus dwyeri Large-eared Pied Bat, Large Pied Bat [183]	Vulnerable	Species or species habitat may occur within area
Dasyurus hallucatus Northern Quoll, Digul [Gogo-Yimidir], Wijingadda [Dambimangari], Wiminji [Martu] [331]	Endangered	Species or species habitat likely to occur within area
Dasyurus maculatus maculatus (SE mainland population) Spot-tailed Quoll, Spotted-tail Quoll, Tiger Quoll	Endangered	Species or species

Name	Status	Type of Presence
(southeastern mainland population) [75184]		habitat likely to occur within area
Phascolarctos cinereus (combined populations of Qld, NSW and the ACT)		
Koala (combined populations of Queensland, New South Wales and the Australian Capital Territory) [85104]	Vulnerable	Species or species habitat known to occur within area
Potorous tridactylus tridactylus		
Long-nosed Potoroo (SE mainland) [66645]	Vulnerable	Species or species habitat may occur within area
Pteropus poliocephalus		
Grey-headed Flying-fox [186]	Vulnerable	Foraging, feeding or related behaviour known to occur within area
Plants		
Arthraxon hispidus		
Hairy-joint Grass [9338]	Vulnerable	Species or species habitat may occur within area
Bosistoa transversa		
Three-leaved Bosistoa, Yellow Satinheart [16091]	Vulnerable	Species or species habitat likely to occur within area
Corchorus cunninghamii		
Native Jute [14659]	Endangered	Species or species habitat likely to occur within area
Cryptocarya foetida		
Stinking Cryptocarya, Stinking Laurel [11976]	Vulnerable	Species or species habitat may occur within area
Dichanthium setosum		
bluegrass [14159]	Vulnerable	Species or species habitat likely to occur within area
Fontainea venosa		
[24040]	Vulnerable	Species or species habitat likely to occur within area
Gossia gonoclada		
Angle-stemmed Myrtle [78866]	Endangered	Species or species habitat likely to occur within area
Lepidium peregrinum		
Wandering Pepper-cress [14035]	Endangered	Species or species habitat may occur within area
Macadamia integrifolia		
Macadamia Nut, Queensland Nut Tree, Smooth-shelled Macadamia, Bush Nut, Nut Oak [7326]	Vulnerable	Species or species habitat likely to occur within area
Macadamia ternifolia		
Small-fruited Queensland Nut, Gympie Nut [7214]	Vulnerable	Species or species habitat may occur within area
Macadamia tetraphylla		
Rough-shelled Bush Nut, Macadamia Nut, Rough-shelled Macadamia, Rough-leaved Queensland Nut [6581]	Vulnerable	Species or species habitat may occur within area
Notelaea ipsviciensis		
Cooneana Olive [81858]	Critically Endangered	Species or species habitat may occur within area
Phaius australis		
Lesser Swamp-orchid [5872]	Endangered	Species or species habitat may occur within area
Samadera bidwillii		
Quassia [29708]	Vulnerable	Species or species habitat likely to occur within area
Sophora fraseri		
[8836]	Vulnerable	Species or species

Name	Status	Type of Presence
		habitat may occur within area
Thesium australe Austral Toadflax, Toadflax [15202]	Vulnerable	Species or species habitat may occur within area
Reptiles		
Caretta caretta Loggerhead Turtle [1763]	Endangered	Congregation or aggregation known to occur within area
Chelonia mydas Green Turtle [1765]	Vulnerable	Species or species habitat known to occur within area
Delma torquata Adorned Delma, Collared Delma [1656]	Vulnerable	Species or species habitat likely to occur within area
Dermochelys coriacea Leatherback Turtle, Leathery Turtle, Luth [1768]	Endangered	Species or species habitat known to occur within area
Eretmochelys imbricata Hawksbill Turtle [1766]	Vulnerable	Species or species habitat known to occur within area
Furina dunmalli Dunmall's Snake [59254]	Vulnerable	Species or species habitat may occur within area
Lepidochelys olivacea Olive Ridley Turtle, Pacific Ridley Turtle [1767]	Endangered	Species or species habitat known to occur within area
Natator depressus Flatback Turtle [59257]	Vulnerable	Species or species habitat known to occur within area

Listed Migratory Species [Resource Information]

* Species is listed under a different scientific name on the EPBC Act - Threatened Species list.

Name	Threatened	Type of Presence
Migratory Marine Birds		
Apus pacificus Fork-tailed Swift [678]		Species or species habitat likely to occur within area
Diomedea antipodensis Antipodean Albatross [64458]	Vulnerable	Species or species habitat may occur within area
Diomedea exulans Wandering Albatross [89223]	Vulnerable	Species or species habitat may occur within area
Macronectes giganteus Southern Giant-Petrel, Southern Giant Petrel [1060]	Endangered	Species or species habitat may occur within area
Macronectes halli Northern Giant Petrel [1061]	Vulnerable	Species or species habitat may occur within area
Thalassarche cauta Tasmanian Shy Albatross [89224]	Vulnerable*	Species or species habitat may occur within area
Thalassarche eremita Chatham Albatross [64457]	Endangered	Species or species habitat may occur within area

Name	Threatened	Type of Presence
Thalassarche impavida Campbell Albatross, Campbell Black-browed Albatross [64459]	Vulnerable	Species or species habitat may occur within area
Thalassarche melanophris Black-browed Albatross [66472]	Vulnerable	Species or species habitat may occur within area
Thalassarche salvini Salvin's Albatross [64463]	Vulnerable	Species or species habitat may occur within area
Thalassarche steadi White-capped Albatross [64462]	Vulnerable*	Species or species habitat likely to occur within area
Migratory Marine Species		
Caretta caretta Loggerhead Turtle [1763]	Endangered	Congregation or aggregation known to occur within area
Chelonia mydas Green Turtle [1765]	Vulnerable	Species or species habitat known to occur within area
Dermochelys coriacea Leatherback Turtle, Leathery Turtle, Luth [1768]	Endangered	Species or species habitat known to occur within area
Eretmochelys imbricata Hawksbill Turtle [1766]	Vulnerable	Species or species habitat known to occur within area
Lepidochelys olivacea Olive Ridley Turtle, Pacific Ridley Turtle [1767]	Endangered	Species or species habitat known to occur within area
Manta alfredi Reef Manta Ray, Coastal Manta Ray, Inshore Manta Ray, Prince Alfred's Ray, Resident Manta Ray [84994]		Species or species habitat may occur within area
Manta birostris Giant Manta Ray, Chevron Manta Ray, Pacific Manta Ray, Pelagic Manta Ray, Oceanic Manta Ray [84995]		Species or species habitat may occur within area
Natator depressus Flatback Turtle [59257]	Vulnerable	Species or species habitat known to occur within area
Orcaella brevirostris Irrawaddy Dolphin [45]		Species or species habitat may occur within area
Migratory Terrestrial Species		
Cuculus optatus Oriental Cuckoo, Horsfield's Cuckoo [86651]		Species or species habitat known to occur within area
Hirundapus caudacutus White-throated Needletail [682]		Species or species habitat known to occur within area
Monarcha melanopsis Black-faced Monarch [609]		Species or species habitat known to occur within area
Monarcha trivirgatus Spectacled Monarch [610]		Species or species habitat known to occur within area
Myiagra cyanoleuca Satin Flycatcher [612]		Species or species habitat known to occur

Name	Threatened	Type of Presence within area
Rhipidura rufifrons Rufous Fantail [592]		Species or species habitat known to occur within area
Migratory Wetlands Species		
Actitis hypoleucos Common Sandpiper [59309]		Species or species habitat known to occur within area
Calidris acuminata Sharp-tailed Sandpiper [874]		Species or species habitat known to occur within area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area
Calidris melanotos Pectoral Sandpiper [858]		Species or species habitat known to occur within area
Gallinago hardwickii Latham's Snipe, Japanese Snipe [863]		Species or species habitat may occur within area
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat may occur within area
Pandion haliaetus Osprey [952]		Species or species habitat likely to occur within area
Tringa nebularia Common Greenshank, Greenshank [832]		Species or species habitat likely to occur within area

Other Matters Protected by the EPBC Act

Listed Marine Species		[Resource Information]
* Species is listed under a different scientific name on the EPBC Act - Threatened Species list.		
Name	Threatened	Type of Presence
Birds		
Actitis hypoleucos Common Sandpiper [59309]		Species or species habitat known to occur within area
Anseranas semipalmata Magpie Goose [978]		Species or species habitat may occur within area
Apus pacificus Fork-tailed Swift [678]		Species or species habitat likely to occur within area
Ardea alba Great Egret, White Egret [59541]		Breeding known to occur within area
Ardea ibis Cattle Egret [59542]		Species or species habitat may occur within area
Calidris acuminata Sharp-tailed Sandpiper [874]		Species or species habitat known to occur within area

Name	Threatened	Type of Presence
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area
Calidris melanotos Pectoral Sandpiper [858]		Species or species habitat known to occur within area
Cuculus saturatus Oriental Cuckoo, Himalayan Cuckoo [710]		Species or species habitat known to occur within area
Diomedea antipodensis Antipodean Albatross [64458]	Vulnerable	Species or species habitat may occur within area
Diomedea exulans Wandering Albatross [89223]	Vulnerable	Species or species habitat may occur within area
Diomedea gibsoni Gibson's Albatross [64466]	Vulnerable*	Species or species habitat may occur within area
Gallinago hardwickii Latham's Snipe, Japanese Snipe [863]		Species or species habitat may occur within area
Haliaeetus leucogaster White-bellied Sea-Eagle [943]		Species or species habitat known to occur within area
Hirundapus caudacutus White-throated Needletail [682]		Species or species habitat known to occur within area
Lathamus discolor Swift Parrot [744]	Critically Endangered	Species or species habitat likely to occur within area
Macronectes giganteus Southern Giant-Petrel, Southern Giant Petrel [1060]	Endangered	Species or species habitat may occur within area
Macronectes halli Northern Giant Petrel [1061]	Vulnerable	Species or species habitat may occur within area
Merops ornatus Rainbow Bee-eater [670]		Species or species habitat may occur within area
Monarcha melanopsis Black-faced Monarch [609]		Species or species habitat known to occur within area
Monarcha trivirgatus Spectacled Monarch [610]		Species or species habitat known to occur within area
Myiagra cyanoleuca Satin Flycatcher [612]		Species or species habitat known to occur within area
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat may occur within area
Pachyptila turtur Fairy Prion [1066]		Species or species habitat likely to occur within area

Name	Threatened	Type of Presence
Pandion haliaetus Osprey [952]		Species or species habitat likely to occur within area
Rhipidura rufifrons Rufous Fantail [592]		Species or species habitat known to occur within area
Rostratula benghalensis (sensu lato) Painted Snipe [889]	Endangered*	Species or species habitat likely to occur within area
Thalassarche cauta Tasmanian Shy Albatross [89224]	Vulnerable*	Species or species habitat may occur within area
Thalassarche eremita Chatham Albatross [64457]	Endangered	Species or species habitat may occur within area
Thalassarche impavida Campbell Albatross, Campbell Black-browed Albatross [64459]	Vulnerable	Species or species habitat may occur within area
Thalassarche melanophris Black-browed Albatross [66472]	Vulnerable	Species or species habitat may occur within area
Thalassarche salvini Salvin's Albatross [64463]	Vulnerable	Species or species habitat may occur within area
Thalassarche steadi White-capped Albatross [64462]	Vulnerable*	Species or species habitat likely to occur within area
Tringa nebularia Common Greenshank, Greenshank [832]		Species or species habitat likely to occur within area
Reptiles		
Caretta caretta Loggerhead Turtle [1763]	Endangered	Congregation or aggregation known to occur within area
Chelonia mydas Green Turtle [1765]	Vulnerable	Species or species habitat known to occur within area
Dermochelys coriacea Leatherback Turtle, Leathery Turtle, Luth [1768]	Endangered	Species or species habitat known to occur within area
Eretmochelys imbricata Hawksbill Turtle [1766]	Vulnerable	Species or species habitat known to occur within area
Lepidochelys olivacea Olive Ridley Turtle, Pacific Ridley Turtle [1767]	Endangered	Species or species habitat known to occur within area
Natator depressus Flatback Turtle [59257]	Vulnerable	Species or species habitat known to occur within area

Whales and other Cetaceans [Resource Information]

Name	Status	Type of Presence
Mammals		
Orcaella brevirostris Irrawaddy Dolphin [45]		Species or species habitat may occur within area

Extra Information

Invasive Species [Resource Information]

Weeds reported here are the 20 species of national significance (WoNS), along with other introduced plants that are considered by the States and Territories to pose a particularly significant threat to biodiversity. The following feral animals are reported: Goat, Red Fox, Cat, Rabbit, Pig, Water Buffalo and Cane Toad. Maps from Landscape Health Project, National Land and Water Resouces Audit, 2001.

Name	Status	Type of Presence
Birds		
Acridotheres tristis Common Myna, Indian Myna [387]		Species or species habitat likely to occur within area
Anas platyrhynchos Mallard [974]		Species or species habitat likely to occur within area
Carduelis carduelis European Goldfinch [403]		Species or species habitat likely to occur within area
Columba livia Rock Pigeon, Rock Dove, Domestic Pigeon [803]		Species or species habitat likely to occur within area
Lonchura punctulata Nutmeg Mannikin [399]		Species or species habitat likely to occur within area
Passer domesticus House Sparrow [405]		Species or species habitat likely to occur within area
Streptopelia chinensis Spotted Turtle-Dove [780]		Species or species habitat likely to occur within area
Sturnus vulgaris Common Starling [389]		Species or species habitat likely to occur within area
Frogs		
Rhinella marina Cane Toad [83218]		Species or species habitat known to occur within area
Mammals		
Bos taurus Domestic Cattle [16]		Species or species habitat likely to occur

Name	Status	Type of Presence within area
Canis lupus familiaris Domestic Dog [82654]		Species or species habitat likely to occur within area
Capra hircus Goat [2]		Species or species habitat likely to occur within area
Felis catus Cat, House Cat, Domestic Cat [19]		Species or species habitat likely to occur within area
Feral deer Feral deer species in Australia [85733]		Species or species habitat likely to occur within area
Lepus capensis Brown Hare [127]		Species or species habitat likely to occur within area
Mus musculus House Mouse [120]		Species or species habitat likely to occur within area
Oryctolagus cuniculus Rabbit, European Rabbit [128]		Species or species habitat likely to occur within area
Rattus norvegicus Brown Rat, Norway Rat [83]		Species or species habitat likely to occur within area
Rattus rattus Black Rat, Ship Rat [84]		Species or species habitat likely to occur within area
Sus scrofa Pig [6]		Species or species habitat likely to occur within area
Vulpes vulpes Red Fox, Fox [18]		Species or species habitat likely to occur within area
Plants		
Alternanthera philoxeroides Alligator Weed [11620]		Species or species habitat likely to occur within area
Anredera cordifolia Madeira Vine, Jalap, Lamb's-tail, Mignonette Vine, Anredera, Gulf Madeiravine, Heartleaf Madeiravine, Potato Vine [2643]		Species or species habitat likely to occur within area
Asparagus aethiopicus Asparagus Fern, Ground Asparagus, Basket Fern, Sprengi's Fern, Bushy Asparagus, Emerald Asparagus [62425]		Species or species habitat likely to occur within area
Asparagus africanus Climbing Asparagus, Climbing Asparagus Fern [66907]		Species or species habitat likely to occur within area
Asparagus asparagoides Bridal Creeper, Bridal Veil Creeper, Smilax, Florist's Smilax, Smilax Asparagus [22473]		Species or species habitat likely to occur within area
Asparagus plumosus Climbing Asparagus-fern [48993]		Species or species habitat likely to occur within area
Cabomba caroliniana Cabomba, Fanwort, Carolina Watershield, Fish Grass, Washington Grass, Watershield, Carolina		Species or species habitat likely to occur

Name	Status	Type of Presence
Fanwort, Common Cabomba [5171]		within area
Chrysanthemoides monilifera Bitou Bush, Boneseed [18983]		Species or species habitat may occur within area
Cryptostegia grandiflora Rubber Vine, Rubbervine, India Rubber Vine, India Rubbervine, Palay Rubbervine, Purple Allamanda [18913]		Species or species habitat likely to occur within area
Dolichandra unguis-cati Cat's Claw Vine, Yellow Trumpet Vine, Cat's Claw Creeper, Funnel Creeper [85119]		Species or species habitat likely to occur within area
Eichhornia crassipes Water Hyacinth, Water Orchid, Nile Lily [13466]		Species or species habitat likely to occur within area
Genista monspessulana Montpellier Broom, Cape Broom, Canary Broom, Common Broom, French Broom, Soft Broom [20126]		Species or species habitat likely to occur within area
Hymenachne amplexicaulis Hymenachne, Olive Hymenachne, Water Stargrass, West Indian Grass, West Indian Marsh Grass [31754]		Species or species habitat likely to occur within area
Lantana camara Lantana, Common Lantana, Kamara Lantana, Large-leaf Lantana, Pink Flowered Lantana, Red Flowered Lantana, Red-Flowered Sage, White Sage, Wild Sage [10892]		Species or species habitat likely to occur within area
Opuntia spp. Prickly Pears [82753]		Species or species habitat likely to occur within area
Parkinsonia aculeata Parkinsonia, Jerusalem Thorn, Jelly Bean Tree, Horse Bean [12301]		Species or species habitat likely to occur within area
Parthenium hysterophorus Parthenium Weed, Bitter Weed, Carrot Grass, False Ragweed [19566]		Species or species habitat likely to occur within area
Protasparagus densiflorus Asparagus Fern, Plume Asparagus [5015]		Species or species habitat likely to occur within area
Protasparagus plumosus Climbing Asparagus-fern, Ferny Asparagus [11747]		Species or species habitat likely to occur within area
Rubus fruticosus aggregate Blackberry, European Blackberry [68406]		Species or species habitat likely to occur within area
Sagittaria platyphylla Delta Arrowhead, Arrowhead, Slender Arrowhead [68483]		Species or species habitat likely to occur within area
Salix spp. except S.babylonica, S.x calodendron & S.x reichardtii Willows except Weeping Willow, Pussy Willow and Sterile Pussy Willow [68497]		Species or species habitat likely to occur within area
Salvinia molesta Salvinia, Giant Salvinia, Aquarium Watermoss, Kariba Weed [13665]		Species or species habitat likely to occur within area
Senecio madagascariensis Fireweed, Madagascar Ragwort, Madagascar Groundsel [2624]		Species or species habitat likely to occur within area
Solanum elaeagnifolium Silver Nightshade, Silver-leaved Nightshade, White Horse Nettle, Silver-leaf Nightshade,		Species or species habitat likely to occur

Name	Status	Type of Presence
Tomato Weed, White Nightshade, Bull-nettle, Prairie-berry, Satansbos, Silver-leaf Bitter-apple, Silverleaf-nettle, Trompillo [12323]		within area
Reptiles		
Hemidactylus frenatus		
Asian House Gecko [1708]		Species or species habitat likely to occur within area
Ramphotyphlops braminus		
Flowerpot Blind Snake, Brahminy Blind Snake, Cacing Besi [1258]		Species or species habitat likely to occur within area

Caveat

The information presented in this report has been provided by a range of data sources as acknowledged at the end of the report.

This report is designed to assist in identifying the locations of places which may be relevant in determining obligations under the Environment Protection and Biodiversity Conservation Act 1999. It holds mapped locations of World and National Heritage properties, Wetlands of International and National Importance, Commonwealth and State/Territory reserves, listed threatened, migratory and marine species and listed threatened ecological communities. Mapping of Commonwealth land is not complete at this stage. Maps have been collated from a range of sources at various resolutions.

Not all species listed under the EPBC Act have been mapped (see below) and therefore a report is a general guide only. Where available data supports mapping, the type of presence that can be determined from the data is indicated in general terms. People using this information in making a referral may need to consider the qualifications below and may need to seek and consider other information sources.

For threatened ecological communities where the distribution is well known, maps are derived from recovery plans, State vegetation maps, remote sensing imagery and other sources. Where threatened ecological community distributions are less well known, existing vegetation maps and point location data are used to produce indicative distribution maps.

Threatened, migratory and marine species distributions have been derived through a variety of methods. Where distributions are well known and if time permits, maps are derived using either thematic spatial data (i.e. vegetation, soils, geology, elevation, aspect, terrain, etc) together with point locations and described habitat; or environmental modelling (MAXENT or BIOCLIM habitat modelling) using point locations and environmental data layers.

Where very little information is available for species or large number of maps are required in a short time-frame, maps are derived either from 0.04 or 0.02 decimal degree cells; by an automated process using polygon capture techniques (static two kilometre grid cells, alpha-hull and convex hull); or captured manually or by using topographic features (national park boundaries, islands, etc). In the early stages of the distribution mapping process (1999-early 2000s) distributions were defined by degree blocks, 100K or 250K map sheets to rapidly create distribution maps. More reliable distribution mapping methods are used to update these distributions as time permits.

Only selected species covered by the following provisions of the EPBC Act have been mapped:

- migratory and
- marine

The following species and ecological communities have not been mapped and do not appear in reports produced from this database:

- threatened species listed as extinct or considered as vagrants
- some species and ecological communities that have only recently been listed
- some terrestrial species that overfly the Commonwealth marine area
- migratory species that are very widespread, vagrant, or only occur in small numbers

The following groups have been mapped, but may not cover the complete distribution of the species:

- non-threatened seabirds which have only been mapped for recorded breeding sites
- seals which have only been mapped for breeding sites near the Australian continent

Such breeding sites may be important for the protection of the Commonwealth Marine environment.

Coordinates

-27.4993 152.9654

Acknowledgements

This database has been compiled from a range of data sources. The department acknowledges the following custodians who have contributed valuable data and advice:

-Office of Environment and Heritage, New South Wales
-Department of Environment and Primary Industries, Victoria
-Department of Primary Industries, Parks, Water and Environment, Tasmania
-Department of Environment, Water and Natural Resources, South Australia
-Department of Land and Resource Management, Northern Territory
-Department of Environmental and Heritage Protection, Queensland
-Department of Parks and Wildlife, Western Australia
-Environment and Planning Directorate, ACT
-Birdlife Australia
-Australian Bird and Bat Banding Scheme
-Australian National Wildlife Collection
-Natural history museums of Australia
-Museum Victoria
-Australian Museum
-South Australian Museum
-Queensland Museum
-Online Zoological Collections of Australian Museums
-Queensland Herbarium
-National Herbarium of NSW
-Royal Botanic Gardens and National Herbarium of Victoria
-Tasmanian Herbarium
-State Herbarium of South Australia
-Northern Territory Herbarium
-Western Australian Herbarium
-Australian National Herbarium, Canberra
-University of New England
-Ocean Biogeographic Information System
-Australian Government, Department of Defence
Forestry Corporation, NSW
-Geoscience Australia
-CSIRO
-Australian Tropical Herbarium, Cairns
-eBird Australia
-Australian Government – Australian Antarctic Data Centre
-Museum and Art Gallery of the Northern Territory
-Australian Government National Environmental Science Program
-Australian Institute of Marine Science
-Reef Life Survey Australia
-American Museum of Natural History
-Queen Victoria Museum and Art Gallery, Inveresk, Tasmania
-Tasmanian Museum and Art Gallery, Hobart, Tasmania
-Other groups and individuals

The Department is extremely grateful to the many organisations and individuals who provided expert advice and information on numerous draft distributions.

Please feel free to provide feedback via the Contact Us page.

© Commonwealth of Australia
Department of the Environment
GPO Box 787
Canberra ACT 2601 Australia
+61 2 6274 1111

APPENDIX D

Wildlife Online database results for the study area

Queensland Government

Wildlife Online Extract

Search Criteria: Species List for a Specified Point
Species: All
Type: All
Status: All
Records: All
Date: Since 1980
Latitude: -27.4993
Longitude: 152.9654
Distance: 2
Email: penn@baamecology.com
Date submitted: Thursday 12 Apr 2018 17:03:14
Date extracted: Thursday 12 Apr 2018 17:10:03

The number of records retrieved = 539

Disclaimer

As the DSITIA is still in a process of collating and vetting data, it is possible the information given is not complete. The information provided should only be used for the project for which it was requested and it should be appropriately acknowledged as being derived from Wildlife Online when it is used.

The State of Queensland does not invite reliance upon, nor accept responsibility for this information. Persons should satisfy themselves through independent means as to the accuracy and completeness of this information.

No statements, representations or warranties are made about the accuracy or completeness of this information. The State of Queensland disclaims all responsibility for this information and all liability (including without limitation, liability in negligence) for all expenses, losses, damages and costs you may incur as a result of the information being inaccurate or incomplete in any way for any reason.

Kingdom	Class	Family	Scientific Name	Common Name	I	Q	A	Records
animals	amphibians	Bufonidae	*Rhinella marina*	cane toad	Y			16
animals	amphibians	Hylidae	*Litoria caerulea*	common green treefrog		C		6
animals	amphibians	Hylidae	*Litoria gracilenta*	graceful treefrog		C		2
animals	amphibians	Hylidae	*Litoria fallax*	eastern sedgefrog		C		6
animals	amphibians	Hylidae	*Litoria peronii*	emerald spotted treefrog		C		1
animals	amphibians	Limnodynastidae	*Adelotus brevis*	tusked frog		V		12
animals	amphibians	Limnodynastidae	*Limnodynastes peronii*	striped marshfrog		C		9
animals	amphibians	Myobatrachidae	*Mixophyes fasciolatus*	great barred frog		C		1
animals	amphibians	Myobatrachidae	*Crinia parinsignifera*	beeping froglet		C		1
animals	amphibians	Myobatrachidae	*Pseudophryne major*	great brown broodfrog		C		3
animals	birds	Acanthizidae	*Smicrornis brevirostris*	weebill		C		1
animals	birds	Acanthizidae	*Gerygone olivacea*	white-throated gerygone		C		3
animals	birds	Acanthizidae	*Acanthiza reguloides*	buff-rumped thornbill		C		2
animals	birds	Acanthizidae	*Sericornis frontalis*	white-browed scrubwren		C		5
animals	birds	Accipitridae	*Aviceda subcristata*	Pacific baza		C		25
animals	birds	Accipitridae	*Accipiter fasciatus*	brown goshawk		C		3
animals	birds	Accipitridae	*Lophoictinia isura*	square-tailed kite		C		4
animals	birds	Accipitridae	*Haliastur indus*	brahminy kite		C		15
animals	birds	Accipitridae	*Aquila audax*	wedge-tailed eagle		C		3
animals	birds	Accipitridae	*Hieraaetus morphnoides*	little eagle		C		1
animals	birds	Accipitridae	*Accipiter cirrocephalus*	collared sparrowhawk		C		8
animals	birds	Accipitridae	*Accipiter novaehollandiae*	grey goshawk		C		3
animals	birds	Accipitridae	*Erythrotriorchis radiatus*	red goshawk		E	V	1
animals	birds	Accipitridae	*Haliaeetus leucogaster*	white-bellied sea-eagle		C		4
animals	birds	Anatidae	*Chenonetta jubata*	Australian wood duck		C		21
animals	birds	Anatidae	*Anas superciliosa*	Pacific black duck		C		27
animals	birds	Anatidae	*Aythya australis*	hardhead		C		3
animals	birds	Anhingidae	*Anhinga novaehollandiae*	Australasian darter		C		1
animals	birds	Apodidae	*Apus pacificus*	fork-tailed swift		SL		2
animals	birds	Apodidae	*Hirundapus caudacutus*	white-throated needletail		SL		14
animals	birds	Ardeidae	*Ixobrychus dubius*	Australian little bittern		C		3
animals	birds	Ardeidae	*Butorides striata*	striated heron		C		6
animals	birds	Ardeidae	*Ardea intermedia*	intermediate egret		C		4
animals	birds	Ardeidae	*Bubulcus ibis*	cattle egret		C		16
animals	birds	Ardeidae	*Ardea alba modesta*	eastern great egret		C		1
animals	birds	Ardeidae	*Egretta novaehollandiae*	white-faced heron		C		18
animals	birds	Ardeidae	*Nycticorax caledonicus*	nankeen night-heron		C		3
animals	birds	Ardeidae	*Ixobrychus flavicollis*	black bittern		C		2
animals	birds	Artamidae	*Cracticus tibicen*	Australian magpie		C		78
animals	birds	Artamidae	*Strepera graculina*	pied currawong		C		60
animals	birds	Artamidae	*Artamus cyanopterus*	dusky woodswallow		C		1
animals	birds	Artamidae	*Cracticus torquatus*	grey butcherbird		C		69
animals	birds	Artamidae	*Artamus leucorynchus*	white-breasted woodswallow		C		1
animals	birds	Artamidae	*Cracticus nigrogularis*	pied butcherbird		C		70
animals	birds	Burhinidae	*Burhinus grallarius*	bush stone-curlew		C		28
animals	birds	Cacatuidae	*Cacatua sanguinea*	little corella		C		6

Kingdom	Class	Family	Scientific Name	Common Name	I	Q	A	Records
animals	birds	Cacatuidae	*Calyptorhynchus funereus*	yellow-tailed black-cockatoo		C		4
animals	birds	Cacatuidae	*Calyptorhynchus banksii*	red-tailed black-cockatoo		C		1
animals	birds	Cacatuidae	*Cacatua galerita*	sulphur-crested cockatoo		C		69
animals	birds	Cacatuidae	*Calyptorhynchus lathami lathami*	glossy black-cockatoo (eastern)		V		2
animals	birds	Cacatuidae	*Eolophus roseicapilla*	galah		C		43
animals	birds	Campephagidae	*Coracina lineata*	barred cuckoo-shrike		C		2
animals	birds	Campephagidae	*Lalage leucomela*	varied triller		C		4
animals	birds	Campephagidae	*Coracina tenuirostris*	cicadabird		C		4
animals	birds	Campephagidae	*Coracina novaehollandiae*	black-faced cuckoo-shrike		C		66
animals	birds	Campephagidae	*Coracina papuensis*	white-bellied cuckoo-shrike		C		2
animals	birds	Charadriidae	*Vanellus miles*	masked lapwing		C		4
animals	birds	Charadriidae	*Vanellus miles novaehollandiae*	masked lapwing (southern subspecies)		C		42
animals	birds	Cisticolidae	*Cisticola exilis*	golden-headed cisticola		C		4
animals	birds	Climacteridae	*Climacteris picumnus*	brown treecreeper		C		1
animals	birds	Climacteridae	*Cormobates leucophaea metastasis*	white-throated treecreeper (southern)		C		3
animals	birds	Columbidae	*Ptilinopus regina*	rose-crowned fruit-dove		C		2
animals	birds	Columbidae	*Lopholaimus antarcticus*	topknot pigeon		C		3
animals	birds	Columbidae	*Columba livia*	rock dove	Y			47
animals	birds	Columbidae	*Streptopelia chinensis*	spotted dove	Y			72
animals	birds	Columbidae	*Macropygia amboinensis*	brown cuckoo-dove		C		1
animals	birds	Columbidae	*Ptilinopus superbus*	superb fruit-dove		C		3
animals	birds	Columbidae	*Chalcophaps indica*	emerald dove		C		2
animals	birds	Columbidae	*Leucosarcia melanoleuca*	wonga pigeon		C		2
animals	birds	Columbidae	*Ocyphaps lophotes*	crested pigeon		C		82/1
animals	birds	Columbidae	*Columba leucomela*	white-headed pigeon		C		23
animals	birds	Columbidae	*Geopelia striata*	peaceful dove		C		3
animals	birds	Coraciidae	*Eurystomus orientalis*	dollarbird		C		22
animals	birds	Corvidae	*Corvus coronoides*	Australian raven		C		1
animals	birds	Corvidae	*Corvus orru*	Torresian crow		C		98
animals	birds	Cuculidae	*Scythrops novaehollandiae*	channel-billed cuckoo		C		23
animals	birds	Cuculidae	*Cuculus optatus*	oriental cuckoo		SL		2
animals	birds	Cuculidae	*Chalcites lucidus*	shining bronze-cuckoo		C		2
animals	birds	Cuculidae	*Eudynamys orientalis*	eastern koel		C		36
animals	birds	Cuculidae	*Cacomantis variolosus*	brush cuckoo		C		1
animals	birds	Cuculidae	*Centropus phasianinus*	pheasant coucal		C		34/1
animals	birds	Cuculidae	*Cacomantis flabelliformis*	fan-tailed cuckoo		C		2
animals	birds	Dicruridae	*Dicrurus bracteatus*	spangled drongo		C		40
animals	birds	Estrildidae	*Taeniopygia bichenovii*	double-barred finch		C		2
animals	birds	Estrildidae	*Lonchura punctulata*	nutmeg mannikin	Y			5
animals	birds	Eurostopodidae	*Eurostopodus mystacalis*	white-throated nightjar		C		2
animals	birds	Falconidae	*Falco berigora*	brown falcon		C		1
animals	birds	Falconidae	*Falco longipennis*	Australian hobby		C		10
animals	birds	Falconidae	*Falco cenchroides*	nankeen kestrel		C		11
animals	birds	Falconidae	*Falco peregrinus*	peregrine falcon		C		4
animals	birds	Glareolidae	*Stiltia isabella*	Australian pratincole		C		1
animals	birds	Halcyonidae	*Dacelo novaeguineae*	laughing kookaburra		C		71

Kingdom	Class	Family	Scientific Name	Common Name	I	Q	A	Records
animals	birds	Halcyonidae	*Todiramphus sanctus*	sacred kingfisher		C		19
animals	birds	Halcyonidae	*Todiramphus macleayii*	forest kingfisher		C		1
animals	birds	Hirundinidae	*Petrochelidon nigricans*	tree martin		C		3
animals	birds	Hirundinidae	*Hirundo neoxena*	welcome swallow		C		125
animals	birds	Hirundinidae	*Petrochelidon ariel*	fairy martin		C		12
animals	birds	Maluridae	*Malurus melanocephalus*	red-backed fairy-wren		C		19
animals	birds	Maluridae	*Malurus lamberti*	variegated fairy-wren		C		5
animals	birds	Maluridae	*Malurus cyaneus*	superb fairy-wren		C		1
animals	birds	Megaluridae	*Megalurus timoriensis*	tawny grassbird		C		2
animals	birds	Megapodiidae	*Alectura lathami*	Australian brush-turkey		C		66
animals	birds	Meliphagidae	*Acanthorhynchus tenuirostris*	eastern spinebill		C		1
animals	birds	Meliphagidae	*Philemon citreogularis*	little friarbird		C		15
animals	birds	Meliphagidae	*Lichmera indistincta*	brown honeyeater		C		3
animals	birds	Meliphagidae	*Entomyzon cyanotis*	blue-faced honeyeater		C		58
animals	birds	Meliphagidae	*Caligavis chrysops*	yellow-faced honeyeater		C		4
animals	birds	Meliphagidae	*Meliphaga lewinii*	Lewin's honeyeater		C		4
animals	birds	Meliphagidae	*Philemon corniculatus*	noisy friarbird		C		55
animals	birds	Meliphagidae	*Manorina melanocephala*	noisy miner		C		107
animals	birds	Meliphagidae	*Myzomela sanguinolenta*	scarlet honeyeater		C		14
animals	birds	Meliphagidae	*Plectorhyncha lanceolata*	striped honeyeater		C		1
animals	birds	Meliphagidae	*Melithreptus albogularis*	white-throated honeyeater		C		5
animals	birds	Meliphagidae	*Acanthagenys rufogularis*	spiny-cheeked honeyeater		C		1
animals	birds	Meropidae	*Merops ornatus*	rainbow bee-eater		C		16
animals	birds	Monarchidae	*Monarcha melanopsis*	black-faced monarch		SL		4
animals	birds	Monarchidae	*Myiagra rubecula*	leaden flycatcher		C		2
animals	birds	Monarchidae	*Myiagra cyanoleuca*	satin flycatcher		SL		1
animals	birds	Monarchidae	*Symposiachrus trivirgatus*	spectacled monarch		SL		3
animals	birds	Monarchidae	*Grallina cyanoleuca*	magpie-lark		C		81
animals	birds	Nectariniidae	*Dicaeum hirundinaceum*	mistletoebird		C		27
animals	birds	Oriolidae	*Sphecotheres vieilloti*	Australasian figbird		C		76/1
animals	birds	Oriolidae	*Oriolus sagittatus*	olive-backed oriole		C		32
animals	birds	Pachycephalidae	*Pachycephala pectoralis*	golden whistler		C		10
animals	birds	Pachycephalidae	*Pachycephala rufiventris*	rufous whistler		C		20
animals	birds	Pachycephalidae	*Colluricincla harmonica*	grey shrike-thrush		C		8
animals	birds	Pardalotidae	*Pardalotus punctatus*	spotted pardalote		C		3
animals	birds	Pardalotidae	*Pardalotus striatus*	striated pardalote		C		40
animals	birds	Passeridae	*Passer domesticus*	house sparrow	Y			23
animals	birds	Pelecanidae	*Pelecanus conspicillatus*	Australian pelican		C		1
animals	birds	Petroicidae	*Petroica rosea*	rose robin		C		6
animals	birds	Phaethontidae	*Phaethon rubricauda*	red-tailed tropicbird		V		1/1
animals	birds	Phalacrocoracidae	*Phalacrocorax sulcirostris*	little black cormorant		C		6
animals	birds	Phalacrocoracidae	*Microcarbo melanoleucos*	little pied cormorant		C		9
animals	birds	Phasianidae	*Coturnix ypsilophora*	brown quail		C		4
animals	birds	Pittidae	*Pitta versicolor*	noisy pitta		C		4
animals	birds	Podargidae	*Podargus ocellatus plumiferus*	plumed frogmouth		V		1
animals	birds	Podargidae	*Podargus strigoides*	tawny frogmouth		C		27

Kingdom	Class	Family	Scientific Name	Common Name	I	Q	A	Records
animals	birds	Podicipedidae	*Tachybaptus novaehollandiae*	Australasian grebe		C		3
animals	birds	Podicipedidae	*Poliocephalus poliocephalus*	hoary-headed grebe		C		2
animals	birds	Psittacidae	*Lathamus discolor*	swift parrot		E	CE	1
animals	birds	Psittacidae	*Parvipsitta pusilla*	little lorikeet		C		24
animals	birds	Psittacidae	*Platycercus elegans*	crimson rosella		C		5
animals	birds	Psittacidae	*Alisterus scapularis*	Australian king-parrot		C		23
animals	birds	Psittacidae	*Platycercus adscitus*	pale-headed rosella		C		60
animals	birds	Psittacidae	*Glossopsitta concinna*	musk lorikeet		C		3
animals	birds	Psittacidae	*Aprosmictus erythropterus*	red-winged parrot		C		2
animals	birds	Psittacidae	*Trichoglossus chlorolepidotus*	scaly-breasted lorikeet		C		93
animals	birds	Psittacidae	*Platycercus adscitus palliceps*	pale-headed rosella (southern form)		C		1
animals	birds	Psittacidae	*Trichoglossus haematodus moluccanus*	rainbow lorikeet		C		103/1
animals	birds	Psophodidae	*Psophodes olivaceus*	eastern whipbird		C		21
animals	birds	Rallidae	*Gallirallus philippensis*	buff-banded rail		C		4
animals	birds	Rallidae	*Lewinia pectoralis*	Lewin's rail		C		4
animals	birds	Rallidae	*Gallinula tenebrosa*	dusky moorhen		C		14
animals	birds	Rallidae	*Amaurornis moluccana*	pale-vented bush-hen		C		11
animals	birds	Rallidae	*Porphyrio melanotus*	purple swamphen		C		2
animals	birds	Rhipiduridae	*Rhipidura rufifrons*	rufous fantail		SL		4
animals	birds	Rhipiduridae	*Rhipidura leucophrys*	willie wagtail		C		47
animals	birds	Rhipiduridae	*Rhipidura albiscapa*	grey fantail		C		20
animals	birds	Strigidae	*Ninox strenua*	powerful owl		V		6
animals	birds	Strigidae	*Ninox boobook*	southern boobook		C		21
animals	birds	Sturnidae	*Sturnus vulgaris*	common starling	Y			23
animals	birds	Sturnidae	*Acridotheres tristis*	common myna	Y			13
animals	birds	Threskiornithidae	*Threskiornis molucca*	Australian white ibis		C		13
animals	birds	Threskiornithidae	*Platalea flavipes*	yellow-billed spoonbill		C		1
animals	birds	Threskiornithidae	*Threskiornis spinicollis*	straw-necked ibis		C		26
animals	birds	Threskiornithidae	*Platalea regia*	royal spoonbill		C		12
animals	birds	Timaliidae	*Zosterops lateralis*	silvereye		C		58
animals	birds	Turnicidae	*Turnix varius*	painted button-quail		C		2
animals	birds	Turnicidae	*Turnix melanogaster*	black-breasted button-quail		V	V	1
animals	birds	Tytonidae	*Tyto delicatula*	eastern barn owl		C		1
animals	insects	Hesperiidae	*Ocybadistes walkeri sothis*	green grass-dart				1
animals	insects	Nymphalidae	*Phaedyma shepherdi shepherdi*	white-banded plane (southern subspecies)				4
animals	insects	Nymphalidae	*Acraea andromacha andromacha*	glasswing				5
animals	insects	Nymphalidae	*Hypolimnas bolina nerina*	varied eggfly				1
animals	insects	Nymphalidae	*Danaus plexippus*	monarch				2
animals	insects	Nymphalidae	*Vanessa kershawi*	Australian painted lady				1
animals	insects	Nymphalidae	*Melanitis leda bankia*	evening brown				5
animals	insects	Nymphalidae	*Tirumala hamata hamata*	blue tiger				1
animals	insects	Nymphalidae	*Charaxes sempronius sempronius*	tailed emperor				3
animals	insects	Nymphalidae	*Euploea corinna*	common crow				10
animals	insects	Papilionidae	*Graphium choredon*	blue triangle				8
animals	insects	Papilionidae	*Papilio aegeus aegeus*	orchard swallowtail (Australian subspecies)				7

Kingdom	Class	Family	Scientific Name	Common Name	I	Q	A	Records
animals	insects	Pieridae	*Pieris rapae*	cabbage white				6
animals	insects	Pieridae	*Eurema hecabe*	large grass-yellow				1
animals	insects	Pieridae	*Catopsilia pomona*	lemon migrant				5
animals	mammals	Acrobatidae	*Acrobates pygmaeus*	feathertail glider		C		1
animals	mammals	Emballonuridae	*Saccolaimus flaviventris*	yellow-bellied sheathtail bat		C		1
animals	mammals	Miniopteridae	*Miniopterus australis*	little bent-wing bat		C		1
animals	mammals	Molossidae	*Mormopterus ridei*	eastern free-tailed bat		C		1
animals	mammals	Molossidae	*Tadarida australis*	white-striped freetail bat		C		21
animals	mammals	Molossidae	*Mormopterus sp.*					1
animals	mammals	Muridae	*Rattus rattus*	black rat	Y			4
animals	mammals	Muridae	*Mus musculus*	house mouse	Y			3
animals	mammals	Peramelidae	*Isoodon macrourus*	northern brown bandicoot		C		3
animals	mammals	Petauridae	*Petaurus norfolcensis*	squirrel glider		C		3
animals	mammals	Petauridae	*Petaurus breviceps*	sugar glider		C		1
animals	mammals	Phalangeridae	*Trichosurus vulpecula*	common brushtail possum		C		37
animals	mammals	Phalangeridae	*Trichosurus sp.*					2
animals	mammals	Phalangeridae	*Trichosurus caninus*	short-eared possum		C		6
animals	mammals	Phascolarctidae	*Phascolarctos cinereus*	koala		V	V	7
animals	mammals	Pseudocheiridae	*Pseudocheirus peregrinus*	common ringtail possum		C		31
animals	mammals	Pteropodidae	*Pteropus poliocephalus*	grey-headed flying-fox		C	V	115
animals	mammals	Pteropodidae	*Pteropus alecto*	black flying-fox		C		57
animals	mammals	Pteropodidae	*Pteropus sp.*					7
animals	mammals	Pteropodidae	*Pteropus scapulatus*	little red flying-fox		C		6
animals	mammals	Tachyglossidae	*Tachyglossus aculeatus*	short-beaked echidna		SL		2
animals	mammals	Vespertilionidae	*Chalinolobus nigrogriseus*	hoary wattled bat		C		2
animals	mammals	Vespertilionidae	*Scotorepens greyii*	little broad-nosed bat		C		2
animals	mammals	Vespertilionidae	*Chalinolobus gouldii*	Gould's wattled bat		C		1
animals	ray-finned fishes	Eleotridae	*Mogurnda adspersa*	southern purplespotted gudgeon				1
animals	ray-finned fishes	Eleotridae	*Hypseleotris galii*	firetail gudgeon				1
animals	ray-finned fishes	Melanotaeniidae	*Melanotaenia duboulayi*	crimsonspotted rainbowfish				1
animals	ray-finned fishes	Poeciliidae	*Xiphophorus hellerii*	swordtail	Y			1
animals	ray-finned fishes	Poeciliidae	*Poecilia reticulata*	guppy	Y			1
animals	ray-finned fishes	Terapontidae	*Leiopotherapon unicolor*	spangled perch				1
animals	reptiles	Agamidae	*Intellagama lesueurii*	eastern water dragon		C		11
animals	reptiles	Agamidae	*Pogona barbata*	bearded dragon		C		6
animals	reptiles	Boidae	*Morelia spilota*	carpet python		C		21
animals	reptiles	Chelidae	*Chelodina longicollis*	eastern snake-necked turtle		C		1
animals	reptiles	Colubridae	*Dendrelaphis punctulatus*	green tree snake		C		7
animals	reptiles	Elapidae	*Hoplocephalus stephensii*	Stephens' banded snake		C		1
animals	reptiles	Elapidae	*Pseudechis porphyriacus*	red-bellied black snake		C		1
animals	reptiles	Elapidae	*Demansia psammophis*	yellow-faced whipsnake		C		1
animals	reptiles	Elapidae	*Pseudonaja textilis*	eastern brown snake		C		5
animals	reptiles	Elapidae	*Cacophis squamulosus*	golden crowned snake		C		1
animals	reptiles	Elapidae	*Cacophis krefftii*	dwarf crowned snake		C		3
animals	reptiles	Elapidae	*Hemiaspis signata*	black-bellied swamp snake		C		2
animals	reptiles	Elapidae	*Cacophis harriettae*	white-crowned snake		C		7

Kingdom	Class	Family	Scientific Name	Common Name	I	Q	A	Records
animals	reptiles	Gekkonidae	*Hemidactylus frenatus*	house gecko	Y			4
animals	reptiles	Pygopodidae	*Lialis burtonis*	Burton's legless lizard		C		2
animals	reptiles	Scincidae	*Eroticoscincus graciloides*	elf skink		C		1
animals	reptiles	Scincidae	*Cryptoblepharus pulcher pulcher*	elegant snake-eyed skink		C		30
animals	reptiles	Scincidae	*Bellatorias frerei*	major skink		C		2
animals	reptiles	Scincidae	*Calyptotis scutirostrum*	scute-snouted calyptotis		C		14
animals	reptiles	Scincidae	*Ctenotus spaldingi*	straight-browed ctenotus		C		6
animals	reptiles	Scincidae	*Cyclodomorphus gerrardii*	pink-tongued lizard		C		9
animals	reptiles	Scincidae	*Concinnia martini*	dark bar-sided skink		C		4
animals	reptiles	Scincidae	*Lampropholis delicata*	dark-flecked garden sunskink		C		29
animals	reptiles	Scincidae	*Anomalopus verreauxii*	three-clawed worm-skink		C		2/1
animals	reptiles	Scincidae	*Tiliqua scincoides*	eastern blue-tongued lizard		C		13
animals	reptiles	Scincidae	*Eulamprus quoyii*	eastern water skink		C		8
animals	uncertain	Indeterminate	*Indeterminate*	Unknown or Code Pending		C		2
fungi	arthoniomycetes	Opegraphaceae	*Opegrapha varia*			C		1/1
fungi	lecanoromycetes	Candelariaceae	*Candelariella xanthostigmoides*			C		1/1
fungi	lecanoromycetes	Cladiaceae	*Cladia muelleri*			C		2/2
fungi	lecanoromycetes	Cladoniaceae	*Cladonia praetermissa var. praetermissa*			C		1/1
fungi	lecanoromycetes	Cladoniaceae	*Cladonia floerkeana*			C		2/2
fungi	lecanoromycetes	Graphidaceae	*Graphis sayeri*			C		1/1
fungi	lecanoromycetes	Graphidaceae	*Fissurina insidiosa*			C		1/1
fungi	lecanoromycetes	Icmadophilaceae	*Dibaeis sorediata*			C		1/1
fungi	lecanoromycetes	Lecanoraceae	*Lecanora*			C		1/1
fungi	lecanoromycetes	Lecanoraceae	*Ramboldia haematites*			C		1/1
fungi	lecanoromycetes	Lecanoraceae	*Lecanora caesiorubella*			C		1/1
fungi	lecanoromycetes	Lecideaceae	*Lecidea terrena*			C		1/1
fungi	lecanoromycetes	Lecideaceae	*Lecidea*			C		2/2
fungi	lecanoromycetes	Parmeliaceae	*Parmotrema tinctorum*			C		1/1
fungi	lecanoromycetes	Parmeliaceae	*Parmotrema sulphuratum*			C		1/1
fungi	lecanoromycetes	Parmeliaceae	*Parmotrema gardneri*			C		1/1
fungi	lecanoromycetes	Pertusariaceae	*Pertusaria pustulata*			C		1/1
fungi	lecanoromycetes	Pertusariaceae	*Ochrolechia*			C		2/2
fungi	lecanoromycetes	Pertusariaceae	*Pertusaria leucostomoides*			C		1/1
fungi	lecanoromycetes	Physciaceae	*Pyxine cocoes*			C		1/1
fungi	lecanoromycetes	Physciaceae	*Heterodermia obscurata*			C		1/1
fungi	lecanoromycetes	Physciaceae	*Heterodermia speciosa*			C		1/1
fungi	lecanoromycetes	Physciaceae	*Hyperphyscia pandani*			C		3/3
fungi	lecanoromycetes	Physciaceae	*Amandinea punctata*			C		1/1
fungi	lecanoromycetes	Physciaceae	*Dirinaria applanata*			C		2/2
fungi	lecanoromycetes	Physciaceae	*Dirinaria confluens*			C		2/2
fungi	lecanoromycetes	Physciaceae	*Buellia disciformis*			C		1/1
fungi	lecanoromycetes	Ramalinaceae	*Ramalinora glaucolivida*			C		1/1
fungi	lecanoromycetes	Teloschistaceae	*Caloplaca cerina*			C		1/1
fungi		Basidiomycota	*Boletus*			C		1/1
fungi		Basidiomycota	*Cyathus*			C		1/1
fungi		Basidiomycota	*Russula*			C		1/1

Kingdom	Class	Family	Scientific Name	Common Name	I	Q	A	Records
fungi		Basidiomycota	*Hydropus*			C		1/1
fungi		Basidiomycota	*Inonotus*			C		1/1
fungi		Basidiomycota	*Laccaria*			C		1/1
fungi		Basidiomycota	*Ganoderma*			C		1/1
fungi		Basidiomycota	*Marasmius*			C		1/1
fungi		Basidiomycota	*Phellinus*			C		2/2
fungi		Basidiomycota	*Polyporus*			C		1/1
fungi		Basidiomycota	*Boletellus*			C		1/1
fungi		Basidiomycota	*Gymnopilus*			C		1/1
fungi		Basidiomycota	*Lyophyllum*			C		1/1
fungi		Basidiomycota	*Amauroderma*			C		1/1
fungi		Basidiomycota	*Rigidoporus*			C		1/1
fungi		Basidiomycota	*Aseroe rubra*			C		1/1
fungi		Basidiomycota	*Marasmiellus*			C		1/1
fungi		Basidiomycota	*Zelleromyces*			C		1/1
fungi		Basidiomycota	*Chlorophyllum*			C		1/1
fungi		Basidiomycota	*Lenzites acuta*			C		2/1
fungi		Basidiomycota	*Amanita vaginata*			C		1/1
fungi		Basidiomycota	*Lysurus gardneri*			C		1/1
fungi		Basidiomycota	*Ganoderma australe*			C		1/1
fungi		Basidiomycota	*Lepista sublilacina*			C		1/1
fungi		Basidiomycota	*Stereum complicatum*			C		1/1
fungi		Basidiomycota	*Rigidoporus lineatus*			C		2/2
fungi		Basidiomycota	*Scleroderma areolatum*			C		1/1
fungi		Basidiomycota	*Ganoderma steyaertanum*			C		1/1
fungi		Basidiomycota	*Leucocoprinus birnbaumii*			C		1/1
fungi		Basidiomycota	*Perenniporia medulla-panis*			C		1/1
plants	ferns	Athyriaceae	*Diplazium esculentum*		Y			1/1
plants	higher dicots	Acanthaceae	*Thunbergia alata*	black-eyed Susan	Y			1/1
plants	higher dicots	Acanthaceae	*Ruellia squarrosa*		Y			1/1
plants	higher dicots	Acanthaceae	*Hypoestes aristata*		Y			1/1
plants	higher dicots	Acanthaceae	*Dyschoriste depressa*		Y			1/1
plants	higher dicots	Acanthaceae	*Eranthemum pulchellum*		Y			2/2
plants	higher dicots	Acanthaceae	*Justicia brandegeeana*		Y			3/3
plants	higher dicots	Acanthaceae	*Hypoestes phyllostachya*		Y			1/1
plants	higher dicots	Acanthaceae	*Justicia betonica*		Y			2/2
plants	higher dicots	Acanthaceae	*Stephanophysum longifolium*		Y			2/2
plants	higher dicots	Adoxaceae	*Sambucus nigra*		Y			2/2
plants	higher dicots	Amaranthaceae	*Amaranthus blitum*		Y			1/1
plants	higher dicots	Amaranthaceae	*Guilleminea densa*	small matweed	Y			1/1
plants	higher dicots	Amaranthaceae	*Gomphrena celosioides*	gomphrena weed	Y			1/1
plants	higher dicots	Anacardiaceae	*Schinus terebinthifolius*		Y			1
plants	higher dicots	Apiaceae	*Lilaeopsis brisbanica*			E		3/3
plants	higher dicots	Apiaceae	*Centella asiatica*			C		1/1
plants	higher dicots	Araliaceae	*Hydrocotyle peduncularis*			C		1/1
plants	higher dicots	Araliaceae	*Hydrocotyle acutiloba*			C		1/1

Kingdom	Class	Family	Scientific Name	Common Name	I	Q	A	Records
plants	higher dicots	Araliaceae	*Tetrapanax papyrifer*		Y			1/1
plants	higher dicots	Asteraceae	*Senecio madagascariensis*	fireweed	Y			1/1
plants	higher dicots	Asteraceae	*Sphagneticola trilobata*		Y			1
plants	higher dicots	Asteraceae	*Lactuca serriola forma serriola*		Y			1/1
plants	higher dicots	Asteraceae	*Acanthospermum australe*		Y			1/1
plants	higher dicots	Asteraceae	*Sigesbeckia orientalis*	Indian weed		C		1/1
plants	higher dicots	Asteraceae	*Tithonia diversifolia*	Japanese sunflower	Y			2/2
plants	higher dicots	Asteraceae	*Ageratum houstonianum*	blue billygoat weed	Y			1
plants	higher dicots	Asteraceae	*Erigeron sumatrensis*		Y			1/1
plants	higher dicots	Asteraceae	*Calyptocarpus vialis*	creeping cinderella weed	Y			2/2
plants	higher dicots	Asteraceae	*Ageratina adenophora*	crofton weed	Y			1/1
plants	higher dicots	Asteraceae	*Glossocardia bidens*	native cobbler's pegs		C		1/1
plants	higher dicots	Asteraceae	*Tridax procumbens*	tridax daisy	Y			1/1
plants	higher dicots	Asteraceae	*Cosmos sulphureus*		Y			1/1
plants	higher dicots	Asteraceae	*Chrysocephalum apiculatum*	yellow buttons		C		1/1
plants	higher dicots	Asteraceae	*Bidens pilosa*		Y			2/1
plants	higher dicots	Asteraceae	*Olearia nernstii*	Ipswich daisy		C		1/1
plants	higher dicots	Basellaceae	*Anredera cordifolia*	Madeira vine	Y			1
plants	higher dicots	Bignoniaceae	*Pyrostegia*			C		1
plants	higher dicots	Bignoniaceae	*Tecoma stans*	tecoma	Y			1
plants	higher dicots	Bignoniaceae	*Jacaranda mimosifolia*	jacaranda	Y			1
plants	higher dicots	Bignoniaceae	*Pithecoctenium crucigerum*		Y			4/4
plants	higher dicots	Byttneriaceae	*Commersonia bartramia*	brown kurrajong		C		1
plants	higher dicots	Cactaceae	*Opuntia monacantha*		Y			1/1
plants	higher dicots	Caesalpiniaceae	*Senna pendula var. glabrata*	Easter cassia	Y			2/1
plants	higher dicots	Caesalpiniaceae	*Peltophorum pterocarpum*	yellow poinciana	Y			1
plants	higher dicots	Caesalpiniaceae	*Bauhinia variegata*		Y			1/1
plants	higher dicots	Caesalpiniaceae	*Bauhinia galpinii*		Y			1/1
plants	higher dicots	Campanulaceae	*Wahlenbergia gracilis*	sprawling bluebell		C		1/1
plants	higher dicots	Campanulaceae	*Lobelia concolor*			C		1/1
plants	higher dicots	Caryophyllaceae	*Sagina procumbens*	spreading pearlwort	Y			1/1
plants	higher dicots	Casuarinaceae	*Allocasuarina torulosa*			C		1
plants	higher dicots	Celastraceae	*Siphonodon australis*	ivorywood		C		3/3
plants	higher dicots	Celastraceae	*Elaeodendron australe var. australe*			C		1/1
plants	higher dicots	Clusiaceae	*Hypericum involutum*			C		1/1
plants	higher dicots	Crassulaceae	*Bryophyllum fedtschenkoi*		Y			1/1
plants	higher dicots	Ebenaceae	*Diospyros geminata*	scaly ebony		C		2/2
plants	higher dicots	Ericaceae	*Leucopogon juniperinus*	prickly heath		C		1/1
plants	higher dicots	Euphorbiaceae	*Manihot grahamii*		Y			2/2
plants	higher dicots	Euphorbiaceae	*Ricinus communis*	castor oil bush	Y			1
plants	higher dicots	Euphorbiaceae	*Euphorbia maculata*		Y			1/1
plants	higher dicots	Euphorbiaceae	*Excoecaria agallocha*	milky mangrove		C		1/1
plants	higher dicots	Euphorbiaceae	*Euphorbia cyathophora*	dwarf poinsettia	Y			1/1
plants	higher dicots	Euphorbiaceae	*Euphorbia ophthalmica*		Y			1/1
plants	higher dicots	Euphorbiaceae	*Mallotus philippensis*	red kamala		C		1/1
plants	higher dicots	Euphorbiaceae	*Euphorbia hyssopifolia*		Y			1/1

Kingdom	Class	Family	Scientific Name	Common Name	I	Q	A	Records
plants	higher dicots	Fabaceae	*Cullen tenax*	emu-foot		C		1/1
plants	higher dicots	Fabaceae	*Crotalaria medicaginea var. neglecta*			C		2/2
plants	higher dicots	Fabaceae	*Crotalaria brevis*			C		1/1
plants	higher dicots	Fabaceae	*Desmodium incanum*		Y			1/1
plants	higher dicots	Fabaceae	*Indigofera spicata*	creeping indigo	Y			3/3
plants	higher dicots	Fabaceae	*Neonotonia wightii*		Y			1
plants	higher dicots	Fabaceae	*Glycine microphylla*			C		1/1
plants	higher dicots	Fabaceae	*Robinia pseudoacacia*	black locust	Y			1/1
plants	higher dicots	Fabaceae	*Desmodium brachypodum*	large ticktrefoil		C		1/1
plants	higher dicots	Fabaceae	*Indigofera circinella*		Y			2/2
plants	higher dicots	Fabaceae	*Desmodium rhytidophyllum*			C		1/1
plants	higher dicots	Fabaceae	*Macroptilium lathyroides*		Y			1/1
plants	higher dicots	Fabaceae	*Tephrosia glomeruliflora*	pink tephrosia	Y			1/1
plants	higher dicots	Fabaceae	*Tephrosia filipes subsp. filipes*			C		1/1
plants	higher dicots	Fabaceae	*Abrus precatorius subsp. africanus*		Y			2/2
plants	higher dicots	Fabaceae	*Austrosteenisia blackii var. blackii*			C		1/1
plants	higher dicots	Fabaceae	*Tipuana tipu*	tipuana	Y			1
plants	higher dicots	Lythraceae	*Cuphea carthagenensis*		Y			1/1
plants	higher dicots	Malpighiaceae	*Hiptage benghalensis*		Y			4/4
plants	higher dicots	Malpighiaceae	*Stigmaphyllon ciliatum*		Y			1/1
plants	higher dicots	Malvaceae	*Hibiscus mutabilis*		Y			3/3
plants	higher dicots	Mimosaceae	*Leucaena leucocephala*		Y			2/1
plants	higher dicots	Mimosaceae	*Acaciella angustissima*	white ball acacia	Y			7/7
plants	higher dicots	Mimosaceae	*Dichrostachys cinerea subsp. malesiana*		Y			1/1
plants	higher dicots	Mimosaceae	*Acacia maidenii*	Maiden's wattle		C		1
plants	higher dicots	Mimosaceae	*Pararchidendron pruinosum*			C		1/1
plants	higher dicots	Mimosaceae	*Acacia disparrima subsp. disparrima*			C		2/2
plants	higher dicots	Moraceae	*Maclura cochinchinensis*	cockspur thorn		C		1
plants	higher dicots	Moraceae	*Ficus coronata*	creek sandpaper fig		C		1
plants	higher dicots	Moraceae	*Ficus benjamina*			C		1
plants	higher dicots	Myrsinaceae	*Lysimachia arvensis*		Y			1/1
plants	higher dicots	Myrtaceae	*Corymbia citriodora subsp. citriodora*			C		1
plants	higher dicots	Myrtaceae	*Eugenia uniflora*	Brazilian cherry tree	Y			2/2
plants	higher dicots	Myrtaceae	*Gossia gonoclada*			E	E	1/1
plants	higher dicots	Myrtaceae	*Eucalyptus crebra*	narrow-leaved red ironbark		C		3/3
plants	higher dicots	Myrtaceae	*Eucalyptus robusta*	swamp mahogany		C		1
plants	higher dicots	Myrtaceae	*Eucalyptus saligna*			C		1
plants	higher dicots	Myrtaceae	*Corymbia torelliana*	cadaghi		C		1
plants	higher dicots	Myrtaceae	*Eucalyptus curtisii*	Plunkett mallee		NT		1
plants	higher dicots	Myrtaceae	*Melaleuca bracteata*			C		1
plants	higher dicots	Myrtaceae	*Melaleuca viminalis*			C		1
plants	higher dicots	Myrtaceae	*Melaleuca linariifolia*	snow-in summer		C		1
plants	higher dicots	Myrtaceae	*Waterhousea floribunda*	weeping lilly pilly		C		2/1
plants	higher dicots	Myrtaceae	*Eucalyptus siderophloia*			C		1/1
plants	higher dicots	Myrtaceae	*Melaleuca styphelioides*			C		1/1
plants	higher dicots	Myrtaceae	*Psidium guajava*	guava	Y			1

Kingdom	Class	Family	Scientific Name	Common Name	I	Q	A	Records
plants	higher dicots	Myrtaceae	*Melaleuca*			C		1
plants	higher dicots	Nyctaginaceae	*Bougainvillea*			C		1
plants	higher dicots	Ochnaceae	*Ochna serrulata*	ochna	Y			2/1
plants	higher dicots	Oleaceae	*Ligustrum lucidum*	large-leaved privet	Y			1
plants	higher dicots	Oleaceae	*Notelaea punctata*			C		2/2
plants	higher dicots	Oxalidaceae	*Oxalis chnoodes*			C		1/1
plants	higher dicots	Passifloraceae	*Passiflora subpeltata*	white passion flower	Y			1/1
plants	higher dicots	Petiveriaceae	*Rivina humilis*		Y			2/2
plants	higher dicots	Phyllanthaceae	*Bridelia exaltata*			C		2/2
plants	higher dicots	Pittosporaceae	*Hymenosporum flavum*	native frangipani		C		1/1
plants	higher dicots	Plantaginaceae	*Plantago debilis*	shade plantain		C		1/1
plants	higher dicots	Plantaginaceae	*Scoparia dulcis*	scoparia	Y			1/1
plants	higher dicots	Polygonaceae	*Antigonon leptopus*		Y			1
plants	higher dicots	Polygonaceae	*Rumex conglomeratus*	clustered dock	Y			1/1
plants	higher dicots	Polygonaceae	*Persicaria decipiens*	slender knotweed		C		1/1
plants	higher dicots	Polygonaceae	*Rumex brownii*	swamp dock		C		2/2
plants	higher dicots	Proteaceae	*Macadamia integrifolia*	macadamia nut		V	V	1
plants	higher dicots	Rosaceae	*Eriobotrya japonica*	loquat	Y			1/1
plants	higher dicots	Rosaceae	*Rhaphiolepis indica*	Indian hawthorn	Y			1/1
plants	higher dicots	Rosaceae	*Rubus parvifolius*	pink-flowered native raspberry		C		1/1
plants	higher dicots	Rubiaceae	*Spermacoce brachystema*			C		1/1
plants	higher dicots	Rubiaceae	*Cyclophyllum coprosmoides var. coprosmoides*			C		4/4
plants	higher dicots	Rutaceae	*Murraya paniculata*			C		1
plants	higher dicots	Rutaceae	*Bergera koenigii*		Y			1/1
plants	higher dicots	Sapindaceae	*Arytera foveolata*	pitted coogera		C		1/1
plants	higher dicots	Sapindaceae	*Alectryon connatus*	grey birds-eye		C		1/1
plants	higher dicots	Sapindaceae	*Dodonaea triquetra*	large-leaved hop bush		C		1/1
plants	higher dicots	Sapindaceae	*Alectryon tomentosus*			C		1/1
plants	higher dicots	Sapindaceae	*Cupaniopsis parvifolia*	small-leaved tuckeroo		C		1/1
plants	higher dicots	Sapindaceae	*Koelreuteria elegans subsp. formosana*		Y			1
plants	higher dicots	Sapindaceae	*Cardiospermum grandiflorum*	heart seed vine	Y			2/1
plants	higher dicots	Sapindaceae	*Jagera pseudorhus var. pseudorhus*			C		1/1
plants	higher dicots	Scrophulariaceae	*Eremophila debilis*	winter apple		C		1/1
plants	higher dicots	Sterculiaceae	*Brachychiton acerifolius*	flame tree		C		1
plants	higher dicots	Ulmaceae	*Celtis sinensis*	Chinese elm	Y			1
plants	higher dicots	Viscaceae	*Notothixos incanus*			C		1/1
plants	liverworts	Aytoniaceae	*Reboulia hemisphaerica*			C		2/2
plants	liverworts	Fossombroniaceae	*Fossombronia papillata*			C		1/1
plants	liverworts	Frullaniaceae	*Frullania pentapleura*			C		1/1
plants	liverworts	Frullaniaceae	*Frullania*			C		1/1
plants	liverworts	Geocalycaceae	*Chiloscyphus semiteres*			C		1/1
plants	liverworts	Jungermanniaceae	*Jungermannia wattsiana*			C		1/1
plants	lower dicots	Apocynaceae	*Acokanthera oblongifolia*	bushman's poison	Y			1/1
plants	lower dicots	Apocynaceae	*Parsonsia brisbanensis*	broad-leaved monkey vine		C		1/1
plants	lower dicots	Aristolochiaceae	*Aristolochia meridionalis subsp. meridionalis*			C		1/1
plants	lower dicots	Berberidaceae	*Nandina domestica*		Y			1/1

Kingdom	Class	Family	Scientific Name	Common Name	I	Q	A	Records
plants	lower dicots	Convolvulaceae	*Ipomoea ochracea*		Y			1/1
plants	lower dicots	Convolvulaceae	*Ipomoea alba*	moon flower	Y			1/1
plants	lower dicots	Lamiaceae	*Anisomeles moschata*			C		2/2
plants	lower dicots	Lamiaceae	*Salvia coccinea*	red salvia	Y			1/1
plants	lower dicots	Lamiaceae	*Plectranthus verticillatus*		Y			1/1
plants	lower dicots	Lamiaceae	*Plectranthus amboinicus*	allspice	Y			1/1
plants	lower dicots	Lauraceae	*Cryptocarya microneura*	murrogun		C		1/1
plants	lower dicots	Lauraceae	*Cinnamomum camphora*	camphor laurel	Y			2/1
plants	lower dicots	Lauraceae	*Cassytha filiformis*	dodder laurel		C		1/1
plants	lower dicots	Ranunculaceae	*Ranunculus sessiliflorus*			C		1/1
plants	lower dicots	Solanaceae	*Nicandra physalodes*	apple of Peru	Y			1/1
plants	lower dicots	Solanaceae	*Solanum mauritianum*	wild tobacco	Y			1
plants	lower dicots	Solanaceae	*Physalis angulata*		Y			1/1
plants	lower dicots	Solanaceae	*Cestrum parqui*	green cestrum	Y			1
plants	lower dicots	Solanaceae	*Solanum torvum*	devil's fig	Y			1/1
plants	lower dicots	Solanaceae	*Solanum seaforthianum*	Brazilian nightshade	Y			1
plants	lower dicots	Verbenaceae	*Duranta erecta*	duranta	Y			2/1
plants	lower dicots	Verbenaceae	*Phyla nodiflora*	carpetweed		C		1
plants	lower dicots	Verbenaceae	*Lantana camara*	lantana	Y			2/1
plants	monocots	Araceae	*Syngonium podophyllum*		Y			1/1
plants	monocots	Arecaceae	*Archontophoenix alexandrae*	Alexandra palm		C		1
plants	monocots	Asparagaceae	*Asparagus aethiopicus cv. Sprengeri*	basket asparagus fern	Y			1/1
plants	monocots	Asparagaceae	*Asparagus africanus*	ornamental asparagus	Y			3/2
plants	monocots	Colchicaceae	*Iphigenia indica*			C		1/1
plants	monocots	Commelinaceae	*Commelina diffusa*	wandering jew		C		2/2
plants	monocots	Commelinaceae	*Tradescantia zebrina*		Y			2/2
plants	monocots	Commelinaceae	*Commelina benghalensis*		Y			1/1
plants	monocots	Commelinaceae	*Commelina*			C		1/1
plants	monocots	Commelinaceae	*Callisia fragrans*		Y			3/3
plants	monocots	Cyperaceae	*Scleria mackaviensis*			C		2/2
plants	monocots	Cyperaceae	*Cyperus laevis*			C		1/1
plants	monocots	Dracaenaceae	*Sansevieria trifasciata var. trifasciata*		Y			1/1
plants	monocots	Hemerocallidaceae	*Geitonoplesium cymosum*	scrambling lily		C		1/1
plants	monocots	Hydrocharitaceae	*Hydrilla verticillata*	hydrilla		C		1/1
plants	monocots	Hydrocharitaceae	*Egeria densa*	dense waterweed	Y			1/1
plants	monocots	Iridaceae	*Freesia laxa*		Y			3/3
plants	monocots	Juncaceae	*Juncus usitatus*			C		1/1
plants	monocots	Laxmanniaceae	*Eustrephus latifolius*	wombat berry		C		1/1
plants	monocots	Poaceae	*Capillipedium spicigerum*	spicytop		C		1/1
plants	monocots	Poaceae	*Echinochloa telmatophila*	swamp barnyard grass		C		1/1
plants	monocots	Poaceae	*Hyparrhenia filipendula*	tambookie grass		C		1/1
plants	monocots	Poaceae	*Dinebra divaricatissima*			C		1/1
plants	monocots	Poaceae	*Dactyloctenium australe*	sweet smother grass	Y			1/1
plants	monocots	Poaceae	*Urochloa subquadripara*		Y			1/1
plants	monocots	Poaceae	*Moorochloa eruciformis*		Y			1/1
plants	monocots	Poaceae	*Echinochloa crus-galli*	barnyard grass	Y			1/1

Kingdom	Class	Family	Scientific Name	Common Name	I	Q	A	Records
plants	monocots	Poaceae	*Chrysopogon sylvaticus*			C		1/1
plants	monocots	Poaceae	*Alloteropsis semialata*	cockatoo grass		C		1/1
plants	monocots	Poaceae	*Digitaria abyssinica*		Y			1/1
plants	monocots	Poaceae	*Paspalum conjugatum*	sourgrass	Y			1/1
plants	monocots	Poaceae	*Megathyrsus maximus*		Y			1
plants	monocots	Poaceae	*Digitaria didactyla*	Queensland blue couch	Y			1/1
plants	monocots	Poaceae	*Urochloa decumbens*		Y			2/2
plants	monocots	Poaceae	*Chloris gayana*	rhodes grass	Y			1/1
plants	monocots	Poaceae	*Panicum effusum*			C		1/1
plants	monocots	Poaceae	*Cynodon dactylon*		Y			1
plants	monocots	Poaceae	*Digitaria minima*			C		1/1
plants	monocots	Poaceae	*Leersia hexandra*	swamp rice grass		C		1/1
plants	monocots	Poaceae	*Digitaria diffusa*			C		1/1
plants	monocots	Poaceae	*Urochloa whiteana*			C		1/1
plants	monocots	Poaceae	*Oplismenus aemulus*	creeping shade grass		C		1/1
plants	monocots	Poaceae	*Paspalidium gausum*			C		1/1
plants	mosses	Aulacomniaceae	*Mesochaete undulata*			C		1/1
plants	mosses	Bryaceae	*Rosulabryum billardierei*			C		1/1
plants	mosses	Bryaceae	*Rosulabryum subfasciculatum*			C		2/2
plants	mosses	Dicranaceae	*Dicranella dietrichiae*			C		1/1
plants	mosses	Fissidentaceae	*Fissidens megalotis*			C		1/1
plants	mosses	Fissidentaceae	*Fissidens*			C		6/6
plants	mosses	Funariaceae	*Entosthodon apophysatus*			C		1/1
plants	mosses	Funariaceae	*Funaria hygrometrica*			C		1/1
plants	mosses	Hypnaceae	*Hypnum*			C		1/1
plants	mosses	Meesiaceae	*Leptobryum pyriforme*			C		1/1
plants	mosses	Polytrichaceae	*Dawsonia longiseta*			C		2/2
plants	mosses	Polytrichaceae	*Dawsonia polytrichoides*			C		1/1
plants	mosses	Pottiaceae	*Trichostomum brachydontium*			C		1/1
plants	mosses	Ptychomitriaceae	*Ptychomitrium australe*			C		1/1
plants	uncertain	Indet.	*Indet.*			C		1/1
protists	green algae	Chlorophyceae	*Chaetophora*			C		1/1
protists	green algae	Chlorophyceae	*Tetraspora gelatinosa*			C		1/1
protists		Streptophyceae	*Mougeotia recurva*			C		1/1

CODES

I - Y indicates that the taxon is introduced to Queensland and has naturalised.

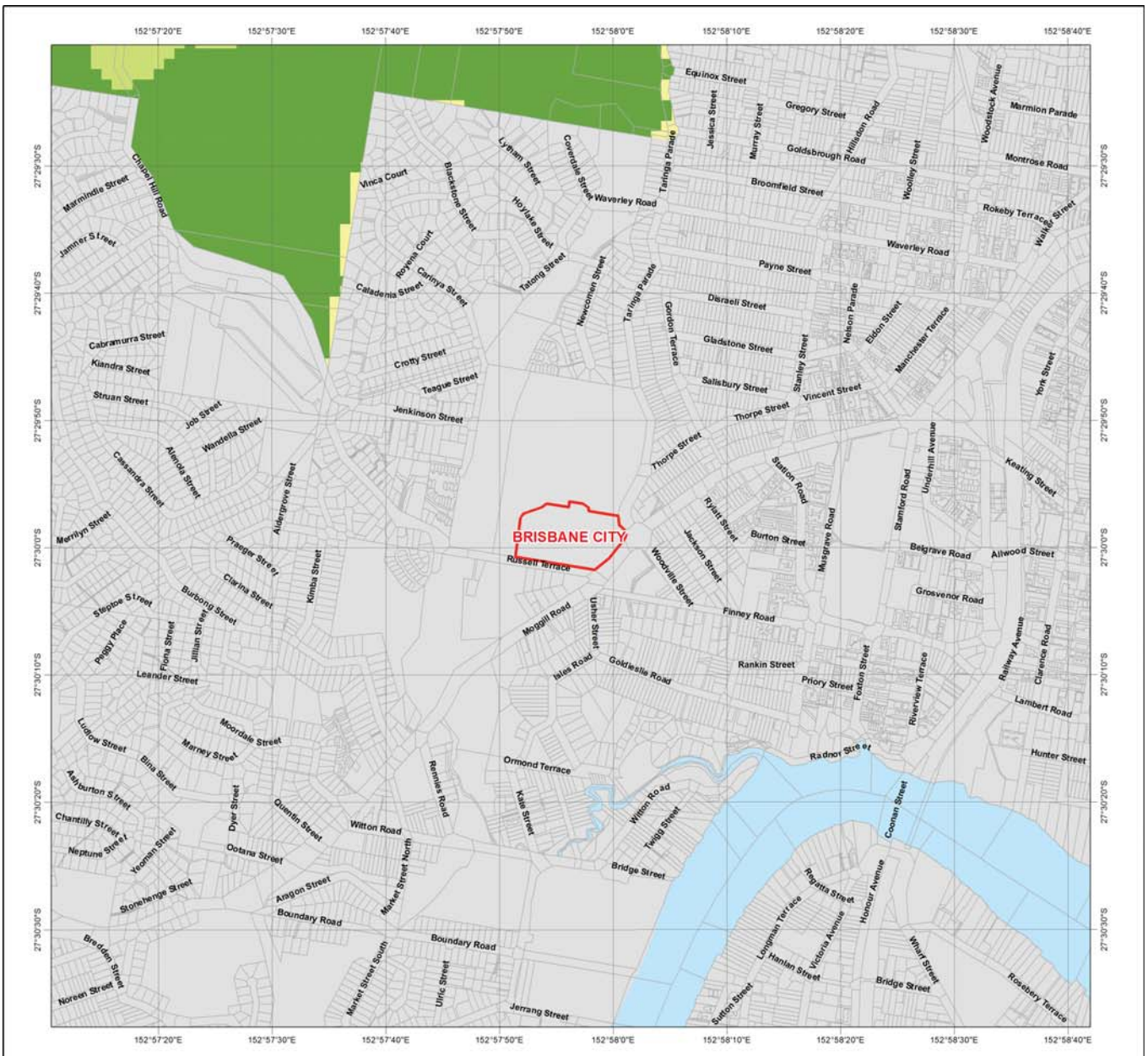
Q - Indicates the Queensland conservation status of each taxon under the *Nature Conservation Act 1992.* The codes are Extinct in the Wild (PE), Endangered (E), Vulnerable (V), Near Threatened (NT), Least Concern (C) or Not Protected ( ).

A - Indicates the Australian conservation status of each taxon under the *Environment Protection and Biodiversity Conservation Act 1999.* The values of EPBC are Conservation Dependent (CD), Critically Endangered (CE), Endangered (E), Extinct (EX), Extinct in the Wild (XW) and Vulnerable (V).

Records – The first number indicates the total number of records of the taxon for the record option selected (i.e. All, Confirmed or Specimens).
This number is output as 99999 if it equals or exceeds this value. The second number located after the / indicates the number of specimen records for the taxon.
This number is output as 999 if it equals or exceeds this value.

APPENDIX E

Koala Habitat in Southeast Queensland map for the study area



Koala Habitat in South East Queensland

Lot and Plan

Koala SPP - Habitat Values

Bushland Habitat
- High Value Bushland
- Medium Value Bushland
- Low Value Bushland

Suitable for Rehabilitation
- High Value Rehabilitation
- Medium Value Rehabilitation
- Low Value Rehabilitation

Other Areas of Value
- High Value Other
- Medium Value Other
- Low Value Other
- Generally not suitable
- Water

South East Queensland Koala Habitat Values western SEQ
- Bushland Habitat
- Suitable for rehabilitation
- Other areas of value
- Generally not suitable
- Water
- Cadastral Boundaries
- Local Government Boundaries

0 130 260 390 520 650 m

This product is projected into GDA 1994 MGA Zone 56

While every care is taken to ensure the accuracy of this data, the State of Queensland makes no representations or warranties about its accuracy, reliability, completeness or suitability for any particular purpose and disclaims all responsibility and all liability (including without limitation, liability in negligence) for all expenses, losses, damages (including indirect or consequential damage) and costs which you might incur as a result of the data being inaccurate or incomplete in any way and for any reason. Due to varying sources of data, spatial locations may not coincide when overlaid.

In consideration of the State permitting use of this data you acknowledge and agree that the State gives no warranty in relation to the data (including accuracy, reliability, completeness, currency or suitability) and accepts no liability (including without limitation, liability in negligence) for any loss, damage or costs (including consequential damage) relating to any use of the data. Data must not be used for direct marketing or be used in breach of the privacy laws.

Based on or contains data provided by the State of Queensland 2010.

Note - These maps are not regulatory. Regulatory maps and requirements can be downloaded from the DES website. Further information in relation to regulatory requirements for development and planning activities should be sought from the relevant Local Government Authority or the Department of Environment and Science.

© The State of Queensland, 2018

Queensland Government

APPENDIX F

Fauna species list from the field survey

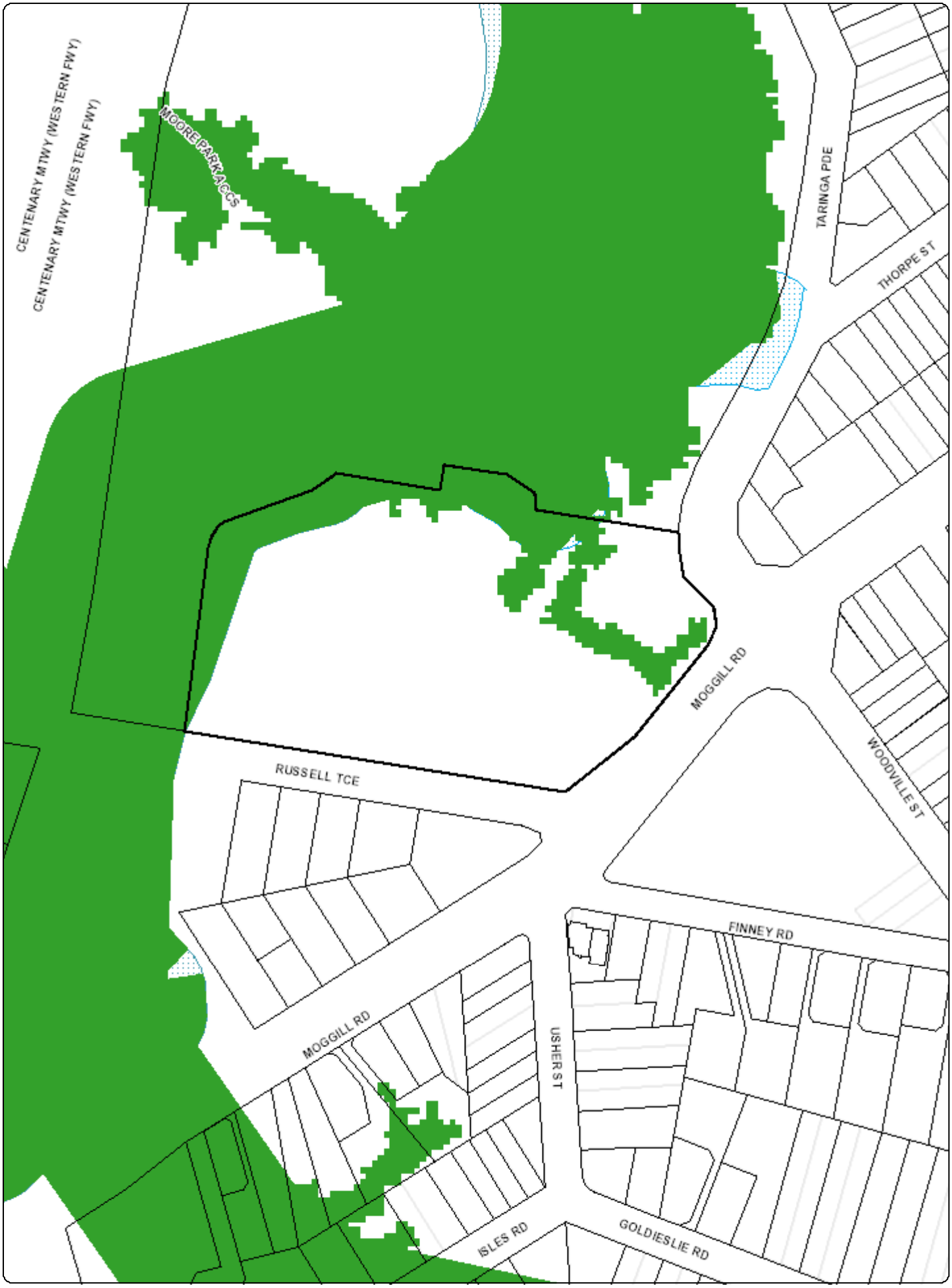
Table F.1: Fauna species recorded utilising habitats in the study area during the field survey.

Species	Common name	EPBC Act	NC Act
Alectura lathami	Australian Brush-turkey		C
Cacatua galerita	Sulphur-crested Cockatoo		C
Platycercus adscitus	Pale-headed Rosella		C
Trichoglossus chlorolepidotus	Scaly-breasted Lorikeet		C
Trichoglossus haematodus	Rainbow Lorikeet		C
Dacelo novaeguineae	Laughing Kookaburra		C
Pardalotus striatus	Striated Pardalote		C
Manorina melanocephala	Noisy Miner		C
Sphecotheres vieilloti	Australasian Figbird		C
Cracticus nigrogularis	Pied Butcherbird		C
Cracticus tibicen	Australian Magpie		C
Strepera graculina	Pied Currawong		C
Corvus orru	Torresian Crow		C
Dicaeum hirundinaceum	Mistletoebird		C
Pseudocheirus peregrinus	Common Ringtail Possum		C
Trichosurus vulpecula	Common Brushtail Possum		C

Abbreviations: EPBC Act = status under the *Environment Protection and Biodiversity Conservation Act 1999* (Commonwealth); **NC Act** = status under the *Nature Conservation Act 1992* (Queensland); C = Least Concern..

APPENDIX G

Brisbane City Plan 2014 environmental overlays



Brisbane City Plan 2014

BRISBANE CITY
Planning Scheme

© Copyright Brisbane City Council 2015

NOTES

This map is notional only and should not be used for interpreting City Plan provisions relating to specific sites. To properly interpret the maps, the planning scheme must be referred to. The Digital Cadastre Database (supplied by State of Queensland - Department of Natural Resources and Mines) will be updated from time to time.

Mapping adopted by Council, effective 18 September 2015.

Council and the copyright owners permit the use of the data on this map, but the Council and copyright owners give no warranty in relation to the data (including accuracy, reliability, completeness, currency or suitability) and accept no liability (including without limitation, liability in negligence) for any loss, damage or costs (including consequential damage), relating to any use of this data.

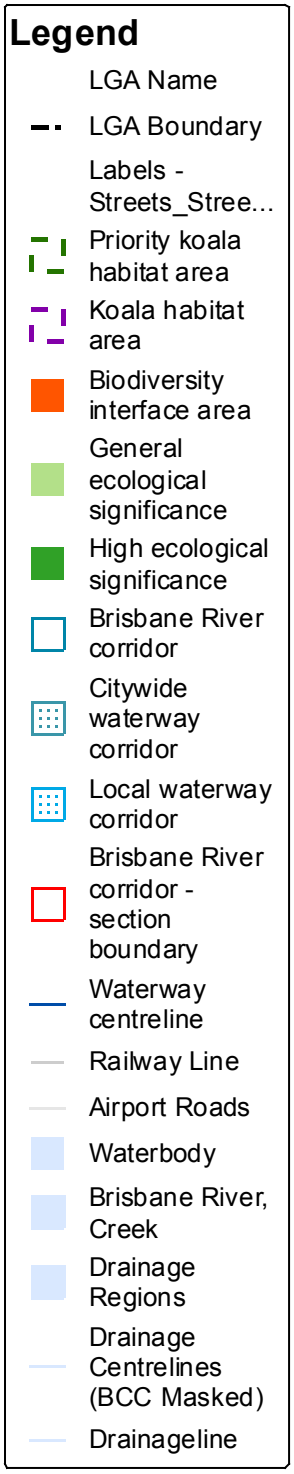
Projection: Map Grid of Australia, Zone 56
Horizontal Datum: Geocentric Datum of Australia 1994

Approximate Scale @ A4 1:2,500

0 90

Metres

Date: 28/03/2018



Brisbane City Plan 2014

© Copyright Brisbane City Council 2015

BRISBANE CITY Planning Scheme

NOTES

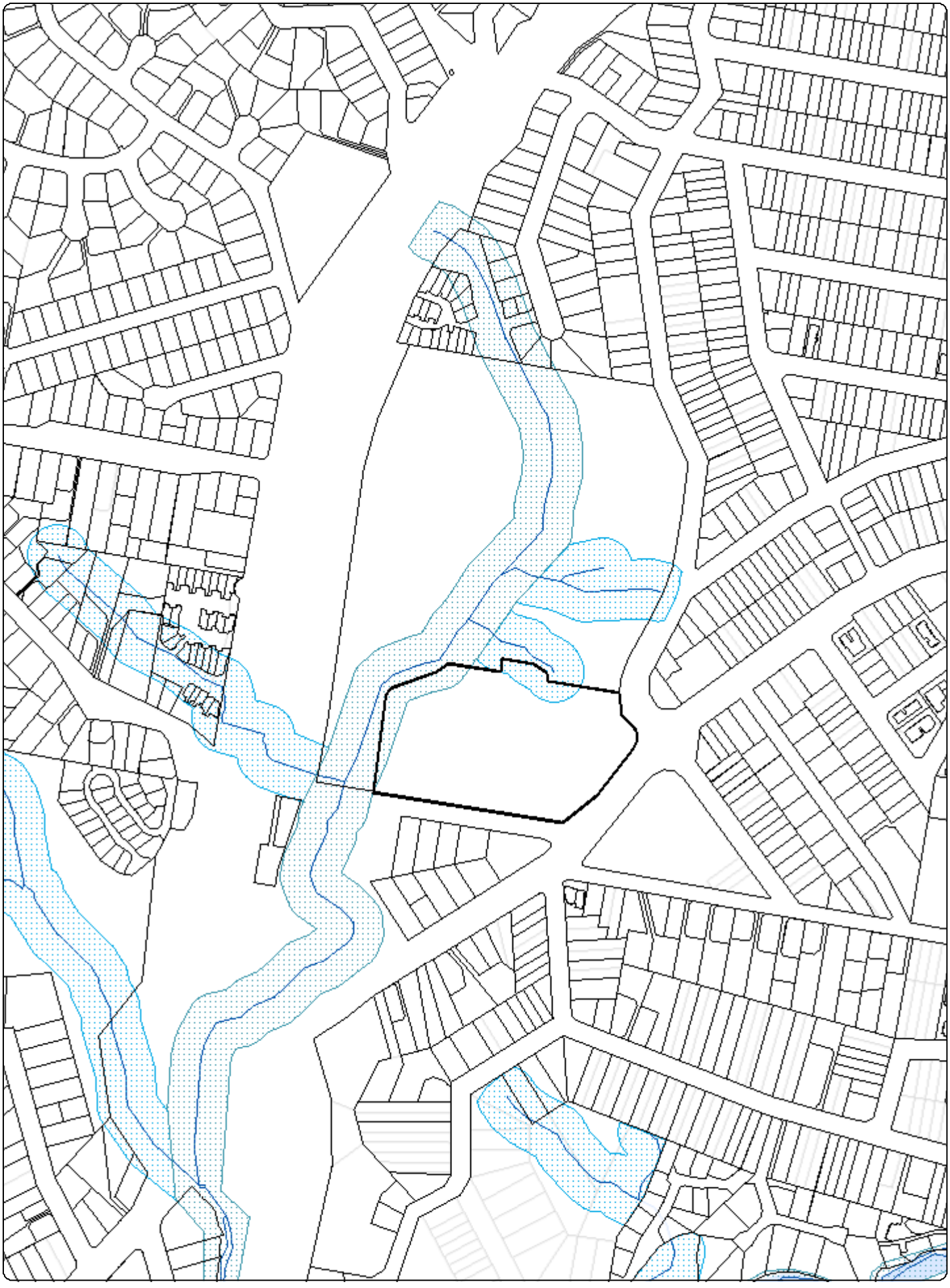
This map is notional only and should not be used for interpreting City Plan provisions relating to specific sites. To properly interpret the maps, the planning scheme must be referred to. The Digital Cadastre Database (supplied by State of Queensland - Department of Natural Resources and Mines) will be updated from time to time.

Mapping adopted by Council, effective 18 September 2015.

Council and the copyright owners permit the use of the data on this map, but the Council and copyright owners give no warranty in relation to the data (including accuracy, reliability, completeness, currency or suitability) and accept no liability (including without limitation, liability in negligence) for any loss, damage or costs (including consequential damage), relating to any use of this data.

Projection: Map Grid of Australia, Zone 56
Horizontal Datum: Geocentric Datum of Australia 1994

Date: 28/03/2018



Brisbane City Plan 2014

BRISBANE CITY
Planning Scheme

© Copyright Brisbane City Council 2015

NOTES

This map is notional only and should not be used for interpreting City Plan provisions relating to specific sites. To properly interpret the maps, the planning scheme must be referred to. The Digital Cadastre Database (supplied by State of Queensland - Department of Natural Resources and Mines) will be updated from time to time.

Mapping adopted by Council, effective 18 September 2015.

Council and the copyright owners permit the use of the data on this map, but the Council and copyright owners give no warranty in relation to the data (including accuracy, reliability, completeness, currency or suitability) and accept no liability (including without limitation, liability in negligence) for any loss, damage or costs (including consequential damage), relating to any use of this data.

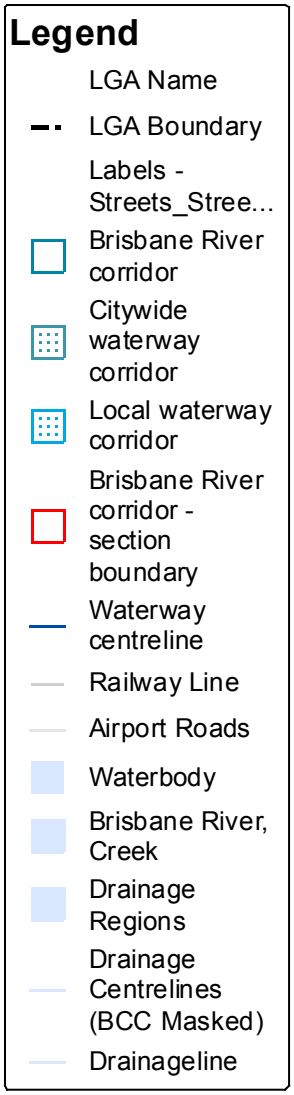
Projection: Map Grid of Australia, Zone 56
Horizontal Datum: Geocentric Datum of Australia 1994

Approximate Scale @ A4 1:5,000

0 180

Metres

Date: 28/03/2018



Brisbane City Plan 2014

© Copyright Brisbane City Council 2015

BRISBANE CITY Planning Scheme

NOTES

This map is notional only and should not be used for interpreting City Plan provisions relating to specific sites. To properly interpret the maps, the planning scheme must be referred to. The Digital Cadastre Database (supplied by State of Queensland - Department of Natural Resources and Mines) will be updated from time to time.

Mapping adopted by Council, effective 18 September 2015.

Council and the copyright owners permit the use of the data on this map, but the Council and copyright owners give no warranty in relation to the data (including accuracy, reliability, completeness, currency or suitability) and accept no liability (including without limitation, liability in negligence) for any loss, damage or costs (including consequential damage), relating to any use of this data.

Projection: Map Grid of Australia, Zone 56
Horizontal Datum: Geocentric Datum of Australia 1994

Date: 28/03/2018

Appendix 15

Bushfire Assessment

Department of Housing and Public Works

Queensland Government

Land and environment consultants

Bushfire management plan

Proposed master plan development | Indooroopilly State School | Indooroopilly | Queensland
Prepared for Department of Education | 30 May 2018

Land and environment consultants
13 Pedwell Place
Birkdale Queensland 4159
T: 0466 714 833
E: info@landeconsultants.com.au

Bushfire management plan

Final

Report 18029 | Department of Education | 30 May 2018

Prepared by Robert Janssen

Position Managing principal

Signature

Date 30 May 2018

This report has been prepared in accordance with the brief provided by the client and has relied upon the information collected at or under the times and conditions specified in the report. All findings, conclusions or recommendations contained in the report are based on the aforementioned circumstances. The report is for the use of the client and no responsibility will be taken for its use by other parties. The client may, at its discretion, use the report to inform regulators and the public.

© Reproduction of this report for educational or other non-commercial purposes is authorised without prior written permission from LEC provided the source is fully acknowledged. Reproduction of this report for resale or other commercial purposes is prohibited without LEC's prior written permission.

Document control

Version	Date	Prepared by	Reviewed by
Draft	16 May 2018	R. Janssen	Atlus Group
Final	30 May 2018	R. Janssen	LEC

LEC
Land and environment consultants

T: 0466 714 833 | E: info@landeconsultants.com.au | http://www.landeconsultants.com.au/

13 Pedwell Place | Birkdale | Queensland | 4159 | Australia

Table of contents

Contents

Table of contents i

1 Introduction 1

1.1 Method 1

1.2 Suitably qualified person 2

2 Description of the site and the proposed development 3

2.1 Site description 3

2.2 Proposed development 3

2.3 Bushfire hazard area 3

3 Bushfire assessment 5

4 Bushfire hazards associated with the site 6

4.1 Fire danger season 6

4.2 Fire history 6

4.3 Likely direction of bushfire attack 6

4.4 Potential bushfire hazard from adjacent land use 6

5 Proposed development bushfire hazard 7

5.1 Site activities and usage patterns 7

5.2 Population 7

5.3 Hazardous chemicals 7

5.4 Vulnerable use 7

5.5 Landscaping 7

5.6 Access and egress 7

5.7 Warning and evacuation requirements 7

5.8 Fire-fighter water supply 7

5.9 Radiant heat exposure 7

6 Bushfire mitigation plan 9

6.1 Building access/egress and escape routes 9

6.2 Emergency assembly area 9

6.3 Building design and construction 9

6.4 Hydrants 9

6.5 Vehicle access requirements 9

6.6 Landscaping 10

6.7 Emergency management planning 10
7 Conclusion 12

Figures

Figure 2.1 Property locality and bushfire hazard areas 4
Figure 6.1: Bushfire mitigation plan 11

Tables

Table 5.1: Radiant heat exposure 8

Appendix

Appendix 1 Concept master plan
Appendix 2 Bushfire hazard assessment
Appendix 3 Radiant heat exposure calculations
Appendix 4 Bushfire overlay code
Appendix 5 SPP Draft model bushfire hazard overlay code assessment

Disclaimer

Notwithstanding the precautions adopted in this report, it should always be remembered that bushfires burn under a range of conditions. An element of risk, no matter how small always remains, and although AS 3959-2009 is designed to improve the performance of such buildings, there can be no guarantee, because of the variable nature of bushfires, that any one building will withstand bushfire attack on every occasion.

It should be noted that upon lodgement of a development application, council and/or the fire service may recommend additional construction requirements.

Although every care has been taken in the preparation of this report, Land and Environment Consultants accept no responsibility resulting from the use of the information in this report.

1 Introduction

Land and Environment Consultants (LEC) was engaged to undertake a bushfire hazard assessment and prepare a bushfire management plan to inform the proposed master plan development (proposed development) at Indooroopilly State School on the corner of Moggill Road and Russell Terrace, Indooroopilly (the site), properly described as 285/SP104042.

The site is affected by the Brisbane City Plan 2014 *Bushfire overlay* (Bushfire overlay) map for medium and high hazard areas and high impact buffer areas and the Queensland State Planning Policy (SPP) *Bushfire hazard area overlay* (SPP bushfire hazard overlay) map for high bushfire hazard and potential impact buffer areas. LEC performed a bushfire hazard assessment and confirmed the northern part of the site is a bushfire hazard area because of open forest vegetation which occurs adjacent part of the northern boundary (LEC 2018).

This bushfire management plan demonstrates how stages of the proposed development which are affected by bushfire hazard demonstrate compliance with relevant performance outcomes sought under the Brisbane City Plan 2014 *Bushfire overlay code* (Bushfire overlay code) and the SPP *Draft model bushfire hazard overlay code* (SPP draft model bushfire hazard overlay code).

This bushfire management plan has been prepared in general accordance with the Brisbane City Plan 2014 *Bushfire planning scheme policy* (Bushfire planning scheme policy). It documents the bushfire hazard assessment for the site and identifies strategies that the proposed development will implement to mitigate the potential impacts of bushfire on life, property and the environment and includes:

- an introduction (this section) and description of methods and information resources used for the bushfire hazard assessment;
- description of the site and the proposed development;
- bushfire hazard assessment;
- identification of bushfire hazards associated with the site and the proposed development;
- radiant heat flux assessment based on the 'method 2' bushfire attack level (BAL) procedure in the *Australian Standard for Construction of Buildings in Bushfire Prone Areas* (AS 3959-2009);
- a plan for mitigating bushfire hazards; and
- assessment of the proposed development against the Bushfire overlay code and the SPP draft model bushfire hazard overlay code.

1.1 Method

To meet the requirements of the Bushfire planning scheme policy the following steps were undertaken:

- desktop review of the Bushfire overlay map on the Brisbane City Council online mapping system;
- desktop review of the SPP bushfire hazard overlay map, Queensland regional ecosystem (RE) map (version 10), vegetation hazard class (VHC) map and severe fire weather map on the Queensland Fire and Emergency Services (QFES) online mapping system (redi-portal);
- assessment of the site and land within 100 m of the site, including:
  - vegetation characteristics and current management practices;
  - slope; and
  - evidence of previous fires;
- bushfire hazard assessment in accordance with Part B of the SPP Natural Hazards, Risk and Resilience Technical Manual – A *'fit-for-purpose' approach in undertaking natural hazard studies and risk assessments* (April 2016) (SPP bushfire hazard assessment manual) and the patch and corridor filters in the State Inter-Departmental Committee on Bushfires guideline, *Commonwealth Scientific and*

Industrial Research Organisation (CSIRO) *Bushfire prone area patch and corridor filter rules* (2016) (CSIRO patch and corridor filter rules).

- radiant heat flux assessment of the proposed development using the Fire Protection Association of Australia *BAL calculator V4.7* which models the 'method 2' procedure in AS 3959-2009; and
- assessment of the proposed development against the Bushfire overlay code and SPP draft model bushfire hazard overlay code.

Aerial imagery of the site was accessed online from Google Earth to assist in validating observations and measurements made during the site assessment.

1.2 Suitably qualified person

This bushfire management plan was prepared by Robert Janssen who is a suitably qualified and experienced bushfire management consultant.

Robert is the managing principal at LEC and has over 20 years of experience in bushfire planning and operations. He has prepared bushfire management plans for residential, commercial and industrial property developments, utilities, government facilities and conservation estates.

Robert's formal qualifications as an environmental scientist and consulting experience are coupled with 10 years of experience as a nationally accredited fire-fighter with the national parks and wildlife service in New South Wales and Queensland.

2 Description of the site and the proposed development

2.1 Site description

The location of the site is shown on Figure 2.1 and is accessed from Russell Terrace. The site is 3.196 hectares (ha) and is developed with school buildings, pathways, oval, gardens and lawn.

Land adjoining the north boundary of the site is a combination of natural vegetation and maintained parkland. A patch of natural vegetation and land developed with roads and residential and commercial development adjoins the south and east boundaries of the site and maintained parkland adjoins the west boundary of the site.

2.2 Proposed development

The proposed development includes the construction of up to 20 classrooms to future proof the growth of Indooroopilly State School as shown on the concept master plan at Appendix 1. It will involve the demolition of an existing toilet block and removal of temporary demountable buildings currently located on the oval.

Indooroopilly State School is connected to reticulated power and water supplies.

The proposed development is a 'vulnerable use' under the Bushfire overlay code and the SPP draft model bushfire hazard overlay code.

2.3 Bushfire hazard area

The location of the bushfire hazard areas identified by LEC as affecting the site is shown on Figure 2.1

Coordinates - MGA94 Zone 56		
Stn.	Easting	Northing
A	496472.24	6958159.70
B	496548.13	6958289.16
C	496720.00	6958259.57
D	496662.91	6958129.10

LEC
Land and environment consultants

Client: Department of Education

Project: Bushfire Hazard Assessment Indooroopilly State School

Design	Land Environment Consultants	21.05.2018
Drawn	Bentline | MP	21.05.2018
Scale	1:3000	
Cad File	LEC_Indooroopilly SS02.dwg	Rev 1.0

Title: Property Locality & Bushfire Hazard Area

FIGURE: 2.1

©Land and Environment Consultants. While every care is taken to ensure the accuracy of data, LEC makes no representation or warranties about its accuracy, reliability, completeness or suitability for any particular purpose and disclaims all responsibility and all liability in negligence for all expenses, losses, damages (including indirect consequential damage) and cost which might be incurred as a result of the data being inaccurate or incomplete in any way and for any reason.

3 Bushfire assessment

The bushfire hazard assessment for the site (LEC 2018) is attached at Appendix 2 and determined that land within 100 m of the northern boundary is a bushfire hazard area. It also shows the impact of the bushfire hazard area on the proposed development.

Stages of the proposed development affected by the bushfire hazard area must comply with the recommendations in this bushfire management plan.

Under Section 12 of the Queensland Building Regulation 2006, the bushfire hazard area within the site is defined as a 'bushfire prone area' and requires compliance with BAL construction specifications for some *National Construction Code* (NCC) classes of building. Buildings associated with the proposed development are likely to be NCC class 9, ie class room buildings, which are not subject to compliance with AS 3959-2009. Nevertheless, the 'method 2' BAL procedure in AS 3959-2009 is relevant to ensure building access/egress is serviceable during a bushfire emergency.

4 Bushfire hazards associated with the site

This chapter identifies potential bushfire hazards associated with the site.

4.1 Fire danger season

The fire danger season in South-east Queensland starts in August, peaks in September and begins to fall in November, but will remain elevated until consistent summer rainfall occurs. Typically, the worst fire weather conditions will be experienced during the fire danger season when the wind direction is from the north.

Fire Danger Index (FDI) values represent the chance of a fire starting, its rate of spread, its intensity and the difficulty of its suppression, according to various combinations of air temperature, relative humidity, wind speed and both the long and short-term drought effects. The severe fire weather map accessed on the redi-portal indicates the 5% annual exceedance probability FDI for the site is 55.

Fire danger ratings (FDR) are based on the forecast weather conditions, ie FDI, and give advice about the level of bushfire threat on a day. An FDI of 55 is commensurate with a very high to severe FDR and will be associated with hot, dry and windy conditions. If a fire starts and takes hold under these conditions, it may be difficult to control in natural areas.

4.2 Fire history

There was no widespread evidence of charring on standing trees or fallen timber in the bushfire hazard area north of the site. This observation does not mean the bushfire hazard area will not be subject to a fire in the future but suggests a fire in this area is unlikely.

4.3 Likely direction of bushfire attack

The likely direction of bushfire attack on the site is from the north where a high bushfire hazard area occurs. This bushfire attack scenario is further assessed in Chapter 5.

4.4 Potential bushfire hazard from adjacent land use

The site is surrounded by residential and commercial development (medium density) and open space (parkland) which are not land uses considered a bushfire hazard to the proposed development.

Prescribed burning could be performed by Brisbane City Council in Moore Park to achieve conservation and forest fuel hazard reduction objectives. Prescribed burns are carefully planned and controlled and except for temporary nuisance from smoke and increased traffic, are unlikely to have any significant negative impacts on the proposed development.

5 Proposed development bushfire hazard

This chapter identifies potential bushfire hazards associated with the proposed development.

5.1 Site activities and usage patterns

The primary use of the proposed development is for primary education which will not increase the risk of bushfire hazard to adjacent properties.

5.2 Population

The proposed development will not materially increase the number of people or buildings exposed to bushfire hazard given the adjacent pattern of residential and commercial development.

5.3 Hazardous chemicals

The proposed development will not involve the bulk storage or handling of hazardous materials.

5.4 Vulnerable use

The proposed development is for a vulnerable use. Therefore, buildings will be appropriately designed and located to ensure access/egress remains serviceable in the event of a fire.

5.5 Landscaping

Landscaping around buildings will not exacerbate bushfire hazard on the site and will consist of hard and soft areas including footpaths, playing surfaces, landscaped gardens and lawn.

The proposed development does not involve the restoration of natural vegetation within the site.

5.6 Access and egress

Efficient access for fire-fighters and the orderly evacuation of occupants is provided by existing public roads.

5.7 Warning and evacuation requirements

Queensland emergency services use a range of methods to warn the community about bushfire, severe weather and other emergencies that require preparation and action at the property level. Personnel responsible for the operation of the school will be subject to advice and warnings by Queensland emergency services via radio, online media, and local community safety announcements.

5.8 Fire-fighter water supply

The proposed development will include a reticulated hydrant system. Hydrants will be in positions that enable fire services to access water safely, effectively and efficiently. They will also be identified so that fire services can locate them at all hours.

During the detailed design phase of the proposed development, water supply and pressure will be tested (and if required augmented) to ensure that it has sufficient flow and pressure characteristics for fire-fighting purposes always.

5.9 Radiant heat exposure

The method 2 BAL assessment procedure in AS 3959-2009 and the Fire Protection Association Australia *BAL calculator version 4.7* was used to calculate the potential severity of radiant heat exposure expressed in kilowatts (kW)/m^2 to a fire in the bushfire hazard area north of the site.

The model inputs and calculations are provided in Appendix 3 and the results are summarised in Table 5.1.

Table 5.1: Radiant heat exposure

Boundary	Distance to bushfire hazard vegetation (m)				
	40 kW/m²	**29 kW/m²**	**19 kW/m²**	**12.5 kW/m²**	**10 kW/m²**
North	9	12	18	25	30

Buildings must be positioned and designed to ensure building access/egress points and evacuation routes remain serviceable during a bushfire. Table G1 in the AS 3959-2009 states that unprotected humans will feel pain after 10-20 seconds exposure to 4 kW/m^2 and after 3 seconds exposure to 10 kW/m^2. Therefore, the performance threshold for building access/egress points and evacuation routes should be $\leq$ 10 kW/m^2.

The results in Table 5.1 indicate that building access/egress points and evacuation routes need to be at least 30 m from the bushfire hazard area north of the site to achieve this radiant heat exposure level.

6 Bushfire mitigation plan

This chapter identifies mitigation measures that will be implemented for the proposed development to comply with the relevant performance outcomes sought under the Bushfire overlay code and the SPP draft model bushfire hazard overlay code.

It is the total of the actions in this report that will reduce the risk of bushfire hazards to a tolerable level. Failure to implement all actions in their entirety could result in an increased level of exposure to bushfire hazards.

6.1 Building access/egress and escape routes

Potential radiant heat exposure levels over the site are shown on Figure 6.1. Building access/egress points and escape routes will be in areas which have a maximum potential radiant heat exposure level of $\leq$ 10 kW/m^2.

6.2 Emergency assembly area

Part of the existing oval is > 100 m from the bushfire hazard area adjoining the north boundary of the site and will provide an appropriate emergency assembly area. The location of the emergency assembly area is shown on Figure 6.1.

6.3 Building design and construction

Proposed buildings will meet the fire resistance and safe access/egress requirements specified in the NCC (volume 1) and will afford occupants with a refuge from bushfire attack under most fire weather conditions.

Proposed fencing and retaining walls in the potential impact buffer area will be constructed with fire-resistant materials.

6.4 Hydrants

Fire-fighter water supply and hydrants will be supplied in accordance with Central South-east Queensland Distributor-Retailer Authority, Queensland Urban Utilities (incorporating Water Services Association of Australia) standards or the Queensland Fire and Emergency Services guideline *Fire Hydrant and Vehicle Access Guidelines.* Where there are differences the higher design criteria or performance outcome should prevail.

Hydrants will be in positions that have a maximum potential radiant heat exposure level of $\leq$ 10 kW/m^2 and enable fire services to access water safely, effectively and efficiently. No point of a proposed building will be > 120 m from a hydrant.

Hydrants will be identified with marker posts so that they can be located at all hours.

6.5 Vehicle access requirements

Private-access driveways will be designed and constructed in general accordance with *Road design requirements for emergency vehicle access* in the Bushfire overlay code and will meet the following design criteria:

- minimum formed width of 4 m;
- minimum vertical clearance of 4 m to overhanging obstructions and 5 m to overhanging power lines;
- minimum surface rating of 15 tonnes;
- all weather pavement.

Vehicle access/egress to the site is via existing public roads which provide multiple escape routes as shown on Figure 6.1.

6.6 Landscaping

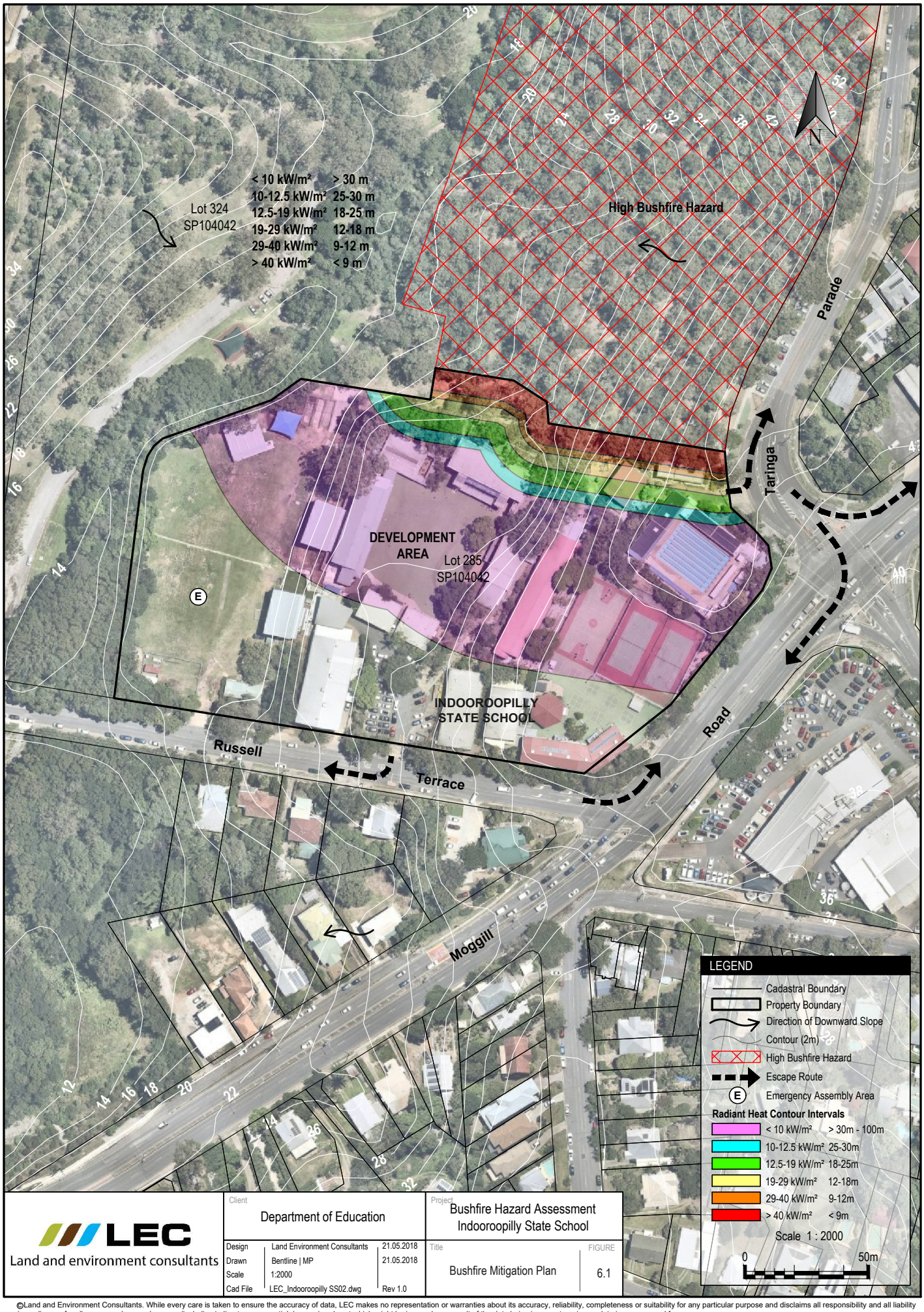
Landscaping around buildings will not exacerbate bushfire hazard on the site and will consist of hard and soft areas including footpaths, playing surfaces, landscaped gardens and lawn.

Gardens will not be planted between proposed buildings and the bushfire hazard area adjoining the north boundary of the site.

Plantings in gardens will favour species with high moisture content, high salt content and low levels of fine fuel and/or oil content - *Living with the Environment in the Pine Rivers Shire* (Bowden 1999) provides a useful list of plant species which meet these criteria.

6.7 Emergency management planning

The existing emergency response plan for Indooroopilly State School will be updated to address a bushfire emergency and changes to site conditions, ie new buildings and increased number of occupants, under the proposed development.



LEC
Land and environment consultants

Client	Department of Education	
Project	Bushfire Hazard Assessment Indooroopilly State School	
Design	Land Environment Consultants	21.05.2018
Drawn	Bentline | MP	21.05.2018
Scale	1:2000	
Cad File	LEC_Indooroopilly SS02.dwg	Rev 1.0
Title	Bushfire Mitigation Plan	FIGURE 6.1

©Land and Environment Consultants. While every care is taken to ensure the accuracy of data, LEC makes no representation or warranties about its accuracy, reliability, completeness or suitability for any particular purpose and disclaims all responsibility and all liability in negligence for all expenses, losses, damages (including indirect consequential damage) and cost which might be incurred as a result of the data being inaccurate or incomplete in any way and for any reason.

7 Conclusion

This bushfire management plan has been prepared in general accordance with the Bushfire planning scheme policy.

A bushfire hazard assessment confirmed the proposed development is affected by a bushfire hazard area and is subject to compliance with relevant performance outcomes sought under the Bushfire overlay code and the SPP draft model bushfire hazard overlay code.

Mitigation measures for the proposed development include potential radiant heat exposure criteria for building access/egress and escape routes, an emergency assembly area, building design and construction requirements, specifications for hydrants, design criteria for private-access driveways, design criteria for landscaping and emergency management planning.

With the implementation of the mitigation measures in this report, the proposed development generally complies with the outcomes sought under the Bushfire overlay code and SPP draft model bushfire hazard overlay code as demonstrated at Appendix 4 and Appendix 5 respectively.

References

Australian Building Codes Board (ABCB) 2012, *National Construction Code Series, Building Code of Australia Class 2 to Class 9 Buildings, Volume 1,2 and 3*, Australian Government and States and Territories of Australia 2012

Bowden, John (Bowden) 1999, *Living with the Environment in the Pine Rivers Shire*, Pine Rivers Shire Council

Brisbane City Council (BCC) 2017, *Bushfire overlay*, Accessed online at http://cityplan2014maps.brisbane.qld.gov.au/CityPlan/, March 2018

Commonwealth Scientific and Industrial Research Organisation (CSIRO) 2014, *A new methodology for State-wide mapping of bushfire prone areas in Queensland*, CSIRO and State of Queensland 2014

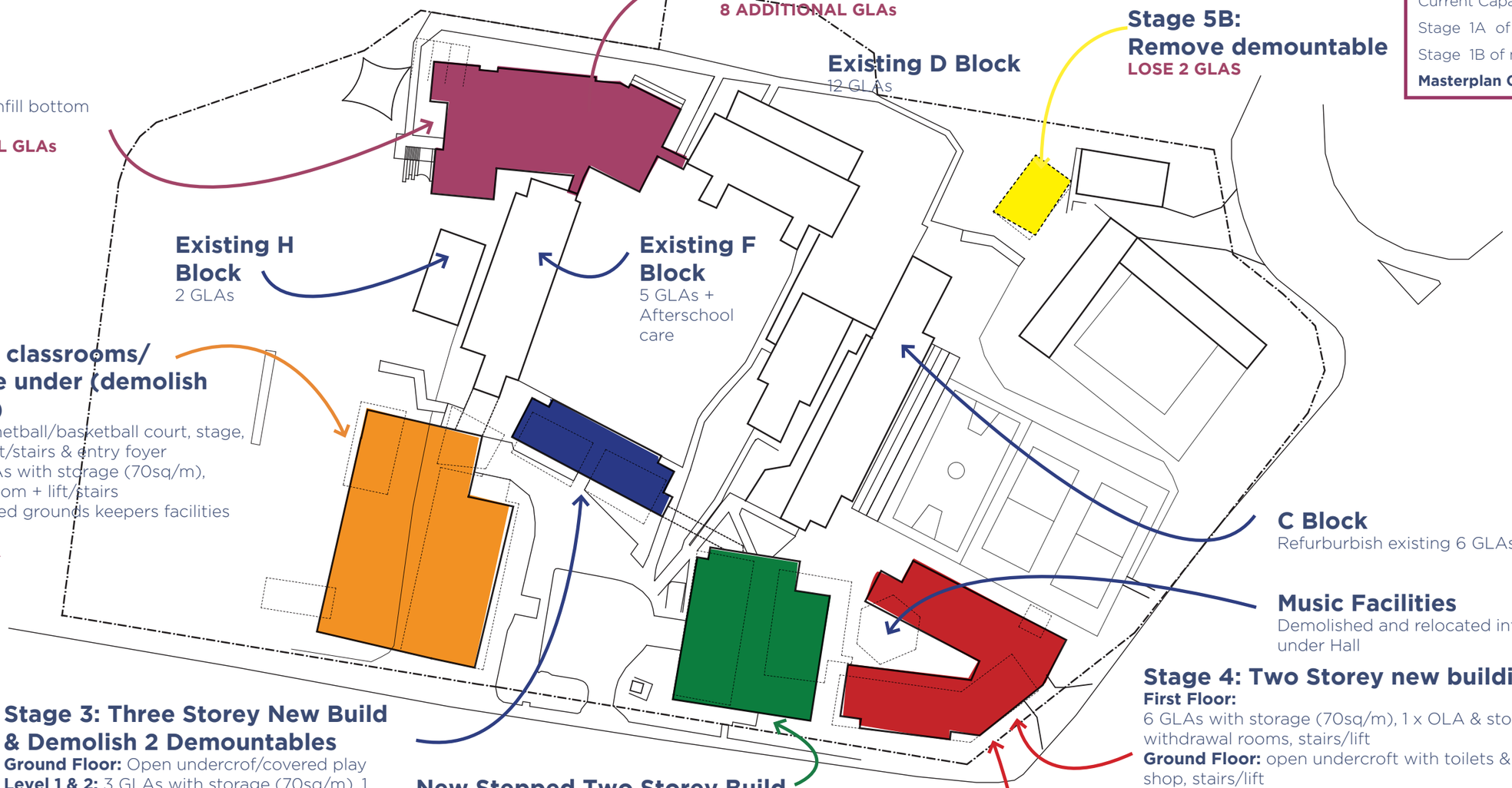
Land and Environment Consultants (LEC) 2018, *Bushfire assessment for Indooroopilly State School (project number 34-150310) on the corner of Russell Terrace and Moggill Road, Indooroopilly, Queensland*, report to the Queensland Department of Education, 11 May 2018

Queensland Fire and Emergency Service (QFES) 2015, *Fire Hydrant and Vehicle Access Guidelines for Residential, Commercial and Industrial Lots*, November 2015

Queensland Fire and Emergency Service (QFES) 2016, *Guidance on conducting reliability assessment of state bushfire prone area mapping – Draft – not government policy*, October 2016

Standards Australia Limited (Standards Australia) 2009, *Australian Standard 3959-2009 Construction of buildings in bushfire prone areas*, Incorporating amendments 1, 2 and 3, 10 March 2009

Appendix 1 Concept master plan



Enrolment Capacity Staging Proposal:

Current Capacity: 1,112

Stage 1A of new build: 1,304

Stage 1B of new build: 1,400

Masterplan Complete: 1,496

Stage 1A:
11 new classrooms & 1 FLA
Remove 4 demountables on the oval
8 ADDITIONAL GLAs

Stage 1B:
4 new GLAs (infill bottom two levels)
4 ADDITIONAL GLAs

Existing D Block
12 GLAs

Stage 5B: Remove demountable
LOSE 2 GLAS

Existing H Block
2 GLAs

Existing F Block
5 GLAs + Afterschool care

New Hall with classrooms/ music/storage under (demolish demountable)
Ground Floor: Full netball/basketball court, stage, amenitie, storage, lift/stairs & entry foyer
Undercroft: 3 x GLAs with storage (70sq/m), 1 x 90sq/m music room + lift/stairs
Oval Level: Relocated grounds keepers facilities + covered play area
1 ADDITIONAL GLA

C Block
Refurburbish existing 6 GLAs

Music Facilities
Demolished and relocated into & under Hall

Stage 4: Two Storey new building
First Floor:
6 GLAs with storage (70sq/m), 1 x OLA & storage, 3x withdrawal rooms, stairs/lift
Ground Floor: open undercroft with toilets & uniform shop, stairs/lift

Existing Block B to be demolished = 6 undersized classrooms with no storage, toilets & unfirom shop
NO ADDITIONAL GLAs GAINED

Stage 3: Three Storey New Build & Demolish 2 Demountables
Ground Floor: Open undercrof/covered play
Level 1 & 2: 3 GLAs with storage (70sq/m), 1 withdrawal space + lift/stairs
Can accomodate 6 GLAs in total
3 ADDITIONAL GLAs

New Stepped Two Storey Build
Non teaching space :
New Administration and Library Building (no classrooms)
Demolish Block A & Block E (lose 3 classrooms)
Basement carparking: 14 carpark basement carparkts (including one PWD carpark with access to lift and stairs)
LOSE 3 GLAS

Stage 5A: Infill to Block B undercroft
Ground Floor: open undercroft with toilets & uniform toilets, stairs/lift & 5 new GLAs (demountable is removed as part of this stage)
3 ADDITIONAL GLAs

Junior Platform Classroom numbers (after Stage 3 is completely infilled):
NEW BUILDING = 16 GLAs
H BLOCK = 2 GLAs
BLOCK F = 5 GLAs + Afterschool care
BLOCK D = 12 GLAs
Stage 3 = 6 GLAS
HALL = 3 GLAs + music facilities
Junior Platform = 44 GLAS in total

Senior Platform Classroom numbers (after Stage 5):
New classroom numbers = First Floor replaces the same classroom numbers as Block B but adds an OLA, lift and 3 withdrawal rooms
Classroom Numbers:
E BLOCK = 3 GLAs **lost**
STAGE 4 B BLOCK = 6 GLAs (First Floor infill only)
C BLOCK = 6 GLAs
DEMOUNTABLE M4 removed = 2 GLAS **lost**
STAGE 5 B BLOCK = 4 GLAs (Ground floor Infill)
Senior Platform = 11 GLAs in total (if 3 GLAs are lost with the demolition of Block E)

Appendix 2 Bushfire hazard assessment

11 May 2018

Land and Environment Consultants
13 Pedwell Place Birkdale QLD 4159
P: 0466 714 833
E: info@landeconsultants.com.au
ABN: 35 209 590 760

Department of Education
C/- Ian Brunning
Director, Asset Management
Atlus Group
ian.brunning@altusgroup.com

Subject: Bushfire assessment for Indooroopilly State School (project number 34-150310) on the corner Russell Terrace and Moggill Road, Indooroopilly, Queensland

1 Introduction

Land and Environment Consultants (LEC) was engaged to undertake a bushfire hazard assessment to inform the proposed master plan development (proposed development) at Indooroopilly State School on the corner of Moggill Road and Russell Terrace, Indooroopilly (the site), properly described as 285/SP104042.

The site is affected by the Brisbane City Plan 2014 *Bushfire overlay* (Bushfire overlay) map for medium and high bushfire hazard and high impact buffer areas and the Queensland State Planning Policy (SPP) *Bushfire hazard area overlay* (SPP bushfire hazard overlay) map for high bushfire hazard and potential impact buffer areas.

As a result, a bushfire hazard assessment is required to ensure bushfire hazards associated with the site and the proposed development are identified and to determine whether a bushfire management plan is required to provide additional advice on appropriate measures to address the requirements of local and state statutory planning requirements, ie Brisbane City Plan 2014 *Bushfire overlay code* (Bushfire overlay code) and SPP *Draft model bushfire hazard overlay code* (SPP draft model bushfire hazard overlay code), and relevant Australian standards, ie *Australian Standard for Construction of Buildings in Bushfire Prone Areas* (AS 3959–2009).

This report documents the bushfire hazard assessment for the site and provides conclusions regarding statutory planning requirements for the proposed development.

2 Site assessment

Prior to the bushfire hazard assessment, vegetation hazard class (VHC) mapping was reviewed on the Queensland Fire and Emergency Services (QFES) online mapping system (redi-portal) so that it could be compared with observations from the site assessment.

The site assessment was performed by LEC on 17 April 2018 and focused on land within 100 m of the site. The location of site assessment points is shown on Figure 1 and Table 1 provides a summary of VHC mapping from the redi-portal, ground truthed VHCs and other observations from the site assessment. The characteristics of some of the assessment points are shown in Photographs 1-3.

Table 1: Site observations

Assessment Point	Redi-portal vegetation hazard class	Ground truthed vegetation hazard class	Notes
A1	VHC 10.1 *Spotted gum dominated open forest*	VHC 39.2 *Low to moderate tree cover*	The assessment area is a maintained parkland that consists of a play area, carpark and picnic facilities. A narrow corridor of open forest occurs on Witton Creek which runs through assessment area. VHC 39.2 is a non-bushfire prone hazard class.
A2	VHC 10.1 *Spotted gum dominated open forest*	VHC 10.1 *Spotted gum dominated open forest*	The assessment area is 4.18 ha of unmanaged natural vegetation. Aspect is west and sloping down to Witton Creek about 10^0. Slope measured perpendicular to the north boundary of the school is flat. VHC 10.1 is a bushfire prone vegetation hazard class.
B1	VHC 10.1 *Spotted gum dominated open forest*	VHC 4.1 *Notophyll and notophyll palm or vine forest*	The area consists of 1.28 ha of unmanaged natural vegetation along Witton Creek. The vegetation is transitioning to dry rainforest and has > 90 % canopy cover. VHC 4.1 is a non-bushfire prone hazard class.
B2	VHC 42.6 Nil to very low vegetation cover	VHC 42.6 Nil to very low vegetation cover	Developed land with residential buildings, driveways and roads. VHC 42.6 is a non-bushfire prone hazard class.
C	VHC 42.6 Nil to very low vegetation cover	VHC 42.6 Nil to very low vegetation cover	Major road intersection adjacent the east boundary of the site. Beyond the road is developed land with commercial buildings, residential buildings, roads and driveways. VHC 42.6 is a non-bushfire prone hazard class.
D	VHC 39.2 *Low to moderate tree cover*	VHC 39.2 *Low to moderate tree cover*	The assessment area is a maintained parkland that consists of a play area, carpark and picnic facilities. VHC 39.2 is a non-bushfire prone hazard class.

Coordinates - MGA94 Zone 56		
Stn.	Easting	Northing
A	496472.24	6958159.70
B	496548.13	6958289.16
C	496720.00	6958259.57
D	496662.91	6958129.10

LEC Land and environment consultants

Client: Department of Education

Project: Bushfire Hazard Assessment Indooroopilly State School

Design	Land Environment Consultants	24.04.2018
Drawn	Bentline | MP	24.04.2018
Scale	1:1500	
Cad File	LEC_Indooroopilly SS01.dwg	Rev 1.0

Title: Site Assessment

FIGURE: 1

©Land and Environment Consultants. While every care is taken to ensure the accuracy of data, LEC makes no representation or warranties about its accuracy, reliability, completeness or suitability for any particular purpose and disclaims all responsibility and all liability in negligence for all expenses, losses, damages (including indirect consequential damage) and cost which might be incurred as a result of the data being inaccurate or incomplete in any way and for any reason.

Photograph 1 Represents assessment point A2

Photograph 2 Represents assessment point B1

Photograph 3 Represents assessment areas A1 and D

3 Bushfire hazard assessment

The bushfire hazard assessment for the site is based on Part B of the Queensland State Planning Policy (SPP) Natural Hazards, Risk and Resilience Technical Manual – *A 'fit-for-purpose' approach in undertaking natural hazard studies and risk assessments* (April 2016) (SPP bushfire hazard assessment manual) and the patch and corridor filters in the State Inter-Departmental Committee on Bushfires guideline, *Commonwealth Scientific and Industrial Research Organisation* (CSIRO) *Bushfire prone area patch and corridor filter rules* (2016) (CSIRO patch and corridor filter rules).

3.1 Bushfire hazard area patch and corridor filters

Assessment of vegetation against the CSIRO patch and corridor filter rules is a process used in the development of the SPP bushfire hazard overlay map.

Vegetation at assessment points A1, B1, B2, C and D correlates with non-bushfire prone VHCs and does not require further assessment against the CSIRO patch and corridor filter rules, ie these VHCs have potential forest fuel loads $\leq$ 8 tonnes/hectare (t/ha) and occur on relatively flat land.

Vegetation at assessment point A2 correlates with a bushfire prone VHC and occurs in an area which is 4.18 ha. It does not meet exclusion criteria for low threat vegetation in the CSIRO patch and corridor filter rules and requires further assessment to quantify its level of bushfire hazard, ie potential bushfire intensity calculation.

3.2 Potential bushfire intensity calculations

The potential bushfire intensity of land associated with assessment point A2 was determined using the QFES *Potential Bushfire Intensity Calculator* (version November 2014) which applies the method outlined in the SPP bushfire hazard assessment manual.

The severe fire weather map on the redi-portal indicates the 5 % annual exceedance probability forest fire danger index (FDI) for the site is 55. Therefore, FDI 55 was used in the potential bushfire intensity calculations.

The result is presented in Table 2 and is based on the observations summarised in Table 1.

Table 2 Potential bushfire intensity

Assessment point[1]	Ground truthed Vegetation hazard class	Potential fuel load (t/ha)	Slope (°)	Potential bushfire intensity (kW/m)	Bushfire hazard class
A2	VHC 10.1 *Spotted gum dominated open forest*	20.8	10	29,413	High

Notes 1 Assessment points A1, B1, B2, C and D have non-bushfire prone VHCs and are not subject to further assessment

3.3 Bushfire hazard areas

The result in Table 2 indicates a high bushfire hazard area adjoins the north boundary of the site.

Land adjacent a high bushfire hazard area is vulnerable to bushfire attack from the bushfire hazard area, ie from exposure to radiant heat, ember attack and burning debris. To mitigate these potential impacts, the SPP bushfire hazard assessment manual identifies land within 100 m of a high bushfire hazard area as a potential impact buffer. Land within a potential impact buffer is defined as a bushfire hazard area for planning purposes.

Therefore, it can be concluded from the bushfire hazard assessment that land within the site and 100 m of the north boundary is designated as a bushfire hazard area.

The impact of the bushfire hazard area on the proposed development is shown on the master plan at Appendix 1.

4 Statutory planning requirements

Stages of the proposed development which are affected by bushfire hazard must demonstrate compliance with relevant performance outcomes sought under the Bushfire overlay code and/or the SPP draft model bushfire hazard overlay code. Compliance with such performance outcomes is usually demonstrated by way of preparing a bushfire management plan.

Pursuant to Section 12 of the Queensland Building Regulation 2006, the bushfire hazard area on the site is defined as a 'Bushfire prone area'. Although unlikely, if stages of the proposed development involve the development of *National Construction Code* (NCC) class 1-3 buildings and associated class 10 buildings and structures in the bushfire hazard area, these buildings and structures will be subject to further assessment and compliance with bushfire attack level (BAL) construction requirements in AS 3959-2009.

5 Conclusions

The proposed development is affected by a bushfire hazard area, ie 100 m potential impact buffer.

A bushfire management plan is required to provide further advice on bushfire hazards associated with the site and the proposed development and to identify design measures that will mitigate the risk of bushfire hazards to a tolerable level and to demonstrate compliance with relevant performance outcomes sought under the Bushfire overlay code and/or the SPP draft model bushfire hazard overlay code.

Although unlikely, the proposed development of NCC class 1-3 buildings and associated class 10 buildings and structures in the bushfire hazard area will be subject to further assessment and compliance with BAL construction requirements in AS 3959-2009.

Yours sincerely,

Robert Janssen
Managing principal
Land and Environment Consultants
0466 714 833
rjanssen@landeconsultants.com.au

Disclaimer

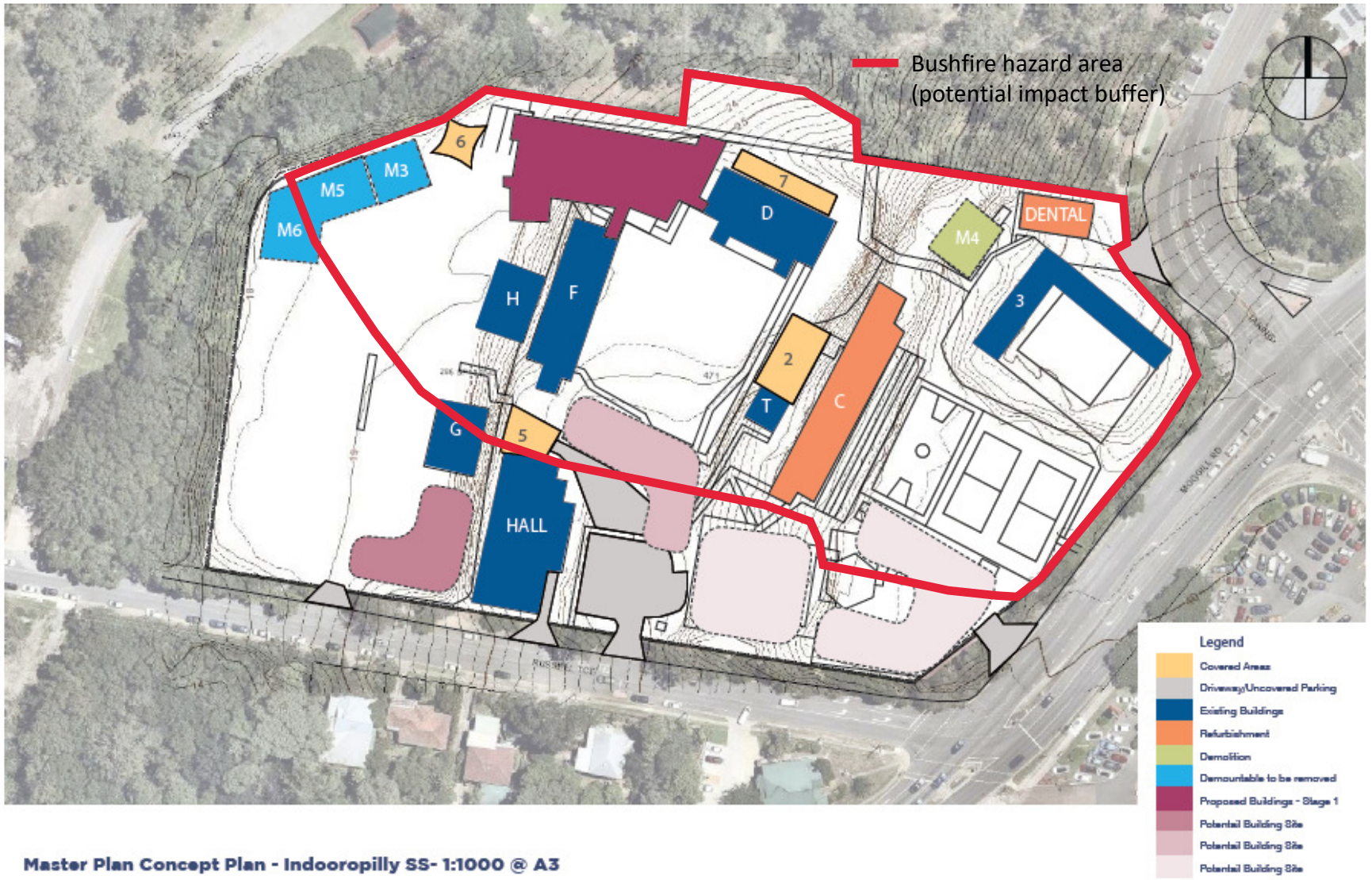
Notwithstanding the precautions adopted in this report, it should always be remembered that bushfires burn under a range of conditions. An element of risk, no matter how small always remains and there can be no guarantee, because of the variable nature of bushfires, that any one building will withstand bushfire attack on every occasion.

It should be noted that upon lodgement of a development application, council and/or the fire authority may recommend additional requirements.

Although every care has been taken in the preparation of this report, Land and Environment Consultants accept no responsibility resulting from the use of the information in this report.

Appendix 1 Effect of bushfire hazard area on master plan

Indooroopilly SS (Master Planning)



Master Plan Concept Plan - Indooropilly SS- 1:1000 @ A3

Appendix 3 Radiant heat exposure calculations

Bushfire attack from the north

- Forest fire danger index - 55
- Vegetation – VHC 10.1 *Spotted gum dominated forest* (dominate vegetation affecting fire behaviour on the north elevation of the site)
- Elevation of receiver – 1.8 m (representative of an adult walking on the escape route)
- Overall fuel load – 20.8 t/ha
- Surface fuel load – 16.3 t/ha
- Slope – 2^0 down slope
- Site slope – flat
- Flame width – 100 m

Calculated May 17, 2018, 12:01 pm (MDc v.4.8)

Indooroopilly SS (N)

Minimum Distance Calculator - AS3959-2009 (Method 2)			
Inputs		Outputs	
Fire Danger Index	55	Rate of spread	1.23 km/h
Vegetation classification	Forest	Flame length	10.52 m
Surface fuel load	16.3 t/ha	Flame angle	54 °, 64 °, 72 °, 77 °, 79 ° & 84 °
Overall fuel load	20.8 t/ha	Elevation of receiver	4.25 m, 4.72 m, 5 m, 5.12 m, 5.16 m & 5.23 m
Vegetation height	n/a	Fire intensity	13,272 kW/m
Effective slope	2 °	Transmissivity	0.88, 0.865, 0.843, 0.819, 0.806 & 0.738
Site slope	0 °	Viewfactor	0.5907, 0.437, 0.2951, 0.2001, 0.1625 & 0.0445
Flame width	100 m	Minimum distance to < 40 kW/m²	8.9 m
Windspeed	n/a	Minimum distance to < 29 kW/m²	12 m
Heat of combustion	18,600 kJ/kg	Minimum distance to < 19 kW/m²	17.6 m
Flame temperature	1,090 K	Minimum distance to < 12.5 kW/m²	25.3 m
		Minimum distance to < 10 kW/m²	30.4 m

Appendix 4 Bushfire overlay code

Table 8.2.5.3.A—Performance outcomes and acceptable outcomes

Performance outcomes	Acceptable outcomes	Compliance
Section A—If for accepted development subject to compliance with identified requirements (acceptable outcomes only) or assessable development other than for reconfiguring a lot		
PO1 Development addresses the bushfire hazard determined by a site-specific bushfire hazard assessment. Note—Bushfire hazard is assessed based on the vegetation existing on site, adjacent and nearby to the site at the time of application, except where reconfiguring a lot, when the level of bushfire hazard posed by any areas subject to revegetation is assessed as if that area had reached its mature state.	**AO1** Development is designed and sited in compliance with: (a) a current approved bushfire management plan relevant to the full nature of the uses, which identifies the level of bushfire hazard and the location of hazardous vegetation affecting the development; or (b) a building protection zone approved as part of the reconfiguring of a lot; or (c) for a lot less than or equal to 2,500m^2, a site-specific bushfire hazard assessment prepared in accordance with the Bushfire planning scheme policy which: (i) is undertaken by a person suitably qualified and experienced with technical expertise in the field of bushfire hazard identification and mitigation, including protection of biodiversity values; (ii) determines the relevant bushfire attack level for that part of the site in which development is proposed; (iii) identifies the location of hazardous vegetation that poses a bushfire risk to the development; or (d) for a lot greater than 2,500m^2, a site-specific bushfire hazard assessment prepared in accordance with the Bushfire planning scheme policy which: (i) confirms the level of bushfire hazard for the part of the site which development is proposed; (ii) identifies the location of hazardous vegetation that	✓ This report includes a bushfire hazard assessment of the site and a plan to mitigate risk of bushfire hazards to a tolerable level.

	poses a bushfire risk to the development. Note—Where a bushfire hazard assessment determines that the bushfire hazard for the part of the site in which development is proposed is 'low', no further assessment against this code is required.	
PO2 Development is sited, designed and maintained taking account of all relevant factors affecting the bushfire hazard on the site, including site topography, aspect, location and type and structure of vegetation to: (a) minimise the number of buildings and people working, living or visiting a site exposed to bushfire risk; (b) protect life during bushfire; (c) increase the survival of buildings and structures during a bushfire; (d) minimise bushfire risk from build-up of fuels around buildings and structures. Note—A bushfire management plan prepared in accordance with the Bushfire planning scheme policy can assist in demonstrating achievement of this performance outcome.	**AO2.1** Development other than an extension to an existing building is: (a) sited in a building protection zone where approved as part of reconfiguring a lot stage; or (b) sited in compliance with an approved bushfire management plan relevant to the full nature of the use; or (c) if there is no approved building protection zone and no approved bushfire management plan, where on a lot great than 10ha, located in the area of lowest risk from bushfire on the site; and (d) if there is no approved building protection zone and no approved bushfire management plan, where on a lot greater than 2,500m^2: (i) located away from ridgelines in compliance with Figure a; (ii) located on land with a gradient less than 15%; (iii) preferably located on east- to south-facing slopes and avoiding north- to west-facing slopes unless the slope is clear of vegetation and is not located in the High hazard buffer area sub-category or the Medium hazard buffer area sub-category; (iv) with setbacks to hazardous vegetation 1.5 times the predominant mature canopy height, or 20m whichever is greater so that vegetation does not overhang a building.	✓ The bushfire management plan demonstrates proposed buildings are appropriately located in potential impact buffer and low bushfire hazard area and are separated from the bushfire hazard area north of the site.

	AO2.2 Development other than an extension to an existing building is sited within a building protection zone extending a minimum of 20m from the outermost projection of the main building or any habitable structure or to the maximum extent possible on sites less than 2500m^2 where a building protection zone would extend into neighbouring properties; and (a) clusters buildings and structures in the building protection zone; (b) designs the inner 10m of the building protection zone to maintain a very low fuel state in the first 10m, and a fuel-reduced state to the extent of the building protection zone, in compliance with Figure b and Figure c. Note—The building protection zone includes the dwelling and all ancillary structures and may extend to a road or a building protection zone in an adjoining site.	✓ Land within the site is maintained in a low fuel condition, ie gardens and lawn, and acts as a building protection zone. It should be noted that setbacks required to achieve a bushfire attack level (BAL) threshold specified in the *Australian Standard for the Construction of Buildings in Bushfire Prone Areas* (AS 3959-2009) are not relevant to the proposed development as it does not involve *National Construction Code* class 1-3 buildings or associated class 10 buildings and structures.
PO3 Development utilises fencing that: (a) does not contribute to the spread of bushfire; (b) in an urban area or in proximity to accommodation uses, contributes to reducing bushfire hazard to a building; (c) facilitates the safe movement of fauna.	**AO3.1** Development for a fence within 20m of any building used for accommodation comprises non-combustible or fire retardant materials.	**Not applicable**
	AO3.2 Development for a fence: (a) incorporates gaps and spacing to allow the safe movement of fauna; or (b) is designed to enable fauna to climb the fence.	**Not applicable**
PO4 Development ensures that the location, siting, and design of development and associated driveways and access routes: (a) avoid potential for entrapment during a bushfire; (b) facilitate safe and efficient emergency services to access and egress the site during a bushfire;	**AO4** Development ensures that: (a) the length of driveways or access routes does not exceed 70m between the most distant part of any occupied building and the nearest part of the public road; or (b) where the length of the driveway or access route exceeds 70m:	**Not applicable** Nevertheless, renovations to existing private-access driveways within the site will comply with the design criteria in Table 8.2.5.3.C.

(c) enables safe evacuation of the site during a bushfire for site occupants. Note—A bushfire management plan prepared in accordance with the Bushfire planning scheme policy can assist in demonstrating compliance with this performance outcome.	(i) the driveway or private access route design meets the requirements of emergency vehicles in compliance with Table 8.2.5.3.C; (ii) the driveway or access route provides all weather access for two-wheel-drive vehicles; (iii) where relying on a private access route or driveway longer than 200m to reach a public road, a safe alternative access and egress route is provided.	
PO5 Development has adequate road access to the site for emergency vehicles and safe evacuation in a bushfire.	**AO5** Development has frontage to a constructed, all-weather public road capable of carrying emergency service vehicles.	✓ The proposed development is accessed from the existing public road network.
PO6 Development makes adequate provision for fire-fighting requirements, including water supply.	**AO6** Development ensures that: (a) a reliable reticulated water supply and water pressure is available for fire-fighting requirements with water supply and pressure, which is in compliance with the standards specified by the relevant utilities provider; or: (b) where sufficient reticulated water supply is not available for: (i) residential lots, there is a minimum water supply available and retained for fire-fighting purposes in compliance with Table 8.2.5.3.B, which may be in the form of a separate tank or a reserve section as part of a main water supply tank; or (ii) development other than for residential lots involving new premises or an existing premises with a gross floor area greater than 50m^2, on-site water storage is provided which is appropriate to the use, according to the standards specified by the relevant	✓ The proposed development is connected to mains water. Fire-fighter water supply and hydrants will be supplied in accordance with Central South-east Queensland Distributor-Retailer Authority, Queensland Urban Utilities (incorporating Water Services Association of Australia) standards or the Queensland Fire and Emergency Services guideline Fire Hydrant and Vehicle Access Guidelines. Where there are differences the higher design criteria or performance outcome should prevail.

	emergency services agency and is not less than 5,000L. Note—Water supply for fire fighting is in addition to water supply for household use. Where a non-reticulated supply of water is required, swimming pools, creeks and dams should not be used as a substitute for a dedicated static supply as these sources of water are not reliable during drought conditions.	
PO7 Development ensures that the water supply provided for fire-fighting is safely located and freely accessible for fire-fighting purposes at all times.	**AO7** Development, for which sufficient reticulated water supply is not available, provides: (a) a water supply outlet located away from any potential fire hazards, such as gas bottles; (b) a hardstand area of 11m by 3.5m for fire-fighting vehicles within 2m of the water supply outlet; (c) tanks on the bushfire hazard side of the buildings with adequate shielding for the protection of fire fighters; (d) pumps which are shielded from bushfire hazard; (e) an outlet pipe which is 50mm in diameter and fitted with a 50mm male camlock (standard rural fire brigade fitting); (f) that any underground tank for fire-fighting purposes has an access hole of 200mm to allow a tanker to refill direct from the tank; (g) that any above-ground water tank is made of concrete or metal and its stand is protected from bushfire hazard; (h) that all above-ground water pipes external to the building are metal, including and up to any taps. Note—Plastic tanks are not to be used.	**Not applicable**
Additional performance outcomes and acceptable outcomes for all development in the Biodiversity areas overlay if on a site larger than 2,500m^2		

PO8 Development through the siting, design, and construction of buildings, access routes and fire maintenance trails, and ongoing site management: (a) provides effective separation from sources of bushfire risk; (b) responds to the bushfire risk in that location; (c) maintains the safety and protection of people and property over time; (d) maximises the protection of vegetation in areas of high biodiversity value. Note—A bushfire management plan prepared in accordance with the Bushfire planning scheme policy can assist in demonstrating compliance with this performance outcome that ensures: • ongoing site management, such as the bushfire risk to buildings, does not increase beyond the standard to which they have been designed and constructed; • appropriate design and maintenance of the site, and access routes and driveways.	**AO8** Development locates building protection zones as shown on Figure b and Figure c, driveways and access routes and any fire maintenance trails: (a) outside of the Biodiversity areas overlay; or (b) within the existing disturbed, degraded or cleared areas, using natural fire breaks to avoid vegetation clearing and to avoid or otherwise minimise fragmentation or incursions into a habitat area, fauna movement corridor or remnant vegetation.	✓ Proposed buildings will meet the fire resistance and safe access/egress requirements specified in the *National Construction Code* (volume 1) and will afford occupants with a refuge from bushfire attack under most fire weather conditions. Setbacks required to achieve a bushfire attack level (BAL) threshold specified in the *Australian Standard for the Construction of Buildings in Bushfire Prone Areas* (AS 3959-2009) are not relevant to the proposed development as it does not involve *National Construction Code* class 1-3 buildings or associated class 10 buildings and structures. Building access/egress points and escape routes will be in areas which have a maximum potential radiant heat exposure level of ≤ 10 kW/m2.
Section B—If for assessable development other than reconfiguring a lot		
PO9 Development ensures that the following uses avoid being located in the bushfire overlay area and otherwise support safe and efficient evacuation and emergency services access to the site during a bushfire: (a) the introduction of significant worker or resident populations in a bushfire hazard area; (b) the location of vulnerable uses; (c) the introduction or expansion of difficult to evacuate uses; (d) the congregation of large numbers of people in a bushfire hazard area including assembly uses.	**AO9.1** Development: (a) does not increase the number of people living, working on or visiting the site by more than 10%; or (b) increasing the number of people living, working on or visiting the site, or vulnerable, difficult to evacuate or assembly uses by more than 10%, implements the recommendations of an approved bushfire management plan, which identifies measures that address the identified bushfire risk relevant to the development.	✓ The proposed development is appropriately located in a low bushfire hazard area and potential impact buffer. Building access/egress points and escape routes will be in areas which have a maximum potential radiant heat exposure level of ≤ 10 kW/m2. Mitigation measures for the proposed development include potential radiant heat exposure criteria for building access/egress and escape routes, an emergency assembly area, building design and construction requirements, specifications for hydrants, design criteria for private-access driveways, design criteria for

Note—This includes consideration of appropriate alternative shelter for vulnerable uses, management of health and wellbeing requirements during evacuation, safe site operation, and access and egress arrangements in bushfire events. Note—A bushfire management plan prepared in accordance with the Bushfire planning scheme policy can assist in demonstrating compliance with this performance outcome.		landscaping and emergency management planning. In combination, the actions in this report will reduce the risk of bushfire hazards to a tolerable level.
	AO9.2 Development provides alternative access routes that meet the road design requirements of items 1–7 in Table 8.2.5.3.C, for the following: (a) an extension to existing premises which increases the number of people living, working on or visiting the site by more than 10%; (b) the introduction of vulnerable, difficult to evacuate or assembly uses.	✓ The proposed development relies on existing public roads for access. Figure 6.1 in the bushfire management plan demonstrates there are multiple access routes to the site.
Additional performance outcomes and acceptable outcomes if involving storage or handling on site of hazardous chemicals in quantities that would be equivalent to or exceed the threshold quantities set out in Table 8.2.5.3.D		
PO10 Development does not cause: (a) unacceptable risk to people, property and the environment due to the impact of bushfire on the storage or handling on site of hazardous chemicals; (b) excessive danger or difficulty to emergency services for emergency response or evacuation.	**AO10** Development for storage or handling of hazardous chemicals: (a) is not located within the bushfire overlay; or (b) complies with an approved bushfire management plan prepared in accordance with the Bushfire planning scheme policy which identifies measures that ensure the development: (i) mitigates the bushfire risk relevant to the development; (ii) does not pose an unacceptable risk to people, public health and safety or risk environmental harm; (iii) does not present significant difficulties to emergency services for emergency response or evacuation.	**Not applicable** The proposed development does not include storage or handling of hazardous materials in bulk.

	Note—Bushfire management plans and site-based risk assessments are prepared in accordance with the Bushfire planning scheme policy. Guidance on the preparation of a hazard and risk analysis is provided in the Industrial hazard and risk assessment planning scheme policy. Note—Any risk mitigation measures, including construction of underground tanks or fire-protected above-ground tanks or package stores, are in compliance with AS 1940-2004 The storage and handling of flammable and combustible liquids.	
Additional performance outcomes and acceptable outcomes for essential community infrastructure		
PO11 Development for essential community infrastructure is located, designed and sited to: (a) protect the safety of people during a bushfire; (b) not create or increase the exposure of people to an unacceptable risk from a bushfire; (c) minimise the risk to vulnerable populations from a bushfire; (d) mitigate the impacts on the community and environment from the effects of a bushfire on the development.	**AO11** Development for essential community infrastructure: (a) is ancillary to and not relied on for the provision of the essential service during a bushfire; or (b) implements an approved bushfire management plan prepared in accordance with the Bushfire planning scheme policy which identifies measures that: (i) ensure the development allows for safe and efficient emergency access and site evacuation during a bushfire; (ii) do not pose an unacceptable risk to people on a premises during a bushfire; (iii) ensure the development is not at risk of failure during a bushfire which results in health or safety risks or adverse environmental impacts; (iv) enable people and property to be defended safely and effectively from a bushfire.	**Not applicable** The proposed development is not essential community infrastructure.
PO12 Development for essential community infrastructure is able to function effectively during and immediately after bushfire events.	**AO12** Development for essential community infrastructure: (a) is ancillary to and not relied upon for the provision of the essential service during a bushfire; or (b) containing elements vital to the function of the essential service	**Not applicable** The proposed development is not essential community infrastructure.

	during a bushfire is not located in the Bushfire overlay area; or (c) implements an approved bushfire management plan prepared in accordance with the Bushfire planning scheme policy which identifies measures that ensure that: (i) essential community infrastructure is able to function during bushfire events; (ii) access necessary to maintain safety or function of the development is not compromised by a bushfire; (iii) mitigation measures are not unduly reliant on human activation to respond to a bushfire; (iv) the safe storage of valuable records or items of cultural or historical significance, including storage of public records under the *Public Records Act 2002*, is able to be maintained during a bushfire event.	
Additional performance outcomes and acceptable outcomes if for landscaping or a park landscape plan is a requirement for development		
PO13 Development provides landscaping that does not create an unacceptable risk to people or property and provides for ongoing management of risk to the development and people from a bushfire.	**AO13** Development is in compliance with a landscaping plan which: (a) is prepared in compliance with an approved bushfire management plan; (b) preserves the requirements of any building protection zone; (c) does not increase the exposure of a habitable building not located in a building protection zone to a bushfire hazard. Note—The requirements of a building protection zone are shown in Figure b and Figure c.	✓ Landscaping around buildings will not exacerbate bushfire hazard on the site and will consist of hard and soft areas including footpaths, playing surfaces, landscaped gardens and lawn.
PO14 Development for a park is designed so that the park: (a) is practical to maintain and requires minimal resources to be restored to its designed	**AO14** Development provides a park landscape plan that complies with a bushfire management plan prepared in accordance with the Bushfire planning scheme policy.	**Not applicable** The proposed development does not include a park.

function and condition after a bushfire; (b) provides for safe and efficient site evacuation and efficient emergency services access avoiding potential for entrapment during a bushfire; (c) does not place unacceptable bushfire risk on an adjoining or nearby site, people and assets; (d) provides efficient access for fire fighting; (e) provides ongoing protection from bushfire for major park assets and buildings. Note—A bushfire management plan prepared in accordance with the Bushfire planning scheme policy can assist in demonstrating compliance with this performance outcome.		

Appendix 5 SPP Draft model bushfire hazard overlay code assessment

Performance outcomes	Acceptable outcomes	Compliance assessment
For assessable development		
Compatible development		
PO1 Vulnerable essential service and major hazard facility uses are not established or intensified within a bushfire prone area.	**AO1** Vulnerable essential service and major hazard facility uses are not established or intensified in the bushfire prone area.	**Not applicable**
PO2 Emergency services and uses providing community support services are able to function effectively during and immediately after a bushfire event.	**AO2** Emergency services and uses providing community support services have direct access to safe access and egress routes.	**Not applicable**
All development		
PO3 All premises are provided with vehicular access that enables safe evacuation for occupants and easy access by fire-fighting appliances.	**AO3** Private driveways within individual lots: 1) do not exceed a length of 60 m from the street to the building; 2) do not exceed a gradient of 12.5%; 3) have a minimum width of 3.5 m; 4) accommodate turning areas and vertical clearances for fire-fighting appliances in accordance with Queensland Fire and Emergency Services' Fire Hydrant and Vehicle Access Guidelines; and 5) serve no more than 3 dwellings or buildings.	**Not applicable** Nevertheless, renovations to existing private-access driveways within the site will comply with the design criteria in Brisbane City Plan 2014 *Bushfire overlay code.*

Performance outcomes	Acceptable outcomes	Compliance assessment
PO4 Development outside reticulated water supply areas include a dedicated static supply that is available solely for fire-fighting purposes and can be accessed by fire-fighting appliances.	**AO4** A water tank is provided within 10 m of each building (other than a class 10 building) which: 1) is either below ground level or of non-flammable construction; 2) has a take-off connection at a level that allows the following dedicated, static water supply to be left available for access by fire fighters: a) 10,000 litres for residential buildings; b) for industrial, commercial and other buildings, a volume specified in AS 2304–2011; 3) includes shielding of tanks and pumps in accordance with AS2304–2011; 4) includes a hardstand area allowing medium rigid vehicle (15 tonne fire appliance) access within 6 m of the tank; 5) is provided with rural fire brigade tank fittings if serviced by a rural fire brigade (i.e. 50 mm ball valve and male camlock coupling and, if underground, an access hole of 200 mm (minimum) to accommodate suction lines); and 6) is clearly identified by directional signage at the street frontage.	**Not applicable** The proposed development will be connected to the reticulated water supply.
PO5 Development is not within the bushfire prone area where upslope from retained hazardous vegetation.	**AO5** Development is not within the bushfire prone area where upslope from retained hazardous vegetation.	✓ The proposed development is appropriately located in a low bushfire hazard area and potential impact buffer. Furthermore, appropriate access will be provided for emergency services and there will be a reticulated hydrant system.

Performance outcomes	Acceptable outcomes	Compliance assessment
PO6 Bushfire risk mitigation measures maintain or enhance significant existing environmental or other protective land form functions.	**AO6** Measures to reduce the risk of bushfire do not adversely affect significant existing environmental or other protective land form functions (such as, but not limited to, areas reflecting matters of state or national environmental significance, vegetation management, biodiversity, heritage, or scenic amenity).	**Not applicable** The proposed development is within an existing school development.
PO7 To ensure the protection of peoples' lives and property is the pre-eminent planning and development outcome, an area designated for revegetation or rehabilitation will not create an additional bushfire prone area.	**AO7.1** The dimensions and configuration of an area designated for revegetation or rehabilitation ensure the area does not have the ability to become a medium, high or very high bushfire prone area in the future. **And** **AO7.2** The landscaping treatments or proposed plantings in an area designated for revegetation or rehabilitation establish practically and sustainably managed and maintained vegetation or surfaces with a low overall available fuel load or a fuel structure that is insufficient to create a medium, high or very high bushfire prone area in the future. **And** **AO7.3** A landscape maintenance plan for an area designated for revegetation or rehabilitation specifies the long-term strategies and treatments needed to ensure the fuel load or fuel structure of vegetation that has the capacity to create a medium, high or very high bushfire prone area is maintained at a level that is insufficient for that hazard to emerge.	✓ Landscaping around buildings will not exacerbate bushfire hazard on the site and will consist of hard and soft areas including footpaths, playing surfaces, landscaped gardens and lawn.

Performance outcomes	Acceptable outcomes	Compliance assessment
PO8 Where an area designated for revegetation or rehabilitation required to satisfy another state interest cannot avoid creating an additional bushfire prone area; a) the value of that state interest must outweigh the risk to people and property from the impacts of bushfire; and b) the created bushfire prone area does not contain additional building envelopes.	**AO8.1** An additional building envelope is not located in a created bushfire prone area described in PO15. **And** **AO8.2** The measures described in (AO7.1, AO7.2, and AO7.3) are used to ensure the lowest possible hazard is created.	**Not applicable** The proposed development does not include vegetation restoration.
PO9 Landscaping and fuel sources within the bushfire prone area between hazardous vegetation and building envelopes does not increase the potential for bushfire hazard.	**AO9.1** Landscaping treatments between hazardous vegetation and buildings or building envelopes establishes readily maintained vegetation cover or surfaces with overall available fuel loads at an acceptable level. **AO9.2** A landscape maintenance plan describes long-term strategies and treatments needed to maintain fuel loads between hazardous vegetation and buildings or building envelopes at an acceptable level.	✓ Landscaping around buildings will not exacerbate bushfire hazard on the site and will consist of hard and soft areas including footpaths, playing surfaces, landscaped gardens and lawn.
PO10 Maintained recreational park and open space is located between buildings, building envelopes or lot boundaries and hazardous vegetation.	**AO10.1** Recreational parks or open space are between buildings, building envelopes or lot boundaries and hazardous vegetation designed and planned to maintain or reduce fuel loads.	**Not applicable** The proposed development is within an existing school development.
All uses		
PO11 Development is located and designed to achieve a separation distance which reduces risk to an	**AO11.1** No new development is located within the bushfire prone area. **Or**	✓ The proposed development is appropriately located in a low bushfire hazard area and potential impact buffer.

Performance outcomes	Acceptable outcomes	Compliance assessment
acceptable or tolerable level which is provided: a) between adjacent buildings or building envelopes; and b) between hazardous vegetation and buildings or building envelopes which achieves a radiant heat flux level at any point on the building or envelope respectively of: i) 10 kW/m² where involving a vulnerable use; or ii) 29 kW/m² otherwise. **Note:** The radiant heat levels and separation distances are to be established in accordance with method 2 of AS3959–2009.	**AO11.2** Buildings or building envelopes are separated from hazardous vegetation defined as medium, high and very high potential bushfire intensity categories, and from adjacent buildings or building envelopes by a distance that: 1) is defined in table 1; and 2) is contained wholly within the development. **Notes:** a) Where a separation distance is proposed to be achieved by utilising existing cleared developed areas external to the site, certainty must be established (through tenure or other means) that the land will remain cleared of hazardous vegetation. For staged developments, temporary separation distances, perimeter roads or fire trails may be absorbed as part of subsequent stages. b) The achievement of separation distance may not be achievable where other provisions within the planning scheme require protection of certain ecological, slope, visual or character features of functions. c) Separation from adjacent buildings or building envelopes may not be required where not considered practicable due to lot size and location of existing adjacent buildings or building envelopes.	Building access/egress points and escape routes will be in areas which have a maximum potential radiant heat exposure level of ≤ 10 kW/m2. Mitigation measures for the proposed development include potential radiant heat exposure criteria for building access/egress and escape routes, an emergency assembly area, building design and construction requirements, specifications for hydrants, design criteria for private-access driveways, design criteria for landscaping and emergency management planning. In combination, the actions in this report will reduce the risk of bushfire hazards to a tolerable level.
PO12 Where development is undertaken in an urban area or is for urban purposes, a constructed perimeter road with reticulated water supply is established between the site boundary or building envelope, and the hazardous vegetation and is readily accessible at all times for urban fire-fighting vehicles. The access to the perimeter road is available for both fire-fighting and maintenance purposes. **Notes:**	**AO12.1** Development sites are separated from hazardous vegetation by a public road which: 1) has a two-lane sealed carriageway clear of hazardous vegetation; 2) contains a reticulated water supply; 3) is connected to public roads at both ends and at intervals of no more than 500 m; 4) accommodates geometry, turning radii and vertical clearance in accordance with Queensland Fire and Emergency Services' Fire	✓ The proposed development is associated with an existing school and does not include new roads. Fire-fighter water supply and hydrants will be supplied in accordance with Central South-east Queensland Distributor-Retailer Authority, Queensland Urban Utilities (incorporating Water Services Association of Australia) standards or the Queensland Fire and Emergency Services guideline Fire Hydrant and Vehicle Access Guidelines. Where there are differences the higher design

Performance outcomes	Acceptable outcomes	Compliance assessment
a) Local governments should be aware of fire brigade classifications that service development areas. b) Perimeter roads are unlikely to be required where a development site involves less than 2.5 ha.	Hydrant and Vehicle Access Guidelines and the Department of Transport and Main Roads' Planning and Design Manual; and 5) allows and does not impede access for fire-fighting and maintenance for fire-fighting purposes. **AO12.2** Fire hydrants are designed and installed in accordance with Queensland Fire and Emergency Services' Fire Hydrant and Vehicle Access Guidelines, unless otherwise specified by the relevant water entity. **Note:** Applicants should have regard to the relevant standards set out in the reconfiguration of a lot code and works code in this planning scheme.	criteria or performance outcome should prevail.
PO13 Where a development is undertaken for non-urban purposes, either a constructed perimeter road or a formed, all weather fire trail is established between the site boundary or building envelope and the hazardous vegetation and is readily accessible at all times for the type of fire-fighting vehicles servicing the area. The access to the perimeter road or fire trail is available for both fire-fighting and maintenance works or hazard reduction activities. **Note:** Fire trails are unlikely to be required where a development site involves less than 2.5 ha.	**AO13.1** Development sites are separated from hazardous vegetation by a public road (as per AO12.1) or a fire trail, which includes: 1) a reserve or easement width of at least 20 metres 2) no cut or fill embankments or retaining walls adjacent to the 4 metres wide trafficable path 3) a minimum trafficable (cleared and formed) width of 4 metres and no less than 4.8 metres vertical clearance, with 3 metres each side cleared of all flammable vegetation greater than 10 centimetres in height 4) The trail must be capable of accommodating a 10 tonne vehicle 5) The balance 10 metre width of the easement has managed vegetation to remove major surface hazards 6) turning areas and vertical clearances for firefighting appliances in accordance with Queensland Fire and Emergency Services' Fire	**Not applicable** The proposed development is located in an urban setting.

Performance outcomes	Acceptable outcomes	Compliance assessment
	hydrant and vehicle access guidelines 7) a maximum gradient of 12.5 per cent 8) a cross-fall of no greater than 10 degrees 9) drainage and erosion control devices in accordance with the standards prescribed in a planning scheme policy 10) vehicular access at each end, which is connected to the public road network at intervals of no more than 500 metres 11) designated fire-trail signage 12) if used, has gates locked with a system authorised by Queensland Fire and Emergency Services; and 13) if a fire trail, has an access easement that is granted in favour of council and Queensland Fire and Emergency Services; and 14) allows and does not impede access for firefighting and maintenance for firefighting purposes.	
Infrastructure and services		
PO14 Essential infrastructure is designed or located to minimise the creation of ignition sources that would increase the potential risk of bushfires to people and property.	**AO14.1** Essential infrastructure, such as electricity distribution and transmission networks within the bushfire prone area, are managed in accordance with relevant standards (e.g. electrical safety regulations).	**Not applicable** The proposed development does not include essential infrastructure.
For reconfiguring a lot		
PO15 Development is located and designed to achieve a separation distance which reduces risk to an	**AO15.1** No new lots are created within the bushfire prone area: **Or**	**Not applicable** The proposed development is not a reconfiguration of a lot.

Performance outcomes	Acceptable outcomes	Compliance assessment
acceptable or tolerable level which is provided: a) between adjacent building envelopes; and b) between hazardous vegetation and building envelopes which achieves a radiant heat flux level at any point on the building envelope respectively of: i) 10 kW/m² where involving a vulnerable use; or ii) 29 kW/m² otherwise. **Note:** The radiant heat levels and separation distances are to be established in accordance with method 2 of AS3959–2009.	Building envelopes are separated from hazardous vegetation and from adjacent building envelopes by a distance that: 1) is defined in table 1; and 2) is contained wholly within the development. **Notes:** a) Where separation distance is proposed to be achieved by utilising existing cleared developed areas external to the site, certainty must be established (through tenure or other means) that the land will remain cleared of hazardous vegetation. b) For staged developments, temporary separation distances, perimeter roads of fire trails may be absorbed as part of subsequent stages. c) The achievement of a cleared separation distance may not be achievable where other provisions within the planning scheme require protection of certain ecological, slope, visual or character features or functions.	
PO16 Development is designed to minimise dwelling density within or adjacent to the bushfire prone area.	**AO16.1** Dwelling density does not exceed the levels exceeded by table 1.	**Not applicable** The proposed development is not a reconfiguration of a lot.

Performance outcomes	Acceptable outcomes	Compliance assessment
PO17 Where development is undertaken in an urban area or is for urban purposes and is serviced primarily by an urban fire brigade, a constructed perimeter road with reticulated water supply is established between the lots and the hazardous vegetation and is readily accessible at all times for urban fire fighting vehicles. The access to the perimeter road is available for both fire-fighting and maintenance purposes. **Note:** Local governments should be aware of fire brigade classifications that service development areas.	**AO17.1** Lot boundaries or building envelopes are separated from hazardous vegetation by a public road which: 1) has a two-lane sealed carriageway clear of hazardous vegetation; 2) contains a reticulated water supply; 3) is connected to public roads at both ends and at intervals of no more than 500 m; 4) accommodates geometry, turning radii and vertical clearance in accordance with Queensland Fire and Emergency Services' Fire Hydrant and Vehicle Access Guidelines and the Department of Transport and Main Roads' Planning and Design Manual; and 5) allows and does not impede access for fire-fighting and maintenance for fire-fighting purposes. **AO17.2** Fire hydrants are designed and installed in accordance with Queensland Fire and Emergency Services' Fire Hydrant and Vehicle Access Guidelines, unless otherwise specified by the relevant water entity. **Note:** Applicants should have regard to the relevant standards set out in the reconfiguration of a lot code and works code in the planning scheme.	**Not applicable** The proposed development is not a reconfiguration of a lot.
PO18 Where development is undertaken for non-urban purposes and is serviced primarily by a rural fire brigade, either a constructed perimeter road or a formed, all weather fire trail is established between the lots and the hazardous vegetation and is readily accessible	**AO18.1** Lot boundaries or building envelopes are separated from hazardous vegetation by a public road (as per AO17.1), or a fire trail which has: 1) a reserve or easement width of at least 20 metres	**Not applicable** The proposed development is not a reconfiguration of a lot.

Performance outcomes	Acceptable outcomes	Compliance assessment
at all times for the type of fire-fighting vehicles servicing the area. The access to the perimeter road or fire trail is available for both fire-fighting and maintenance works or hazard reduction activities.	2) no cut or fill embankments or retaining walls adjacent to the 4 metres wide trafficable path 3) a minimum trafficable (cleared and formed) width of 4 metres and no less than 4.8 metres vertical clearance, with 3 metres each side cleared of all flammable vegetation greater than 10 centimetres in height 4) The trail must be capable of accommodating a 10 tonne vehicle 5) The balance 10 metre width of the easement has managed vegetation to remove major surface hazards 6) turning areas and vertical clearances for firefighting appliances in accordance with Queensland Fire and Emergency Services' Fire hydrant and vehicle access guidelines 7) a maximum gradient of 12.5 per cent 8) a cross-fall of no greater than 10 degrees 9) drainage and erosion control devices in accordance with the standards prescribed in a planning scheme policy 10) vehicular access at each end, which is connected to the public road network at intervals of no more than 500 metres 11) designated fire-trail signage 12) if used, has gates locked with a system authorised by Queensland Fire and Emergency Services; and 13) if a fire trail, has an access easement that is granted in favour of council and Queensland Fire and Emergency Services; and 14) allows and does not impede access for firefighting and maintenance for firefighting purposes.	

Performance outcomes	Acceptable outcomes	Compliance assessment
PO19 The development design establishes safe evacuation routes to achieve an acceptable or tolerable risk to people.	**AO19.1** The development: 1) minimises the length of the development perimeter exposed to, or adjoining hazardous vegetation; 2) avoids the creation of bottle-neck points in the movement network within the development; 3) establishes direct access to a safe assembly/evacuation area in the event of an approaching bushfire; and 4) ensures roads internal and external to the development likely to be used in the event of a fire are designed to have sufficient capacity for evacuating the population and to minimise traffic congestion. **Note:** For example, developments should avoid finger-like or hour-glass subdivision patterns or substantive vegetated corridors between lots. In order to demonstrate compliance with the performance outcome, a bushfire management plan prepared by a suitably qualified person may be required. The bushfire management plan should be developed in accordance with 'planning for bushfire resilient communities'. Advice from Queensland Fire and Emergency Services should be sought as appropriate.	**Not applicable** The proposed development is not a reconfiguration of a lot.

Appendix 16

Koala Self-Assessable Management Plan

Department of Housing and Public Works

Queensland Government

KOALA SELF-ASSESSABLE MANAGEMENT PLAN

INDOOROOPILLY STATE SCHOOL
ADDITIONAL ACCOMMODATION

FOR

DEPARTMENT OF EDUCATION

JULY 2018

PN: 84284
SN: 20585

DOCUMENT CONTROL

Queensland Government

Koala Self-Assessable Management Plan

Project:	Additional Accommodation	Project number:	84284
Site:	Indooroopilly State School	Site number:	20585

Version	Date	Status	Key changes	Author/s	Reviewer/s	Approver
Rev 0	17/07/2018	Initial Issue	-	Annie Jin	Norman WONG	Norman WONG

TABLE OF CONTENTS

DOCUMENT CONTROL		1
1.0	INTRODUCTION	3
2.0	SITE DESCRIPTION AND PROPOSED DEVELOPMENT	4
3.0	COMMUNITY INFRASTRUCTURE ASSESSMENT	1
4.0	KOALA HABITAT AND CONNECTIVITY VALUE ASSESSMENT	3

1.0 INTRODUCTION

The *State Government Supported Community Infrastructure Koala Conservation Policy 2017* (The Policy) regulates the planning and delivery of all Queensland Government supported infrastructure projects, as listed under Schedule 5 of the *Planning Regulation 2017*, within the South East Queensland Koala Protection Area (SEQKPA)[1] which result in:

- The clearing of native vegetation that will result in a total cleared area of less than 500m^2
- A new building and any reasonably associated infrastructure with a total development footprint of less than 500m^2
- An extension to an existing building and any reasonably associated infrastructure if the extension results in a total development footprint of less than 500m^2
- Extracting gravel, rock or sand from an area of less than 5000m^2
- Excavating or filling an area of less than 5000m^2

This Koala Self-Assessment and Management Plan, details actions that must be implemented in order to meet the requirements and outcomes of The Policy. The responsibilities of Government supported Community Infrastructure providers under The Policy are:

- Self-assess their obligations under this policy and in accordance with any associated guidelines;
- Maintain accurate records of self-assessment appropriate for assessment and reporting purposes;
- Provide access to those records and any other relevant information used in the self-assessment of infrastructure requirements under the policy for the purposes of an annual review and assessment process;
- Provide environmental offsets as specified in the Environmental Offsets Offset Policy; and
- Where offsets are provided by planting new koala trees, ensure plantings are secured in a way consistent with section 29 of *Environmental Offsets Act 2014*.

This management plan provides strategies to address the objectives and intended outcomes of The Policy, taking into consideration the Koala habitat and connectivity values as determined under Schedule 2 of The Policy. This management plan must be considered in all relevant phases of the project and a copy of the document must be provided to relevant people involved in the project including project managers, principal design consultants, landscape architects and construction contractors. Records to demonstrate implementation of measures are to be kept

[1] The SEQKPA includes the following local government areas:

- Sunshine Coast Regional Council
- Moreton Bay Regional Council
- Brisbane City Council
- Redland City Council
- Ipswich City Council
- Logan City Council
- Gold Coast City Council
- Noosa Shire Council

2.0 SITE DESCRIPTION AND PROPOSED DEVELOPMENT

2.1 SITE DESCRIPTION

The site is consisted of an irregular shaped allotment located within Brisbane City Council local government area, suburb of Indooroopilly. The site is bound by Russell Terrace to the south, Moggill Road to the east and Moore Park to the north and west (refer to Attachment B). The site is located at Moggill Road, Indooroopilly and is described as Lot 285 on SP104042.

The site is currently being utilized as Indooroopilly State School. Mature vegetation is scattered across the site.

2.2 PROPOSED DEVELOPMENT

The Department of Education is proposing to construct a new multi-storey learning facility on the site. The following site works are proposed to support the proposed development:

a) Develop a conceptual Master Plan for the school site;
b) Construct a multi-storey learning facility;
c) Provide a covered link access from the new building to the spine of the school.

3.0 COMMUNITY INFRASTRUCTURE ASSESSMENT

The proposed works will have a total development footprint of more than 500 square metres (m^2), therefore, the development is regulated by The Policy and requires assessment against the criteria listed in Table 1 of that Policy with consideration given to the Koala Habitat in South East Queensland Map (SEQ) (State Planning Policy (SPP) Mapping).

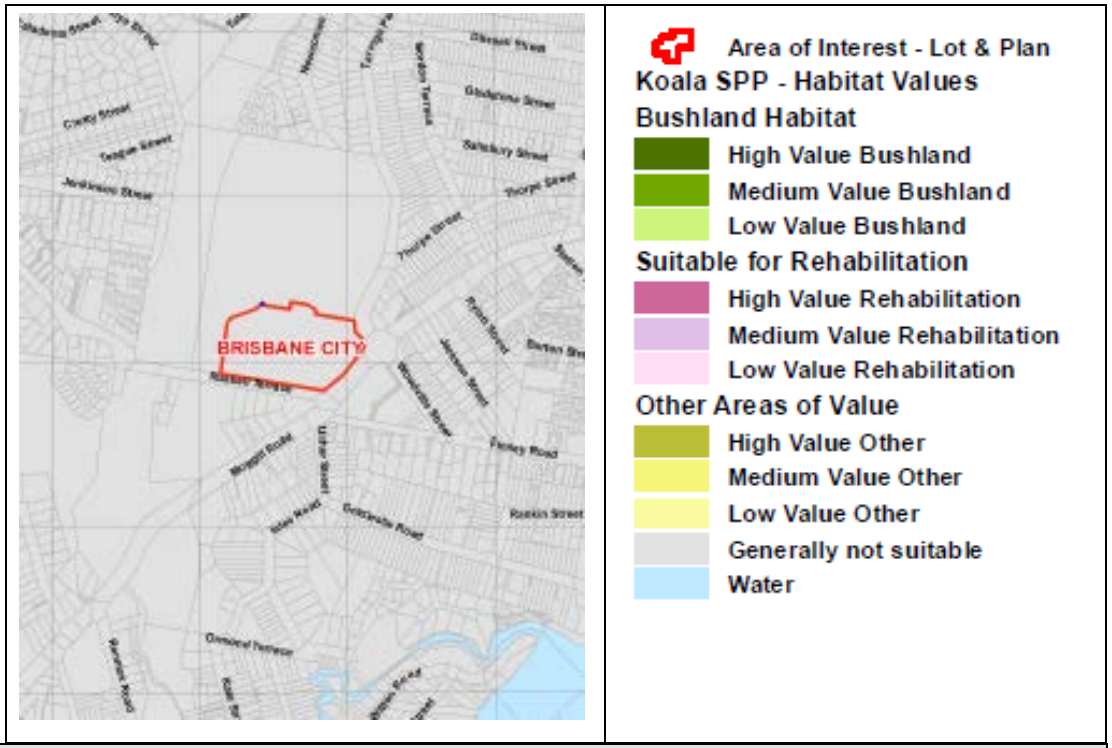
Criteria	Outcome
1. Site design must avoid clearing Non-Juvenile Koala Habitat Trees (NJKHTs) in areas of bushland habitat, high value rehabilitation habitat, and medium value rehabilitation, with any unavoidable clearing minimised and offset: - The size and other characteristics of the offset must be as required by the Environmental Offset Policy; and - Where an offset is delivered as a land-based offset, the site must be secured as a legally secured offset area as defined by Section 29 of the *Environmental Offsets Act 2014*.	• The proposed development site is mapped as 'Generally not suitable' for Koala. • Site is heavily disturbed and is an established school site. • Under the *Environmental Offsets Act 2014*, offsetting is not required in the 'Generally not suitable' for koala area. Clearing of NJKHTs within this area would not trigger offset requirements.
2. Site design provides safe Koala-movement opportunities, including Koala-movement infrastructure, as appropriate to the development type and habitat connectivity values of the site determined by reference to the factors for consideration in Schedule 3 of the Community Infrastructure Policy.	• There is no mapped bushland habitat tree within 1km from the site. Koala movement opportunities however are not possible as the mapped values are separated by roads and other structures. • The site is heavily disturbed and surrounded by urban area.
3. Native vegetation clearing is undertaken as sequential clearing and under the guidance of a Koala spotter where the native vegetation is a NJKHT.	• Trees to be retained should be clearly marked and signs erected to avoid accidental clearing. • Brisbane City Council local government area is within District A Koala Habitat under *Nature Conservation (Koala) Conservation Plan 2017*. Tree clearing in this area should be carried out in compliance with sequential clearing conditions meaning all of the following: a) clearing of the koala habitat trees is carried out in a way that ensures koalas on the area being cleared (the clearing site) have enough time to move out of the clearing site without human intervention, including, in particular, for clearing sites with an area of more than 3ha, by— i. carrying out the clearing in stages; and ii. ensuring not more than the following is cleared in any 1 stage— A. for a clearing site with an area of 6ha or less—50% of the site's area; B. for a clearing site with an area of more than 6ha—3ha or 3% of the site's area, whichever is the greater; and iii. ensuring that between each stage and the next there is at least 1 period of 12 hours starting at 6p.m. on a day and ending at 6a.m. on the following day during which no trees are cleared on the site;

	b) clearing of the koala habitat trees is carried out in a way that ensures, while the clearing is carried out, appropriate habitat links are maintained within the clearing site and between the site and its adjacent area, to allow koalas living on the site to move out of the site; c) no koala habitat tree in which a koala is present, and no koala habitat tree with a crown overlapping a tree in which a koala is present, is cleared.
4. During construction phases: • Measures are taken in construction practices to not increase the risk of death or injury to Koalas; and • Native vegetation that is cleared and, in an area, intended to be retained for safe Koala movement opportunities is progressively restored and rehabilitated.	• In case of vegetation clearing, the measures described in this report are to be implemented during the construction phase including: - Vegetation that does not require removal must be clearly identified and protected from construction activities; - Immediately prior to any vegetation clearing activity on the site (and no more than 24 hours before clearing commences), a QPWS licenced fauna spotter/catcher in possession of a valid Rehabilitation Permit, must inspect vegetation for the presence of Koalas and other fauna. The QPWS fauna spotter/catcher must continue to monitor vegetation for fauna for the duration of clearing activities; - Vegetation should be cleared towards areas of mature vegetation that may be suitable as refuge to allow fauna in residence time to move from the proposed development portion of the site; and - Vegetation should be cleared towards areas of mature vegetation that may be suitable as refuge to allow fauna in residence time to move from the proposed development portion of the site.
5. Landscaping activities provide food, shelter and mov0ement opportunities for Koalas consistent with the site design (if applicable).	• Landscaping included in project designs to consider the inclusion of Koala habitat tree species (including any species from the genus Eucalyptus, Corymbia, Angophora, Lophostemon and Melaleuca); • Advice should be sought from the appointed ecologist regarding optimal planting location and species. Planting across the site may provide a connection between the mapped areas of bushland habitat;

4.0 KOALA HABITAT AND CONNECTIVITY VALUE ASSESSMENT

This section has been prepared to in accordance with Schedule 2 of The Policy, using the Koala Habitat in SEQ Map. The figure below is an excerpt from the Koala Habitat in SEQ Map which indicates the site is mapped as 'Generally not suitable' for Koalas.

The table below has been developed to determine the habitat connectivity values of the site, taking into account factors described under Schedule 2 of The Policy:



The Site's location with regards to the following:		
Criteria	Condition Assessment	Management Strategy
a. areas of vegetation that are a koala habitat type—with particular focus on bushland habitat, high value rehabilitation habitat, and medium value rehabilitation habitat	The site is heavily disturbed, located within an established urban area, and is surrounded by residential use.	Prior to the commencement of construction, prepare a Construction Management Plan (CMP) which addresses the requirements of the Environmental Checklist Report prepared for the site by BAS Town Planning and Environment Team. Vegetation removal should be avoided and limited to minimum areas required for development. The design and development layout should be altered where possible to allow for the retention of as much native vegetation, particularly NJKHTs.

b. areas that are remnant or regulated regrowth regional ecosystems where koalas are known to occur	None identified (attached Vegetation Management Report)	The site does not support areas of mapped regulated vegetation and is improved by the Indooroopilly State School.
c. areas of ecological significance	None identified on site.	Prior to the commencement of construction, prepare a Construction Management Plan (CMP) which addresses the requirements of the Environmental Checklist Report prepared for the site by BAS Town Planning and Environment Team.
d. waterway and ecological corridors.	None identified on site.	Extra care such as erosion and sediment control measures should be in place to ensure there are no impacts on these environmental values as the result of the proposed development.
The attributes of the site, including the following:		
Criteria	Condition Assessment	Management Strategy
a. presence of koalas	The site is an established school and there are no records indicating the presence/observation of koala on the site.	Before work begins, identify the contact details of: - The nearest qualified veterinary clinic that has experience in handling and treating Koalas. The practice must have a valid Rehabilitation Permit, issued under the *Nature Conservation Act 1992* by Department of Environment and Science, and must comply with established standards for the rehabilitation and release of Koalas; and - A QPWS licensed fauna spotter/catcher. If a Koala (or other fauna) is present on the site: - The tree in which a Koala is present cannot be cleared, and no tree with a crown overlapping the tree can be cleared; - Works are to cease, and the Koala is to be allowed to move away from the development site of its own accord; - No clearing is to be undertaken for a period of at least 12 hours (starting at 6pm on a day and finishing at 6 am on the following day);

		- The QPWS fauna spotter/catcher must be consulted regarding further actions required for any Koala identified on the site; and - The QPWS fauna spotter/catcher must be consulted regarding any actions required in regard to the relocation of any other resident fauna species; and - If a Koala is injured, the QPWS fauna spotter/catcher is to provide direction on how the animal is to be taken to the veterinary practice identified.
b. condition of the habitat	Low	All management measures listed in Section 3 of this report should be implemented prior to vegetation clearing on site. vegetation clearing should be carried out in compliance with sequential clearing conditions and towards the site boundary and vegetated areas as detailed in Section 3.
c. the presence of any of the following on the site: i. waterway and ecological corridors ii. areas that are remnant or regulated regrowth regional ecosystems where koalas are known to occur.	None identified on site.	Prior to the commencement of construction, prepare a Construction Management Plan (CMP) which addresses the requirements of the Environmental Checklist Report prepared for the site by BAS Town Planning and Environment Team. Extra care such as erosion and sediment control measures should be in place to ensure there are no impacts on these environmental values as the result of the proposed development.
Any factors which diminish the site's habitat connectivity value for koala movement, including:		
Criteria	Condition Assessment	Management Strategy
a. edge effects and other indirect impacts of development on ecological features	All surrounding within 1 km is mapped as 'Generally not suitable' for koalas.	All management measures listed in Section 3 of this report should be implemented prior to vegetation clearing on site. vegetation clearing should be carried out in compliance with sequential clearing conditions and towards the site boundary and vegetated areas as detailed in Section 3.
b. the presence of infrastructure and services, such as roads, which present barriers for koala movement and dispersal.	The site is bound by serval road and the area is separated from the closest environmentally significant areas by roads and existing disturbed areas, hence no connectivity with the surrounding environmental values identified.	

ATTACHMENT A - Site Information

– Aerial Photos

- Title

CURRENT TITLE SEARCH

NATURAL RESOURCES, MINES AND ENERGY, QUEENSLAND

Request No: 28093210
Search Date: 01/03/2018 15:25 **Title Reference: 50806859**
Date Created: 06/04/2010

Previous Title: 40059911

REGISTERED OWNER

Dealing No: 713156857 06/04/2010

THE STATE OF QUEENSLAND
(REPRESENTED BY DEPARTMENT OF EDUCATION AND TRAINING)

ESTATE AND LAND

Estate in Fee Simple

LOT 285 SURVEY PLAN 104042
Local Government: BRISBANE CITY

EASEMENTS, ENCUMBRANCES AND INTERESTS

1. Rights and interests reserved to the Crown by
Deed of Grant No. 40030014 (Lot 285 on CP SL7201)

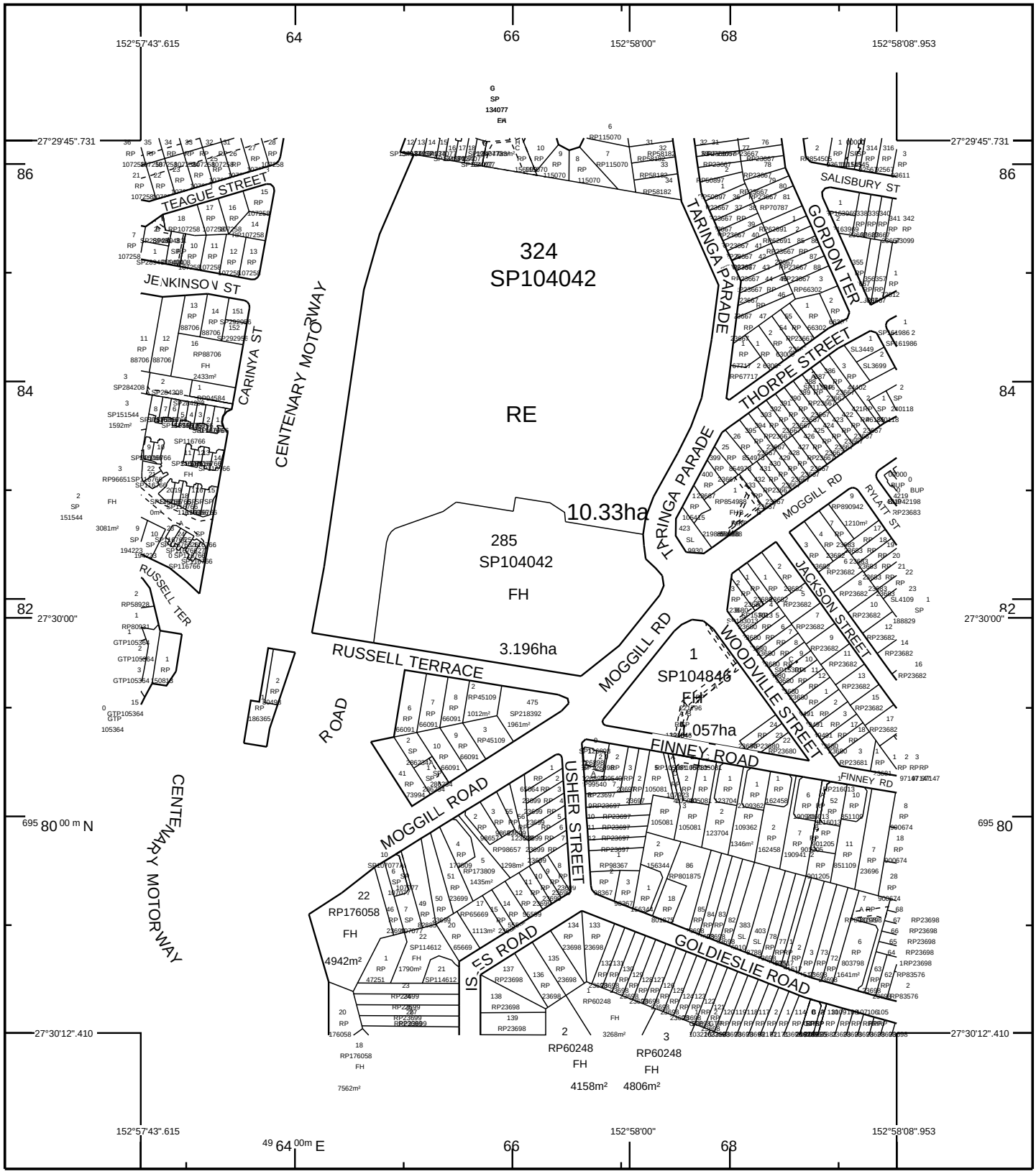
ADMINISTRATIVE ADVICES - NIL
UNREGISTERED DEALINGS - NIL

CERTIFICATE OF TITLE ISSUED - No

Corrections have occurred - Refer to Historical Search

** End of Current Title Search **

COPYRIGHT THE STATE OF QUEENSLAND (NATURAL RESOURCES, MINES AND ENERGY) [2018]
Requested By: SMIS .



STANDARD MAP NUMBER
9443-22232

0 100 200 300 400 500 m

HORIZONTAL DATUM:GDA94 ZONE:56 SCALE 1 : 5000

MAP WINDOW POSITION & NEAREST LOCATION

152°57'56".284
27°29'59".070
INDOOROOPILLY
1.52 KM

SUBJECT PARCEL DESCRIPTION

DCDB

Lot/Plan	285/SP104042
Area/Volume	3.196ha
Tenure	FREEHOLD
Local Government	BRISBANE CITY
Locality	INDOOROOPILLY
Segment/Parcel	13664/112

CLIENT SERVICE STANDARDS

PRINTED (dd/mm/yyyy) 01/03/2018

DCDB 28/02/2018

Users of the information recorded in this document (the Information) accept all responsibility and risk associated with the use of the Information and should seek independent professional advice in relation to dealings with property.

Despite Department of Natural Resources and Mines(DNRM)'s best efforts, DNRM makes no representations or warranties in relation to the Information, and, to the extent permitted by law, exclude or limit all warranties relating to correctness, accuracy, reliability, completeness or currency and all liability for any direct, indirect and consequential costs, losses, damages and expenses incurred in any way (including but not limited to that arising from negligence) in connection with any use of or reliance on the Information

For further information on SmartMap products visit http://nrw.qld.gov.au/property/mapping/blinmap

SmartMap

An External Product of SmartMap Information Services

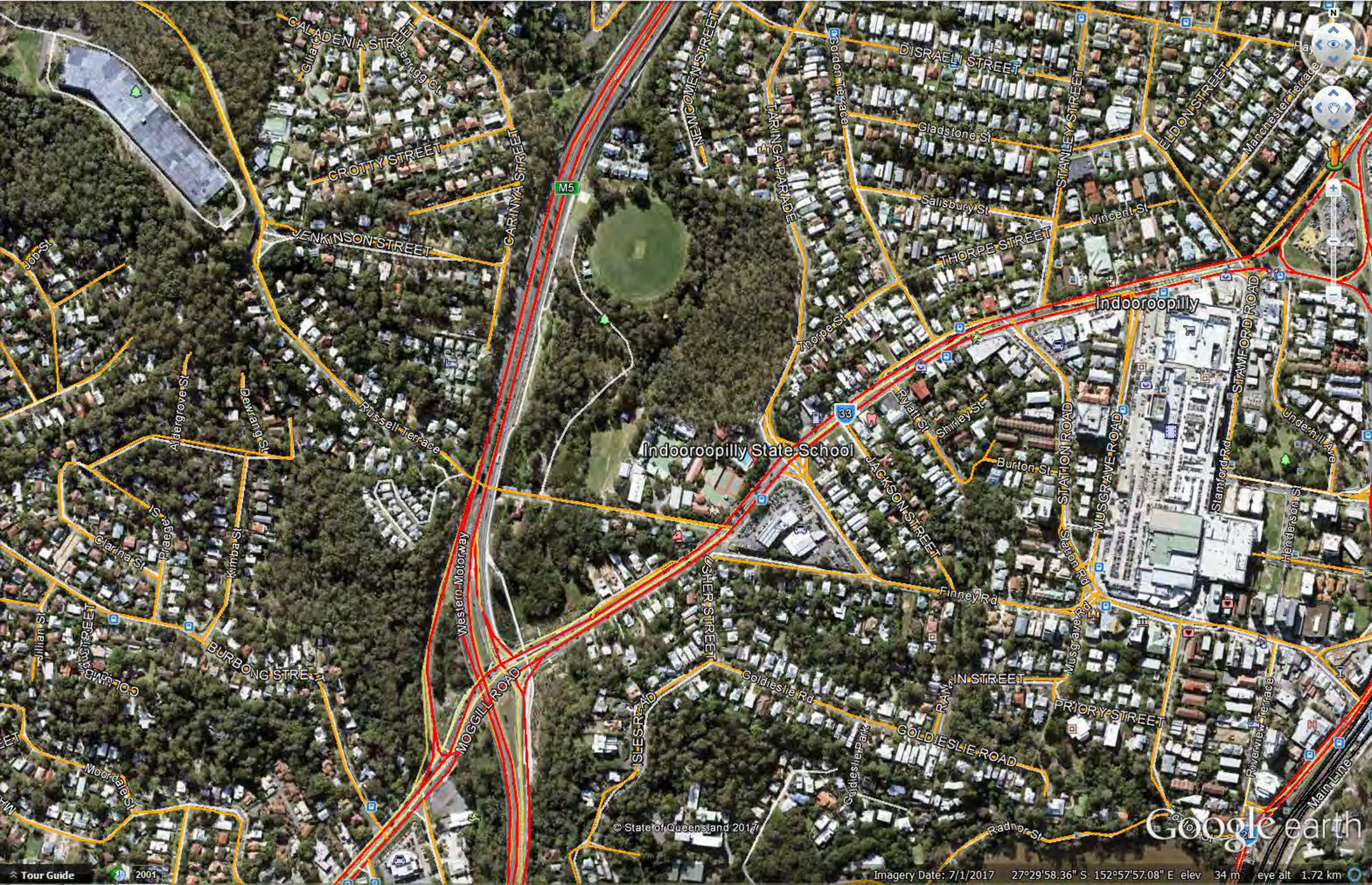
Based upon an extraction from the Digital Cadastral Data Base

Queensland Government

(c) The State of Queensland, (Department of Natural Resources and Mines) 2018.

GDA

M5
Indooroopilly State School
TARINGA PARADE
Taringa Parade
WOODVILLE STREET
Woodville St
RUSSELL TERRACE
Russell Terrace
MOGGILL ROAD
Moggill Rd
Usher St
FINNEY ROAD
© State of Queensland 2017
Google earth
Tour Guide
2001
Imagery Date: 7/1/2017 27°30'00.25" S 152°57'56.74" E elev 34 m eye alt 406 m


CALADENIA STREET
Glia Ct
Beenigg Ct
CROTTY STREET
JENKINSON STREET
CARINYA STREET
Job St
Russell Terrace
Aldergrove St
Dewrang St
M5
NEWCOMEN STREET
TARINGA PARADE
Gordon Terrace
DISRAELI STREET
Gladstone St
STANLEY STREET
ELDON STREET
Manchester Terrace
Salisbury St
Vincent St
THORPE STREET
Thorpe St
Indooroopilly
Ryatt St
Shirley St
Indooroopilly State School
JACKSON STREET
Burton St
STATION ROAD
MUSGRAVE ROAD
STAMFORD ROAD
Stamford Rd
Henderson St
Underhill Ave
Finney Rd
Station Rd
Musgrave Rd
Western Motorway
MOGGILL ROAD
USHER STREET
ISLE ROAD
Goldieslie Rd
GOLDIESLIE ROAD
GOLDIESLIE PARK
RAINSFORD STREET
PRIORY STREET
Riverview Terrace
Main Line
Radnor St
Clarina St
Praeger St
Kimba St
BURBONG STREET
Jillian St
COLLINGWOOD STREET
Moordale St
© State of Queensland 2017
Google earth
Tour Guide
2001
Imagery Date: 7/1/2017 27°29'58.36" S 152°57'57.08" E elev 34 m eye alt 1.72 km

Hire (not yet on site)

Relocatable constructed already counted)

Relocatable being constructed (to be counted)

Proposed precinct for new learning facility

Indooroopilly State School (0585)

Ref_No	New_FLC	Local_Name
01	0585-S000M	MUSIC ROOM
02	0585-S000A	ADMINISTRATION
03	0585-S000X	AMENITIES BLOCK
04	0585-S000B	B BLOCK
05	0585-S000C	C BLOCK
07	0585-S000H	ACTIVITY CENTRE
08	0585-S000E	E BLOCK
09	0585-S00M1	MODULAR 1
13	0585-S000G	SPECIALSUPPORT BLOCK
14	0585-S00M4	MODULAR 4
15	0585-S000D	D BLOCK
19	0585-S0002	TUCKSHOP/COV GAMES
20	0585-S0PS1	POOL
21	0585-S0YLO	LOWER OVAL
22	0585-S0YTC	TENNIS COURTS
23	0585-S000P	POOL COMPLEX
24	0585-SYTC1	TENNIS COURT SEATING
25	0585-S0CG2	PE SHED
26	0585-S0H06	UNDERCOVER AREA
27	0585-S0006	BASKETBALL/NETBALL C
28	0585-S000F	F BLOCK
29	0585-SPGS1	COVERED GRANDSTAND AREA
30	0585-S0YCW	CRICKET WICKETS
31	0585-SLPIT	LONG JUMP PIT
32	0585-S0PS2	STORAGE SHED 1
33	0585-S0PS3	STORAGE SHED 2
34	0585-S0PS4	STORAGE SHED 3
36	0585-S0PS5	GARDEN SHED
37	0585-S0YSO	SINGLETON OVAL -
38	0585-S0DSH	PREP STORAGE SHED
57	0585-SPGS2	COVERED STARTING BLOCKS AREA
58	0585-S0GS1	GROUNDS SHED

ATTACHMENT B – Flora and Fauna

- Vegetation Management Report
- Wildlife Online Report
- SEQ Koala Conservation Assessable Development Areas Map
- Koala Habitat Map

Department of Natural Resources, Mines and Energy

Vegetation management report

For Lot: 285 Plan: SP104042

Current as at 01/03/2018

Queensland Government

This publication has been compiled by Operations Support, Department of Natural Resources, Mines and Energy.

© State of Queensland, (2018)

The Queensland Government supports and encourages the dissemination and exchange of its information. The copyright in this publication is licensed under a Creative Commons - Attribution 4.0 International (CC BY) licence.

Under this licence you are free, without having to seek our permission, to use this publication in accordance with the licence terms.

You must keep intact the copyright notice and attribute the State of Queensland as the source of the publication.

Note: Some content in this publication may have different licence terms as indicated.

For more information on this licence, visit http://creativecommons.org/licenses/by/3.0/au/deed.en

The information contained herein is subject to change without notice. The Queensland Government shall not be liable for technical or other errors or omissions contained herein. The reader/user accepts all risks and responsibility for losses, damages, costs and other consequences resulting directly or indirectly from using this information.

Overview

IMPORTANT INFORMATION- As a result of the new *Planning Act 2016*, which commenced on 3 July 2017, there are a number of changes to the Vegetation Management Framework. These changes include;

- Exemptions from the Vegetation Management Framework, commonly known as exemptions and detailed in the Sustainable Planning Regulations 2012, are now known as "exempt clearing works", and are detailed in the Planning Regulations Schedule 21; and
- Self-assessable vegetation clearing codes are now known as "accepted development vegetation clearing codes". However, as there are 15 self-assessable vegetation clearing codes available for use that will not be re-named as a result of the recent changes, the term self-assessable vegetation clearing code will be used throughout this report.

Vegetation clearing is predominantly regulated under the *Vegetation Management Act 1999* (VMA) and the *Planning Act 2016* (PA). A development permit is required to clear where the clearing is not exempt clearing work through the Planning Regulation 2017, or where it cannot be carried out under a self-assessable vegetation clearing code or an area management plan under the VMA.

Many routine vegetation management activities can be carried out as exempt clearing work listed in the Planning Regulation 2017, or through an self-assessable vegetation clearing code or an area management plan (AMP). Other activities may require you to apply for a development permit under the *Planning Act 2016*. The requirements for a development permit depend on the type of vegetation, the land tenure (e.g. freehold or leasehold land), the location, and the extent and purpose of the proposed clearing.

Please be aware that other requirements for clearing and managing vegetation may apply, even if the activity is not regulated by the Vegetation Management framework. Prior to commencing the clearing of vegetation, it is important to confirm that no other requirements apply under other legislation, including:

- Local laws in your local government area;
- Other State legislation, such as Protected Plants under the *Nature Conservation Act 1992* (NCA);
- The Commonwealth Government's *Environmental Protection and Biodiversity Act 1999* (EPBC).

Please see section 6 for contact details of other agencies you should confirm requirements with before commencing vegetation clearing.

Please note that the requirements for clearing Category C or Category R areas are located in the self-assessable vegetation clearing codes (SAVCC) for managing Category C and Category R vegetation respectively.

The information in this report will assist you to determine the options for managing vegetation on your property. Based on the lot on plan details you have supplied, this report provides the following detailed information:

- *Vegetation management framework* - an explanation of the options that may be available to manage vegetation on your property.
- *Property details* - information about the specified Lot on Plan, lot size, local government area, bioregion(s), subregion(s), catchment(s), coastal or non coastal status, and any applicable area management plans associated with your property.
- *Vegetation management details for the specified Lot on Plan* - specific information about your property including vegetation categories, regional ecosystems, watercourses, wetlands, essential habitat, land suitability and protected plants.
- *Contact information.*
- *Maps* - a series of colour maps to assist in identifying regulated vegetation on your property including:
  - regulated vegetation management map;
  - vegetation management supporting map;
  - land suitability map;
  - coastal/non coastal map;
  - protected plants map.
- *Other legislation contact information.*

Table of Contents

1. Vegetation management framework . . . 5
   1.1 Exempt Clearing Work . . . 5
   1.2 Self-assessable vegetation clearing codes . . . 6
   1.3 Area management plans . . . 6
   1.4 Development permits . . . 6
2. Property details . . . 7
   2.1 Tenure . . . 7
   2.2 Property location . . . 7
3. Vegetation management details for Lot: 285 Plan: SP104042 . . . 8
   3.1 Vegetation categories . . . 8
   3.2 Regional ecosystems . . . 9
   3.3 Watercourses . . . 9
   3.4 Wetlands . . . 9
   3.5 Essential habitat . . . 9
      3.5.1 Category A and/or Category B . . . 10
      3.5.2 Category C . . . 10
   3.6 Land suitability . . . 10
   3.7 Protected plants (administered by the Department of Environment and Science (DES)) . . . 11
   3.8 Emissions Reduction Fund (ERF) . . . 11
4. Contact information for DNRME . . . 12
5. Maps . . . 13
   5.1 Regulated vegetation management map . . . 14
   5.2 Vegetation management supporting map . . . 15
   5.3 Land suitability map . . . 16
   5.4 Coastal/non coastal map . . . 17
   5.5 Protected plants map administered by DES . . . 18
6. Other relevant legislation contacts list . . . 19

1. Vegetation management framework

The *Vegetation Management Act 1999* (VMA), the Vegetation Management Regulation 2012, the *Planning Act 2016* and the Planning Regulation 2017, in conjunction with associated policies and codes, form the Vegetation Management Framework. This framework regulates the management and clearing of assessable vegetation in Queensland.

The VMA does not apply to all land tenures or vegetation types. State forests, national parks, forest reserves and some tenure types as defined under the *Forestry Act 1959* and *Nature Conservation Act 1992* are not regulated by the VMA.

Managing or clearing vegetation may require permits under these laws.

The information provided in Sections 2 and 3 of this report, as well as the maps provided in Section 5, will assist you to determine whether your proposed clearing is:

- exempt clearing works;
- requires notification and compliance with a self-assessable vegetation clearing code or area management plan;
- requires a development permit; and/or
- in a high risk area and is therefore subject to the protected plants legislative framework (see section 3.7 of this report).

The following native vegetation is not regulated under the VMA but may require permit(s) under other laws:

- grass or non-woody herbage;
- a plant within a grassland regional ecosystem prescribed under the VM Regulation 2012; and
- a mangrove.

Although vegetation management laws may allow clearing, there may be other state, local or Commonwealth laws that apply, such as the Queensland Government's *Nature Conservation Act 1992* (see Protected Plants) and the Commonwealth Government's *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act). The EPBC Act regulates matters of national environmental significance, such as threatened species and ecological communities. You may need to obtain approval under the EPBC Act if your proposed clearing could have a significant impact on matters of national environmental significance. Further details are available at www.environment.gov.au.

1.1 Exempt Clearing Work

The vegetation management framework allows clearing for certain purposes without approval, known as an exempt clearing work. Exempt clearing work provisions under the *Planning Act 2016* were formerly called exemptions.

In areas that are mapped as Category X (white in colour) on the regulated vegetation management map (see section 5.1), and where the land tenure is freehold, indigenous land and leasehold land for agriculture and grazing purposes, the clearing of vegetation is considered exempt clearing work, or exempt from the VMA. For all other land tenures, contact DNRME before commencing clearing to ensure that the proposed activity is exempt clearing work. Please see Section 4 for DNRME's contact details.

A range of routine property management activities are considered exempt clearing work. A list of these is available at https://www.qld.gov.au/environment/land/vegetation/exemptions/.

Although vegetation management laws may allow clearing as exempt clearing work, there may be other state, local or Commonwealth laws that apply. For example, a clearing permit under the *Nature Conservation Act 1992* may be required for clearing protected plants. These requirements apply irrespective of the classification of the vegetation under the vegetation management framework. In addition, clearing that is exempt clearing work may not apply in an area subject to a development permit, a covenant, an environmental offset, an Exchange Area, a Restoration Notice, or an area mapped as Category A. Landholders considering clearing in any of these areas should contact DNRME prior to clearing to clarify if any conditions apply in the area that affect the use of the provisions for exempt clearing work.

1.2 Self-assessable vegetation clearing codes

Some clearing activities can be undertaken using a self-assessable vegetation clearing code and notification process. The codes can be downloaded at
https://www.qld.gov.au/environment/land/vegetation/codes/

If you intend to clear vegetation under a self-assessable vegetation clearing code, you must notify DNRME before commencing. The information in this report will assist you to complete the online notification form.

Please note that a self-assessable vegetation clearing code cannot be used in an area mapped as Category A.(see section 5.1)

You can complete the online form at
https://apps.dnrm.qld.gov.au/vegetation/

1.3 Area management plans

Area Management Plans (AMP) provide an alternative approval system for vegetation clearing. They list the purposes and clearing conditions that have been approved for the areas covered by the plan. It is not necessary to use an AMP, even when an AMP applies to your property.

If an area management plan applies to your property, it will be listed in Section 2.2 of this report.

To clear under an existing AMP, you must notify the DNRME before clearing starts and follow the conditions listed in the AMP. You can download the area management plan notification form and obtain a copy of the relevant AMP at
https://www.qld.gov.au/environment/land/vegetation/area-plans/

1.4 Development permits

If your proposed clearing is not exempt clearing work, or is not permitted under a self-assessable vegetation clearing code, or an AMP, you may be able to apply for a development permit. Information on how to apply for a development permit is available at
https://www.qld.gov.au/environment/land/vegetation/applying/

2. Property details

2.1 Tenure

All of the lot, plan and tenure information associated with property Lot: 285 Plan: SP104042 (Calculated area in Hectares - 3.2ha), including links to relevant Smart Maps, are listed in Table 1. The tenure of the property (whether it is freehold, leasehold, or other) may be viewed by clicking on the Smart Map link(s) provided.

Table 1: Lot, plan and tenure information for the property

Lot	Plan	Tenure	Link to property on SmartMap
285	SP104042	Freehold	http://globe.information.qld.gov.au/cgi-bin/SmartMapgen.py?q=285\SP104042

The tenure of the land may affect whether the clearing is considered exempt clearing work.

Some self-assessable vegetation clearing codes apply only to freehold and leasehold land granted for grazing and agricultural purposes.

2.2 Property location

Table 2 provides a summary of the locations for property Lot: 285 Plan: SP104042, in relation to natural and administrative boundaries.

Local Government(s)
Brisbane City

Bioregion(s)	Subregion(s)
Southeast Queensland	Burringbar - Conondale Ranges

Catchment(s)
Brisbane

For the purposes of the Self-assessable vegetation clearing codes and the State Development Assessment Provisions (SDAP), this property is regarded as *
Coastal

*See also Map 5.4

Area Management Plan(s): Nil

3. Vegetation management details for Lot: 285 Plan: SP104042

3.1 Vegetation categories

Vegetation categories are shown on the regulated vegetation management map in section 5.1 of this report. A summary of vegetation categories on the subject lot are listed in Table 3. Descriptions for these categories are shown in Table 4.

Table 3: Vegetation categories for subject property. Total area: 3.21ha

Vegetation category	Area (ha)
Category B	0.01
Category X	3.2

Table 4

Category	Colour on Map	Description	Requirements
A	red	Compliance areas, environmental offset areas and voluntary declaration areas	There may be special conditions that apply in a Category A area. Before clearing, contact DNRME to confirm any requirements in a Category A area.
B	dark blue	Remnant vegetation areas	Clearing may be considered exempt clearing work, or can be undertaken after notifying under a self-assessable vegetation clearing code or an Area Management Plan, or may require a Development Permit.
C	light blue	High-value regrowth areas	Clearing may be considered exempt clearing work, or can be undertaken after notifying under the self-assessable vegetation clearing code for Managing Category C Regrowth vegetation.
R	yellow	Regrowth within 50m of a watercourse or drainage feature in the priority reef catchment areas	Clearing may be considered exempt clearing work, or can be undertaken after notifying under the self-assessable vegetation clearing code for Managing Category R Regrowth vegetation.
X	white	Clearing is considered accepted development on freehold land, indigenous land and leasehold land for agriculture and grazing purposes. Contact DNRME to clarify whether a development permit is required for other State land tenures.	No permit or notification required on freehold land, indigenous land and leasehold land for agriculture and grazing. A Development Permit may be required for some State land tenures.

Property Map of Assessable Vegetation (PMAV)

This report does not confirm if a Property Map of Assessable Vegetation (PMAV) exists on a lot. To confirm whether or not a PMAV exists on a lot, please check the PMAV layer on the Queensland Globe2, or contact DNRME on 135 834.

3.2 Regional ecosystems

The endangered, of concern and least concern regional ecosystems on your property are shown on the vegetation management supporting map in section 5.2 and are listed in Table 5.

A description of regional ecosystems can be accessed online at
https://www.qld.gov.au/environment/plants-animals/plants/ecosystems/descriptions/

Table 5: Regional ecosystems present on subject property

Regional Ecosystem	VMA Status	Category	Area (Ha)	Short Description	Structure Category
non-rem	None	X	3.20	None	None

Please note:

1. All area and area derived figures included in this table have been calculated via reprojecting relevant spatial features to Albers equal-area conic projection (central meridian = 146, datum Geocentric Datum of Australia 1994). As a result, area figures may differ slightly if calculated for the same features using a different co-ordinate system.

2. If Table 5 contains a Category 'plant', please be aware that this refers to 'plantations' such as forestry, and these areas are considered non-remnant under the VMA.

The VMA status of the regional ecosystem (whether it is endangered, of concern or least concern) also determines if any of the following are applicable:

- exempt clearing work
- self assessable vegetation clearing codes
- performance outcomes in State Development Assessment Provisions (SDAP).

Some clearing purposes are limited to a particular group of regional ecosystems (e.g. encroachment) and some self-assessable vegetation clearing codes allow clearing only in certain regional ecosystems.

3.3 Watercourses

Vegetation management watercourses and drainage features for this property are shown on the vegetation management supporting map in section 5.2.

3.4 Wetlands

There are no vegetation management wetlands present on this property.

3.5 Essential habitat

Protected wildlife is native wildlife prescribed under the *Nature Conservation Act 1992* (NCA), and includes endangered or vulnerable wildlife.

Essential habitat identifies areas in which species of wildlife that are Endangered or Vulnerable under the *Nature Conservation Act 1992* for which suitable habitat occurs on the lot, or where they have been known to occur up to 1.1 kilometres from a lot on which there is assessable vegetation. These important habitat areas are protected under the VMA.

Any essential habitat on this property will be shown as blue hatching on the vegetation supporting map in section 5.2.

If essential habitat is identified on the lot, information about the protected wildlife species is provided in Table 6 below. The numeric labels on the vegetation management supporting map can be cross referenced with Table 6 to outline the essential habitat factors for that particular species. There may be essential habitat for more than one species on each lot, and areas of Category A, Category B and Category C can be mapped as Essential Habitat.

Essential habitat is compiled from a combination of species habitat models and buffered species records. Regional ecosystem is a mandatory essential habitat factor, unless otherwise stated. Essential habitat, for protected wildlife, means an area of vegetation shown on the Regulated Vegetation Management Map as assessable vegetation -

1) that has at least 3 essential habitat factors for the protected wildlife that must include any essential habitat factors that are stated as mandatory for the protected wildlife in the essential habitat database. Essential habitat factors are

comprised of - regional ecosystem (mandatory for most species), vegetation community, altitude, soils, position in landscape; or

2) in which the protected wildlife, at any stage of its life cycle, is located.

If there is no essential habitat mapping shown on the vegetation management supporting map for this lot, and there is no table in the sections below, it confirms that there is no essential habitat on the lot.

3.5.1 Category A and/or Category B

Table 6: Essential habitat in Category A and/or Category B

Label	Scientific Name	Common Name	NCA Status	Vegetation Community	Altitude	Soils	Position in Landscape
2014	Ornithoptera richmondia	Richmond Birdwing Butterfly	V	Lowland (including littoral & gallery) and upland subtropical rainforest with Paristolochia praevenosa and P. laheyana respectively; P. praevenosa occurs below 600m asl on basaltic slopes, creek banks, or on volcanic alluvial soils near watercourses, while P. laheyana occurs on basaltic ridges and slopes at >800m asl.	Sea level to >800m.	Basalt and volcanic alluvial substrates.	None
18503	Lilaeopsis brisbanica	None	E	On edge of mangroves, dominated by Aegiceras corniculata, with some Avicennia, Excoecaria	0 to 10 m	Mud on river banks (Hydrosols)	tidal riverbanks

Label	Regional Ecosystem (mandatory unless otherwise specified)
2014	12.2.1, 12.2.2, 12.2.3, 12.5.13, 12.8.3, 12.8.4, 12.8.5, 12.8.6, 12.8.7, 12.8.13, 12.8.18, 12.8.21, 12.8.22, 12.9-10.16, 12.11.1, 12.11.4, 12.11.10, 12.11.11, 12.11.12, 12.11.13, 12.12.1, 12.12.13, 12.12.16, 12.12.17, 12.12.18
18503	12.1.3

3.5.2 Category C

Table 7: Essential habitat in Category C

No records

3.6 Land suitability

Land suitability mapping and information is required if you are applying to clear vegetation for high-value or irrigated high-value agriculture. Land suitability assessment addresses the capacity of land to sustain specific land uses such as cropping, irrigated agriculture and forestry.

A land suitability map for this property is provided in section 5.3. The map provides detailed land suitability, agricultural land classification, or soil and land resource mapping data where it is available.

The land suitability project that applies to this property is shown in Table 8 and Table 9.

Table 8: Land suitability project details for this property

Project name	Project code	Start date	Scale
Soil Landscapes of Brisbane and South East Environs (ZAA)	ZAA	1987-01-01 00:00:00	100000

Table 9: Available land suitability project reports for this property

Project name	Availability of report
Soil Landscapes of Brisbane and South East Environs (ZAA)	CSIRO report. Available at www.publications.qld.gov.au

3.7 Protected plants (administered by the Department of Environment and Science (DES))

In Queensland, all plants that are native to Australia are protected plants under the *Nature Conservation Act 1992* (NCA), with clearing of protected plants in the wild regulated by the Nature Conservation (Wildlife Management) Regulation 2006. These requirements apply irrespective of the classification of the vegetation under the *Vegetation Management Act 1999*.

Prior to clearing, if the plants proposed to be cleared are in the wild (see Operational policy: When a protected plant in Queensland is considered to be 'in the wild') and the exemptions under the Nature Conservation (Wildlife Management) Regulation 2006 are not applicable to the proposed clearing, you must check the flora survey trigger map to determine if any part of the area to be cleared is within a high risk area. The trigger map for this property is provided in section 5.5. The exemptions relate to:

- imminent risk of death or serious injury (refer s261A)
- imminent risk of serious damage to a building or other structure on land, or to personal property (refer s261B)
- *Fire and Emergency Service Act 1990* (refer 261C)
- previously cleared areas (refer s261ZB)
- maintenance activities (refer s261ZC)
- firebreak or fire management line (refer s261ZD)
- self-assessable vegetation clearing code (refer s261ZE)
- conservation purposes (refer s261ZG)
- authorised in particular circumstances (refer s385).

Some exemptions under the NCA are the same as exempt clearing work (formerly known as exemptions) from the *Vegetation Management Act 1999* (i.e. listed in the Planning Regulations 2017) while some are different.

If the proposed area to be cleared is shown as blue (i.e. high risk) on the flora survey trigger map, a flora survey of the clearing impact area must be undertaken in accordance with the flora survey guidelines. The main objective of a flora survey is to locate any endangered, vulnerable or near threatened plants (EVNT plants) that may be present in the clearing impact area.

If a flora survey identifies that EVNT plants are not present within the clearing impact area or clearing within 100m of EVNT plants can be avoided, the clearing activity is exempt from a permit. An exempt clearing notification form must be submitted to the Department of Environment and Science, with a copy of the flora survey report, at least one week prior to clearing. The clearing must be conducted within two years after the flora survey report was submitted.

If a flora survey identifies that EVNT plants are present in, or within 100m of, the ara to be cleared, a clearing permit is required before any clearing is undertaken. The flora survey report, as well as an impact management report, must be submitted with the application form clearing permit.

In an area other than a high risk area, a clearing permit is only required where a person is, or becomes aware that EVNT plants are present in, or within 100m of, the area to be cleared. You must keep a copy of the flora survey trigger map for the area subject to clearing for five years from the day the clearing starts. If you do not clear within the 12 month period that the flora survey trigger map was printed, you need to print and check a new flora survey trigger map.

Further information on protected plants is available at
http://www.ehp.qld.gov.au/licences-permits/plants-animals/protected-plants/

For assistance on the protected plants flora survey trigger map for this property, please contact the Department of Environment and Science at palm@ehp.qld.gov.au.

3.8 Emissions Reduction Fund (ERF)

The ERF is an Australian Government scheme which offers incentives for businesses and communities across the economy to reduce emissions.

Under the ERF, farmers can earn money from activities such as planting (and keeping) trees, managing regrowth vegetation and adopting more sustainable agricultural practices.

The purpose of a project is to remove greenhouse gases from the atmosphere. Each project will provide new economic opportunities for farmers, forest growers and land managers.

Further information on ERF is available at https://www.qld.gov.au/environment/land/state/use/carbon-rights/.

4. Contact information for DNRME

For further information on vegetation management:
Phone 135VEG (135 834)
Email vegetation@dnrme.qld.gov.au
Visit www.dnrme.qld.gov.au/our-department/contact-us/vegetation-contacts to submit an online enquiry.

For contact details for other State and Commonwealth agencies, please see the "Other relevant legislation contacts list" in Section 6.

5. Maps

The maps included in this report may also be requested individually at:

https://www.dnrme.qld.gov.au/qld/environment/land/vegetation/vegetation-map-request-form
and
http://www.ehp.qld.gov.au/licences-permits/plants-animals/protected-plants/map-request.php

Regulated vegetation management map

The regulated vegetation management map shows vegetation categories to determine clearing requirements. These maps are updated monthly to show new property maps of assessable vegetation (PMAV).

Vegetation management supporting map

The vegetation management supporting map provides information on regional ecosystems, wetlands, watercourses and essential habitat.

Land suitability map

The land suitability map assists with identifying the land suitability category under the high value and irrigated high value agriculture vegetation clearing purpose.

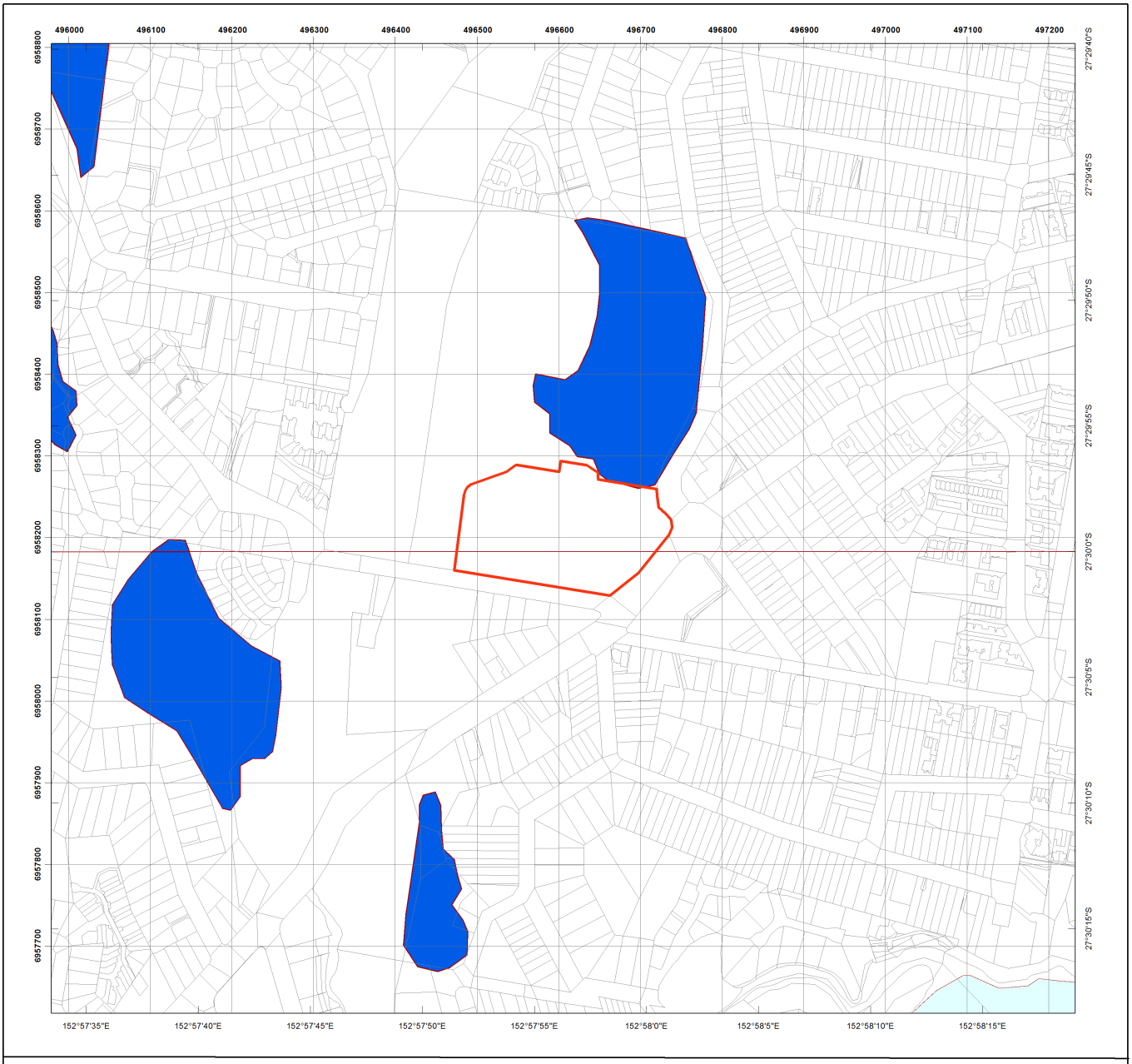
Coastal/non coastal map

The coastal/non-coastal map confirms whether the lot, or which parts of the lot, are considered coastal or non-coastal for the purposes of the self-assessable vegetation clearing codes and the State Development Assessment Provisions (SDAP).

Protected plants map

The protected plants map shows areas where particular provisions of the *Nature Conservation Act 1992* apply to the clearing of protected plants.

5.1 Regulated vegetation management map

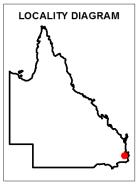


Regulated Vegetation Management Map

Legend

- Lot and Plan
- Category A area (Vegetation offsets/compliance notices/VDecs)
- Category B area (Remnant vegetation)
- Category C area (High-value regrowth vegetation)
- Category R area (Reef regrowth watercourse vegetation)
- Category X area (Exempt clearing work on Freehold, Indigenous and Leasehold land)
- Water
- Area not categorised
- Cadastral line
  Property boundaries shown are provided as a locational aid only

LOCALITY DIAGRAM



N

0 60 120 180 240 300 m

Disclaimer:
While every care is taken to ensure the accuracy of this product, the Department of Natural Resources, Mines and Energy makes no representations or warranties about its accuracy, reliability, completeness or suitability for any particular purpose and disclaims all responsibility and all liability (including without limitation, liability in negligence) for all expenses, losses, damages (including indirect or consequential damage) and costs which you might incurr as a result of the product being inaccurate or incomplete in any way and for any reason.

Additional information required for the assessment of vegetation values is provided in the accompanying "Vegetation Management Supporting map". For further information go to the web site: www.dnrme.qld.gov.au or contact the Department of Natural Resources, Mines and Energy.

Digital data for the regulated vegetation management map is available from the Queensland Spatial Portal at http://www.information.qld.gov.au/

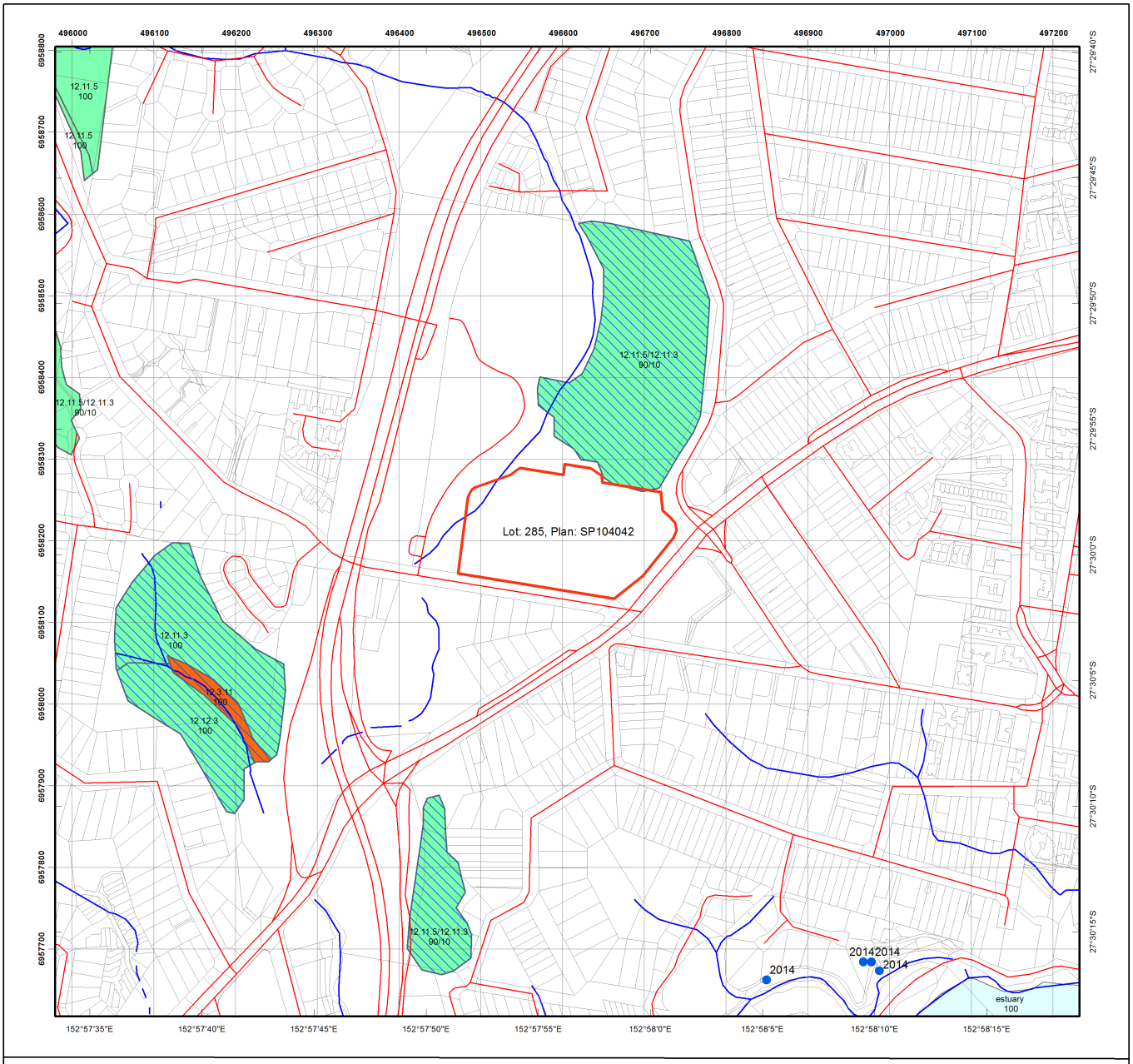
This map is updated on a monthly basis to ensure new PMAVs are included as they are approved.

Queensland Government

This product is projected into:
GDA 1994 MGA Zone 56

© The State of Queensland (Department of Natural Resources, Mines and Energy), 2018

5.2 Vegetation management supporting map



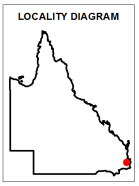
Vegetation Management Supporting Map

Legend

- Lot and Plan
- Category A or B area containing endangered regional ecosystems
- Category A or B area containing of concern regional ecosystems
- Category A or B area that is a least concern regional ecosystem
- Category A or B area containing remnant vegetation
- Category A or B area under Section 20AH
  These areas are edged in yellow and filled with the remnant RE Status
- Category C area containing endangered regional ecosystems
- Category C area containing of concern regional ecosystems
- Category C area that is a least concern regional ecosystem
- Category C area containing high value regrowth vegetation
- Category C area under Section 20AI
  These areas are edged in purple and filled with the remnant RE Status
- Non Remnant
- Water
- Wetland on the vegetation management wetlands map
- Essential habitat on the essential habitat map
- Essential habitat species record
- Watercourses and drainage features on the vegetation management watercourse and drainage features map
  (Stream order shown as black number against stream where available)
- Roads
- National Parks, State Forest and other reserves
- Cadastral line
  Property boundaries shown are provided as a locational aid only

Queensland Government

LOCALITY DIAGRAM



N

0 40 80 120 160 200 m

This product is projected into:
GDA 1994 MGA Zone 56

Labels for Essential Habitat are centred on the area of enquiry.

Regional ecosystem linework has been compiled at a scale of 1:100 000, except in designated areas where a compilation scale of 1:50 000 is available. Linework should be used as a guide only. The positional accuracy of RE data mapped at a scale of 1:100 000 is +/- 100 metres.

Disclaimer:
While every care is taken to ensure the accuracy of this product, the Department of Natural Resources, Mines and Energy makes no representations or warranties about its accuracy, reliability, completeness or suitability for any particular purpose and disclaims all responsibility and all liability (including without limitation, liability in negligence) for all expenses, losses, damages (including indirect or consequential damage) and costs which you might incurr as a result of the product being inaccurate or incomplete in any way and for any reason.

Additional information may be required for the purposes of land clearing or assessment of a regional ecosystem map or PMAV applications. For further information go to the web site: www.dnrme.qld.gov.au or contact the Department of Natural Resources, Mines and Energy.

Digital data for the vegetation management watercourse and drainage feature map, vegetation management wetlands map, essential habitat map and the vegetation management remnant and regional ecosystem map are available from the Queensland Spatial Portal at http://www.information.qld.gov.au/

© The State of Queensland (Department of Natural Resources, Mines and Energy), 2018

5.3 Land suitability map

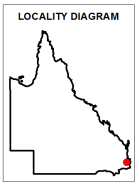
Land Suitability Overview Map

Legend

- Lot and Plan
- Cadastral Boundaries
- Land suitability mapping 1:100,000 scale or better (Category 2 or 3*)
- Land suitability mapping greater than 1:100,000 scale (Category 4)
- No mapping available (Category 4)

* Category 3 applies to applications where there is some land resource mapping or information available however it either does not cover the entire area, or the land suitability mapping and information does not identify the land as suitable for the proposed crop and management systems.

LOCALITY DIAGRAM



N

0 40 80 120 160 200 m

This product is projected into:
GDA 1994 MGA Zone 56

Important information

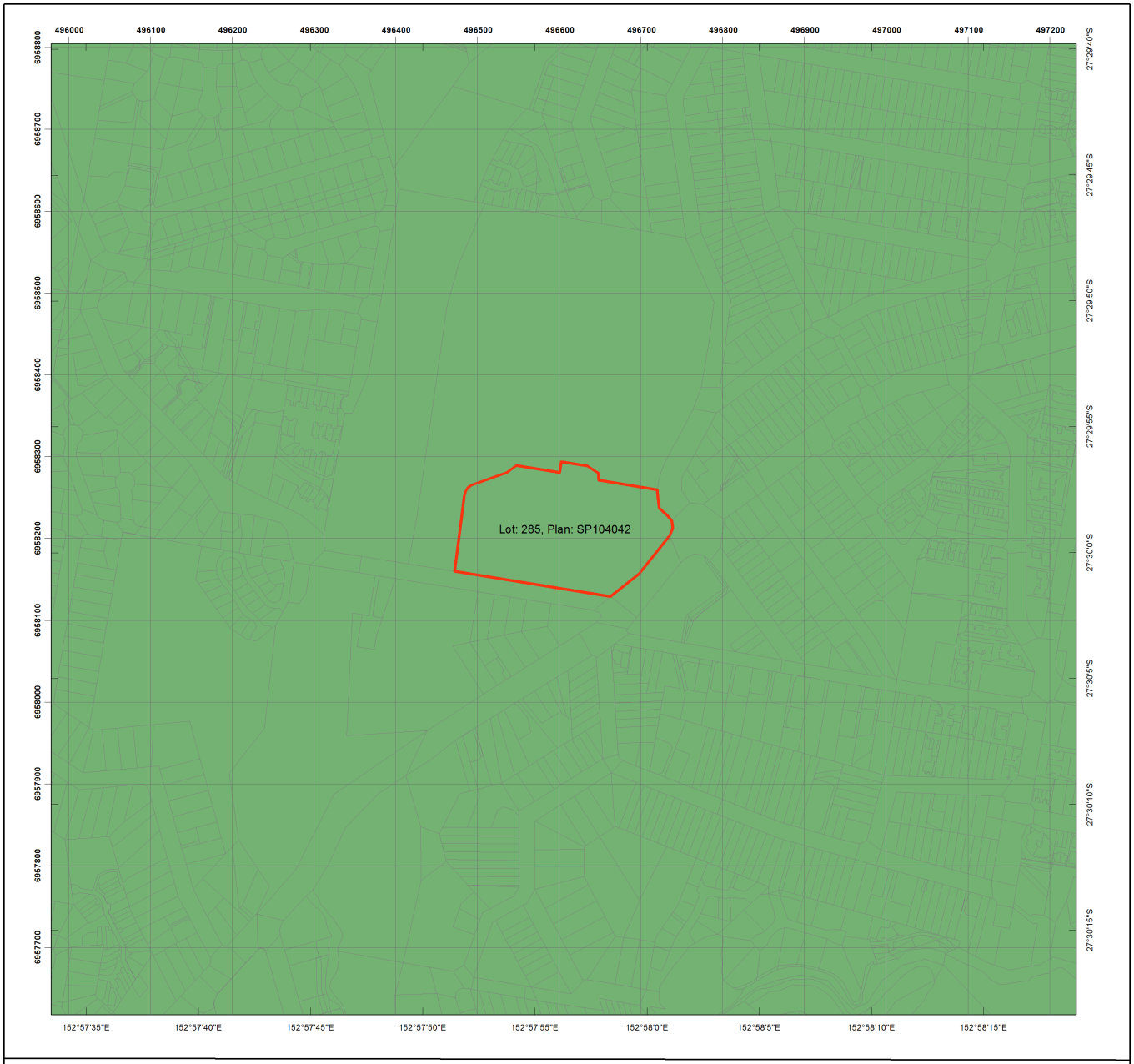
The Land Suitability Overview Map assists with identifying the Land Suitability category under the high value and irrigated high value agriculture vegetation clearing purpose. This map provides detailed land suitability, agricultural land classification, or soil and land resource mapping data where it is available on the selected lots. Where no data is available, the maps will be blank, with no mapping visible.

Further information on these categories is available in the Guideline for applying to clear for high-value or irrigated high-value agriculture (www.dnrme.qld.gov.au).

Disclaimer
All persons and organisations by using this map take all responsibility for assessing the relevance and accuracy of the map contents for their purpose and accept all risks associated with its use. The State of Queensland (as represented by the Department of Natural Resources, Mines and Energy) makes no representations or warranties in relation to the map contents, and, to the extent permitted by law, excludes or limits all warranties relating to correctness, accuracy, reliability, completeness or currency and all disclaims all liability for any direct, indirect and consequential costs, losses, damages and expenses incurred in any way (including but not limited to that arising from negligence) in connection with any use of or reliance on the map contents.

© The State of Queensland (Department of Natural Resources, Mines and Energy), 2018

5.4 Coastal/non coastal map

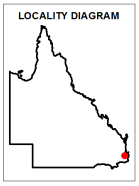


Coastal/Non Coastal Map

Legend

- Lot and Plan
- Coastal
- Non Coastal
- Cadastral line
  Property boundaries shown are provided as a locational aid only

LOCALITY DIAGRAM



Disclaimer:
While every care is taken to ensure the accuracy of this product, the Department of Natural Resources, Mines and Energy makes no representations or warranties about its accuracy, reliability, completeness or suitability for any particular purpose and disclaims all responsibility and all liability (including without limitation, liability in negligence) for all expenses, losses, damages (including indirect or consequential damage) and costs which you might incur as a result of the product being inaccurate or incomplete in any way and for any reason.

N

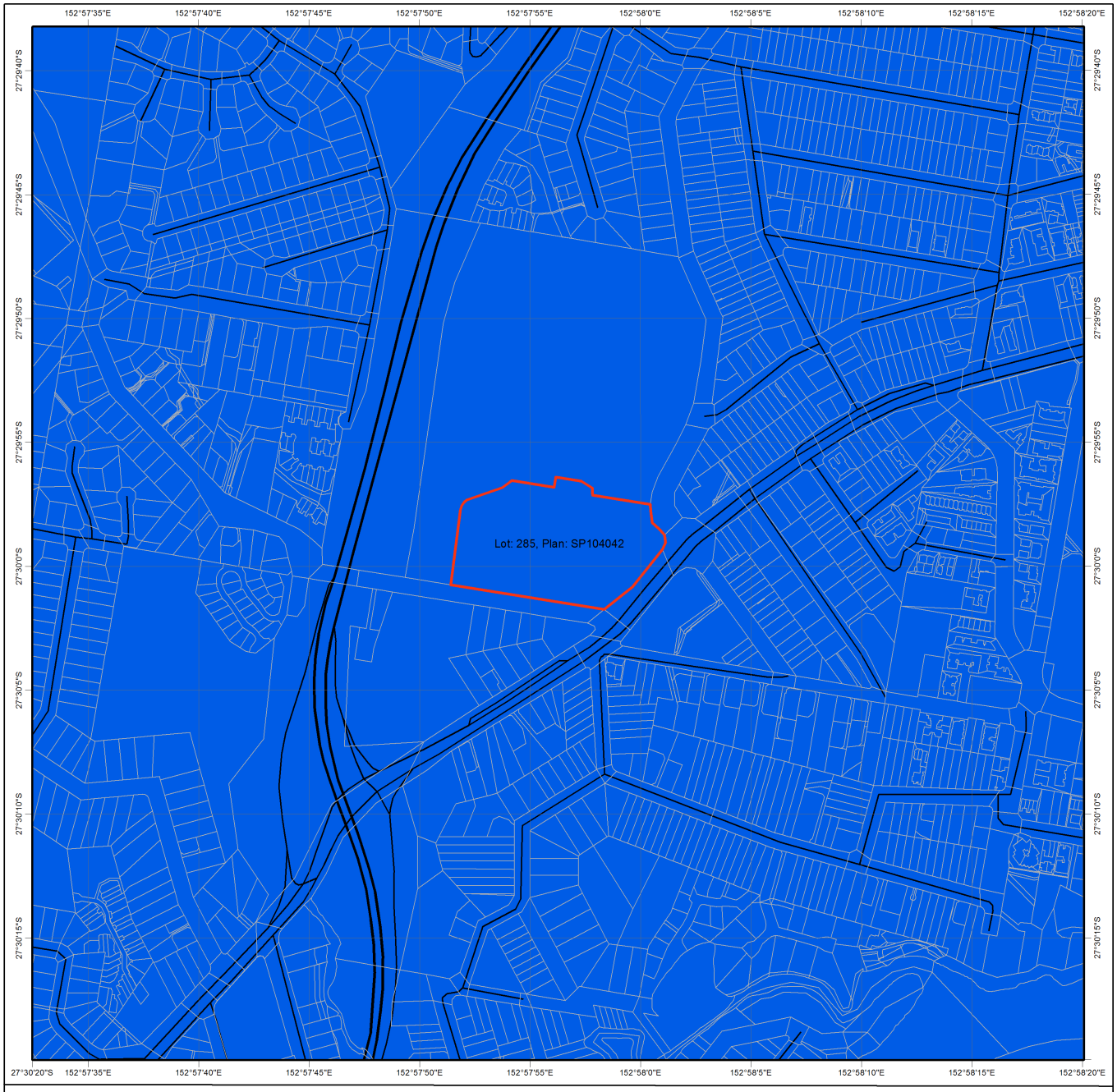
0 60 120 180 240 300 m

Queensland Government

This product is projected into:
GDA 1994 MGA Zone 56

© The State of Queensland (Department of Natural Resources, Mines and Energy), 2018

5.5 Protected plants map administered by DES



Protected Plants Flora Survey Trigger Map

Legend

- Lot and Plan
- High risk area
- Cadastral line
  Property boundaries shown are provided as a locational aid only
- Freeways / motorways / highways
- Secondary roads / streets

LOCALITY DIAGRAM

N

0 40 80 120 160 200 m

This product is projected into:
GDA 1994 MGA Zone 56

This map shows areas where particular provisions of the Nature Conservation Act 1992 apply to the clearing of protected plants.

This map is produced at a scale relevant to the size of the area selected and should be printed as A4 size in portrait orientation.

For further information or assistance with interpretation of this product, please contact the Department of Environment and Science at palm@ehp.qld.gov.au

Disclaimer:
While every care is taken to ensure the accuracy of the data used to generate this product, the Queensland Government makes no representations or warranties about its accuracy, reliability, completeness or suitability for any particular purpose and disclaim all responsibility and all liability (including without limitation, liability in negligence) for all expenses, losses, damages (including indirect or consequential damages) and costs which might be incurred as a consequence of reliance on the data, or as a result of the data being inaccurate or incomplete in any way and for any reason.

© The State of Queensland (Department of Environment and Science), 2018

6. Other relevant legislation contacts list

Activity	Legislation	Agency	Contact details
Interference with overland flow Earthworks, significant disturbance	*Water Act 2000* *Soil Conservation Act 1986*	Department of Natural Resources, Mines and Energy (Queensland Government)	Ph: 13 QGOV (13 74 68) www.dnrme.qld.gov.au
Indigenous Cultural Heritage	*Aboriginal Cultural Heritage Act 2003* *Torres Strait Islander Cultural Heritage Act 2003*	Department of Aboriginal and Torres Strait Islander Partnerships (Queensland Government)	Ph: 13 QGOV (13 74 68) www.datsip.qld.gov.au
Mining and environmentally relevant activities Infrastructure development (coastal) Heritage issues Protected plants and protected areas [1]	*Environmental Protection Act 1994* *Coastal Protection and Management Act 1995* *Queensland Heritage Act 1992* *Nature Conservation Act 1992*	Department of Environment and Science (Queensland Government)	Ph: 13 QGOV (13 74 68) www.ehp.qld.gov.au
Interference with fish passage in a watercourse, mangroves Forestry activities	*Fisheries Act 1994* *Forestry Act 1959* [2]	Department of Agriculture and Fisheries (Queensland Government)	Ph: 13 QGOV (13 74 68) www.daf.qld.gov.au
Matters of National Environmental Significance including listed threatened species and ecological communities	*Environment Protection and Biodiversity Conservation Act 1999*	Department of the Environment (Australian Government)	Ph: 1800 803 772 www.environment.gov.au
Development and planning processes	*Planning Act 2016*	Department of State Development, Manufacturing, Infrastructure and Planning (Queensland Government)	Ph: 13 QGOV (13 74 68) www.statedevelopment.qld.gov.au
State Development	*State Development and Public Works Organisation Act 1971*	Department of State Development, Manufacturing, Infrastructure and Planning (Queensland Government)	Ph: 13 QGOV (13 74 68) www.statedevelopment.qld.gov.au
Local government requirements	*Local Government Act 2009*	Local government	Contact your relevant local government office

1. In Queensland, all plants that are native to Australia are protected plants under the *Nature Conservation Act 1992*, which endeavours to ensure that protected plants (whether whole plants or protected plants parts) are not illegally removed from the wild, or illegally traded. Prior to clearing, you should check the flora survey trigger map to determine if the clearing is within a high-risk area by visiting www.ehp.qld.gov.au. For further information or assistance on the protected plants flora survey trigger map for your property, please contact the Department of Environment and Science on 13QGOV (13 74 68) or email palm@ehp.qld.gov.au.

2. Contact the Department of Agriculture and Fisheries before clearing:

- Any sandalwood on state-owned land (including leasehold land)
- On freehold land in a 'forest consent area'
- More than five hectares on state-owned land (including leasehold land) containing commercial timber species listed in parts 2 or 3 of Schedule 6 of the Vegetation Management Regulation 2012 and located within any of the following local government management areas-Banana, Bundaberg Regional, Fraser Coast Regional, Gladstone Regional, Isaac Regional, North Burnett Regional, Somerset Regional, South Burnett Regional, Southern Downs Regional, Tablelands Regional, Toowoomba Regional, Western Downs Regional.

Queensland Government

Wildlife Online Extract

Search Criteria: Species List for a Specified Point
Species: All
Type: All
Status: All
Records: All
Date: All
Latitude: -27.49
Longitude: 152.97
Distance: 1
Email: annie.jin@hpw.qld.gov.au
Date submitted: Monday 26 Feb 2018 14:51:19
Date extracted: Monday 26 Feb 2018 15:30:02

The number of records retrieved = 250

Disclaimer

As the DSITIA is still in a process of collating and vetting data, it is possible the information given is not complete. The information provided should only be used for the project for which it was requested and it should be appropriately acknowledged as being derived from Wildlife Online when it is used.

The State of Queensland does not invite reliance upon, nor accept responsibility for this information. Persons should satisfy themselves through independent means as to the accuracy and completeness of this information.

No statements, representations or warranties are made about the accuracy or completeness of this information. The State of Queensland disclaims all responsibility for this information and all liability (including without limitation, liability in negligence) for all expenses, losses, damages and costs you may incur as a result of the information being inaccurate or incomplete in any way for any reason.

Kingdom	Class	Family	Scientific Name	Common Name	I	Q	A	Records
animals	amphibians	Bufonidae	*Rhinella marina*	cane toad	Y			2
animals	amphibians	Hylidae	*Litoria gracilenta*	graceful treefrog		C		1
animals	amphibians	Hylidae	*Litoria caerulea*	common green treefrog		C		1
animals	amphibians	Limnodynastidae	*Limnodynastes peronii*	striped marshfrog		C		5
animals	amphibians	Limnodynastidae	*Adelotus brevis*	tusked frog		V		5
animals	amphibians	Myobatrachidae	*Pseudophryne major*	great brown broodfrog		C		2
animals	birds	Acanthizidae	*Gerygone olivacea*	white-throated gerygone		C		3
animals	birds	Acanthizidae	*Acanthiza lineata*	striated thornbill		C		1
animals	birds	Accipitridae	*Haliastur indus*	brahminy kite		C		3
animals	birds	Accipitridae	*Aquila audax*	wedge-tailed eagle		C		2
animals	birds	Accipitridae	*Lophoictinia isura*	square-tailed kite		C		2
animals	birds	Accipitridae	*Accipiter cirrocephalus*	collared sparrowhawk		C		5
animals	birds	Accipitridae	*Accipiter fasciatus*	brown goshawk		C		2
animals	birds	Accipitridae	*Aviceda subcristata*	Pacific baza		C		15
animals	birds	Anatidae	*Anas superciliosa*	Pacific black duck		C		9
animals	birds	Anatidae	*Chenonetta jubata*	Australian wood duck		C		3
animals	birds	Apodidae	*Hirundapus caudacutus*	white-throated needletail		SL		7
animals	birds	Ardeidae	*Bubulcus ibis*	cattle egret		C		7
animals	birds	Ardeidae	*Butorides striata*	striated heron		C		1
animals	birds	Ardeidae	*Ixobrychus dubius*	Australian little bittern		C		1
animals	birds	Ardeidae	*Ixobrychus flavicollis*	black bittern		C		1
animals	birds	Ardeidae	*Nycticorax caledonicus*	nankeen night-heron		C		3
animals	birds	Ardeidae	*Egretta novaehollandiae*	white-faced heron		C		3
animals	birds	Artamidae	*Cracticus tibicen*	Australian magpie		C		31
animals	birds	Artamidae	*Strepera graculina*	pied currawong		C		31
animals	birds	Artamidae	*Cracticus torquatus*	grey butcherbird		C		36
animals	birds	Artamidae	*Artamus leucorynchus*	white-breasted woodswallow		C		1
animals	birds	Artamidae	*Cracticus nigrogularis*	pied butcherbird		C		29
animals	birds	Burhinidae	*Burhinus grallarius*	bush stone-curlew		C		5
animals	birds	Cacatuidae	*Cacatua galerita*	sulphur-crested cockatoo		C		35
animals	birds	Cacatuidae	*Cacatua sanguinea*	little corella		C		2
animals	birds	Cacatuidae	*Calyptorhynchus funereus*	yellow-tailed black-cockatoo		C		4
animals	birds	Cacatuidae	*Eolophus roseicapilla*	galah		C		20
animals	birds	Campephagidae	*Coracina novaehollandiae*	black-faced cuckoo-shrike		C		35
animals	birds	Campephagidae	*Coracina tenuirostris*	cicadabird		C		3
animals	birds	Campephagidae	*Coracina papuensis*	white-bellied cuckoo-shrike		C		2
animals	birds	Charadriidae	*Vanellus miles novaehollandiae*	masked lapwing (southern subspecies)		C		15
animals	birds	Climacteridae	*Cormobates leucophaea metastasis*	white-throated treecreeper (southern)		C		2
animals	birds	Columbidae	*Columba livia*	rock dove	Y			28
animals	birds	Columbidae	*Lopholaimus antarcticus*	topknot pigeon		C		2
animals	birds	Columbidae	*Leucosarcia melanoleuca*	wonga pigeon		C		1
animals	birds	Columbidae	*Streptopelia chinensis*	spotted dove	Y			33
animals	birds	Columbidae	*Chalcophaps indica*	emerald dove		C		1
animals	birds	Columbidae	*Ocyphaps lophotes*	crested pigeon		C		29
animals	birds	Columbidae	*Columba leucomela*	white-headed pigeon		C		5
animals	birds	Coraciidae	*Eurystomus orientalis*	dollarbird		C		10

Kingdom	Class	Family	Scientific Name	Common Name	I	Q	A	Records
animals	birds	Corvidae	*Corvus orru*	Torresian crow		C		40
animals	birds	Cuculidae	*Chalcites lucidus*	shining bronze-cuckoo		C		2
animals	birds	Cuculidae	*Eudynamys orientalis*	eastern koel		C		18
animals	birds	Cuculidae	*Centropus phasianinus*	pheasant coucal		C		10
animals	birds	Cuculidae	*Scythrops novaehollandiae*	channel-billed cuckoo		C		13
animals	birds	Dicruridae	*Dicrurus bracteatus*	spangled drongo		C		21
animals	birds	Estrildidae	*Taeniopygia bichenovii*	double-barred finch		C		1
animals	birds	Estrildidae	*Neochmia temporalis*	red-browed finch		C		2
animals	birds	Falconidae	*Falco peregrinus*	peregrine falcon		C		3
animals	birds	Falconidae	*Falco berigora*	brown falcon		C		1
animals	birds	Falconidae	*Falco longipennis*	Australian hobby		C		5
animals	birds	Falconidae	*Falco cenchroides*	nankeen kestrel		C		1
animals	birds	Fringillidae	*Carduelis carduelis*	European goldfinch	Y			1
animals	birds	Halcyonidae	*Todiramphus sanctus*	sacred kingfisher		C		7
animals	birds	Halcyonidae	*Dacelo novaeguineae*	laughing kookaburra		C		33
animals	birds	Halcyonidae	*Todiramphus macleayii*	forest kingfisher		C		1
animals	birds	Hirundinidae	*Petrochelidon ariel*	fairy martin		C		5
animals	birds	Hirundinidae	*Hirundo neoxena*	welcome swallow		C		75
animals	birds	Hirundinidae	*Petrochelidon nigricans*	tree martin		C		1
animals	birds	Maluridae	*Malurus lamberti*	variegated fairy-wren		C		7
animals	birds	Maluridae	*Malurus cyaneus*	superb fairy-wren		C		1
animals	birds	Maluridae	*Malurus melanocephalus*	red-backed fairy-wren		C		4
animals	birds	Megapodiidae	*Alectura lathami*	Australian brush-turkey		C		24
animals	birds	Meliphagidae	*Manorina melanocephala*	noisy miner		C		47
animals	birds	Meliphagidae	*Philemon citreogularis*	little friarbird		C		11
animals	birds	Meliphagidae	*Acanthagenys rufogularis*	spiny-cheeked honeyeater		C		1
animals	birds	Meliphagidae	*Melithreptus albogularis*	white-throated honeyeater		C		7
animals	birds	Meliphagidae	*Philemon corniculatus*	noisy friarbird		C		28
animals	birds	Meliphagidae	*Entomyzon cyanotis*	blue-faced honeyeater		C		32
animals	birds	Meliphagidae	*Caligavis chrysops*	yellow-faced honeyeater		C		4
animals	birds	Meliphagidae	*Meliphaga lewinii*	Lewin's honeyeater		C		1
animals	birds	Meliphagidae	*Myzomela sanguinolenta*	scarlet honeyeater		C		7
animals	birds	Meropidae	*Merops ornatus*	rainbow bee-eater		C		12
animals	birds	Monarchidae	*Monarcha melanopsis*	black-faced monarch		SL		1
animals	birds	Monarchidae	*Myiagra cyanoleuca*	satin flycatcher		SL		1
animals	birds	Monarchidae	*Grallina cyanoleuca*	magpie-lark		C		32
animals	birds	Nectariniidae	*Dicaeum hirundinaceum*	mistletoebird		C		15
animals	birds	Oriolidae	*Oriolus sagittatus*	olive-backed oriole		C		21
animals	birds	Oriolidae	*Sphecotheres vieilloti*	Australasian figbird		C		33
animals	birds	Pachycephalidae	*Pachycephala rufiventris*	rufous whistler		C		15
animals	birds	Pachycephalidae	*Colluricincla harmonica*	grey shrike-thrush		C		2
animals	birds	Pachycephalidae	*Pachycephala pectoralis*	golden whistler		C		3
animals	birds	Pardalotidae	*Pardalotus striatus*	striated pardalote		C		22
animals	birds	Pardalotidae	*Pardalotus punctatus*	spotted pardalote		C		5
animals	birds	Passeridae	*Passer domesticus*	house sparrow	Y			18
animals	birds	Petroicidae	*Petroica rosea*	rose robin		C		3

Kingdom	Class	Family	Scientific Name	Common Name	I	Q	A	Records
animals	birds	Phaethontidae	*Phaethon rubricauda*	red-tailed tropicbird		V		1/1
animals	birds	Phalacrocoracidae	*Microcarbo melanoleucos*	little pied cormorant		C		3
animals	birds	Phasianidae	*Coturnix ypsilophora*	brown quail		C		1
animals	birds	Podargidae	*Podargus strigoides*	tawny frogmouth		C		19
animals	birds	Podargidae	*Podargus ocellatus plumiferus*	plumed frogmouth		V		1
animals	birds	Psittacidae	*Platycercus adscitus*	pale-headed rosella		C		29
animals	birds	Psittacidae	*Platycercus elegans*	crimson rosella		C		3
animals	birds	Psittacidae	*Parvipsitta pusilla*	little lorikeet		C		18
animals	birds	Psittacidae	*Alisterus scapularis*	Australian king-parrot		C		13
animals	birds	Psittacidae	*Glossopsitta concinna*	musk lorikeet		C		2
animals	birds	Psittacidae	*Trichoglossus haematodus moluccanus*	rainbow lorikeet		C		39
animals	birds	Psittacidae	*Trichoglossus chlorolepidotus*	scaly-breasted lorikeet		C		42
animals	birds	Psophodidae	*Psophodes olivaceus*	eastern whipbird		C		16
animals	birds	Ptilonorhynchidae	*Ptilonorhynchus violaceus*	satin bowerbird		C		2
animals	birds	Rallidae	*Gallinula tenebrosa*	dusky moorhen		C		2
animals	birds	Rallidae	*Porphyrio melanotus*	purple swamphen		C		1
animals	birds	Rallidae	*Amaurornis moluccana*	pale-vented bush-hen		C		3
animals	birds	Rhipiduridae	*Rhipidura albiscapa*	grey fantail		C		18
animals	birds	Rhipiduridae	*Rhipidura rufifrons*	rufous fantail		SL		2
animals	birds	Rhipiduridae	*Rhipidura leucophrys*	willie wagtail		C		17
animals	birds	Strigidae	*Ninox boobook*	southern boobook		C		11
animals	birds	Strigidae	*Ninox strenua*	powerful owl		V		2
animals	birds	Sturnidae	*Acridotheres tristis*	common myna	Y			2
animals	birds	Sturnidae	*Sturnus vulgaris*	common starling	Y			15
animals	birds	Threskiornithidae	*Threskiornis molucca*	Australian white ibis		C		1
animals	birds	Threskiornithidae	*Threskiornis spinicollis*	straw-necked ibis		C		14
animals	birds	Threskiornithidae	*Platalea regia*	royal spoonbill		C		1
animals	birds	Threskiornithidae	*Platalea flavipes*	yellow-billed spoonbill		C		1
animals	birds	Timaliidae	*Zosterops lateralis*	silvereye		C		40
animals	birds	Turnicidae	*Turnix melanogaster*	black-breasted button-quail		V	V	1
animals	birds	Turnicidae	*Turnix varius*	painted button-quail		C		1
animals	birds	Tytonidae	*Tyto delicatula*	eastern barn owl		C		1
animals	insects	Nymphalidae	*Euploea corinna*	common crow				4
animals	insects	Nymphalidae	*Vanessa kershawi*	Australian painted lady				1
animals	insects	Nymphalidae	*Melanitis leda bankia*	evening brown				3
animals	insects	Nymphalidae	*Tirumala hamata hamata*	blue tiger				1
animals	insects	Nymphalidae	*Acraea andromacha andromacha*	glasswing				1
animals	insects	Nymphalidae	*Charaxes sempronius sempronius*	tailed emperor				3
animals	insects	Nymphalidae	*Phaedyma shepherdi shepherdi*	white-banded plane (southern subspecies)				1
animals	insects	Nymphalidae	*Argynnis hyperbius inconstans*	Australian fritillary		E	CE	1
animals	insects	Papilionidae	*Graphium choredon*	blue triangle				4
animals	insects	Papilionidae	*Papilio aegeus aegeus*	orchard swallowtail (Australian subspecies)				1
animals	mammals	Canidae	*Canis lupus dingo*	dingo				1
animals	mammals	Canidae	*Vulpes vulpes*	red fox	Y			1

Kingdom	Class	Family	Scientific Name	Common Name	I	Q	A	Records
animals	mammals	Emballonuridae	*Saccolaimus flaviventris*	yellow-bellied sheathtail bat		C		1
animals	mammals	Macropodidae	*Macropus parryi*	whiptail wallaby		C		1/1
animals	mammals	Molossidae	*Mormopterus sp.*					1
animals	mammals	Molossidae	*Tadarida australis*	white-striped freetail bat		C		13
animals	mammals	Muridae	*Mus musculus*	house mouse	Y			2
animals	mammals	Muridae	*Rattus rattus*	black rat	Y			3
animals	mammals	Peramelidae	*Isoodon macrourus*	northern brown bandicoot		C		3
animals	mammals	Phalangeridae	*Trichosurus vulpecula*	common brushtail possum		C		26
animals	mammals	Phascolarctidae	*Phascolarctos cinereus*	koala		V	V	3
animals	mammals	Potoroidae	*Aepyprymnus rufescens*	rufous bettong		C		1
animals	mammals	Pseudocheiridae	*Pseudocheirus peregrinus*	common ringtail possum		C		23/1
animals	mammals	Pteropodidae	*Pteropus poliocephalus*	grey-headed flying-fox		C	V	7
animals	mammals	Pteropodidae	*Pteropus scapulatus*	little red flying-fox		C		4
animals	mammals	Pteropodidae	*Pteropus alecto*	black flying-fox		C		3
animals	mammals	Pteropodidae	*Pteropus sp.*					3
animals	mammals	Vespertilionidae	*Scotorepens greyii*	little broad-nosed bat		C		2
animals	mammals	Vespertilionidae	*Chalinolobus nigrogriseus*	hoary wattled bat		C		2
animals	ray-finned fishes	Eleotridae	*Mogurnda adspersa*	southern purplespotted gudgeon				1
animals	ray-finned fishes	Poeciliidae	*Gambusia holbrooki*	mosquitofish	Y			1
animals	ray-finned fishes	Poeciliidae	*Poecilia reticulata*	guppy	Y			2
animals	ray-finned fishes	Poeciliidae	*Xiphophorus hellerii*	swordtail	Y			1
animals	reptiles	Agamidae	*Pogona barbata*	bearded dragon		C		5
animals	reptiles	Boidae	*Morelia spilota*	carpet python		C		14/1
animals	reptiles	Colubridae	*Dendrelaphis punctulatus*	green tree snake		C		1
animals	reptiles	Elapidae	*Cacophis harriettae*	white-crowned snake		C		3
animals	reptiles	Elapidae	*Demansia psammophis*	yellow-faced whipsnake		C		1
animals	reptiles	Gekkonidae	*Hemidactylus frenatus*	house gecko	Y			1
animals	reptiles	Pygopodidae	*Lialis burtonis*	Burton's legless lizard		C		2
animals	reptiles	Scincidae	*Bellatorias frerei*	major skink		C		2
animals	reptiles	Scincidae	*Ctenotus spaldingi*	straight-browed ctenotus		C		3
animals	reptiles	Scincidae	*Tiliqua scincoides*	eastern blue-tongued lizard		C		12
animals	reptiles	Scincidae	*Lampropholis delicata*	dark-flecked garden sunskink		C		19
animals	reptiles	Scincidae	*Calyptotis scutirostrum*	scute-snouted calyptotis		C		12
animals	reptiles	Scincidae	*Concinnia martini*	dark bar-sided skink		C		4
animals	reptiles	Scincidae	*Eroticoscincus graciloides*	elf skink		C		1
animals	reptiles	Scincidae	*Cryptoblepharus pulcher pulcher*	elegant snake-eyed skink		C		20/1
animals	reptiles	Scincidae	*Bellatorias major*	land mullet		C		1
animals	reptiles	Scincidae	*Eulamprus quoyii*	eastern water skink		C		8
animals	reptiles	Scincidae	*Cyclodomorphus gerrardii*	pink-tongued lizard		C		7
animals	reptiles	Typhlopidae	*Anilios wiedii*	brown-snouted blind snake		C		1/1
fungi	club fungi	Basidiomycota	*Lysurus gardneri*			C		1/1
fungi	club fungi	Basidiomycota	*Chlorophyllum*			C		1/1
fungi	club fungi	Basidiomycota	*Gymnopus alkalivirens*			C		1/1
fungi	sac fungi	Collemataceae	*Leptogium*			C		1/1
fungi	sac fungi	Collemataceae	*Leptogium cyanescens*			C		1/1
fungi	sac fungi	Parmeliaceae	*Parmotrema tinctorum*			C		1/1

Kingdom	Class	Family	Scientific Name	Common Name	I	Q	A	Records
fungi	sac fungi	Parmeliaceae	*Parmotrema crinitum*			C		1/1
fungi	sac fungi	Parmeliaceae	*Punctelia pseudocoralloidea*			C		1/1
fungi	sac fungi	Physciaceae	*Heterodermia obscurata*			C		2/2
fungi	sac fungi	Physciaceae	*Heterodermia speciosa*			C		1/1
fungi	sac fungi	Physciaceae	*Dirinaria applanata*			C		1/1
fungi	sac fungi	Physciaceae	*Pyxine subcinerea*			C		1/1
fungi	sac fungi	Physciaceae	*Physcia poncinsii*			C		1/1
plants	higher dicots	Acanthaceae	*Dyschoriste depressa*		Y			1/1
plants	higher dicots	Acanthaceae	*Justicia betonica*		Y			1/1
plants	higher dicots	Acanthaceae	*Ruellia squarrosa*		Y			1/1
plants	higher dicots	Acanthaceae	*Eranthemum pulchellum*		Y			1/1
plants	higher dicots	Acanthaceae	*Hypoestes phyllostachya*		Y			1/1
plants	higher dicots	Acanthaceae	*Stephanophysum longifolium*		Y			1/1
plants	higher dicots	Araliaceae	*Hydrocotyle peduncularis*			C		1/1
plants	higher dicots	Araliaceae	*Hydrocotyle acutiloba*			C		1/1
plants	higher dicots	Araliaceae	*Tetrapanax papyrifer*		Y			1/1
plants	higher dicots	Asteraceae	*Chrysocephalum apiculatum*	yellow buttons		C		1/1
plants	higher dicots	Asteraceae	*Calyptocarpus vialis*	creeping cinderella weed	Y			1/1
plants	higher dicots	Cactaceae	*Opuntia monacantha*		Y			1/1
plants	higher dicots	Caesalpiniaceae	*Senna pendula var. glabrata*	Easter cassia	Y			1/1
plants	higher dicots	Clusiaceae	*Hypericum involutum*			C		1/1
plants	higher dicots	Euphorbiaceae	*Euphorbia cyathophora*	dwarf poinsettia	Y			1/1
plants	higher dicots	Euphorbiaceae	*Euphorbia ophthalmica*		Y			1/1
plants	higher dicots	Fabaceae	*Desmodium incanum*		Y			1/1
plants	higher dicots	Fabaceae	*Tephrosia glomeruliflora*	pink tephrosia	Y			1/1
plants	higher dicots	Fabaceae	*Indigofera circinella*		Y			1/1
plants	higher dicots	Fabaceae	*Hardenbergia violacea*			C		1/1
plants	higher dicots	Fabaceae	*Indigofera spicata*	creeping indigo	Y			1/1
plants	higher dicots	Lamiaceae	*Plectranthus verticillatus*		Y			1/1
plants	higher dicots	Mimosaceae	*Acacia disparrima subsp. disparrima*			C		1/1
plants	higher dicots	Mimosaceae	*Acacia falcata*	sickle wattle		C		1/1
plants	higher dicots	Mimosaceae	*Leucaena leucocephala*		Y			1/1
plants	higher dicots	Myrsinaceae	*Lysimachia arvensis*		Y			1/1
plants	higher dicots	Myrtaceae	*Eugenia uniflora*	Brazilian cherry tree	Y			1/1
plants	higher dicots	Myrtaceae	*Eucalyptus crebra*	narrow-leaved red ironbark		C		1/1
plants	higher dicots	Rosaceae	*Rhaphiolepis indica*	Indian hawthorn	Y			1/1
plants	higher dicots	Rosaceae	*Eriobotrya japonica*	loquat	Y			1/1
plants	higher dicots	Verbenaceae	*Duranta erecta*	duranta	Y			1/1
plants	liverworts	Aytoniaceae	*Reboulia hemisphaerica*			C		2/2
plants	liverworts	Fossombroniaceae	*Fossombronia papillata*			C		1/1
plants	liverworts	Frullaniaceae	*Frullania pentapleura*			C		1/1
plants	liverworts	Frullaniaceae	*Frullania*			C		1/1
plants	liverworts	Geocalycaceae	*Chiloscyphus semiteres*			C		1/1
plants	liverworts	Jungermanniaceae	*Jungermannia wattsiana*			C		1/1
plants	monocots	Asparagaceae	*Asparagus aethiopicus cv. Sprengeri*	basket asparagus fern	Y			1/1
plants	monocots	Commelinaceae	*Commelina benghalensis*		Y			1/1

Kingdom	Class	Family	Scientific Name	Common Name	I	Q	A	Records
plants	monocots	Commelinaceae	*Tradescantia zebrina*		Y			1/1
plants	monocots	Poaceae	*Echinochloa crus-galli*	barnyard grass	Y			1/1
plants	monocots	Poaceae	*Dactyloctenium australe*	sweet smother grass	Y			1/1
plants	monocots	Poaceae	*Paspalum conjugatum*	sourgrass	Y			1/1
plants	monocots	Poaceae	*Urochloa decumbens*		Y			1/1
plants	mosses	Aulacomniaceae	*Mesochaete undulata*			C		1/1
plants	mosses	Bryaceae	*Rosulabryum subfasciculatum*			C		2/2
plants	mosses	Bryaceae	*Rosulabryum billardierei*			C		1/1
plants	mosses	Bryaceae	*Rosulabryum*			C		1/1
plants	mosses	Bryophyte	*Bryophyte*			C		2/2
plants	mosses	Dicranaceae	*Dicranella dietrichiae*			C		1/1
plants	mosses	Ditrichaceae	*Ditrichum difficile*			C		1/1
plants	mosses	Fissidentaceae	*Fissidens megalotis*			C		1/1
plants	mosses	Fissidentaceae	*Fissidens*			C		6/6
plants	mosses	Funariaceae	*Funaria hygrometrica*			C		1/1
plants	mosses	Hypnaceae	*Hypnum*			C		1/1
plants	mosses	Meesiaceae	*Leptobryum pyriforme*			C		1/1
plants	mosses	Polytrichaceae	*Dawsonia polytrichoides*			C		1/1
plants	mosses	Polytrichaceae	*Dawsonia longiseta*			C		3/3
plants	mosses	Pottiaceae	*Trichostomum brachydontium*			C		1/1
plants	mosses	Ptychomitriaceae	*Ptychomitrium australe*			C		1/1
plants	mosses	Racopilaceae	*Racopilum cuspidigerum*			C		1/1

CODES

I - Y indicates that the taxon is introduced to Queensland and has naturalised.

Q - Indicates the Queensland conservation status of each taxon under the *Nature Conservation Act 1992.* The codes are Extinct in the Wild (PE), Endangered (E), Vulnerable (V), Near Threatened (NT), Least Concern (C) or Not Protected ( ).

A - Indicates the Australian conservation status of each taxon under the *Environment Protection and Biodiversity Conservation Act 1999.* The values of EPBC are Conservation Dependent (CD), Critically Endangered (CE), Endangered (E), Extinct (EX), Extinct in the Wild (XW) and Vulnerable (V).

Records – The first number indicates the total number of records of the taxon for the record option selected (i.e. All, Confirmed or Specimens).
This number is output as 99999 if it equals or exceeds this value. The second number located after the / indicates the number of specimen records for the taxon.
This number is output as 999 if it equals or exceeds this value.

Map requested: (01/03/2018 15:32:07)
Lot: 285 Plan: SP104042

Koala Habitat in South East Queensland

Lot and Plan

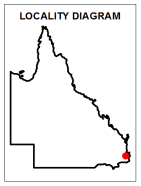
Koala SPP - Habitat Values

Bushland Habitat
- High Value Bushland
- Medium Value Bushland
- Low Value Bushland

Suitable for Rehabilitation
- High Value Rehabilitation
- Medium Value Rehabilitation
- Low Value Rehabilitation

Other Areas of Value
- High Value Other
- Medium Value Other
- Low Value Other
- Generally not suitable
- Water

South East Queensland Koala Habitat Values western SEQ
- Bushland Habitat
- Suitable for rehabilitation
- Other areas of value
- Generally not suitable
- Water
- Cadastral Boundaries
- Local Government Boundaries



N

0 130 260 390 520 650 m

This product is projected into GDA 1994 MGA Zone 56

While every care is taken to ensure the accuracy of this data, the State of Queensland makes no representations or warranties about its accuracy, reliability, completeness or suitability for any particular purpose and disclaims all responsibility and all liability (including without limitation, liability in negligence) for all expenses, losses, damages (including indirect or consequential damage) and costs which you might incur as a result of the data being inaccurate or incomplete in any way and for any reason. Due to varying sources of data, spatial locations may not coincide when overlaid.

In consideration of the State permitting use of this data you acknowledge and agree that the State gives no warranty in relation to the data (including accuracy, reliability, completeness, currency or suitability) and accepts no liability (including without limitation, liability in negligence) for any loss, damage or costs (including consequential damage) relating to any use of the data. Data must not be used for direct marketing or be used in breach of the privacy laws.

Based on or contains data provided by the State of Queensland 2010.

Note - These maps are not regulatory. Regulatory maps and requirements can be downloaded from the DES website. Further information in relation to regulatory requirements for development and planning activities should be sought from the relevant Local Government Authority or the Department of Environment and Science.

© The State of Queensland, 2018

Queensland Government

ATTACHMENT C – Koala Fencing Guidelines

– Koala Sensitive Design Guideline

Koala-sensitive Design Guideline

A guide to koala-sensitive design measures for planning and development activities

November 2012

Great state. Great opportunity.

Queensland Government

Prepared by:

Koala Conservation Unit, Department of Environment and Heritage Protection

© State of Queensland (Department of Environment and Heritage Protection) 2012

This document has been prepared with all due diligence and care, based on the best available information at the time of publication. The department holds no responsibility for any errors or omissions within this document. Any decisions made by other parties based on this document are solely the responsibility of those parties. Information contained in this document is from a number of sources and, as such, does not necessarily represent government or departmental policy.

If you need to access this document in a language other than English, please call the Translating and Interpreting Service (TIS National) on 131 450 and ask them to telephone Library Services on +61 7 3224 8412.

This publication can be made available in alternative formats (including large print and audiotape) on request for people with a vision impairment. Contact (07) 322 48412 or email <library@ehp.qld.gov.au>.

November 2012

Contents

1. Explanatory statement 1

1.1 Purpose of guideline 1

1.2 Koala-sensitive design principles 1

1.3 Use of guideline 1

2. Development planning, design and layout principles 1

2.1 Threats to koalas 1

2.2 Habitat connectivity value for koala movement 2

2.3 Planning, design and layout principles for koala conservation 3

3. Design guide for koala safety and movement 5

3.1 Koala-friendly fencing 5

3.2 Koala-safe road design and placement 6

3.3 Koala-safe pools 6

3.4 Mitigation of threats from domestic dogs 6

3.5 Community awareness 6

3.6 How to implement koala-safe movement solutions 6

4. Definitions 30

1. Explanatory statement

1.1 Purpose of guideline

The Koala-sensitive Design Guideline provides advice and information for managers, land-use planners, infrastructure providers and development proponents to determine appropriate measures to help avoid and minimise the impact of development and land-use planning on koala populations.

The guideline also provides information on what is needed to meet the requirements of the South East Queensland Koala Conservation State Planning Regulatory Provisions (SPRP) in relation to:

- managing risks to koalas on-site during construction phases and ensuring that koala safety and movement are maximised through design and layout of development
- ensuring koala safety and movement are maximised through design and layout of development.

1.2 Koala-sensitive design principles

Measures in this guideline are based on koala sensitive design principles that help development:

- retain and protect koala habitat values in their natural state to allow koalas to feed, rest and move around
- achieve permeability for koalas through the landscape to ensure the safe movement of koalas within and across a site
- reduce threats to resident and transient koalas.

1.3 Use of guideline

This guideline can be used to:

- identify threats that development activities have on safe koala movement
- identify appropriate koala-sensitive design measures to avoid and minimise those threats
- provide principles and techniques to inform the planning, design and layout stages of development for retaining koala populations and providing for koala safety and movement
- apply the SPRP outcomes for assisting the retention of viable koala populations and providing koala safe movement opportunities.

2. Development planning, design and layout principles

2.1 Threats to koalas

The movement of individual koalas to different populations and territories allows important genetic exchange which is essential for koala population viability. High rates of development in South East Queensland (SEQ) are removing and fragmenting koala habitat and increasingly threatening the safe movement of koalas across the landscape. Koala mortality can be a direct result of human-induced threats from urbanisation and development. Specific threats to koalas from urban development activities include:

- loss of habitat
- habitat fragmentation
- vehicle strike (koala injury or death)
- domestic dog attacks (koala injury or death)
- increased prevalence of disease (increased susceptibility to disease due to stress caused by the above mentioned threats).

2.2 Habitat connectivity value for koala movement

Koala habitat connectivity value for koala movement should be determined and used in development planning, design and layout. Schedule 2 of the SPRP outlines the factors to be taken into consideration to determine the habitat connectivity values of a development site to provide for koala movement through the site and wider landscape.

In summary, the site's location and attributes—with regard to the presence of koalas, location and condition of habitat, waterways and ecological corridors and any factors impacting on these values—should be taken into consideration for planning and development.

An assessment for koala habitat connectivity value should include:

- the use or potential use of the site and adjacent to the site by koalas
- a plan of koala habitat (including bushland, groups of trees or individual trees)
- a plan of movement corridors (connectivity) including regional and local-scale movement corridors and existing and potential links between koala habitat within and external to the site.

Figures 1 to 4 below provide examples of considerations for assessing koala habitat and habitat connectivity value for a given parcel of land and of koala habitat features to incorporate into development design.

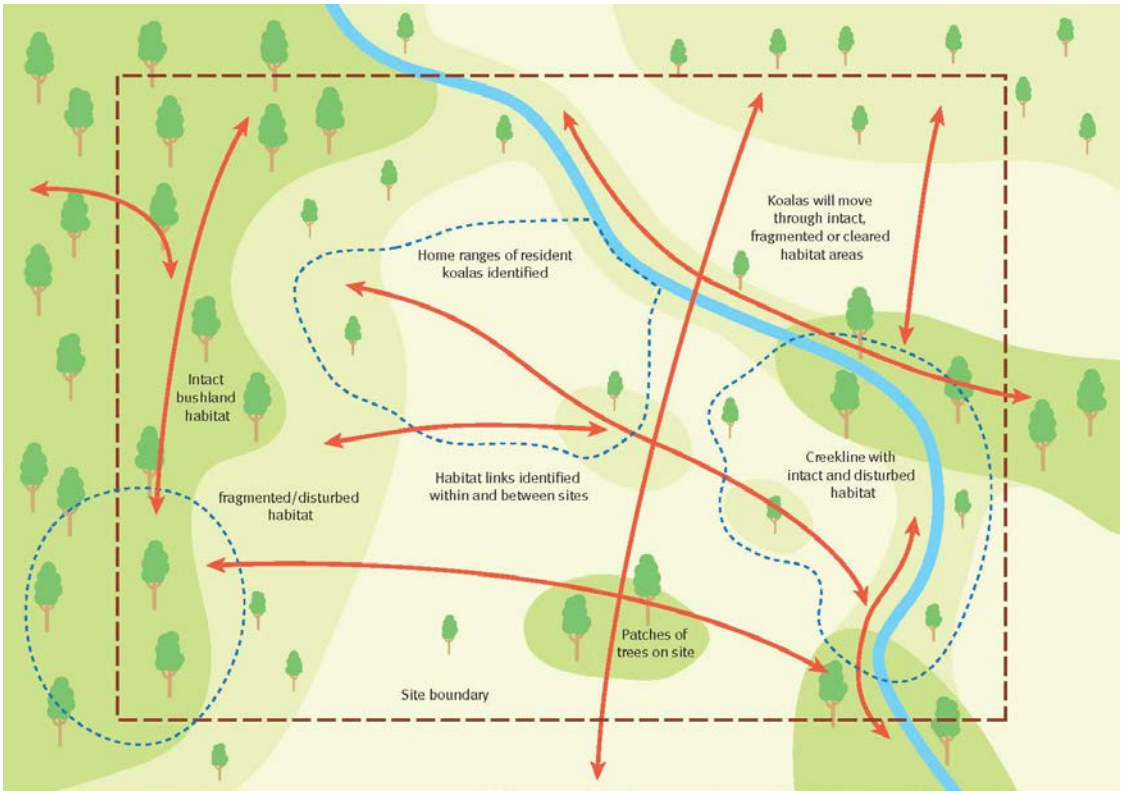


Figure 1. Example of determining koala habitat and connectivity value for koala movement

2.3 Planning, design and layout principles for koala conservation

Following an assessment of koala habitat and habitat connectivity values, the planning, design and layout of the development should incorporate the following principles:

- Ensure areas of koala habitat values and habitat connectivity are protected and enhanced by:
    - retaining, enhancing or creating large contiguous patches of koala habitat
    - avoiding clearing non-juvenile koala habitat trees on the site, including individual, isolated trees
    - linking on-site koala habitat to koala habitat located external to the site
    - identifying rehabilitation areas on site and revegetating consistent with densities, composition and distribution of native vegetation based on the pre-clearing regional ecosystems
    - securing the long-term conservation of koala habitat areas through the use of covenants or other private or public ownership arrangements.
- Locate and design the development to avoid adverse impacts on koalas, koala habitat values and habitat connectivity by:
    - selecting sites that will have least impact on koalas if developed, such as cleared land that has low koala habitat connectivity value
    - minimising the size and scale of the developable area in the development footprint and of individual buildings (e.g. higher densities, multi-storey buildings)
    - using development envelopes that are shaped and located to:
        i. co-locate all associated activities, infrastructure and access strips
        ii. be within the least valued area of koala habitat on the lot
        iii. minimise the footprint of the development envelope area
        iv. minimise edge effects to areas external to the development envelope
    - ensuring sufficient area is maintained between development buildings and koala habitat trees to ensure trees will not be removed for safety (fire and falling).
- Locate and design transport routes (roads and rail lines) to avoid fragmentation and clearing of koala habitat and to retain connectivity, including:
    - ensuring transport routes do not traverse through large contiguous areas of koala habitat or cleared land with potential as koala habitat through rehabilitation
    - using speed reduction devices such as speed bumps and speed warning sign on roads
    - incorporating koala crossings (over and underpasses) and using koala exclusion fencing to ensure koalas are funnelled towards koala crossings and away from busy transport routes.
- Use native vegetation in landscaping activities that provides food, shelter and movement opportunities for koalas.

Figure 2 illustrates how these planning, design and layout principles for koala conservation can be incorporated to enable efficient use of available land and infrastructure that is sensitive to koala habitat and connectivity.

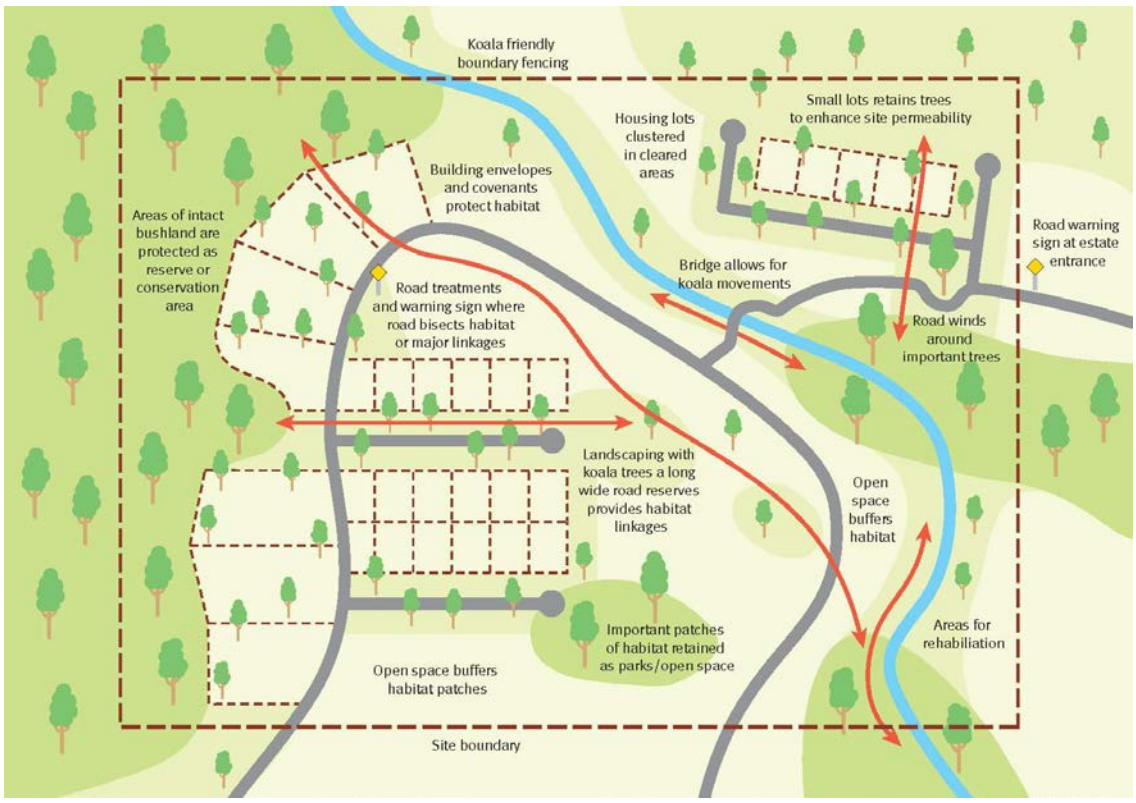


Figure 2. Koala-sensitive urban development

Figures 3 and 4 illustrate two options on how the koala-sensitive planning, design and layout principles above can be used at a lot scale for standard single dwelling housing.

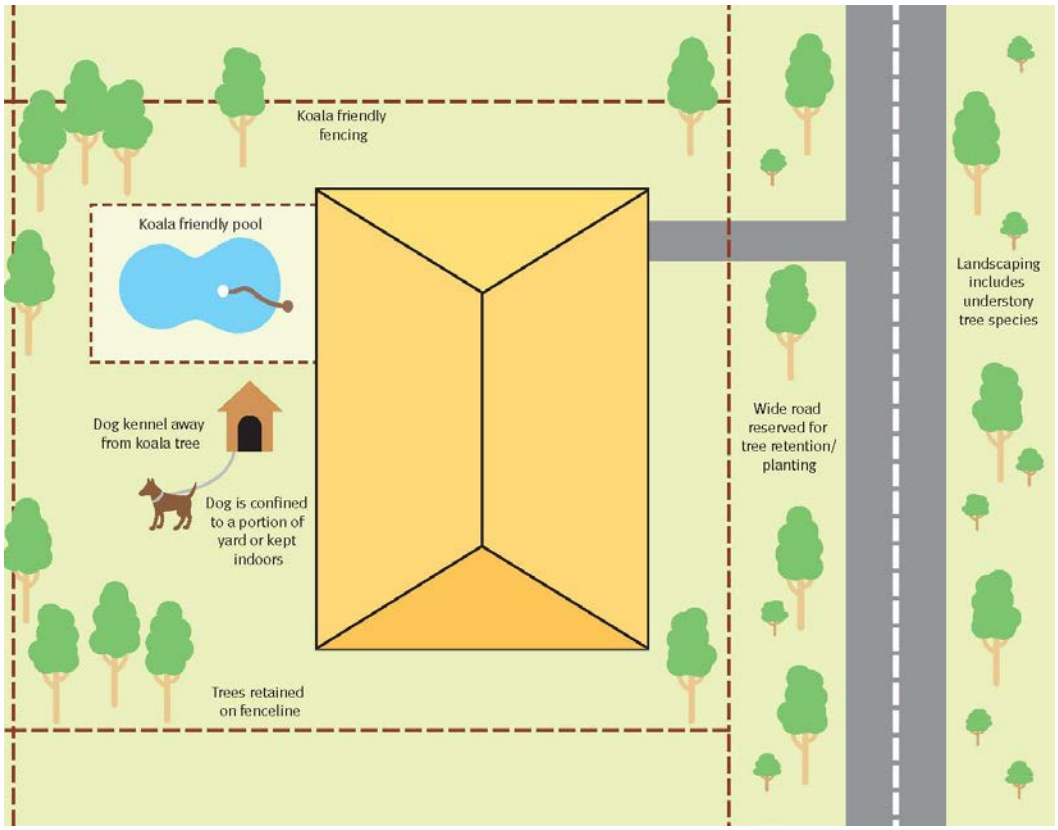


Figure 3. Use of koala-friendly fencing

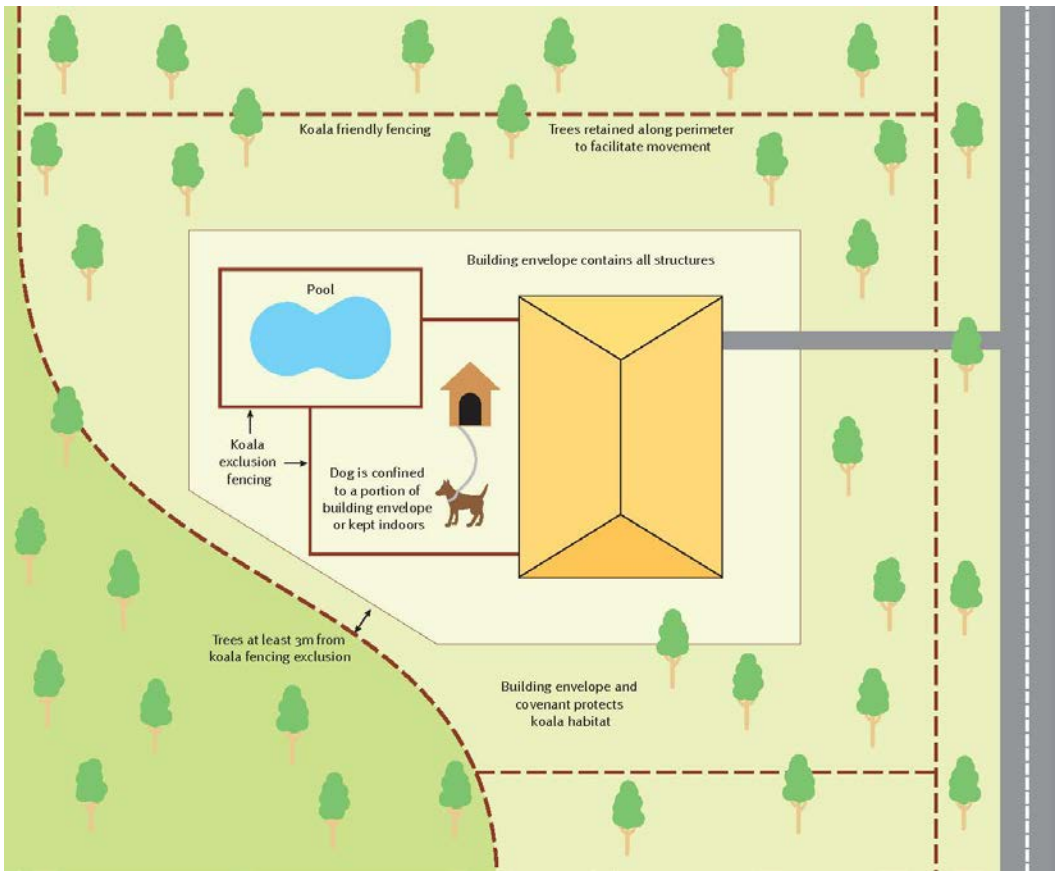


Figure 4. Use of a development envelope and koala exclusion fencing

3. Design guide for koala safety and movement

This guideline describes measures which can be used to avoid, minimise and mitigate the impacts of development on koalas and allow safe koala movement. These are:

1. koala-friendly fencing
2. koala-safe road design and placement
3. koala-safe pools
4. mitigation of threats from dogs
5. community awareness.

Where applicable, combinations of measures should be used to maximise koala safety and movement solutions into the design and layout of development. The five koala safety and movement design and layout measures are outlined in this section.

3.1 Koala-friendly fencing

Development that incorporates koala-friendly fencing helps koala movement and dispersal within and across the development site. Inappropriate fencing reduces koala permeability across the landscape. Koala-friendly fencing can be used to allow koala movement between areas of habitat and can be built within properties or on lot boundaries.

In some cases, the use of koala exclusion fencing may be appropriate to prevent koalas from entering an area that poses a threat, such as across busy roads. Exclusion fencing is often used to guide koalas towards koala-safe crossing points such as fauna movement underpasses or overpasses.

3.2 Koala-safe road design and placement

Correct road design and placement can reduce the threat of vehicle strike and habitat fragmentation to koalas. Traffic flow design (number of vehicles and speed) as well as the location and design of roads are critical to avoid or minimise the fragmentation of habitat and allow koalas to safely move throughout the landscape. In areas of high traffic flow where risks to koalas are high, koala crossing infrastructure provides for safe koala movement.

3.3 Koala-safe pools

Development that incorporates koala-sensitive pool design helps reduce the number of koalas drowning in pools. This includes features that allow koalas to easily exit the pool or prevents koalas accessing the pool.

3.4 Mitigation of threats from domestic dogs

Development that reduces the threat to koalas from domestic dogs requires measures to limit the interaction between dogs and koalas. Threats and risks from dogs include injury and deaths caused by dog attacks and increased stress on koalas.

3.5 Community awareness

Community education and cooperation is required to successfully protect koalas. Community awareness and support can help protect koala habitat and prevent disease caused by stress. Community awareness can also help reduce the number of koalas killed on roads, attacked by dogs and drowned in backyard swimming pools.

3.6 How to implement koala-safe movement solutions

The following section contains guidance on how to implement koala safe movement solutions.

Table 1 is the design guide for koala safety and movement solutions. It provides details on how to apply different options for koala safe movement. These options are relevant to a range of development types and can be implemented at the strategic and/or site level.

Table 1: Guide to Koala Sensitive Design

Koala safety and movement solution	Design specification	Additional supporting information
Koala-friendly fencing	**Koala-friendly fencing material** **Option A** Allow koalas to easily climb through or under a fence: 1. Build using minimal materials such as post and rail with a minimum gap of 300 mm between rails (Figure 1). **Figure 1. Koala-friendly fencing** 2. Other fencing material that has holes or gaps of a minimum of 300 mm in diameter, and the first gap is flush with the ground or no more than 400 mm from the ground. 3. Solid fencing material that cannot be climbed by koalas but with a minimum gap of 300 mm between the ground and the start of the fence.	Koalas try to go through, under and then around a structure before attempting to climb over. Fencing raised off the ground is the best option for koalas. Koalas can become trapped in fencing as they try to squeeze through palings and rails. Fence design needs to ensure that gaps in the fence are: • large enough to allow easy access to pass through • of a size (less than 10 cm) to allow koalas to climb over, but prevent koalas climbing through the fence.

Koala safety and movement solution	Design specification	Additional supporting information
	Option B Allow koalas to easily climb over a fence: 1. Use rails or slats that have spaces of at least 10 mm between vertical slats and 20 mm between horizontal rails that koalas can climb (Figure 2 and Figure 3). **Figure 2. Koala-friendly fencing** **Figure 3. Koala-friendly fencing**	

Koala safety and movement solution	Design specification	Additional supporting information
	2. Choose materials such as timber posts or chain wire that a koala can easily grip and climb (Figure 4). **Figure 4. Koala-friendly fencing**	
	Incorporate koala-friendly additions to fencing **Option C** Build the fence to incorporate existing vegetation or trees (Figure 5). **Figure 5. Koala-friendly fencing**	Incorporate structures or designs in association with fencing material that provide a means for koalas to climb over fences, retaining walls or other structures.

Koala safety and movement solution	Design specification	Additional supporting information
	Option D Leave vegetation on either side of the fence with canopies or trunks extending beyond the height of the fence and where canopies are connected or tree trunks are less than 1 m apart (Figure 6). **Figure 6. Koala-friendly fencing** **Option E** Install a timber post or log (of at least 125 mm in width or diameter) leaning against the top of the fence but positioned at an angle to the fence so that the log is not flush with the fence (i.e. the space between the base of the log and the bottom of the fence is at least 400 mm (Figure7)).	

Koala safety and movement solution	Design specification	Additional supporting information
	 Figure 7. Koala-friendly fencing additions **Option F** Install ladders of the following dimensions and design: 1. Ladder rungs are timber and at least 300 mm in width, 50–100 mm in height and a minimum of 20 mm in depth to provide grip for koalas 2. Rungs are spaced horizontally with a 150–300 mm gap between rungs for ease of climbing. 3. Attachment material is webbed or latticed to provide additional footholds for koalas. **Option G** Install a simple koala bridge (particularly suited to security fences) using timber logs of at least 125 mm in diameter of the following design (Figure 8): 1. Timber logs are positioned adjacent to and within 1 m of each other on either side of the fence and extend for at least 1m above the fence. 2. A cross piece of similar diameter to the logs connects the two vertical timber posts that are within 1–4 m of each other on either side of the fence.	Ladder rungs need to be solid and firmly attached to the structure.

Koala safety and movement solution	Design specification	Additional supporting information
	 Figure 8. Koala-friendly fencing additions **Additional requirements for options C to G** If installing koala-friendly fencing additions as described under options (c) to (g) they should be used at the following frequencies: 1. At least once within a backyard to allow animals to exit a property. 2. At least once every 50 m where the length of the impassable barrier or fencing is greater than 200 m.	
	Koala exclusion fencing **Option H** Install fencing material that is unclimbable such as brick (Figure 9), metal sheeting (Figure 10), perspex or timber fencing without gaps between palings.	

Koala safety and movement solution	Design specification	Additional supporting information
	 Figure 9. Koala exclusion fencing **Figure 10. Koala exclusion fencing**	Koala exclusion fencing stops the movement of koalas and reduces the permeability of a site or area. It should only be used where koalas face a direct threat to their safety if they enter an area. The following situations are suitable for the use of koala exclusion fencing: 1. Domestic dog enclosures within larger properties greater than or equal to 800 m^2. Smaller properties should adopt other measures to reduce dog and koala interactions. 2. High speed/volume roads or train lines. Koalas can be funnelled to safe crossing structures (fauna underpasses or overpasses). 3. Swimming pools where pool design is unsafe for koalas. 4. Areas where construction activities may cause harm to koalas such as pits or trenches (Figure 13). Temporary fencing that prohibits access to koalas would be appropriate. **Figure 13. Fence post holes can be a trap for koalas**

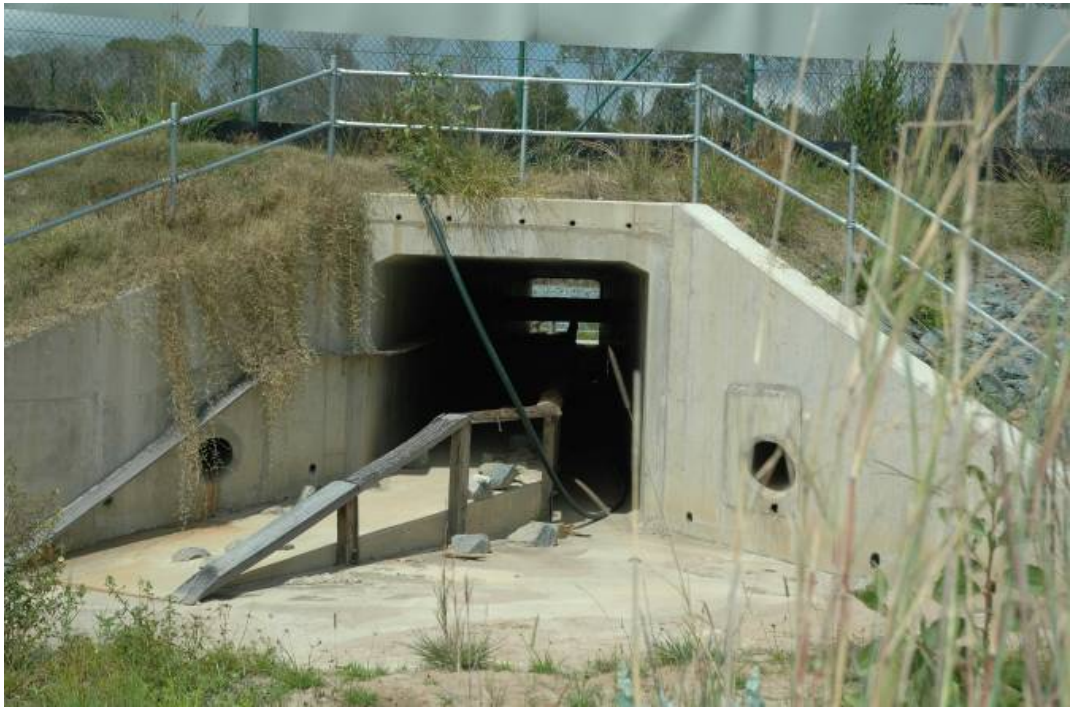
Koala safety and movement solution	Design specification	Additional supporting information
	Option I Install fencing material that is chain wire with a floppy top that falls in the direction that the koala will attempt to climb the fence (Figure 11). **Figure 11. Koala exclusion fencing** **Option J** Install fencing material that is climbable but incorporates a floppy top design, or smooth metal or perspex sheets of at least 600 mm in width on the top of the fence (including posts and supports) (Figure 12).	

Koala safety and movement solution	Design specification	Additional supporting information
	 Figure 12. Koala exclusion fencing **Additional requirements for Options H to J** 1. Fence bracing or supports are on the inside of the fence, away from koala access. 2. The top of the unclimbable section of fencing is at least 1.5 m from the ground to prevent koalas jumping up from the ground and gripping the top of the fencing. 3. Fencing should extend to ground level with regard for uneven or undulating ground. 4. Vegetation adjacent to the fence is regularly maintained to: a. exclude trees and shrubs from within 3 m of the fence b. keep canopies of trees trimmed to remove links to tree canopies on the other side of the fence c. remove fallen branches and vines growing on the fence which koalas may use to climb over the fence.	

Koala safety and movement solution	Design specification	Additional supporting information
Koala-safe road design and placement	**Road siting and design** **Option A** 1. Design roads near identified koala crossing points and limit traffic speeds by incorporating the following 'go slow' features: a. narrowing roads (Figure 14) **Figure 14. Koala-safe road design**	High-visibility along roadsides is key to limiting and preventing vehicle strike causing death or serious injury to koalas. Appropriate road alignment and design mitigates threats to koala movement by considering and planning for the following: 1. The location of koala habitat and habitat linkages to ensure that significant habitat areas are not dissected or further fragmented. 2. Minimising the loss of habitat. 3. Impacts on koala movement considered in relation to: • the number of vehicles likely to use the proposed road • anticipated vehicle speeds • the likely volumes of traffic between 6 pm and 6 am. 4. Locating koala road crossing points in reduced speed zones, ideally 40 km/h. 5. Lighting roads at identified or potential koala crossing points. Koalas are most active between dusk and dawn and can move over 1 km per night. 6. Planning road construction to avoid the koala breeding season (August to December) when koalas are most active.

Koala safety and movement solution	Design specification	Additional supporting information
	b. curving roads (Figure 15) **Figure 15. Koala-safe road design** c. incorporating speed reduction or other traffic calming structures to slow vehicles, such as speed bumps. 2. Allow minor deviations in roads and driveways to retain important koala habitat trees. 3. Avoid road alignment that intersects or fragments significant koala habitat areas. 4. Incorporate lighting in new and existing roads, particularly at identified or potential koala crossing points, to reduce koala and vehicle collisions.	

Koala safety and movement solution	Design specification	Additional supporting information
	5. Increase the visibility of koalas entering the roadway through managing vegetation and landscaping through: a. mowing grassy road edges regularly b. trimming lower branches of vegetation within median strips or within 2 m of the road above 60 cm so that koalas are visible entering the road way c. not planting dense bushes and shrubs to the edge of the roadway that hinder a koala's exit off the road. 6. Incorporate trees within traffic islands (particularly at 'go slow' points) and streetscapes (in association with wide road reserves), such as areas designated for slow points—these trees may or may not be koala food trees. 7. Retain or create interlocking tree canopies over roads. 8. Install koala crossing warning signs (Figure 16). **Figure 16. Koala crossing warning sign**	

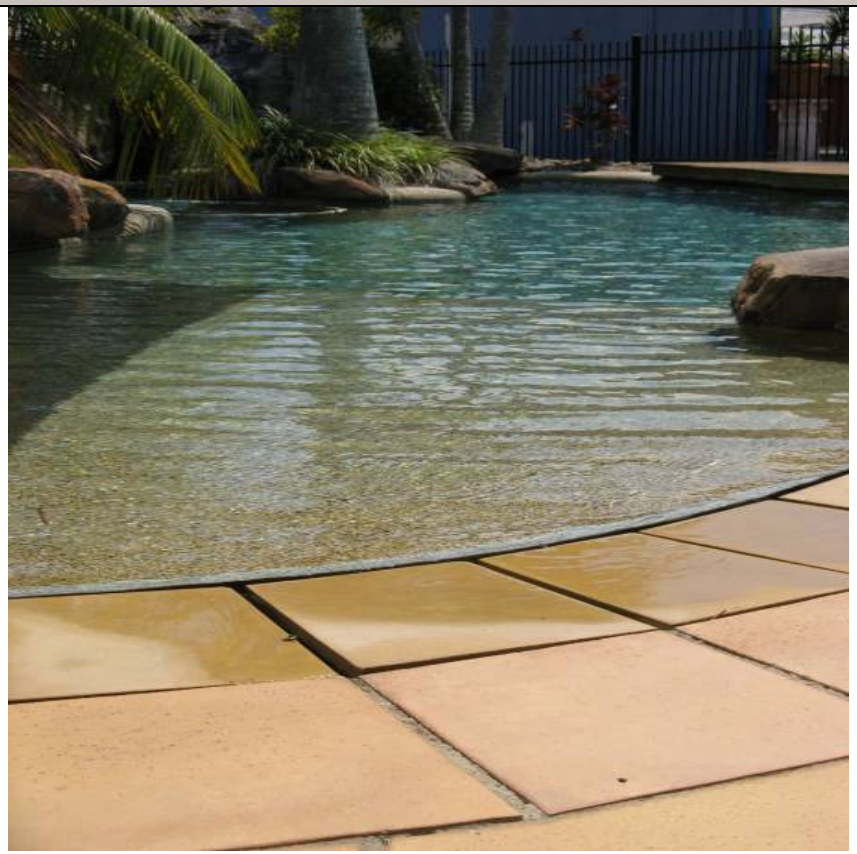
Koala safety and movement solution	Design specification	Additional supporting information
	Option B State-controlled roads minimise the risk to koalas crossing roads and habitat loss by conforming with the State Government Supported Community Infrastructure Koala Conservation Policy or Memorandum of Understanding.	
	Crossing structure—underpass **Option C** Install one or multiple underpasses to facilitate the safe crossing of koalas between habitat on either side of a road (Figure 17).  **Figure 17. Fauna underpass with furniture** **Additional requirements for Option C** 1. Ensure the underpass is of an appropriate dimension for the width of the road to allow natural night time light filtration into the structure.	Underpasses (e.g. culverts, pipes and bridges or raised structures that allow wildlife movement beneath a road) that are greater than 20 m in length have been found to be less effective than those of less than 20 m in length. Longer underpasses deter koalas from using them due to a lack of natural light. New or upgraded roads requiring koala movement underpasses should be designed to avoid lengthy underpasses, for example, by using split carriageways. The dimension of underpasses should be: • box culvert of 3 m (H) x 3 m (W) – especially for four lanes or more • box culvert of 1.5 m (H) x 1.5 m (W) as a minimum for a single or dual carriageway (this size may include koala furniture).

Koala safety and movement solution	Design specification	Additional supporting information
	2. Place ‘koala furniture’ in the crossing structure to facilitate koala movement (Figure 18). **Figure 18. Fauna underpass with furniture** a. horizontal logs are placed as high off the ground as possible for koalas to avoid predators with a minimum space of 600 mm between the top of the horizontal log and the structure’s roof b. horizontal logs are supported by vertical logs at regular intervals (approximately 2–3 m) along the underpass for koalas to ascend or descend the koala furniture as required c. logs are greater or equal to 150 mm in diameter, or horizontal planks are greater or equal to 150 mm in width d. koala furniture extends beyond the underpass into koala habitat. 3. Design underpass floors to remain dry at all times except tin significant rain events where the structure quickly dries out, or incorporate ledges or koala furniture in the underpass to provide a dry path for movement. 4. Retain vegetation up to the entrance and exit of the underpass without obstructing access to, or view of, the structure.	

Koala safety and movement solution	Design specification	Additional supporting information
	5. Install koala exclusion fencing to funnel koalas to the underpass.	
	Crossing structure – overpass **Option D** Install one or multiple overpasses to facilitate the safe crossing of koalas between habitat on either side of a road (Figure 19). **Figure 19. Fauna overpass** **Additional requirements for Option D** 1. Construct the overpass as wide as possible, with a minimum width of 60 cm to comfortably accommodate the crossing of koalas. 2. Build the overpass with stable, rigid or semi rigid materials. 3. Incorporate vegetation or refuge poles if the overpass (particularly if this is a land bridge) is accessible by predators.	Overpasses (e.g. land bridges) provide a more natural avenue for koalas to cross roads and negate the lighting and flooding issues associated with underpasses. The substrate should resemble forest floor; however, koalas will go across unnatural substrates such as cement. Overpass designs should conform to road safety standards and prevent koalas and other animals from falling from the overpass onto the roadway and oncoming traffic. Overpasses should be designed exclusively for wildlife movement and therefore prohibit dual uses such as pedestrian or cyclist crossings.

Koala safety and movement solution	Design specification	Additional supporting information
	4. Incorporate koala exclusion fencing to funnel koalas to the crossing structure.	
	Natural crossing points under bridge **Option E** Design one or multiple under-bridge crossings to facilitate the safe crossing of koalas between habitat on either side of a road. **Additional requirements for Option E** 1. Set back bridge footings from the creek edge to provide koalas with natural movement opportunities across unsubmerged or non-waterlogged land beneath the bridge. 2. Manage vegetation along creek lines to reduce weeds or overgrown areas that will restrict movement between habitat areas. 3. Incorporate koala exclusion fencing to funnel koalas to the natural crossing point.	Natural crossing points are usually associated with pedestrian and vehicle bridges where koalas can move along the ground while traffic is diverted above the habitat.
	Additional requirements for crossing structure – Options C to E 1. Locate crossing structures at regular intervals along sections of road adjacent to koala habitat or habitat linkages, at a maximum distance of one structure every 2 km. 2. Locate crossing structures where koala exclusion fencing of adequate length (a minimum of 150 m) can be incorporated on either side of the crossing structure. 3. Design fencing that has a return at the end of the koala exclusion fencing to encourage koalas to move back into habitat and not directly onto the road. 4. Incorporate additional features, such as escape poles (Figure 20), koala gates or other designs on the road side of the koala exclusion fencing to allow koalas trapped in the road corridor to exit to habitat.	Structures to facilitate safe and unimpeded koala movement across roads should be incorporated into road design and layout where roads intersect or fragment koala habitat and major habitat linkages. Crossing structures should be designed and installed for the specific purpose of facilitating koalas (and other wildlife which have similar requirements) across or under roads and not for dual purposes, such as underpasses used for drainage. The installation of crossing structures more frequently than one every 2 km will reduce the impact on the resident koalas that may have used both sides of a road.

Koala safety and movement solution	Design specification	Additional supporting information
	 Figure 20. Escape pole 5. Vegetated habitat linkages are retained or established by securing habitat on either side of the road.	
	Road construction work Roads can be fitted with a range of measures to reduce koala and vehicle collisions, particularly at identified or potential koala crossing points.	
Koala-safe pools	**Koala-friendly pool design** **Option A** Design pools with a shallow lagoon-style entry where the pool water is level with part of the surrounding pavement (Figure 21).	

Koala safety and movement solution	Design specification	Additional supporting information
	 **Figure 21. Koala-friendly pool design – graduated shallow edge** **Option B** Incorporate a rope with a floatation device on the end in the pool (Figure 22). The rope should be: • a minimum diameter of 10 cm • anchored securely to a point beyond the pool and close to the ground • long enough to float at least 2 m into the pool.	Floatation devices on lengths of rope allow koalas to better find the rope in the pool, while the rope's diameter and its position on the ground allows the koala to easily grip the rope and climb out of the pool.

Koala safety and movement solution	Design specification	Additional supporting information
	 Figure 22. Koala-friendly pool design – escape rope	
	Koala exclusion pool design **Option C** Use koala exclusion fencing around the pool, for example, glass or perspex that has negligible gaps at the bottom and between panels and the gate. **Additional requirement for Option C** Use appropriate landscaping that prohibits koalas entering the pool area on properties where exclusion fencing is used.	Koalas drowning in pools can be avoided by preventing them from accessing the pool area. Pool fencing must also comply with Australian Standards and relevant state and local government requirements. See AS 1926.1 – 1993 Swimming pool safety Part 1: Fencing for swimming pools. If exclusion fencing is used without other koala-friendly design features, landscaping and garden maintenance should ensure that plants and structures do not allow koalas to enter the pool area. (See Koala exclusion fencing – additional requirements for Option H – J, (4)).
Mitigate threats from dogs	**Dog free development** **Option A** Designate a development dog-free by using a covenant (as part of a condition of approval) to prohibit dogs being kept on the property in perpetuity.	Dog-free development avoids domestic dog and koala encounters and thereby reduces koala deaths.

Koala safety and movement solution	Design specification	Additional supporting information
	Dog confinement **Option B** Dedicate an area of the yard on lots greater than 2000 m^2 as a dog enclosure/dog run where dogs are confined between 6 pm and 6 am. **Additional requirements for Option B** 1. Use koala exclusion fencing around the dog's enclosure (but not the property boundary) to prohibit koala access to the dog's area. 2. Manage vegetation adjacent to fencing to ensure koala exclusion fencing effectiveness (see Koala exclusion fencing – additional requirements for Option H – J). **Option C** Have dogs tethered or on a run (with access to water and shelter) or confined to the house or veranda/patio between 6 pm and 6 am on lots less than 2000 m^2 (Figure 23). **Figure 23. Dog confinement**	Domestic dog and koala encounters can be minimised though the confinement of dogs to the house or part of the yard during peak koala activity periods, e.g. between 6 pm and 6 am. Koalas are most vulnerable to dog attack at night, however, koalas may travel through backyards during daylight hours at any time of the year.

Koala safety and movement solution	Design specification	Additional supporting information
	Additional requirements for Options B and C 1. Locate the dog enclosure away from koala habitat trees, known koala movement paths or habitat linkages. 2. Use koala-friendly fencing to facilitate koala movement through the rest of the backyard (i.e. the dog free areas).	Domestic dog and koala encounters can be minimised through the use of appropriate fencing. Refer to koala fencing section above.
	Signage **Option D** Use signs in public spaces to inform of koala presence and the need to restrain dogs, particularly between the hours of 6 pm and 6 am (Figure 24). **Figure 24. Koala awareness signage**	
Community awareness	**Education** **Option A** Install signs to inform residents and the community that koalas are present in an area and of actions that can be taken to protect koalas (Figure 25).	Measures should be incorporated to educate residents about what things they can do to support koala populations in their area. This may include establishing local area committees to assist with the implementation and monitoring of koala sensitive design objectives.

Koala safety and movement solution	Design specification	Additional supporting information
	 Figure 25. Koala awareness signage **Option B** Use interpretative signage to identify koala habitat, koala food trees or other koala-friendly features. **Option C** Inform home buyers/builders/site managers/tenants about the koala-friendly features included in the development and make them aware of their obligations to achieve these koala-friendly objectives.	

Table 2 assists in the identification of the most appropriate koala safety and movement solution relative to the development type.

Table 2: Decision support tool for koala safety and movement solution versus the development type

Development type	Koala safety and movement solutions	Design specification - recommended option (refer to Table 1)
Rural residential	Koala-friendly fencing	Any one or more of options A to G for perimeter fencing Any options H to J for exclusion areas within the property (e.g. dog run)
	Koala safe road design and placement	Options A, C, D and E
	Koala safe pools	Any option/s
	Mitigate threats from dogs	Options A, B or C
	Community awareness	Any one or more option/s where practicable
Greenfield commercial/industrial	Koala-friendly fencing	Any one or more of options A to G for perimeter fencing Any options H to J for exclusion areas within the property (e.g. relevant to guard dogs)
	Koala safe road design and placement	Options A, C, D and E
	Koala safe pools	N/A
	Mitigate threats from dogs	Options A, B or C
	Community awareness	Any one or more option/s where practicable
Greenfield residential	Koala-friendly fencing	Any one or more of options A to G for perimeter fencing Any options H to J for exclusion areas within the property
	Koala safe road design and placement	Options A, C, D and E
	Koala safe pools	Any option/s
	Mitigate threats from dogs	Options A, B or C
	Community awareness	Any one or more option/s where practicable
Infill commercial/industrial	Koala-friendly fencing	Any one or more of options A to G for perimeter fencing Any options H to J for exclusion areas within the property (e.g. relevant to guard dogs)
	Koala safe road design and placement	Options A, C, D and E
	Koala safe pools	N/A
	Mitigate threats from dogs	Options A, B or C
	Community awareness	Any one or more option/s where practicable

Infill residential	Koala-friendly fencing	Any one or more of options A to G for perimeter fencing Any options H to J for exclusion areas within the property
	Koala safe road design and placement	Options A, C, D and E
	Koala safe pools	Any option/s
	Mitigate threats from dogs	Options A, B or C
	Community awareness	Any one or more option/s where practicable
Community infrastructure	Koala-friendly fencing	Any one or more of options A to G for perimeter fencing Any options H to J for exclusion areas within the property
	Koala safe road design and placement	Options A, C, D and E
	Koala safe pools	Any option/s where relevant
	Mitigate threats from dogs	N/A
	Community awareness	Any one or more option/s where practicable
Extractive industries	Koala-friendly fencing	Any one or more of options A to G for perimeter fencing Any options H to J for exclusion areas within the property (e.g. relevant to guard dogs)
	Koala safe road design and placement	Options A, C, D and E
	Koala safe pools	N/A
	Mitigate threats from dogs	Options A, B or C
	Community awareness	Any one or more option/s where practicable
Construction	Koala-friendly fencing	Any one or more of options A to G for perimeter fencing Any options H to J for exclusion areas within the property
	Koala safe road design and placement	All options
	Koala safe pools	N/A
	Mitigate threats from dogs	N/A
	Community awareness	Any one or more option/s where practicable

4. Definitions

Safe koala movement opportunity is a measure that is intended to:

b. minimise threats to resident and transient koalas; or

c. achieve permeability to provide for the safe movement of koalas within and across a site; or

d. provide food or refuge sources for koalas.

Koala safe infrastructure means infrastructure that provides for safe movement either above or below an area that poses a risk to safe koala movement, such as a fauna overpass or underpass with koala safety fencing associated with a road.

'Go slow' point is an area where koalas are expected to cross a road and features have been incorporated to reduce vehicle speed.

Koala furniture are structures that are placed within, or used in association with, road crossing structures that increase the ability of koalas to move through an area. For example, for example, a log may be placed horizontally within a culvert to encourage koalas to pass under a road rather than across it where they may be hit by a car.

Urban purpose means urban purpose as defined in the Sustainable Planning Regulation 2009.

Appendix 17

Acoustic Assessment

Department of Housing and Public Works

Queensland Government

palmer acoustics
Australia Pty Ltd

INDOOROOPILLY STATE SCHOOL - MASTERPLAN

426 MOGGILL ROAD, INDOOROOPILLY

MASTERPLAN - ACOUSTICS

Commissioned by:	Ko&Co Architecture
Date:	22 May 2018
Project number:	4400
Version:	V.0
Author:	Roger Hawkins

24 Mexicanus Drive *PO Box 790* Park Ridge Queensland 4125 Australia p. +61 7 3802 2155 roger@palmeracoustics.com www.palmeracoustics.com

DOCUMENT INFORMATION			
Author:	Roger Hawkins	**Reviewed by**:	Eric Huang
Date:	22 May 2018	**Date**:	22 May 2018

VERSION HISTORY				
Version	**Description**	**Date**	**Author**	**Reviewed by**
V.0	Draft	22/05/18	Roger Hawkins	EH

DOCUMENT DISTRIBUTION			
Copy	**Name/Company**	**Hard Copy**	**Electronic Copy**
01	Ko&Co Architecture	☐	☑
02		☐	☐
03		☐	☐
04		☐	☐
05		☐	☐

CONTENTS

1.0 INTRODUCTION 1

2.0 ACOUSTIC ENVIRONMENT 1

2.1 Locality 1

3.0 DEVELOPMENT CONSTRAINTS - ACOUSTIC 5

3.1 Brisbane City Council – Noise Emissions 5
3.2 Environmental Protection Act 5
3.3 State Development Assessment Provisions - Noise Intrusion 6
3.4 AS2107 – Noise Intrusion 6

4.0 NOISE AMELIORATION 7

4.1 Teaching spaces 7
4.2 Outdoor play areas 7

1.0 INTRODUCTION

The Indooroopilly State School is currently being enhanced by the addition of a teaching block being developed in 2 stages. To ensure integration of the new space and provide an appropriate basis for future development masterplan for the site has been developed concurrently with the design for the new spaces. This report addresses the acoustic issues for the master plan.

The locality is illustrated in Figure 1, below.

Palmer Acoustics (Australia) Pty Ltd has been commissioned by Ko&Co Architecture provide acoustic input to the masterplan that will be submitted for Ministerial Approval.

2.0 ACOUSTIC ENVIRONMENT

2.1 Locality

The overall site is impacted by road traffic noise from Moggill Road and the Centenary Motorway, lying partially under the traffic noise overlays of both traffic corridors. School developments are not subject to the requirements of the Brisbane City Council transport noise overlay. Further, as the school site is outside the 25m referral trigger from the Centenary Highway the State Development Assessment Provisions for educational; establishments are not applicable. However, the overlays serve to illustrate the instruction of road traffic noise onto the site. The overlays are presented in Figures 2 & 3, below. The overlays are limited to the formal definition of a transport noise corridor as being either 100 or 250m in extent from the roadway centre line.

The northern and western site boundaries adjoin Moore Park, a large recreational area. The park is not considered sensitive to normal noise emissions from the school. Taringa Parade and Moggill Road form the eastern boundary with Russell Terrace forming the southern boundary. To the east of Moggill Road there is a shopping centre, zoned Mixed MU3, which is not considered sensitive to normal noise emissions from the school. The residential locations to the south of Russell avenue are zoned LDR, Low Density Residential have the potential to be

sensitive to noise emissions from the school but typical emissions will be ameliorated by the separation distance and the high road traffic noise levels in the area.

Figure 2: State Government Transport noise overlay

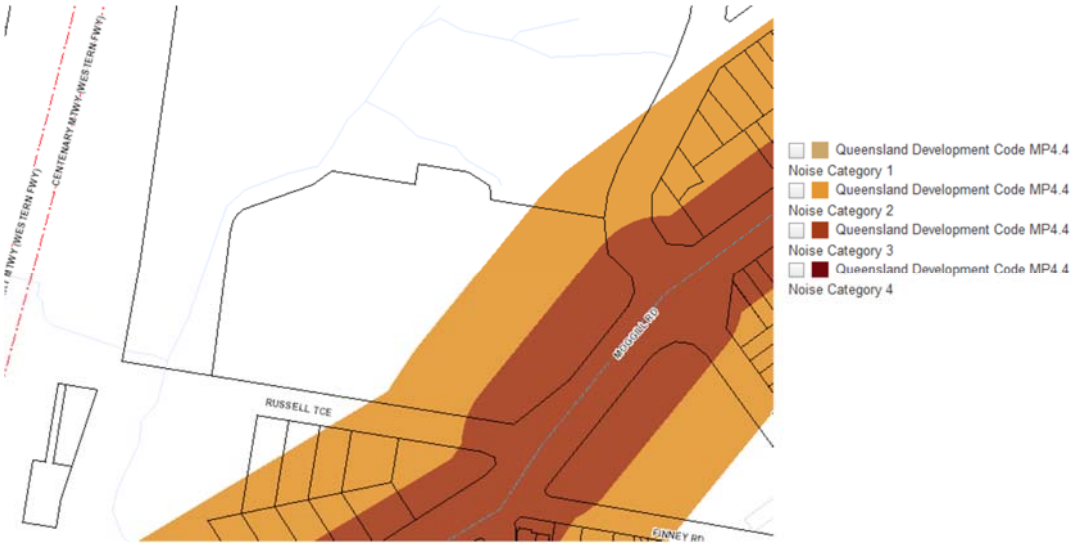


Figure 3: Brisbane City Council Transport noise overlay

Palmer Acoustic performed ambient noise measurements over a 6-day period commencing on the 1st May 2018 to determine the levels of road traffic and ambient noise in the area. The location of the monitoring points is presented in Figure 4. Graphical presentations of the results are presented in Figures 5 & 6, below.

Figure 4 Monitoring locations

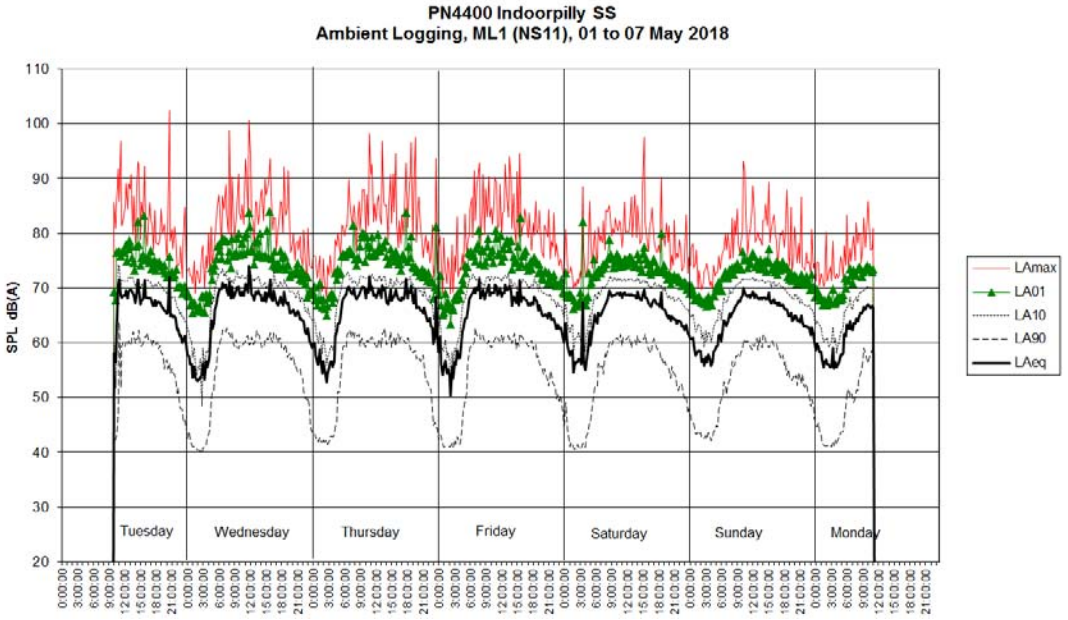


Figure 5: Ambient noise logging record – ML1 (Near Moggill Road)

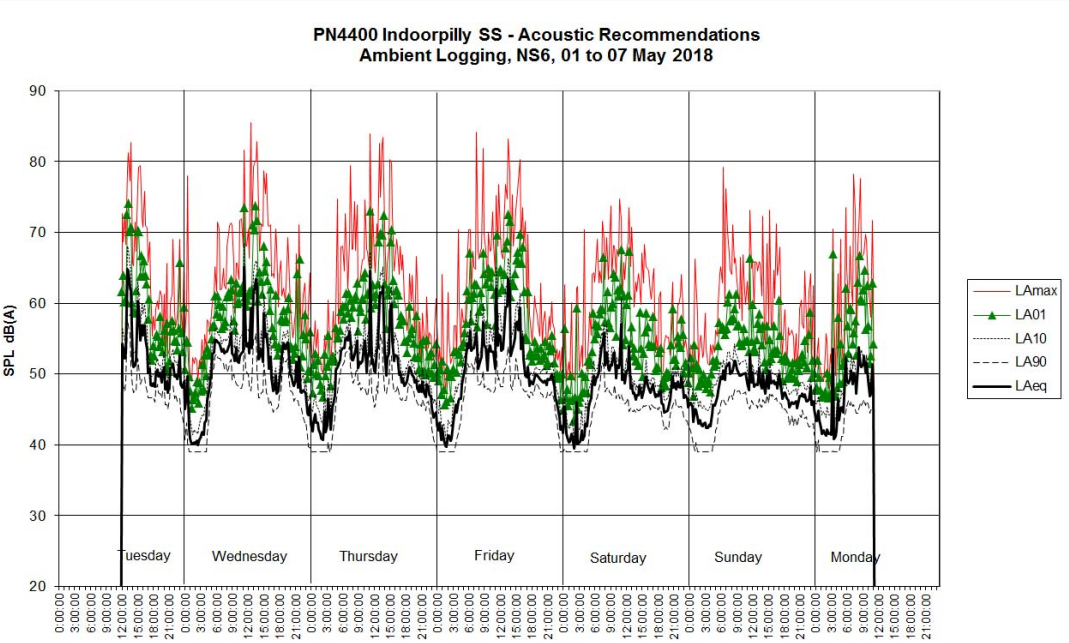


Figure 6: Ambient noise logging record – ML2

Table 1: Measured Ambient Noise Levels ML1 (near Moggill Road)

Time	Measured Noise Levels[1] dB(A)[2]				
	L_{Amax}[3]	L_{A01}[4]	L_{A10}[5]	L_{Aeq}[6]	L_{A90}[7]
Day: 7 am to 6 pm	83.4	75.7	70.9	68.2	57.9
Evening: 6 pm to 10 pm	80.3	73.1	69.2	65.9	54.1
Night: 10 pm to 7 am	75.5	70.0	63.8	60.0	42.1

Table 2: Measured Ambient Noise Levels ML2

Time	Measured Noise Levels dB(A)				
	L_{Amax}	L_{A01}	L_{A10}	L_{Aeq}	L_{A90}
Day: 7 am to 6 pm	71.7	63.5	57.5	55.1	47.4
Evening: 6 pm to 10 pm	59.1	54.6	51.2	49.6	46.2
Night: 10 pm to 7 am	62.0	55.7	50.7	48.9	42.1

The noise levels are indicative a city location near busy roads. The values measured at ML1 are heavily influenced by the proximity of Moggill road and are not indicative of the traffic noise levels across the site. The levels at ML2 are from deeper within the site and are indicative of the minimum levels for the site and the residential locations on Russell Terrace.

[1] *Average noise levels throughout the period, with the exception of L_{A90} which is the average below the median noise levels for the period.*
[2] *dB(A) decibels, A-weighted*
[3] *L_{Amax} refers to the maximum a-weighted sound pressure level occurring during the sampling period*
[4] L_{A01} *for a specified time interval, means the A-weighted sound pressure level that is equalled or exceeded for 1% of the interval*
[5] L_{A10} *for a specified time interval, means the A-weighted sound pressure level that is equalled or exceeded for 10% of the interval*
[6] L_{Aeq} *for a specified time interval, means the time average A-weighted sound pressure level, within the meaning given by AS1055.1 for the interval*
[7] L_{A90} *refers to the noise level exceeded 90% of the time period, commonly referred to as the background noise level*

3.0 DEVELOPMENT CONSTRAINTS - ACOUSTIC

3.1 Brisbane City Council – Noise Emissions

The site is within Brisbane City and is zoned CF5 Community Facilities under the Brisbane City Plan 2014. As discussed above the zoning does not apply to the site, however the noise emission Acceptable Outcomes, AO21, can be used to inform design decisions.

Development:

(a) does not involve amplified music entertainment;
(b) is conducted wholly within an enclosed building and does not involve external activity, dining or entertainment areas;
(c) provides a 2m high acoustic fence along any boundary with land in a residential zone;
(d) ensures mechanical plant or equipment is acoustically screened from adjoining sensitive uses.

Of the above only item (d) is directly relevant to the proposed Indooroopilly schools uses.

3.2 Environmental Protection Act

The noise emission limits of the environmental protection act are applicable to the following potential noise emission sources:

- air compressors;
- ventilation and extract equipment;
- air-conditioning equipment;
- pumps, et cetera.

The Environmental Protection Act 1994 (EPA) sections 440T - 440U (see below) for pumps, air-conditioning and refrigeration equipment respectively establishes offence limits of a maximum limit of 5 dB(A) above background noise levels for daytime (7am to 10pm) and 3 dB above background for night time (10pm to 7am).

440U Air-conditioning equipment

(1) This section applies to premises at or for which there is air-conditioning equipment.
(2) An occupier of the premises must not use, or permit the use of, the equipment on any day—
(a) before 7a.m, if it makes a noise of more than 3dB(A) above the background level; or
(b) from 7a.m. to 10p.m, if it makes a noise of more than 5dB(A) above the background level; or
(c) after 10p.m, if it makes a noise of more than 3dB(A) above the background level.

440V Refrigeration equipment

(1) This section applies to a person who is –
(a) *an occupier of premises at or for which there is plant or equipment for refrigeration (refrigeration equipment);* or
(b) an owner of refrigeration equipment that is on or in a vehicle, other than a vehicle used or to be used on a railway.
(2) The person must not use, or permit the use of, the refrigeration equipment on any day—
(a) before 7a.m, if it makes a noise of more than 3dB(A) above the background level; or
(b) from 7a.m. to 10p.m, if it makes a noise of more than 5dB(A) above the background level; or
(c) after 10p.m, if it makes a noise of more than 3dB(A) above the background level.

From the environmental data presented in Table 2 applicable limits can be derived and are presented in Table 3, below.

Table 3: Derived Noise Emission Limits

Period	Background Level L_{A90}	Emission limit
Day 7am to 6pm	47 dB(A)	52 dB(A)
Evening 6pm – 10pm	46 dB(A)	51 dB(A)
Night 10pm – 7am	42 dB(A)	45 dB(A)

To comply with these limits, there are a number of engineering solutions available. Low noise levels are achieved by the engineered selection and application of:

- Low sound power level equipment
- Silencers
- Acoustic enclosures
- Noise barriers
- Vibration isolation systems

The application of such principles and treatments, along with providing maximum separation distances between noise sources and sensitive areas will ensure that noise from plant and equipment complies with the above limits.

3.3 State Development Assessment Provisions - Noise Intrusion

Owing to the separation distance from the adjacent State controlled, designated road transport corridor the SDAP, i.e. V2.2 State code 1 *Development in a state-controlled road* environment, are not enforceable on the site. However, as for the Brisbane City Council zonings, the acceptable outcomes can be used to inform design decisions.

Performance outcome 25 (PO25) seeks to *minimise noise intrusion from a state-controlled road in indoor education areas.* An acceptable outcome to meet this condition is that all development is to be designed, sited and constructed; to meet the following external noise criteria at all facades of the building envelope:

≤58 dB(A) L10, 1-hour facade corrected (maximum hour during normal opening hours)

PO26 seeks to *minimise noise intrusion from a state-controlled road in outdoor education areas and outdoor play areas*. The relevant acceptable outcome, (AO 26.1) calls for maximum noise levels in outdoor education or outdoor play areas of 63 dB(A) L_{A10} (12-hour free field)

3.4 AS2107 – Noise Intrusion

AS2107:2016 *Recommended design sound levels and reverberation times for building interiors* establishes objective internal noise levels for teaching spaces. Relevant portions of the standard are presented as Table 4, below.

Table 4: AS2107 Internal Noise Levels

Type of occupancy/activity	Design sound level, (LAeq,t) range	Design Reverberation Time (T) range, Sec

1 Educational; Buildings		
Art/craft studios	40 to 45	< 0.8
Assembly halls up to 250 seats	30 to 40	0.6 to 0.8
Assembly halls over 250 seats	30 to 45	Curve 1
Audio-visual areas	35to 45	0.6 to 0.8
Computer room -		
Teaching	40 to 45	0.4 to 0.6
Laboratories	45 to 50	0.4 to 0.6
Corridors and lobbies	<50	<0.8
Libraries -		
General areas	40 to 50	<0.6
Reading areas	40 to 45	<0.6
Teaching spaces/single classrooms-		
Open plan teaching spaces	35 to 45	Curve 3
Primary schools	35 to 45	Curve 3
Staff common rooms	40 to 45	<0.6
Sports hall	<50	-

4.0 NOISE AMELIORATION

4.1 Teaching spaces

As indicated in previous sketches the site is influenced by traffic noise. With respect to the teaching spaces this is principally from Moggill road. Owing to the stepped nature of the school site the upper level is significantly impacted and also serves to shield lower spaces from noise intrusion. The extent of the sensitive area is indicated in Figure 7, below.

If the teaching spaces in the identified area are redeveloped the façade will require acoustic design to achieve appropriate internal noise levels. We expect that, as a minimum, the façade will need to be closed, i.e. exterior windows and doors, and that therefore mechanical ventilation will need to be considered.

4.2 Outdoor play areas

From the measurement results presented in Figure 6 we note that the noise levels in the lower play area comply with the SDAP requirements for play areas. The mid play zone is sheltered by teaching spaces from noise intrusion from the Centenary highway and Moggill Road and is also compliant. The upper area, tennis court and swimming pool are affected by traffic noise. Redevelopment of these areas should incorporate noise amelioration measures.

Figure 7: Traffic Noise sensitive area

Author:

ROGER HAWKINS RPEQ 6022
Senior Engineer

Reviewed by:

ERIC HUANG BEng
Engineer