

NOTE:
CARPARKING LAYOUT SHOWS
LAYOUT FOR STAGE 01 AND
STAGE 02 COMBINED.

SITE PLAN
STAGE 01 & STAGE 02
SCALE: 1 : 200

RPD
LOT2 ON 605103

ROCKHAMPTON REGIONAL COUNCIL

AMENDED PLANS APPROVED

28 April 2021

DATE

These plans are approved subject to the current conditions of approval associated with

Development Permit No.: D/118-2020

Dated: 9 February 2021

DATE	ISSUE	AMMENDMENT
21.09.2020	A	DA ISSUE
12.10.2020	B	CARPARK LAYOUT/FENCES
23.03.2021	C	MINOR CHANGE ISSUE

LEGEND

XX.XX ------ EXISTING CONTOUR LINE & LEVELS

— — — SITE BOUNDARY

LEGEND

A	AISLE	6200 WIDE
D	DRIVEWAY	6200 WIDE
D1	DISABLED BAY	5400 x 2400
DS	DISABLED SHARED BAY	5400 x 2400
S1	STAFF PARKING	5400 x 2400
TA	TURNING AREA	1000 DEEP
TB	TURNING BAY	5400 x 2400
V1	VISITOR PARKING	5400 x 2600

DEVELOPMENT DATA

SITE AREA LOT02 ON RP605103		4342.0 SM
STAGE 01		
SITE COVER		1048.1 SM
IMPERVIOUS AREA		2305.3 SM
GROSS FLOOR AREA		726.5 SM
CHILDREN		108 CH
STAGE 02		
SITE COVER		327.3 SM
IMPERVIOUS AREA		635.5 SM
GROSS FLOOR AREA		208.3 SM
CHILDREN		48 CH
SITE COVER TOTAL		1375.4 SM (31.6%)
IMPERVIOUS AREA TOTAL		2940.8 SM (67.7%)
GROSS FLOOR AREA TOTAL		934.8 SM (21.5%)
CHILDREN TOTAL		156 CH
PARKING BAYS TOTAL	REQUIRED	PROVIDED
@ 1 CAR PER PERMANENT	24 STAFF	22 STAFF
STAFF & 1 VISITOR CAR	26 VISITOR	26 VISITOR
PER 6 CHILDREN	50 TOTAL	48 TOTAL

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SITE PLAN - STAGE 01 & 02
DESIGN DEVELOPMENT

SCALE
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A	AISLE	6200 WIDE
D1	DISABLED BAY	5400 x 2400
DS	SHARED BAY	5400 x 2400
S1	STAFF PARKING	5400 x 2400
TA	TURNING AREA	1000 DEEP
TB	TURNING BAY	5400 x 2400
V1	VISITOR PARKING	5400 x 2600

ECS DATA

TOTAL CHILDREN		108 CH
GROSS FLOOR AREA		718.1 SM
UNENCUMBERED INDOOR SPACE	REQUIRED	PROVIDED
INDOOR SPACE 01 *12 CHILDREN* *00-24 MONTHS*	39.0 SM	42.0 SM
INDOOR SPACE 02 *12 CHILDREN* *00-24 MONTHS*	39.0 SM	41.9 SM
INDOOR SPACE 03 *20 CHILDREN* *24-35 MONTHS*	65.0 SM	68.1 SM
INDOOR SPACE 04 *20 CHILDREN* *24-35 MONTHS*	65.0 SM	69.4 SM
INDOOR SPACE 05 *22 CHILDREN* *26 MONTHS-SCHOOL AGE*	71.5 SM	73.6 SM
INDOOR SPACE 06 *22 CHILDREN* *26 MONTHS-SCHOOL AGE*	71.5 SM	73.7 SM
TOTAL INDOOR SPACE	351.0 SM	368.7 SM
TOTAL CHILDREN *@ 3.25 sm per child*	108 CH	
UNENCUMBERED OUTDOOR SPACE	REQUIRED	PROVIDED
OUTDOOR SPACE 01		1702.5 SM
OUTDOOR SPACE 02		36.4 SM
TOTAL OUTDOOR SPACE		1738.9 SM
TOTAL CHILDREN *@ 7.0 sm per child*	108 CH	

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FLOOR PLAN
STAGE 01
SCALE: 1 : 100

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FLOOR PLAN- STAGE 01

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A	AISLE	6200 WIDE
D1	DISABLED BAY	5400 x 2400
DS	SHARED BAY	5400 x 2400
S1	STAFF PARKING	5400 x 2400
TA	TURNING AREA	1000 DEEP
TB	TURNING BAY	5400 x 2400
V1	VISITOR PARKING	5400 x 2600

ECS DATA

TOTAL CHILDREN		48 CH
GROSS FLOOR AREA		208.3 SM
UNENCUMBERED INDOOR SPACE	REQUIRED	PROVIDED
25 MONTHS-36 MONTHS INDOOR SPACE 07 *15 CHILDREN* *36 MONTHS-SCHOOL AGE* INDOOR SPACE 08 *33 CHILDREN*	48.75 SM 107.25 SM	50.1 SM 110.1 SM
TOTAL INDOOR SPACE TOTAL CHILDREN *@ 3.25 sm per child*	156.0 SM 48 CH	160.2 SM
UNENCUMBERED OUTDOOR SPACE	REQUIRED	PROVIDED
TOTAL OUTDOOR SPACE TOTAL CHILDREN *@ 7.0 sm per child*	1092.0 SM	1572.0 SM 156 CH

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AMENDED PLANS APPROVED
28 April 2021
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FLOOR PLAN
STAGE 02
SCALE: 1 : 100

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PLANT PALETTE

SPECIES

TREES



CUPANIOPSIS ANACARDIOIDES
TUCKEROO

SHRUB



MURRAYA PANICULATA
'MOCK ORANGE'



PITTOSPORUM TOBIRA
'MISS MUFFET'

GROUND COVERS



BAUMEA RUBGINOSA
SOFT TWIG RUSH



DIETES BICOLOR
SPANISH IRIS



DIETES GRANDIFLORA
WILD IRIS



LOMANDRA HYSTRIX
CREEK MAT RUSH



LOMANDRA LONGIFOLIA
MAT RUSH



MYOPORUM ELLIPTICUM
CREEPING BOOBIALLA



OPHIOPOGON INTERMEDIANS VARIGATA
'STRIPEY WHITE'



ZEIPHANYRANTHES CANDIDA
CROSUS - 'RAIN LILY'



' SOFT LEAF' BUFFALO GRASS
SIR WALTER BUFFALO GRASS

NOTE:
PLANT SPECIES PREDOMINANTLY NATIVE TO THE CENTRAL QUEENSLAND REGION, IN ACCORDANCE WITH PERFORMANCE CRITERIA P3 OF CHAPTER 5 LANDSCAPE CODE AND CHAPTER 6 PLANNING POLICY 6 - PLANTING SPECIES



LANDSCAPE INTENT PLAN
STAGE 01
SCALE: 1 : 200

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LANDSCAPE INTENT-STAGE 01 DESIGN DEVELOPMENT

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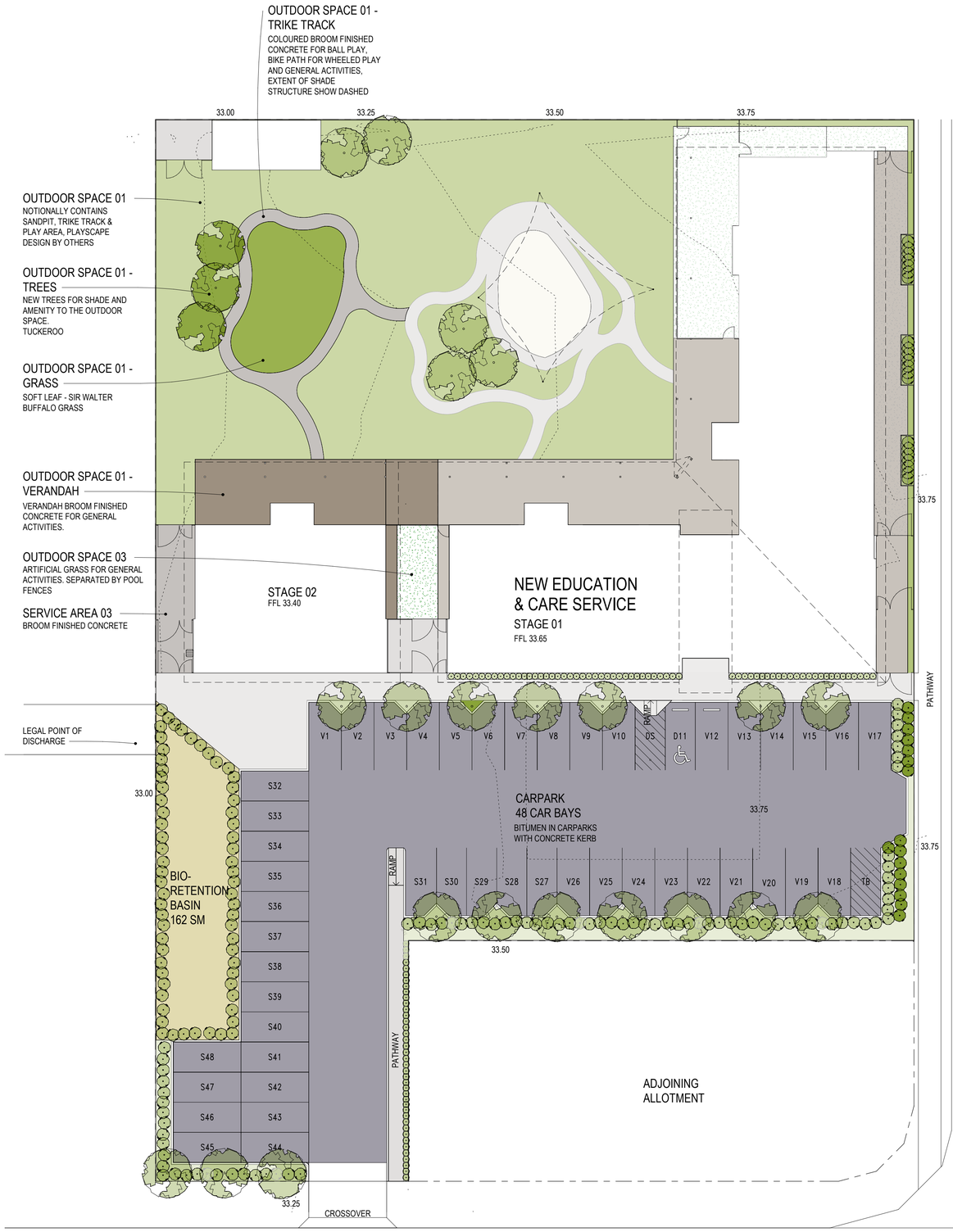
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PLANT PALETTE

SPECIES

TREES



CUPANIOPSIS ANACARDIOIDES
TUCKEROO

GROUND COVERS



'SOFT LEAF' BUFFALO GRASS
SIR WALTER BUFFALO GRASS

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LANDSCAPE INTENT PLAN
STAGE 02
SCALE: 1 : 200

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LANDSCAPE INTENT-STAGE 02
DESIGN DEVELOPMENT

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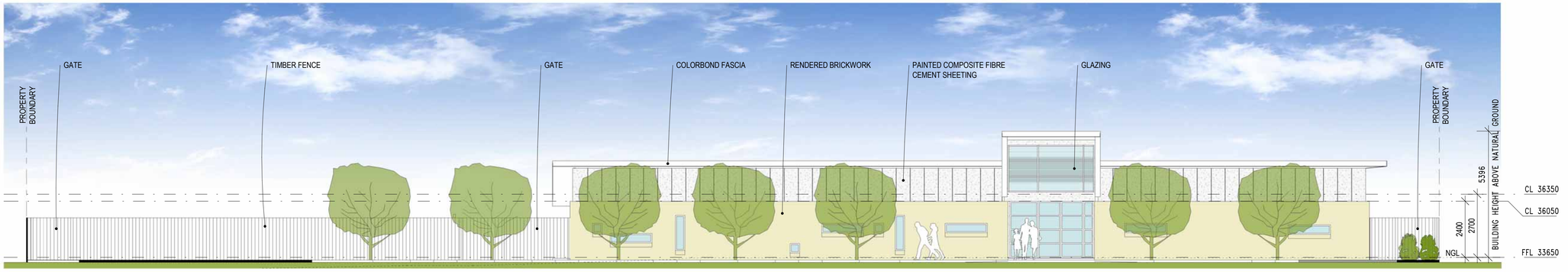
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NORTH ELEVATION
STAGE 01
SCALE: 1 : 100

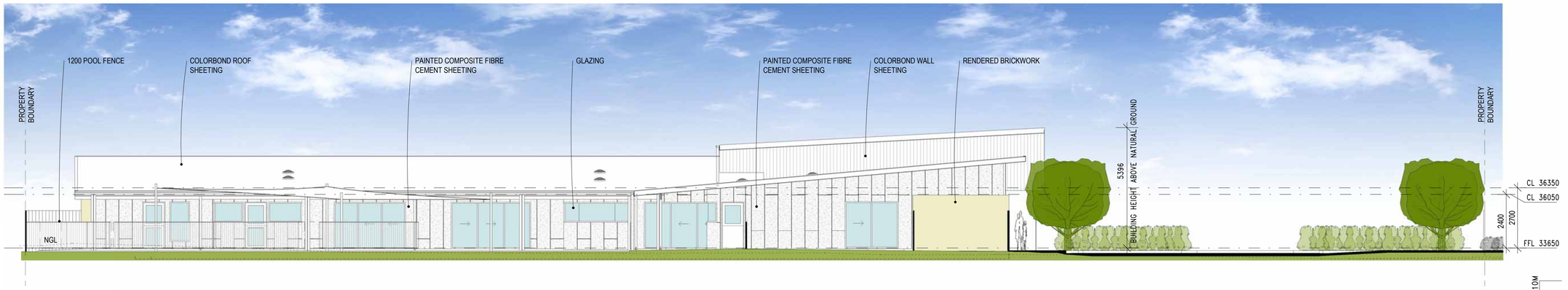
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EAST ELEVATION
STAGE 01
SCALE: 1 : 100

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NORTH & EAST ELEVATIONS
STAGE 01

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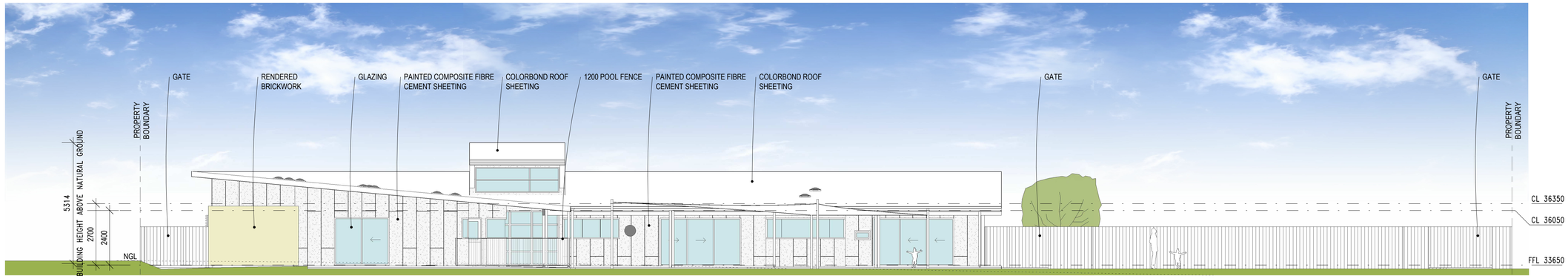
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SOUTH ELEVATION
STAGE 01
SCALE: 1 : 100

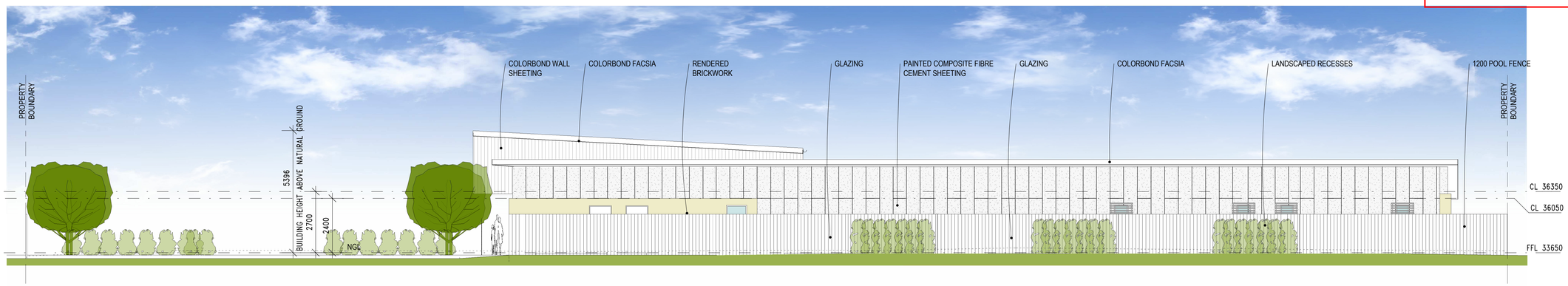
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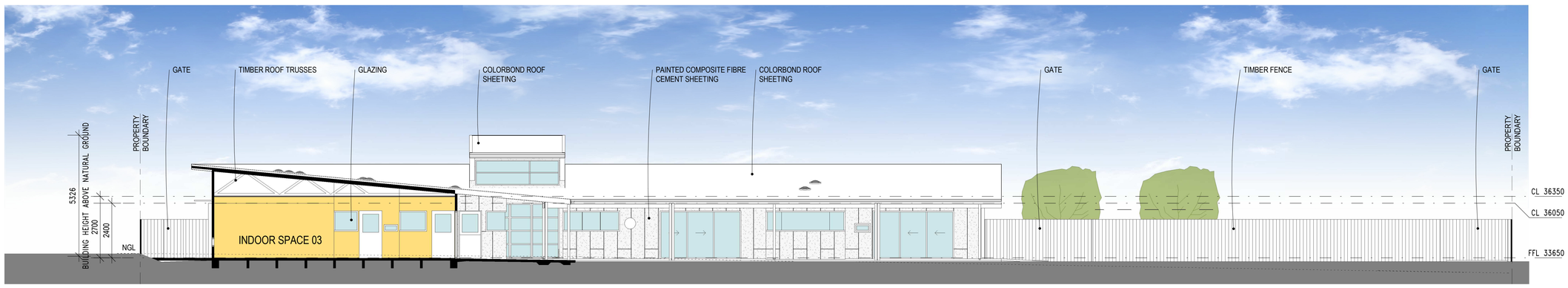
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WEST ELEVATION
STAGE 01
SCALE: 1 : 100



SECTION
STAGE 01
SCALE: 1 : 100

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SOUTH & WEST ELEVATION /
SECTION - STAGE 01

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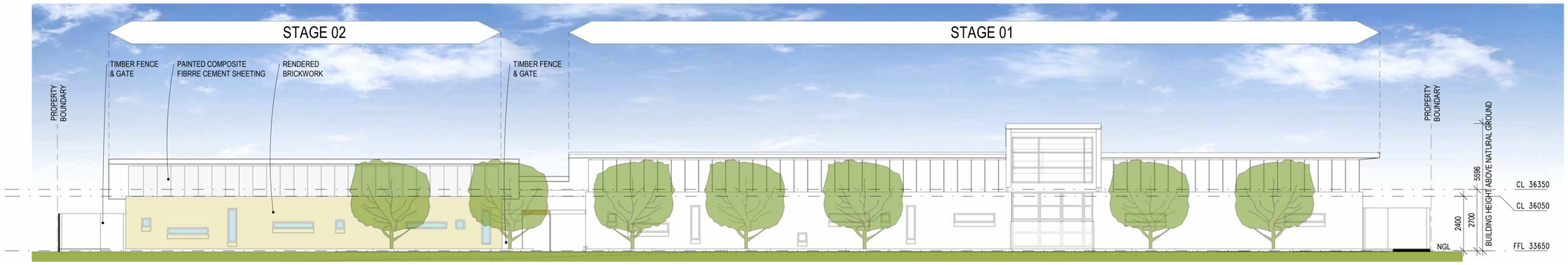
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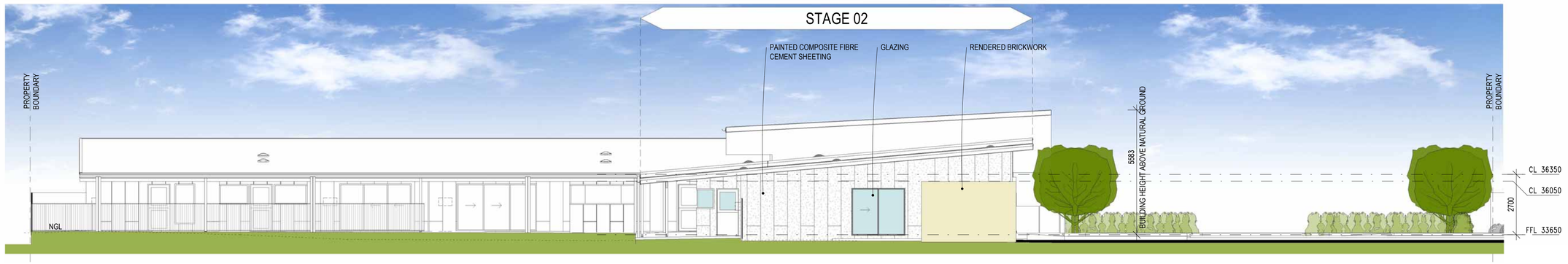
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NORTH ELEVATION
STAGE 02
SCALE: 1 : 100



EAST ELEVATION
STAGE 02
SCALE: 1 : 100

ROCKHAMPTON REGIONAL COUNCIL

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28 April 2021

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NORTH & EAST ELEVATIONS STAGE 02

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SOUTH ELEVATION
STAGE 02
SCALE: 1 : 100



SECTION
STAGE 02
SCALE: 1 : 100

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zone Planning Group

WASTE MANAGEMENT PLAN

DEVELOPMENT PERMIT
Child Care Centre

906-910 Yaamba Road, Parkhurst
Lot 2 RP864537

ROCKHAMPTON REGIONAL COUNCIL
APPROVED PLANS
These plans are approved subject to the current conditions of approval associated with
Development Permit No.: D/118-2020
Dated: 12 January 2021

Prepared for
NATURAL WONDERS BERSERKER PTY LTD
October 2020

This report was prepared by

Zone Planning Group Pty Ltd

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Figures & Tables

Figure 1: Aerial Photograph of Site (Source: QLD Globe)

Table 1: Site & Application Details
Table 2: Site location & characteristics
Table 3: Waste Generation Calculations
Table 4: Refuse Bin Requirements
Table 5: Refuse Bin Collection Frequency
Table 6: Waste Collection Vehicle Dimensions

Appendices

Appendix 1	Waste Management Code
Appendix 2	Plans

Glossary of Terms

Bin carting route – the proposed route to move bins between the storage point and the servicing point.

Bulk bins – bins fitted with lids and side pockets to allow them to be serviced by a front-lift truck.

Clinical or related waste –waste that has the potential to cause disease, including, for example, the following –

- animal waste;
- discarded sharps;
- human tissue waste; or
- laboratory waste.

Commercial accommodation – for the purposes of this policy means commercial development that includes a domestic or residential component, such as Retirement facility, Community care centre, Rooming accommodation, Short term accommodation or Resort complex.

Commercial premises – for the purpose of this policy means any of the following types of premises:

- a Hotel, Short term accommodation, Tourist park, Food and drink outlet;
- an assembly building, institutional building, Child care centre, Educational establishment;
- premises where a sport or game is ordinarily played in public;
- an exhibition ground, show ground or racecourse;
- an Office, Shop or other premises where business or work other than a manufacturing process is carried out.

Commercial waste – means waste, other than green waste, recyclable waste, and interceptor waste or waste discharged to a sewer, produced as a result of the ordinary use or occupation of commercial developments.

Common servicing point – a common area where more than two dwellings/tenancies stand their wheelie bins for servicing.

Common storage point – a common area where more than two dwellings/tenancies store their wheelie bins.

Constructed hardstand area – a hardstand area, for example a concrete pad, which has been constructed for bin storage.

Digesters and dehydrators – machines specifically designed to reduce food waste volumes to allow for efficient disposal. Digesters typically process the material into sludge while dehydrators remove liquid from food waste generating a fertiliser as the end product. Disposal of end product can be used on either internal gardens or on external gardens/farms.

General waste – waste, other than domestic clean-up waste, green waste, recyclable waste, interceptor waste or waste discharged to a sewer, produced as a result of the ordinary use or occupation of domestic or commercial premises.

Glass crushers – machines that can reduce the volume of glass waste by up to 75%, saving valuable space.

Hazardous waste – solid waste that is or contains toxic material, for example light bulbs, fluorescence lights, batteries.

Internal servicing roadway – is a driveway, private roadway or other path intended for use by vehicles, in which the waste collection vehicle is required to use to service a bin.

Mixed-use development – for the purpose of this policy, any building or development complex used, or intended to be used, for residential purposes in combination with other commercial uses (e.g. Offices, Food and drink outlets etc).

Non-serviced area – an area within the boundaries of City of Rockhampton which is not serviced by Council's waste collection contractor.

Organic waste – is waste that comes from plants or animal that is biodegradable for example green waste and food waste.

Recycling chute – a duct in which recycling descends from one point to another.

Recyclable waste – for a local government's area, means clean and inoffensive waste that is declared by the local government to be recyclable waste for the area. In the City of Rockhampton the following wastes are deemed recyclable:

- all household plastics, bottles and containers;
- aluminium and steel cans and aerosols;
- bottles and jars made only of glass;
- clean cardboard, newspaper, loose paper, junk mail, magazines and cartons.

Related waste – means waste that constitutes, or is contaminated with, chemicals, cytotoxic drugs, human body parts, pharmaceutical products or radioactive substances.

Ro-Ro bin – roll-on roll-off bin.

Roll-on roll-off bin – large steel open top skip bins or enclosed bins. Bins are collected by a hook-lift truck.

Solid waste – any general or recyclable waste, be it commercial or domestic. Solid waste does not include waste discharges to sewer/water or the atmosphere.

Servicing point – the designated area allocated to the temporary storage of waste bins for the period of servicing only. The point may be within or external to a development.

Storage point – the area allocated to the permanent storage of waste bins. This is the normal location of the waste bins and excludes the period where the bin is serviced. A storage point may be a common storage point or an individual bin storage point.

Waste – includes anything, other than a resource that is:

- left over, or an unwanted by-product from an industrial, commercial, domestic or other activity; or
- surplus to the industrial, commercial, domestic or other activity generating the waste.

Waste carting distance – the distance required for a person to transport their waste from the nearest point of exit of their dwelling/tenancy to a storage point (or in the case of a multi-level building, to the nearest waste disposal point).

Waste chute – a duct in which waste descends from one point/level to a collection bin.

Waste disposal point – the point where waste is disposed of into the chute, also known as waste hopper. It consists of a fixed frame and hood unit, covered with a hinged or pivoted door.

Waste storage room – the room at the base of the chute used for the storage of waste bins.

Wheelie bin – two wheeled mobile garbage bins, made from high density polyethylene (HDPE). Wheelie bins are collected by a side-lift truck.

1.0 Introduction

1.1 Site & Application Details

Table 1: Site & Application Details

Address	906-910 Yaamba Road, Parkhurst
Real Property Description	Lot 2 RP864537
Site Area (m^2)	4,342m^2
Land Owner	Natural Wonders Berserker Pty Ltd
Applicant	Natural Wonders Berserker Pty Ltd
Applicant Contact Details	Sarah Hunt - Zone Planning Group (07 4972 3831)
Local Government	Rockhampton Regional Council
CQ Regional Plan Designation	Priority Living Area

1.2 Site Location & Characteristics

The following information is provided in response to site investigations including searches performed and a site inspection undertaken.

Table 2: Site location & characteristics

Topography	The subject site is flat.
Vegetation & Waterways	The site is void of any vegetation or waterways.
Availability of Services	The site has access to all reticulated Council services and will be connected to electricity and telecommunications.
Allotment Dimensions	The site measures in at 85m x 60m at its greatest extremities.
Current Use & Improvements	The subject site is vacant with no current improvements.



Figure 1: Aerial Photograph of Site (Source: QLD Globe)

1.3 Proposed Development

The development application proposes to establish a Child Care Centre which will be constructed over two stages. Stage 1 seeks to deliver Child Care Services for 108 children and 12 full time equivalent staff, with Stage 2 providing an additional 44 spaces and 10 staff. The commencement period of Stage 2 will be dependent on the timing and demand for additional services in the area.

1.4 Scope of Report

This report presents a Waste Management Plan for the operation of the Child Care Centre development which includes:

- details of the anticipated type and quantity of waste;
- details of the waste storage room requirements, waste chutes and waste storage bins; and
- details of the proposed waste collection arrangements.

This Report is based on the Plans referenced in **Appendix 1** and presents conceptual information on the abovementioned elements rather than detailed design and calculations and presents the 'end case' scenario once all stages of the proposed development have been constructed and are operational.

2.0 Waste & Recycling Generation

2.1 Type of Waste Streams

The proposed development is anticipated to generate commercial general and recycling waste.

2.2 General & Recycling Waste Quantities

Waste management for the development has been designed to accommodate the projected waste levels associated with a Child Care Centre activity. The Waste Management Planning Scheme Policy does not dictate a specific waste generation rate for a Child Care Centre, with the closest land use activity being a Community Facility which requires the delivery of adequate space for 2 x $3m^3$ commercial type waste and recycling bins. Based on previous experience with Child Care Centre operations, this rate is considered excessive for expected waste generation.

On this basis, waste generation is broken down into two separate categories, being class space and office/administrative areas, with generation rates provided in line with industry practice and waste generation levels experienced across a number of Centre operators.

Table 3: Waste Generation Calculations

LAND USE	YIELD (units/ m^2)	GENERAL WASTE RATE	TOTAL	RECYCLING RATE	TOTAL
Child Care Centre – Stage 1					
Class Space	368.7m^2	80L/100m^2/day	1,440L	60L/100m^2/day	1,080L
Office/ Admin	108.4m^2	20L/100m^2/day	100L	20L/100m^2/day	100L
Child Care Centre – Stage 2					
Class Space	147.3m^2	80L/100m^2/day	560L	60L/100m^2/day	420L

3.0 Waste & Recycling Storage

3.1 Waste & Recycling Bin Requirements

Table 4 provides a breakdown of the general and recycling waste bins required by the development based on the calculations in Section 2.2 of this Report. The screened waste storage point is located at ground level external to the building and has been designed to accommodate these bin sizes.

Table 4: Refuse Bin Requirements

General Waste Storage Requirement	Recycling Waste Storage Requirement	Total Waste Storage Requirement
Educational Establishment (Total)		
2,100L/week 2 x 1,100L bulk bins Dimensions: 1,420 length x 1,100 width x 1,270 height	1,600L/week 2 x 1,100L bulk bins Dimensions: 1,420 length x 1,100 width x 1,270 height	General Waste: 2 x 1,100L bulk bins Recycling: 2 x 1,100L bulk bins

Note, smaller general waste and recycling bins are to be located throughout the Educational Establishment. The contents of these bins will be transferred periodically to the bulk bins by cleaning staff.

3.2 Waste Storage Area

The waste storage area will double as the site's waste collection area. This area will be located external to the building at ground level adjoining the western boundary. This area is to be suitably screened from public view with rubbish to be transferred to this location by cleaning staff.

The waste and recycling bin storage area will be screened by a 1.8m high fence that obstructs the area from view of Yaamba Road and the internal carpark. This area will be kept in a clean odour free and tidy condition.

The waste storage areas have been separately located so as to ensure there is a sufficient distance between the storage location and adjoining properties. Adequate clearance has been provided around the waste and recycling storage bins to allow for manoeuvring and washing of the bins, and the storage area. Any run-off water from the cleaning process will be discharged to the sewer main and managed through a trade waste approval process.

4.0 Collection Details

The following provides an overview of the refuse bin collection and servicing details relevant to this proposal.

Based on the calculations provided in Section 2.2 of this Report, and the bin requirements determined in Section 4.4, both general waste and recycling will require servicing once per week. Once the development is operational, the collection frequency should be reviewed to ensure that efficient practice is in place.

4.1 Temporary Bin Storage Point

A temporary bin storage point is to be located on the footpath adjoining the car park. It is expected that staff members will wheel the bins to this location prior to collection and return to the bin storage area prior to commencement of trading.

4.2 Collection Frequency

Given the nature of the development, refuse bins are required to be serviced several times per week as outlined below (See **Table 5**).

Table 5: Refuse Bin Collection Frequency

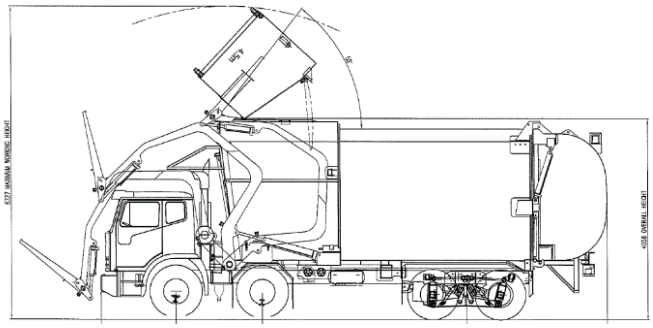
WASTE STREAM	REFUSE BIN REQUIREMENT	COLLECTION FREQUENCY
General Waste	2 x 1,100L bulk bins	Weekly
Recycling	2 x 1,100L bulk bin	Weekly

4.3 Collection Vehicle Access

The development will be required to be serviced by a front-loading refuse collection vehicle (RCV). Servicing is to be undertaken from the internal carpark, with access via Mason Avenue. To ensure the safety of patrons and to avoid user conflicts within the carpark, collection times are to occur outside of Centre operating hours. The appropriateness of this servicing arrangement has been reviewed by the project traffic engineer, Access Traffic Consulting (refer to Traffic Report accompanying the DA submission).

Table 6: Waste Collection Vehicle Dimensions

FRONT LOADING WASTE COLLECTION VEHICLE	
Travelling Height	4.3m
Width	2.5m
Length	10.2m
Servicing Height	6.4m
Total Tonnage	27.5t
Minimum Turning Circle (wall to wall)	13.2m
Minimum Turning Circle (kerb to kerb)	12.3m



5.0 Conclusion

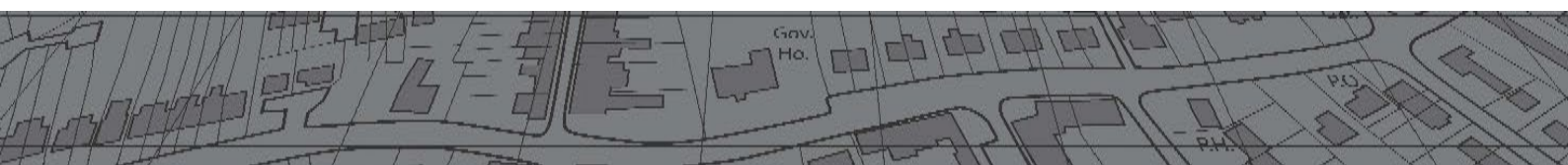
This Report has been prepared to demonstrate the proposed waste management practices to be implemented during the operational phase of the proposed development. Additional detailed engineering designs regarding waste area size, drainage and service vehicle access are to be completed by others during the detailed design stage of the development.

The proposed development consists of a Child Care Centre which will be constructed over two stages. Stage 1 seeks to deliver Child Care Services for 108 children and 12 full time equivalent staff, with Stage 2 providing an additional 44 spaces and 10 staff. The development is anticipated to generate general and recycling waste streams consistent with other existing Child Care Centres.

The proposed waste management arrangements consist of the following:

- Upon completion, the development is anticipated to generate 2,100L of general waste per week and 1,600L of recycling per week;
- The development will require two 1,100L bulk bins for general waste and two 1,100L bulk bins for recycling;
- Bulk bins for general waste and recycling will be provided along the western boundary, screened from view;
- Servicing of the development is to be undertaken once mid week and once towards the end of the week/ the weekend. All collection times are to be outside of Child Care operating hours;
- A temporary bin storage point is to be located adjoining the western boundary of the carpark to accommodate the temporary storage of bins on collection days prior to and immediately after servicing; and
- Onsite management and staff will be responsible for transferring the bulk bins from the storage room to the temporary storage point on collection days.

APPENDIX 1
Waste Management Code



9.3.7 Waste management code

9.3.7.1 Application

This code applies to assessing development where the code is identified as applicable in the tables of assessment.

When using this code, reference should be made to section 5.3.2 and where applicable, section 5.3.3 located in Part 5.

9.3.7.2 Purpose

(1) The purpose of the waste management code is to ensure that development is provided with on-site waste management facilities including waste collection, storage, disposal and cleaning facilities which maintain public health and streetscape amenity.

(1) The purpose of the code will be achieved through the following overall outcomes:
   (a) development provides for adequate on-site waste management to deal with the expected volume and nature of waste generated by the development;
   (b) waste facilities are screened from view from adjoining lots, streets and public spaces;
   (c) waste management is conducted in a safe and ecologically sustainable manner; and
   (d) waste facilities are located on-site in a manner which facilitates waste removal in a safe and efficient way.

9.3.7.3 Specific benchmarks for assessment

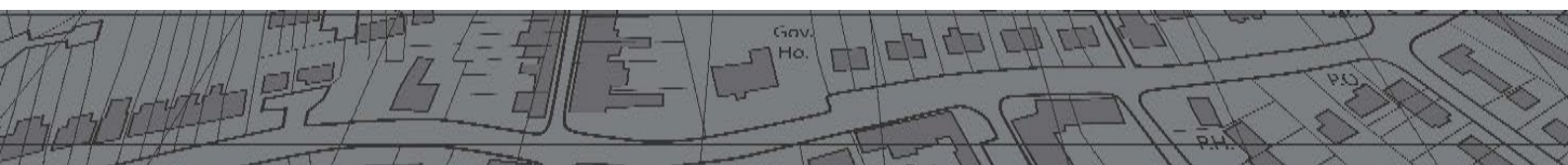
Table 9.3.7.3.1 — Development outcomes for assessable development

Performance outcomes	Acceptable outcomes	Assessment
Design of waste storage areas		
PO1 For on-site waste collection, waste storage areas are located and designed so that: (a) they are easily accessed and convenient to use; (b) sufficient space is provided for safe entry and exit and servicing by service vehicles without the need for manual handling; (c) sufficient height clearance is provided for the safe operation of both front and side bin lifting operations; (d) they are clear of car parking bays, loading bays and similar areas; and (e) they are clear of footpaths and pedestrian access.	**AO1.1** Waste storage areas are designed and maintained in accordance with SC6.20 — Waste management planning scheme policy.	**Complies with PO** The waste storage area is easily accessed for day to day waste storage and also for transfer to the temporary storage location on collection days. Please see the attached Waste Management Plan

Performance outcomes	Acceptable outcomes	Assessment
Kerbside waste servicing		
PO2 Kerbside collection of waste containers ensures the safety and amenity of road and footpath users.	**AO2.1** Waste bins are located on the footpath so that: (a) bins are located one (1) metre apart from other bins and obstructions; (b) all bins are accommodated within the street frontage of the site; (c) a clear pedestrian access way two (2) metres wide is retained; and (d) bins are capable of being serviced by the collection vehicle travelling forward, without having to reverse the vehicle.	**N/A** Servicing will occur onsite
PO3 Waste storage minimises adverse impacts on adjoining properties.	**AO3.1** Waste storage areas are: (a) integrated with the building design; or (b) set back a minimum of two (2) metres from any boundary; and (c) screened from neighbouring properties and the street by a fence of 1.8 metres minimum height; and (d) not located directly adjoining dwelling units on the site and on neighbouring properties. **AND** **AO3.2** Waste bins are fitted with lids.	**Complies with PO** Despite being located on western boundary the waste storage area is well removed from all adjoining properties. The storage area will also be screened from view of Yaamba Road and it is on this basis that the storage remains compliant with PO3. **Complies with AO**
PO4 Waste storage areas: (a) have a level area on impermeable, durable materials so that they are easily cleaned; and	No acceptable outcome is nominated.	**Complies with PO** Full compliance with this PO will be confirmed at detailed design stage.

Performance outcomes	Acceptable outcomes	Assessment
(b) have adequate clearance between and around waste storage bins to allow for manoeuvring and washing of bins.		
Water management		
PO5 Waste storage areas are designed to separate stormwater and wash-down water.	**AO5.1** Wash-down water drains to either the reticulated sewerage system or an on-site sewerage facility if not in a sewer area. **AND** **AO5.2** Wash-down areas are: (a) provided with a tap and water supply; and (b) provided with a stormwater diversion valve and arrestor trap.	**Complies with PO** Full compliance with this PO will be confirmed at detailed design stage.

APPENDIX 2
Plans



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CONTEXT PLAN

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SITE PLAN
STAGE 01 & STAGE 02
SCALE: 1 : 200

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LOT2 ON 605103

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LEGEND

XX.XX ------ EXISTING CONTOUR LINE & LEVELS

— — — SITE BOUNDARY

LEGEND

A	AISLE	6200 WIDE
D	DRIVEWAY	6200 WIDE
D1	DISABLED BAY	5400 x 2400
DS	DISABLED SHARED BAY	5400 x 2400
S1	STAFF PARKING	5400 x 2400
TA	TURNING AREA	1000 DEEP
TB	TURNING BAY	5400 x 2400
V1	VISITOR PARKING	5400 x 2600

DEVELOPMENT DATA

SITE AREA LOT02 ON RP605103	4342.0 SM
STAGE 01	
SITE COVER	1048.1 SM
IMPERVIOUS AREA	2305.3 SM
GROSS FLOOR AREA	726.5 SM
CHILDREN	108 CH
PARKING BAYS	26 VISITOR 12 STAFF
STAGE 02	
SITE COVER	317.3 SM
IMPERVIOUS AREA	635.5 SM
GROSS FLOOR AREA	187 SM
CHILDREN	44 CH
PARKING BAYS	10 STAFF
SITE COVER TOTAL	1365.4 SM (31.4%)
IMPERVIOUS AREA TOTAL	2940.8 SM (67.7%)
GROSS FLOOR AREA TOTAL	905.6 SM (20.9%)
CHILDREN TOTAL	152 CH

PARKING BAYS TOTAL	REQUIRED	PROVIDED
@ 1 CAR PER PERMANENT	26 VISITOR	26 VISITOR
STAFF & 1 CAR PER 6	22 STAFF	22 STAFF
CHILDREN	48 TOTAL	48 TOTAL

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SITE PLAN - STAGE 01 & 02
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LEGEND

XX.XX ------ EXISTING CONTOUR LINE & LEVELS
—— – —— SITE BOUNDARY

A	AISLE	6200 WIDE
D1	DISABLED BAY	5400 x 2400
DS	SHARED BAY	5400 x 2400
S1	STAFF PARKING	5400 x 2400
TA	TURNING AREA	1000 DEEP
TB	TURNING BAY	5400 x 2400
V1	VISITOR PARKING	5400 x 2600

ECS DATA

TOTAL CHILDREN		108 CH
GROSS FLOOR AREA		718.1 SM
UNENCUMBERED INDOOR SPACE	REQUIRED	PROVIDED
INDOOR SPACE 01 *12 CHILDREN* *00-24 MONTHS*	39.0 SM	42.0 SM
INDOOR SPACE 02 *12 CHILDREN* *00-24 MONTHS*	39.0 SM	41.9 SM
INDOOR SPACE 03 *20 CHILDREN* *24-35 MONTHS*	65.0 SM	68.1 SM
INDOOR SPACE 04 *20 CHILDREN* *24-35 MONTHS*	65.0 SM	69.4 SM
INDOOR SPACE 05 *22 CHILDREN* *26 MONTHS-SCHOOL AGE*	71.5 SM	73.6 SM
INDOOR SPACE 06 *22 CHILDREN* *26 MONTHS-SCHOOL AGE*	71.5 SM	73.7 SM
TOTAL INDOOR SPACE TOTAL CHILDREN *@ 3.25 sm per child*	351.0 SM 108 CH	368.7 SM
UNENCUMBERED OUTDOOR SPACE	REQUIRED	PROVIDED
OUTDOOR SPACE 01		1702.5 SM
OUTDOOR SPACE 02		38.4 SM
TOTAL OUTDOOR SPACE TOTAL CHILDREN *@ 7.0 sm per child*	756.0 SM 108 CH	1740.9 SM

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FLOOR PLAN
STAGE 01
SCALE: 1 : 100

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FLOOR PLAN- STAGE 01

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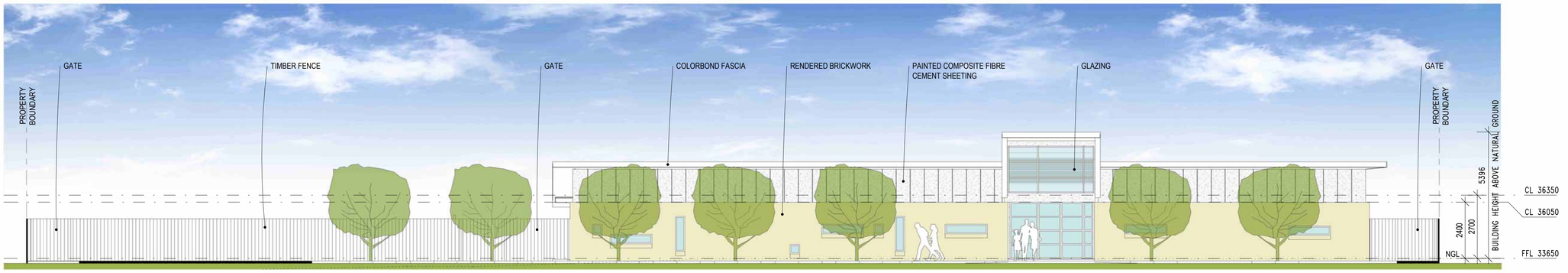
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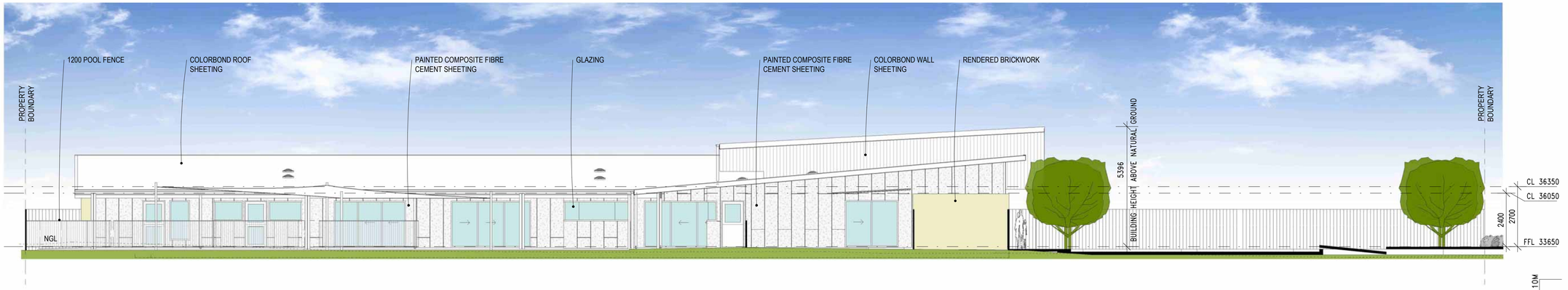
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NORTH ELEVATION
STAGE 01
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EAST ELEVATION
STAGE 01
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NORTH & EAST ELEVATIONS
STAGE 01

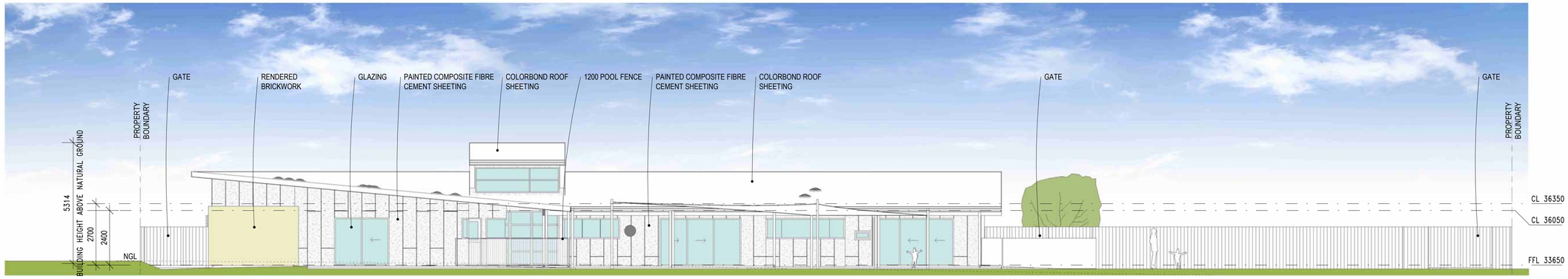
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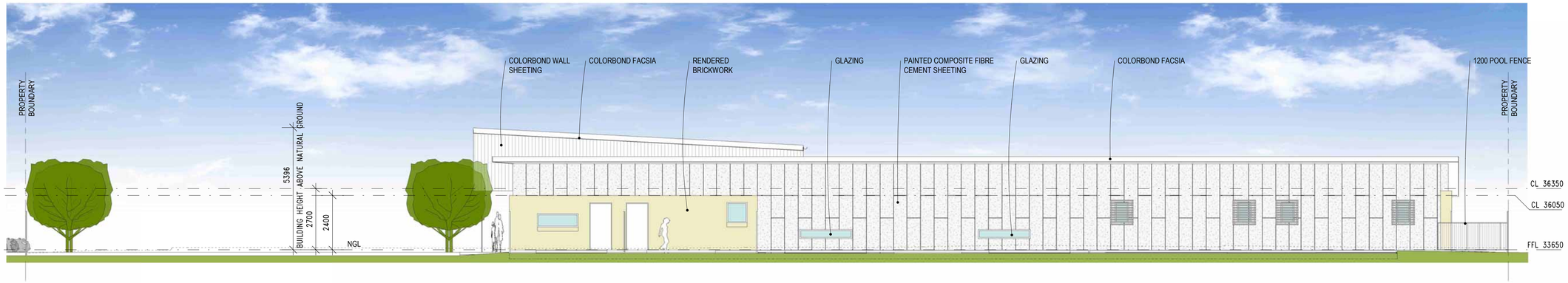
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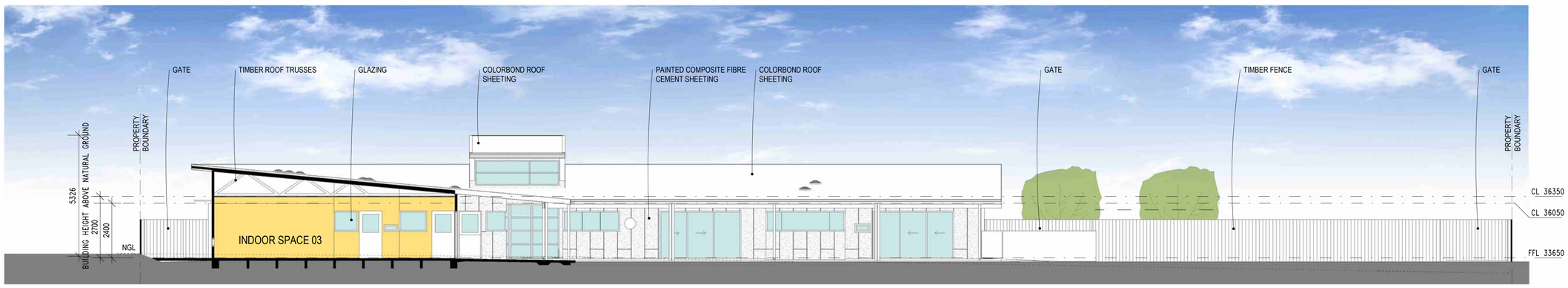
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SOUTH ELEVATION
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WEST ELEVATION
STAGE 01
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SECTION
STAGE 01
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PERSPECTIVE 01
STAGE 01



PERSPECTIVE 02
STAGE 01

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PERSPECTIVE 03
STAGE 01



PERSPECTIVE 04
STAGE 01

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DESIGN DEVELOPMENT

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PLANT PALETTE

SPECIES

TREES



CUPANIOPSIS ANACARDIOIDES
TUCKEROO

SHRUB



PITTOSPORUM TOBIRA
'MISS MUFFET'

GROUND COVERS



BAUMEA RUBGINOSA
SOFT TWIG RUSH



DIETES BICOLOR
SPANISH IRIS



DIETES GRANDIFLORA
WILD IRIS



LOMANDRA HYSTRIX
CREEK MAT RUSH



LOMANDRA LONGIFOLIA
MAT RUSH



MYOPORUM ELLIPTICUM
CREEPING BOOBIALLA



OPHIOPOGON INTERMEDIANS VARIGATA
'STRIPEY WHITE'

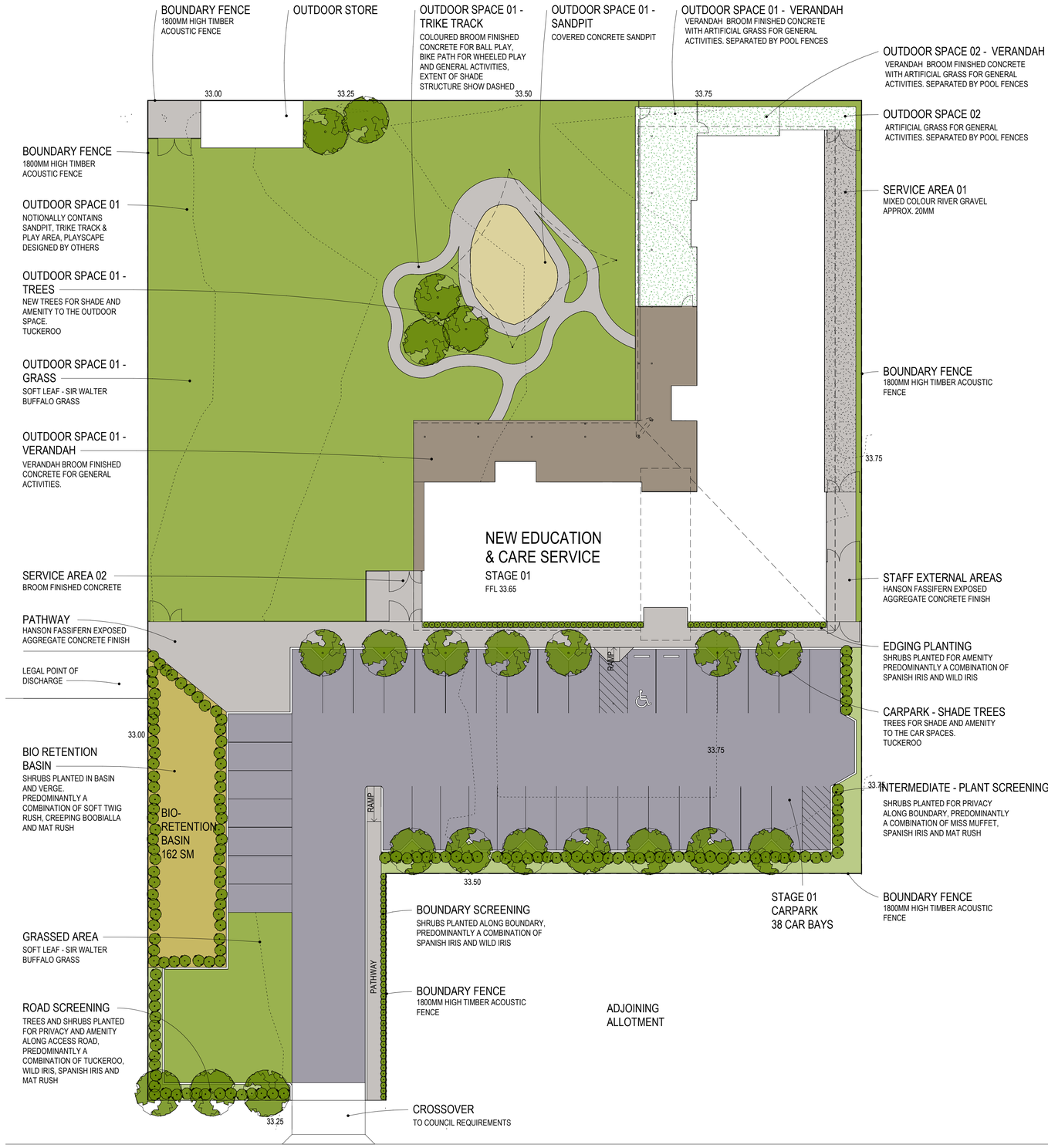


ZEIPHANYRANTHES CANDIDA
CROSUS - 'RAIN LILY'



' SOFT LEAF' BUFFALO GRASS
SIR WALTER BUFFALO GRASS

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M A S O N A V E N U E

LANDSCAPE INTENT PLAN

STAGE 01

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PROJECT

NEW EDUCATION & CARE SERVICE AT YAAMBA ROAD PARKHURST

N

0 2 4 6 8 10 20M

CLIENT

NATURAL WONDERS EARLY LEARNING

DRAWING TITLE

LANDSCAPE INTENT-STAGE 01 DESIGN DEVELOPMENT

SCALE

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A	AISLE	6200 WIDE
D1	DISABLED BAY	5400 x 2400
DS	SHARED BAY	5400 x 2400
S1	STAFF PARKING	5400 x 2400
TA	TURNING AREA	1000 DEEP
TB	TURNING BAY	5400 x 2400
V1	VISITOR PARKING	5400 x 2600

ECS DATA

TOTAL CHILDREN		44 CH
GROSS FLOOR AREA		187.0 SM
UNENCUMBERED INDOOR SPACE	REQUIRED	PROVIDED
36 MONTHS-SCHOOL AGE INDOOR SPACE 07 *22 CHILDREN*	71.5 SM	73.6 SM
36 MONTHS-SCHOOL AGE INDOOR SPACE 08 *22 CHILDREN* *36 MONTHS-SCHOOL AGE*	71.5 SM	73.7 SM
TOTAL INDOOR SPACE	143.0 SM	147.3 SM
TOTAL CHILDREN *@ 3.25 sm per child*	44 CH	
UNENCUMBERED OUTDOOR SPACE	REQUIRED	PROVIDED
OUTDOOR SPACE		125.8 SM
TOTAL OUTDOOR SPACE	308.0 SM	125.8 SM
TOTAL CHILDREN *@ 7.0 sm per child*	44 CH	

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FLOOR PLAN
STAGE 02
SCALE: 1 : 100

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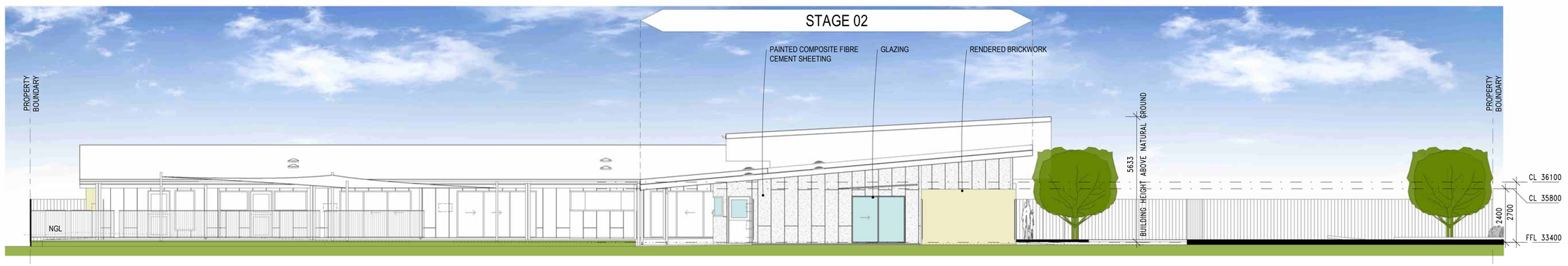
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NORTH ELEVATION
STAGE 02
SCALE: 1 : 100



EAST ELEVATION
STAGE 02
SCALE: 1 : 100

10M
5
4
3
2
1
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NORTH & EAST ELEVATIONS
STAGE 02

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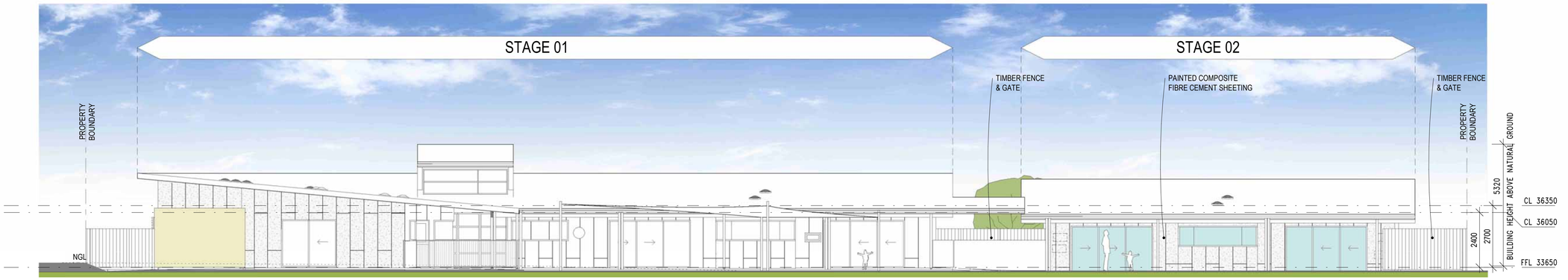
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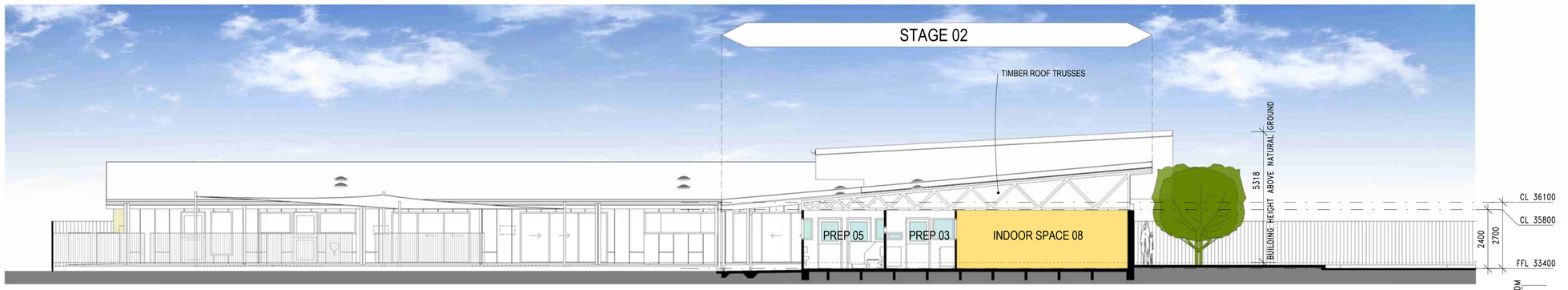
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SOUTH ELEVATION
STAGE 02
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SECTION
STAGE 02
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SECTION - STAGE 02

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PERSPECTIVE 05
STAGE 02



PERSPECTIVE 06
STAGE 02

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DESIGN DEVELOPMENT

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PERSPECTIVE 07
STAGE 02



PERSPECTIVE 08
STAGE 02

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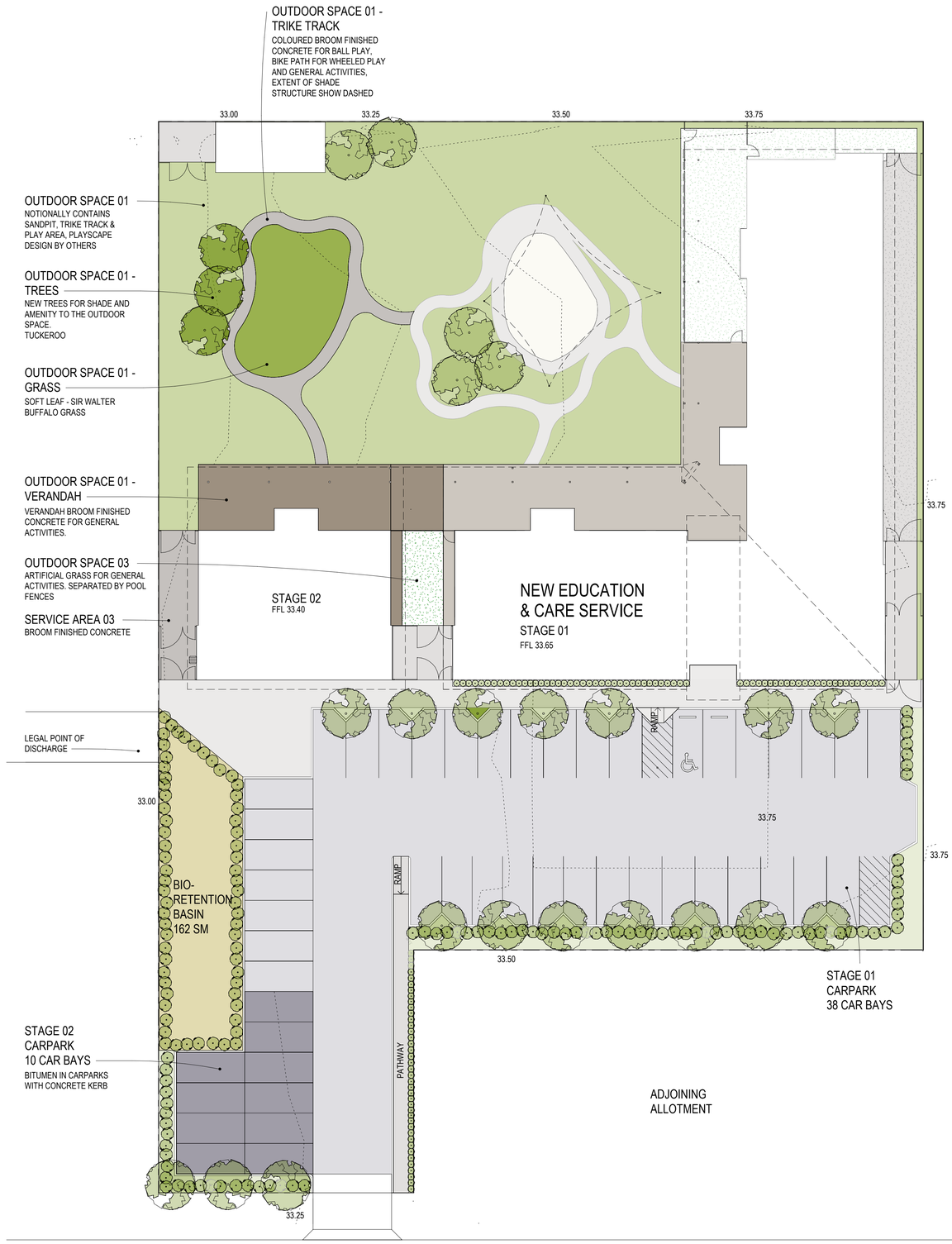
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TUCKEROO

GROUND COVERS



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SIR WALTER BUFFALO GRASS

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STAGE 02
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PINNACLE
ENGINEERING GROUP

ENGINEERING SERVICES REPORT

PROPOSED CHILDCARE CENTRE DEVELOPMENT
906-910 Yaamba Road, Parkhurst QLD

NATURAL WONDERS EARLY LEARNING PTY LTD

OCTOBER 2020
REVISION 04

ROCKHAMPTON REGIONAL COUNCIL
APPROVED PLANS
These plans are approved subject to the current conditions of approval associated with
Development Permit No.: D/118-2020
Dated: 12 January 2021

Pinnacle Engineering Group
ABN: 80 608 431 625
P.O. Box 517 Paradise Point QLD 4216

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In accordance with the requirements of the *Queensland Professional Engineers Act 2002*, this document was prepared under the supervision of, reviewed and approved by the following experienced Registered Professional Engineer of Queensland (RPEQ).



Bogdan Popa (RPEQ No. 12349)

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04	1.pdf	Natural Wonders Early Learning Pty Ltd

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1 Introduction

Pinnacle Engineering Group (Pinnacle) was engaged by Natural Wonders Early Learning Pty Ltd to undertake the preliminary engineering investigations to provide supporting documentation for the proposed development application for a childcare centre development located at 906-910 Yaamba Road, Parkhurst QLD within the local authority of the Rockhampton Regional Council (RRC).

1.1 Scope of Investigation

This report covers the following civil engineering elements associated with the proposed development including:

- Water Supply;
- Sewerage Reticulation;
- Stormwater Drainage;
- Bulk Earthworks; and
- Gas, Electrical and Telecommunications.

1.2 Site Description

1.2.1 Site Details and Location

Street Address	-	906-910 Yaamba Road, Parkhurst QLD
RP Description	-	Lot 2 on RP864537
Site Area	-	0.4342 Hectares
Current Zoning	-	Low Density Residential
Proposed Use	-	Childcare Centre
Local Authority	-	RRC

Refer to Figure 1.1 for site location.

1.2.2 Existing Site Conditions and Topography

A review of the topographic survey has revealed that the subject site generally falls from the western property boundary to the eastern property boundary. The subject site is observed to predominantly be vacant land with minimal significant vegetation. An existing concrete pad is located adjacent to the northern property boundary, while an existing electrical power pole is located centrally within the site. Additionally, existing billboards are located along the western property boundary.

Currently, the highest elevation of approximately RL33.87m AHD is reached along the western property boundary of the subject site while the lowest elevation of approximately RL32.77m AHD reached along the eastern property boundary of the subject site.

The topographic survey is included in Appendix B. Refer to Figure 1.2 for the existing aerial view of the subject site.

1.2.3 **Proposed Development**

The proposed development will deliver a 152-place childcare centre over the subject site. The proposed childcare centre will provide on-grade car parking and be accessed from Mason Avenue to the north of the subject site via a new vehicle cross-over.

Architectural drawings of the proposed development are included within in Appendix A.



Figure 1.1: Map View (Source: Google Maps)



Figure 1.2: Aerial View (Source: Nearmap)

2 Water Reticulation

2.1 Existing Infrastructure

A review of the topographic survey and Council records has confirmed the location of an existing 225mm diameter modified polyvinyl chloride (PVC-M) water main within the Mason Avenue road reserve beneath the sealed pavement, running on an east to west alignment. Additionally, an existing 200mm diameter PVC-M water main is located within the Yaamba Road/Bruce Highway road reserve beneath the sealed pavement on a north to south alignment.

The topographic survey is included within Appendix B.

2.2 Development Water Reticulation Demand

The proposed development's water reticulation demands on the existing potable water infrastructure were determined using the methods described in the Capricorn Municipal Development Guidelines: D11 – Water Supply Network Design Guidelines. These demands were used to determine the consumption rates for the proposed development. Potable water demand factors and flow parameters were sourced from Table D11.07.1, to determine the potable water consumption rates for the proposed development, and are published below in Table 2.1.

Table 2.1: Water Demand Factors and Consumption Rates

Design Parameter	Potable Water Factors and Consumption Rates
Development Type	Childcare centre
Demand Conversion Rate (EP/student)	0.2 EP/student
Students	152
EP	30
Average Day Flow (AD)	500L/EP/day
Mean Day Max Month (MDMM) / AD	1.4
Peak Day (PD) / AD	1.89
Peak Hour (PH) / PD	0.0833
PH / AD	0.1575
AD	15,200L/day or 0.176L/sec
MDMM	21,280L/day or 0.246L/sec
PD	28,728L/day or 0.333L/sec
PH (Maximum)	99.8L/hour or 0.028L/sec
Fire Flow	30L/s for 4 hours
Peak Hour Demand	30.333L/sec

The proposed development will result in a water demand of 30.333L/sec for the childcare centre and healthcare services respectively. With a maximum velocity of 2.0m/s, in accordance with the Capricorn Municipal Design Guidelines, a water service connection with a minimum internal diameter of 139mm is required for the proposed childcare centre.

We note however that fire flow may be provided by the existing hydrant located within the adjacent Mason Avenue road reserve. Hydrant coverage shall be confirmed by the hydraulic consultant during the detailed design phase of the project.

2.3 Proposed Water Reticulation Works

The proposed childcare centre will be serviced by the existing 225mm diameter PVC-M water main located within the Mason Avenue road reserve to the north of the subject site.

It is envisaged that the water reticulation and connection detailed design will be undertaken as part of a future Operational Works application to Council. The internal water reticulation design will be undertaken by a Hydraulic Consultant during the detailed design phase of the project and is subject to a future Plumbing and Drainage application to Council.

A plan detailing the existing and proposed services for the site is included in Appendix C.

3 Sewerage Reticulation

3.1 Existing Infrastructure

A review of the topographic survey and Council records has confirmed the location of an existing 300mm diameter unplasticised polyvinyl chloride (PVC-U) trunk sewerage main located within the southern verge of the Mason Avenue road reserve to the north of the subject site. Additionally, an existing 150mm diameter PVC-U sewerage main is located within the rear of the allotments to the east of the subject site.

The topographic survey is included within Appendix B.

3.2 Proposed Demand

The proposed development's sewer reticulation demands on the existing sewer infrastructure were determined using the methods described in the Capricorn Municipal Development Guidelines: D12 –Sewerage Network. These demands were used to determine the consumption rates for the proposed development. The sewer demand factors and flow parameters were sourced from Table D12.6.1 to determine the consumption rates for the proposed development, and the results are presented in Table 3.1 below.

Table 3.1: Sewerage Demand Factors and Consumption Rates

Design Parameter	Sewer Factors and Consumption Rates
Development Type	Childcare centre
Demand Conversion Rate (ET/staff & pupil)	0.1 ET/staff & pupil
Students	152
Staff	22
ET	17.4
Average Dry Weather Flow (ADWF)	540L/ET/day
ADWF	9.396kL/day or 0.109L/sec
PDWF (2.5 x ADWF)	23.490kL/day or 0.272L/sec
PWWF (5 x ADWF)	46.980kL/day or 0.544L/sec
Design Flow	0.544L/sec

Based on the above assessment it is envisaged that the proposed development will place a demand of 0.544L/sec during PWWF on the downstream sewerage network. An engineering services plan detailing the existing and proposed sewerage infrastructure is included in Appendix C.

3.3 Proposed Works

It is proposed to connect the development to the existing rear allotment sewerage main located within adjacent residential allotments to the east of the subject site.

It is envisaged that the sewerage infrastructure and connection detailed design will be undertaken as a part of a future Operational Works application to Council. The internal sewerage infrastructure will be designed by a Hydraulic Consultant during the detailed design phase of the project and is subject to a future Plumbing and Drainage application to Council.

A plan detailing the existing and proposed services for the site is included in Appendix C.

4 Stormwater Drainage

The strategy and constraints associated with stormwater drainage were assessed as part of a separate investigation by Pinnacle and are not covered in detail within this report. We refer Council to the Site Based Stormwater Management Plan for the subject site prepared by Pinnacle for an in-depth analysis of the prevailing stormwater conditions.

A brief summary of the stormwater drainage elements is provided in the following sections of this report.

4.1 Lawful Point of Discharge

The Lawful Point of Discharge for the subject site is taken as the existing stormwater infrastructure located within the Hotham Close road reserve to the east of the subject site.

4.2 Existing Drainage Network

Currently, two on grade inlet pits are located within the Hotham Close road reserve to the east of the subject site. The pits are connected by a 375mm diameter reinforced concrete pipe (RCP). This existing stormwater network discharges into the existing concrete lined swale drain located within the vacant residential allotment to the east.

4.3 Proposed Drainage Works

It is intended to discharge stormwater to the Lawful Point of Discharge via piped and overland flow. Detention and quality treatment of stormwater will be provided if required through the use of private infrastructure.

In accordance with QUDM, the minor 10% AEP storm discharge (Q_{10}) will be conveyed to the Lawful Point of Discharge via a piped drainage network with the major 1% AEP storm discharge (Q_{100}) being conveyed by piped and overland flow.

Engineering services layouts detailing the existing and proposed services for the site is included in Appendix C.

4.4 Flood Assessment

A search of Council's records and online interactive mapping system has confirmed that the subject site is located outside the mapped flood affected area.

5 Bulk Earthworks

5.1 Earthworks Design

Earthworks for the site will be designed generally in accordance with the requirements of the RRC Planning Scheme and as appropriate to the regulatory control and the Australian Standard for Earthworks for Commercial and Residential Development (AS3798-2007).

5.2 General Site Earthworks

A soil assessment report shall be prepared by a geotechnical engineer to provide guidance to the treatment of the subject site prior to and during the earthworks excavation and suitability for building foundation construction. It is intended that with minimal site earthworks the proposed layout will be achieved.

The key variables associated with the site's earthworks are the depth and distribution of the existing materials and the strength and depth profile of the substrata material. It is advised that the soil report for the site investigates these key items in depth to ensure that suitable soil treatments, accurate cost estimation and building design can be facilitated.

5.3 Acid Sulphate Soils

A review of Council's Interactive Online Mapping system has identified the subject site as being located outside the mapped Acid Sulphate Soil zone.

5.4 Erosion and Sediment Management

Due to the expected highly erosive soil onsite, erosion protection measures will be incorporated into the construction phase of the project with these measures being designed and documented as a part of the detailed civil works for the site in accordance with industry best practice and IEAust Guidelines.

Ultimately, during the operational phase of the project, the sediment management will be undertaken through the use of soft landscaping to ensure onsite erosion is kept to a minimum.

An erosion and sediment control strategy is provided in the Site Based Stormwater Management Plan for the subject site prepared by Pinnacle.

6 Electrical, Gas and Telecommunications

A DBYD investigation was undertaken to confirm the location of existing electrical, gas and telecommunications services in the vicinity of the site.

The DBYD investigation confirmed the location of telecommunications infrastructure, owned and operated by NBN and Telstra, within the Mason Avenue road reserve to the north of the subject site

Similarly, overhead powerlines, owned and operated by Ergon Energy, are located within the Yaamba Road and Mason Avenue road reserves. Additionally, underground high voltage and low voltage electrical cables are located within the southern verge of the Mason Avenue road reserve fronting the northern boundary of the subject site.

Existing underground gas infrastructure has been identified within the western verge of the Yaamba Road reerve.

It is envisaged that the proposed development will connect to the existing services within the Mason Avenue road reserve as outlined above. The connections to the electrical and telecommunications networks will be undertaken by specialist consultants during the detailed design phase of the project.

The DBYD data is included in Appendix D with the location of the existing telecommunications and electrical infrastructure shown on the engineering services layouts included in Appendix C.

7 Impacts on Local Infrastructure and Likely Upgrades

The proposed childcare centre development will result in additional loading on the surrounding local infrastructure.

Initial investigations indicate that there is sufficient residual capacity within the surrounding local infrastructure to accommodate the additional demands from the proposed development.

The potential impacts on the local infrastructure and likely upgrades are summarised in Table 7.1 below.

Table 7.1: Local Infrastructure Impacts and Requirements

Infrastructure Type	Authority	Impacts	Connection and/or Upgrade Requirements
Water Reticulation	Fitzroy River Water	Additional water demand due to development	Connect to the existing water main located to the north of the subject site.
Sewerage Reticulation	Fitzroy River Water	Additional sewer loadings due to development	Connect to the existing rear allotment sewer main to the east of the site via a new sewer property connection.
Stormwater	RRC	Additional loading due to development	Discharge all stormwater to the Lawful Point of Discharge being the existing stormwater infrastructure within the Hotham Close road reserve.
Telecommunications	Telstra	New connections	New connection to existing telecommunications infrastructure located within the Mason Avenue road reserve to the north of the subject site.
Electrical	Energex	New connections	New connection to existing electrical infrastructure located within the Mason Avenue road reserve.
Gas	APA Group	New connections	New connection the existing gas infrastructure located within Yaamba Road reserve.

8 Reference Documentation

Rockhampton Region Planning Scheme Version 2.1 (RRC, 2020)

Capricorn Municipal Development Guidelines (CMDG, 2017)

Water Services Association of Australia, 2014. “Sewerage Code of Australia. WSA 02-2014”, Second Edition, Version 3.1

Water Services Association of Australia, 2011. “Water Supply Code of Australia. WSA 03-2011”, Second Edition, Version 3.1

PINNACLE ENGINEERING GROUP

Appendix A

Proposed Development Plans



LEGEND

XX.XX ----- EXISTING CONTOUR LINE & LEVELS
— — — SITE BOUNDARY

A	AISLE	6200 WIDE
D1	DISABLED BAY	5400 x 2400
DS	SHARED BAY	5400 x 2400
S1	STAFF PARKING	5400 x 2400
TA	TURNING AREA	1000 DEEP
TB	TURNING BAY	5400 x 2400
V1	VISITOR PARKING	5400 x 2600

ECS DATA

TOTAL CHILDREN		108 CH
GROSS FLOOR AREA		718.1 SM
UNENCUMBERED INDOOR SPACE	REQUIRED	PROVIDED
INDOOR SPACE 01 *12 CHILDREN* *00-24 MONTHS*	39.0 SM	42.0 SM
INDOOR SPACE 02 *12 CHILDREN* *00-24 MONTHS*	39.0 SM	41.9 SM
INDOOR SPACE 03 *20 CHILDREN* *24-35 MONTHS*	65.0 SM	68.1 SM
INDOOR SPACE 04 *20 CHILDREN* *24-35 MONTHS*	65.0 SM	69.4 SM
INDOOR SPACE 05 *22 CHILDREN* *26 MONTHS-SCHOOL AGE*	71.5 SM	73.6 SM
INDOOR SPACE 06 *22 CHILDREN* *26 MONTHS-SCHOOL AGE*	71.5 SM	73.7 SM
TOTAL INDOOR SPACE TOTAL CHILDREN *@ 3.25 sm per child*	351.0 SM 108 CH	368.7 SM
UNENCUMBERED OUTDOOR SPACE	REQUIRED	PROVIDED
OUTDOOR SPACE 01		1702.5 SM
OUTDOOR SPACE 02		38.4 SM
TOTAL OUTDOOR SPACE TOTAL CHILDREN *@ 7.0 sm per child*	756.0 SM 108 CH	1740.9 SM

DATE	ISSUE	AMMENDMENT
21.09.2020	A	DA ISSUE
12.10.2020	B	CARPARK LAYOUT/FENCES

FLOOR PLAN
STAGE 01
SCALE: 1 : 100

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E email@jardinearchitects.com.au
www.jardinearchitects.com.au

JARDINE ARCHITECTS PTY LTD

PROJECT
NEW EDUCATION
& CARE SERVICE
AT
YAAMBA ROAD
PARKHURST

CLIENT
NATURAL WONDERS
EARLY LEARNING

DRAWING TITLE
FLOOR PLAN- STAGE 01

SCALE
1:100 @ A1
Use figured dimensions in preference to scaling. Check and verify all dimensions on site.

DRAWN
MG, ET

DATE
JULY 2020

PROJECT No: 20685 *DWG No:* DD03 *ISSUE* B

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LEGEND

XX.XX ------ EXISTING CONTOUR LINE & LEVELS
—— – —— SITE BOUNDARY

A	AISLE	6200 WIDE
D1	DISABLED BAY	5400 x 2400
DS	SHARED BAY	5400 x 2400
S1	STAFF PARKING	5400 x 2400
TA	TURNING AREA	1000 DEEP
TB	TURNING BAY	5400 x 2400
V1	VISITOR PARKING	5400 x 2600

ECS DATA

TOTAL CHILDREN		44 CH
GROSS FLOOR AREA		187.0 SM
UNENCUMBERED INDOOR SPACE	REQUIRED	PROVIDED
36 MONTHS-SCHOOL AGE INDOOR SPACE 07 *22 CHILDREN*	71.5 SM	73.6 SM
36 MONTHS-SCHOOL AGE INDOOR SPACE 08 *22 CHILDREN* *36 MONTHS-SCHOOL AGE*	71.5 SM	73.7 SM
TOTAL INDOOR SPACE TOTAL CHILDREN *@ 3.25 sm per child*	143.0 SM 44 CH	147.3 SM
UNENCUMBERED OUTDOOR SPACE	REQUIRED	PROVIDED
OUTDOOR SPACE		125.8 SM
TOTAL OUTDOOR SPACE TOTAL CHILDREN *@ 7.0 sm per child*	308.0 SM 44 CH	125.8 SM

DATE	ISSUE	AMMENDMENT
21.09.2020	A	DA ISSUE
12.10.2020	B	CARPARK LAYOUT/FENCES

FLOOR PLAN
STAGE 02
SCALE: 1 : 100

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DRAWING TITLE
FLOOR PLAN - STAGE 02
DESIGN DEVELOPMENT

SCALE
1:100 @ A1
Use figured dimensions in preference to scaling. Check and verify all dimensions on site.

DRAWN
MG, ET

DATE
JULY 2020

PROJECT No:	DWG No:	ISSUE
20685	DD09	B

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N
0 1 2 3 4 5 10M



NOTE:
CARPARKING LAYOUT SHOWS LAYOUT FOR STAGE 01 AND STAGE 02 COMBINED.
CARPARKING FOR INDIVIDUAL STAGES IS INDICATED ON DRAWINGS 20685DD08 AND 20685DD14

SITE PLAN
STAGE 01 & STAGE 02
SCALE: 1 : 200

RPD
LOT2 ON 605103

DATE	ISSUE	AMMENDMENT
21.09.2020	A	DA ISSUE
12.10.2020	B	CARPARK LAYOUT/FENCES

LEGEND

XX.XX ----- EXISTING CONTOUR LINE & LEVELS

— — — SITE BOUNDARY

LEGEND

A	AISLE	6200 WIDE
D	DRIVEWAY	6200 WIDE
D1	DISABLED BAY	5400 x 2400
DS	DISABLED SHARED BAY	5400 x 2400
S1	STAFF PARKING	5400 x 2400
TA	TURNING AREA	1000 DEEP
TB	TURNING BAY	5400 x 2400
V1	VISITOR PARKING	5400 x 2600

DEVELOPMENT DATA

SITE AREA LOT2 ON RP605103	4342.0 SM
STAGE 01	
SITE COVER	1048.1 SM
IMPERVIOUS AREA	2305.3 SM
GROSS FLOOR AREA	726.5 SM
CHILDREN	108 CH
PARKING BAYS	18 VISITORS 18 STAFF
STAGE 02	
SITE COVER	317.3 SM
IMPERVIOUS AREA	635.5 SM
GROSS FLOOR AREA	187 SM
CHILDREN	44 CH
PARKING BAYS	08 VISITORS 04 STAFF
SITE COVER TOTAL	1365.4 SM (31.4%)
IMPERVIOUS AREA TOTAL	2940.8 SM (67.7%)
GROSS FLOOR AREA TOTAL	905.6 SM (20.9%)
CHILDREN TOTAL	152 CH

PARKING BAYS TOTAL	REQUIRED	PROVIDED
@ 1 CAR PER PERMANENT	26 VISITOR	26 VISITOR
STAFF & 1 CAR PER 6	22 STAFF	22 STAFF
CHILDREN	48 TOTAL	48 TOTAL

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DRAWING TITLE
SITE PLAN - STAGE 01 & 02
DESIGN DEVELOPMENT

SCALE
1:200 @ A1
Use figured dimensions in preference to scaling. Check and verify all dimensions on site.

DRAWN
MG, ET

DATE
JULY 2020

PROJECT No.	DWG No.	ISSUE
20685	DD02	B

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N

0 2 4 6 8 10 20M

PINNACLE ENGINEERING GROUP

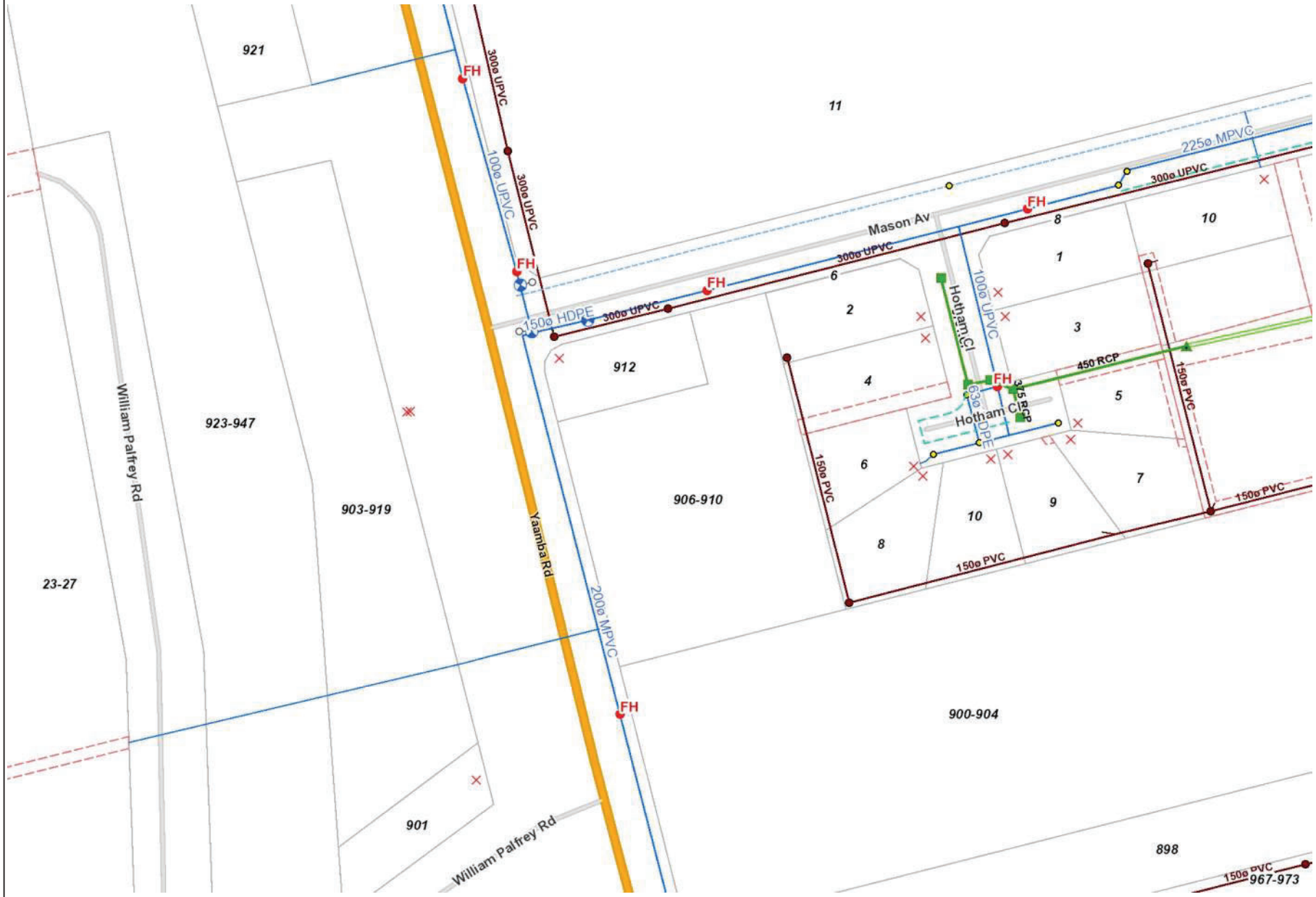
Appendix B

Topographic Survey

DBYD Number: 20219484

Sequence Number: 101636840

906-910 Yaamba Road, Parkhurst QLD 4702



DBYD - Rockhampton Regional Council Infrastructure

CBD Parking sensor zones

Water
- Gate, Sluice, Butterfly
- Air Valve
- Ball Cock, Stop Cock
- Ball Valve
- Motor Sluice Valve
- Non Return Valve
- Pressure Reducing Valve
- RPZ Valve
- Reflux Valve
- Scour Valve
- Sluice Bypass Valve
- Tap
- Other Valve Type
- Open - Dialysis
- Closed - Zone
- Valve Normally Open
- Valve Normally Closed
- Trunk Main
- Reticulation Main
- Raw Water Main
- Scour Line
- Other Main Type
- Water Service
- Hydrants
- Reservoirs
- Intake
- Pump Station
- Treatment Plant
- Unknown
- Abandoned Mains

Private Water
- Private Water Hydrants
- Private Water Valves
- Private Water Mains
- Private Water Abandoned Mains

Stormwater
- Flood Mitigation Devices
- Culverts
- Headwalls
- Stormwater Junctions
- Pollution Trap
- Subsoil Clean-Out pit
- Stormwater Jump ups
- Connector; Reticulation Main
- Culvert Pipe; LinkSlab
- Inter-Allotment
- Low Flow Pipe
- Other
- Stormwater Drop Structures
- Batter Chute; Open Channel
- Bio-Retention Swale
- Subsoil Drain
- Weirs
- Bio-Retention Detention/Retention
- Abandoned Mains
- Abandoned Headwalls
- Abandoned Culverts
- Abandoned Junctions

Private Stormwater
- Culverts Private
- Headwalls Private
- Stormwater Junctions Private
- Pollution Trap Private
- Subsoil Clean-Out pit Private
- Stormwater Jump Up Private
- Stormwater Main Private
- Open Channel Private
- Subsoil Drain Private
- Retention Basins Private

Effluent
- Effluent Structures
- Effluent Valves
- Effluent Mains

Sewer
- Pump Station
- Treatment Plant
- Combined Main
- Reticulation Main
- Trunk Main
- Overflow Main
- Sewer Rising Mains
- Roll Over
- Lamp Hole | Inspection Opening
- Overflow Chamber
- Access Chambers
- Sewer Valves
- Sewer Jump Ups
- Sewer Access Chambers Abandoned
- Sewer Mains Abandoned

Private Sewer
- Pump Station
- Treatment Plant
- Sewer Access Chambers Private
- Sewer Joints Private
- Sewer Valves Private
- Sewer Gravity Mains Private
- Sewer Rising Mains Private
- Sewer Jump Ups Private
- Sewer Mains Abandoned Private
- Sewer Access Chambers Abandoned Private

Administrative
- Easements
- Property Parcels

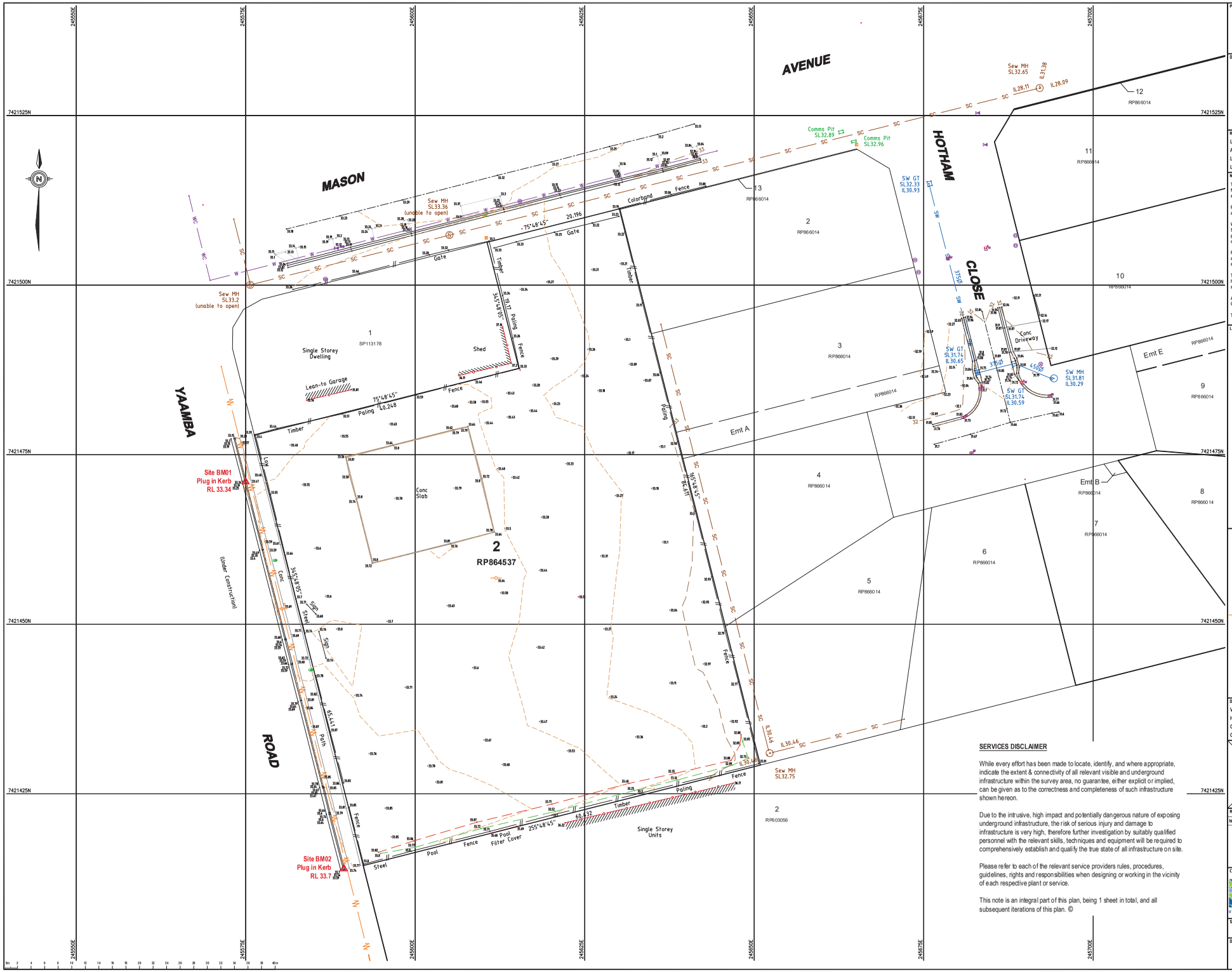
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GDA2020

A3 Page scale at 1:1,000.00

Printed from GeoCortex on 10/09/2020

Rockhampton Regional Council



PRINCIPAL

MORRISON PROPERTY GROUP

DESCRIPTION

DETAIL SURVEY OF LOT 2 ON RP864537

906-910 YAAMBA ROAD, PARKHURST

REAL PROPERTY DESCRIPTION

Lot/Plan :	Lot 2 on RP864537
Area :	4342m2
Locality :	Parkhurst
Local Authority :	Rockhampton Regional Council

NOTES

This plan was prepared for MORRISON PROPERTY GROUP from field survey for the purpose of designing new constructions on the subject land and should not be used by any other persons for any other purpose.

Property boundaries have not been reinstated or marked at the time of survey and are approximate only, based on appropriate boundary connections.

Where possible underground services have been located by field survey. Some services shown hereon are compiled from local authority and service provider plans and/or plans provided by the client and are noted accordingly on the plan.

Prior to any design, excavation or construction on site, the relevant authorities, and a qualified service locator should be engaged to ensure all services that may be affected by any future works have been located.

These plans have been prepared as verification plots only. Some text RL's have been omitted for clarity. Please refer to the relevant 3D data files for any spatial interrogation requirements.

Any discrepancies should be verified in writing with Capricorn Survey Group (CQ) Pty Ltd.

This note is an integral part of this plan.

LEGEND

LINETYPE LEGEND

S	UG Sewerage Line
SC	UG Sewerage Line (Compiled)
SW	UG Stormwater Line
SWC	UG Stormwater Line (Compiled)
	Overland FlowDirection
E	UG Electrical Line
EC	UG Electrical Line (Compiled)
	OH Electrical Line
T	UG Communication Line
TC	UG Communication Line (Compiled)
W	UG Water Line
WC	UG Water Line (Compiled)
W	AG Water Line
G	UG Gas Line
GC	UG Gas Line (Compiled)
	Top of Bank
	Toe of Bank
	C/L of Bitumen
	Edge of Bitumen
	Retaining Wall
	Line Marking
	Fence Line
	Roof / Guttering
	Eaves

CONTOUR LEGEND

	0.25m Interval
5	1.00m Interval

GENERAL SYMBOL LEGEND

Comms Conduit Marker	Stormwater MH
Comms Pit	Stormwater Pit
Elec Conduit Marker	Stormwater Kerb Outlet
Elec Turret	Water Fire Hydrant
Elec Pit	Water Meter
Elec Light Bollard	Water Valve
Elec Light Pole	Water Tap
Elec Power Pole	Water Control Tap
Elec Power Pole + Light	Water Tee
Elec Power Pole + Transformer	Water Conduit Marker
Elec Stay Point	Water Tapping Band
Traffic Lights	Post
Gas Marker	Bollard
Gas Valve	Guide Sign
Gas Hot Water System	Flag Pole
Sewerage MH	Australia Post Box
Sewerage Vent	Shrub
Sewerage IO	

DATUM

Vertical Datum :	AHD Vide Smartnet Aus
Horizontal Datum :	MGA Vide Smartnet Aus
Contour Interval :	0.25m, 1.0m Index
Co-ord System :	MGA Vide Smartnet Aus

SERVICES DISCLAIMER

While every effort has been made to locate, identify, and where appropriate, indicate the extent & connectivity of all relevant visible and underground infrastructure within the survey area, no guarantee, either explicit or implied, can be given as to the correctness and completeness of such infrastructure shown hereon.

Due to the intrusive, high impact and potentially dangerous nature of exposing underground infrastructure, the risk of serious injury and damage to infrastructure is very high, therefore further investigation by suitably qualified personnel with the relevant skills, techniques and equipment will be required to comprehensively establish and qualify the true state of all infrastructure on site.

Please refer to each of the relevant service providers rules, procedures, guidelines, rights and responsibilities when designing or working in the vicinity of each respective plant or service.

This note is an integral part of this plan, being 1 sheet in total, and all subsequent iterations of this plan. ©

WARNING

LOCATION AND CONNECTIVITY OF U/G SERVICES SHOWN HEREON HAVE BEEN DETERMINED BY DIRECT ACCESS OR COMPILED FROM LOCAL AUTHORITY AND SERVICE PROVIDER PLANS ONLY. FURTHER INVESTIGATION MAY BE REQUIRED TO DETERMINE LOCATIONS OF ALL INACCESSIBLE SERVICES.

REVISION

Issue	Date	Details	Authorised
A	26-08-2020	Initial Issue	RJKF
.	.	.	.

CREATED

capricornsurveygroupcq
SURVEYING & PLANNING SOLUTIONS
07 4927 5199 | reception@cqcg.com.au | 132 Victoria Parade, Rockhampton QLD 4700

SCALE

1:250 @ A1

DRAWING NUMBER	ISSUE
7817-01-DTL (1/1)	A

PINNACLE ENGINEERING GROUP

Appendix C

Engineering Layouts

LEGEND

- EXISTING TELSTRA CABLE
- EXISTING SEWERAGE RETICULATION
- EXISTING WATER RETICULATION
- EXISTING STORMWATER PIPE
- EXISTING OVERHEAD ELECTRICAL
- EXISTING UNDER GROUND ELECTRICAL
- EXISTING CONTOURS
- ROOF / BUILDING HARDSTAND AREA
- CONCRETE DRIVEWAY / PAVED AREA
- PERVIOUS AREA
- DUAL-USE BIO-RETENTION BASIN
- EXISTING LOT BOUNDARY
- PROPOSED STORMWATER
- INDICATIVE WORKS AREA
- SEWER RETICULATION FLOW DIRECTION
- 80m FIRE HYDRANT COVERAGE

NOTES

1. THE LOCATION OF THE EXISTING SERVICES HAS BEEN PLOTTED FROM SURVEY AND RECORDS AND IS TO BE CONFIRMED PRIOR TO CONSTRUCTION.
2. THE FINAL ALIGNMENT AND SIZING OF THE SERVICES INTERNAL TO THE PROPOSED DEVELOPMENT IS PRELIMINARY ONLY AND SUBJECT TO DETAILED DESIGN AND FUTURE OPERATIONAL WORKS APPLICATIONS TO COUNCIL.

DIAL BEFORE YOU DIG® www.1100.com.au

The Essential First Step.

UNDERGROUND PUBLIC UTILITY PLANT EXISTS IN THIS VICINITY. THE CONTRACTOR IS ADVISED TO CONTACT THE RELEVANT AUTHORITIES TO CONFIRM THE EXACT LOCATION OF PUBLIC UTILITY PLANT ON SITE PRIOR TO THE COMMENCEMENT OF ANY EXCAVATION OR CONSTRUCTION WORKS.



THIS ENGINEERING LAYOUT WAS PRODUCED FOR THE EXCLUSIVE USE OF PINNACLE ENGINEERING GROUP'S CLIENT AS NOMINATED HEREIN. PINNACLE DOES NOT GRANT CONSENT TO ANY THIRD PARTY TO RELY ON THE INFORMATION PRODUCED WITHIN THIS ENGINEERING LAYOUT WITHOUT PRIOR WRITTEN CONSENT FROM PINNACLE ENGINEERING GROUP. PINNACLE ENGINEERING GROUP ADVISES THAT DIMENSIONS ON THIS ENGINEERING LAYOUT SHALL NOT BE SCALED.

PINNACLE ENGINEERING GROUP
LEVEL 1 19 SHORT STREET, SOUTHPORT QLD 4215
(PO BOX 517, PARADISE POINT QLD 4216)
WWW.PINNACLEENG.COM.AU

REV	DESCRIPTION	DRAWN	DATE
A	ORIGINAL ISSUE FOR COMMENT	J.H.	21.09.2020
B	ISSUE FOR APPROVAL	J.H.	01.10.2020
"	"	"	"
"	"	"	"
"	"	"	"
"	"	"	"
"	"	"	"

TASK	BY	INITIAL	DATE
REVIEW	B. POPA		21.09.2020
DESIGN	J. HARDMAN		21.09.2020
DRAWN	J. HARDMAN		21.09.2020

SCALE 2 1 0 2 4 6 8 10 1:200

(SCALE ABOVE DENOTES ORIGINAL SHEET SIZE - A1)

CLIENT
NATURAL WONDERS EARLY LEARNING PTY LTD

PROJECT
PROPOSED CHILDCARE CENTRE DEVELOPMENT, 906-910 YAAMBA ROAD, PARKHURST QLD 4702 (LOT 2 ON RP864537)

DRAWING TITLE
ENGINEERING SERVICES LAYOUT

STATUS
PRELIMINARY
(NOT TO BE USED FOR CONSTRUCTION)

APPROVED
RPEQ No

DRAWING NUMBER
PEG0721-DA-SK05

REVISION
B

PEG0721-DA-SK05 ENGINEERING SERVICES LAYOUT.dwg 01/10/2020 Lotfie Jr,B,D: 1:1.00 Inches Home Active Hardware

PINNACLE ENGINEERING GROUP

Appendix D

DBYD Data

Job No 20219484

Phone: 1100
www.1100.com.au

Caller Details

Contact:	Mr Jesse Hardman	**Caller Id:**	2202414	**Phone:**	0418784662
Company:	Pinnacle Engineering Group	**Mobile:**	Not Supplied	**Fax:**	Not Supplied
Address:	PO Box 517 Paradise Point QLD 4216	**Email:**	jesse@pinnacleeng.com.au		

Dig Site and Enquiry Details

WARNING: The map below only displays the location of the proposed dig site and does not display any asset owners' pipe or cables. The area highlighted has been used only to identify the participating asset owners, who will send information to you directly.

User Reference: Not Supplied
Working on Behalf of: Private

Enquiry Date:	Start Date:	End Date:
09/09/2020	10/09/2020	17/09/2020

Address:
906-910 Yaamba Road
Parkhurst QLD 4702

Job Purpose:	Onsite Activity:
Excavation	Mechanical Excavation
Location of Workplace:	**Location in Road:**
Both	CarriageWay,Footpath,Nature Strip

- Check the location of the dig site is correct. If not submit a new enquiry.
- If the scope of works change, or plan validity dates expire, resubmit your enquiry.
- Do NOT dig without plans. Safe excavation is your responsibility. If you do not understand the plans or how to proceed safely, please contact the relevant asset owners.

Notes/Description of Works:

Your Responsibilities and Duty of Care

- The lodgement of an enquiry does not authorise the project to commence. You must obtain all necessary information from any and all likely impacted asset owners prior to excavation.
- If plans are not received within 2 working days, contact the asset owners directly & quote their Sequence No.
- ALWAYS perform an onsite inspection for the presence of assets. Should you require an onsite location, contact the asset owners directly. Please remember, plans do not detail the exact location of assets.
- Pothole to establish the exact location of all underground assets using a hand shovel, before using heavy machinery.
- Ensure you adhere to any State legislative requirements regarding Duty of Care and safe digging requirements.
- If you damage an underground asset you MUST advise the asset owner immediately.
- By using this service, you agree to Privacy Policy and the terms and disclaimers set out at **www.1100.com.au**
- **For more information on safe excavation practices, visit www.1100.com.au**

Asset Owner Details

The assets owners listed below have been requested to contact you with information about their asset locations within 2 working days.
Additional time should be allowed for information issued by post. It is **your responsibility** to identify the presence of any underground assets in and around your proposed dig site. Please be aware, that not all asset owners are registered with the Dial Before You Dig service, so it is **your responsibility** to identify and contact any asset owners not listed here directly.
** Asset owners highlighted by asterisks ** require that you visit their offices to collect plans.
# Asset owners highlighted with a hash require that you call them to discuss your enquiry or to obtain plans.

Seq. No.	Authority Name	Phone	Status
101636843	APA Group Networks, Capricorn	0881154500	NOTIFIED
101636841	Ergon Energy, Rockhampton	131046	NOTIFIED
101636844	NBN Co, Qld	1800626329	NOTIFIED
101636839	Reef Networks	1800336886	NOTIFIED
101636840	Rockhampton Regional Council	0749368714	NOTIFIED
101636842	Telstra QLD, Regional	1800653935	NOTIFIED

END OF UTILITIES LIST

Stay on top of your DBYD requests with
PlanAccess™


APA Group
PO Box 6014 Halifax Street
South Australia 5000

09/09/2020

Company: Pinnacle Engineering Group
Mr Jesse Hardman
PO Box 517
Paradise Point
QLD 4216

jesse@pinnacleeng.com.au

Dear Mr Jesse Hardman

Sequence Number: 101636843
Worksite Address: 906-910 Yaamba Road
Parkhurst
QLD 4702

RE: REQUEST FOR APA GROUP (APA) UNDERGROUND DIAL BEFORE YOU DIG

Dear Sir/Madam

In response to the above enquiry we wish to confirm that APA **operates underground plant** (Mains and / or Services) at or in the vicinity of the above address.

Please check that the following map represents the area you requested - if the area is not correct please contact our Dial Before You Dig Officer - 1800 085 628. If works are proposed adjacent to any underground plant operated by APA please ensure compliance with the attached "DUTY OF CARE"

Please find enclosed the following information in support of the above: -

1. A location map of the **suburb** the service is in and an A4 location map showing the **status** of APA underground plant (Mains and / or Services) adjacent to the subject site

2. DUTY OF CARE statement which forms **an integral part** of any information supplied by APA

FOR GAS EMERGENCIES 24 HOURS - 1800 GAS LEAK (1800 427 532)

Please note that as work on APA underground plant is ongoing any information supplied on their status can only be considered current for **30 days from the date of this response**. Expired locations, i.e., over 30 days from the date of this response, require a new Dial Before You Dig request to validate location information.

Should you have any questions with **regards to the attached information** please contact our Dial Before You Dig officer - 1800 085 628.

For any excavation works, including vacuum excavations, an "Authority to Work" Permit may be required and a Site Watch may need to be scheduled.

A minimum of 5 business days notice is required to process permit applications. Permit applications can be made by: -

Post: Permit Applications QLD, PO Box 885 Hamilton Central QLD 4007 or

Email: permitsqld@apa.com.au or Phone: (07) 3215 6644 though an application will most likely be required

Charges may apply for Site Watch requests. Your sequence number may be requested when making your booking, please have this available when you request either a mains location or site watch.

For other enquiries please contact your gas retailer

To find out who your retailer is call 1800 657 567

Warning: if there are high or transmission pressure gas mains present in the vicinity of your area of interest, an APA employee must be in attendance during any excavation within 3 metres of high or transmission pressure mains, and an "Authority to Work" permit must be issued prior to work commencing.

Please contact us for a permit to work request if you believe your work is within this zone, by completing the "Authority to Work" request form attached and sending to APA. 5 days notice is required prior to the commencement of any excavation to assess and allocate resources. Contact phone numbers are shown at the end of the notice of location.

Please Note: For some DBYD enquiries, you might receive 2 responses from the APA Group. Please read both responses carefully as they will relate to different assets. It is your responsibility to action all requirements set out in APA Group responses.

Please take some time to review the entire response document and check the information supplied and please let us have any feedback by sending an email to *DBYDNetworksAPA@apa.com.au* or contacting us direct on 1800 085 628.

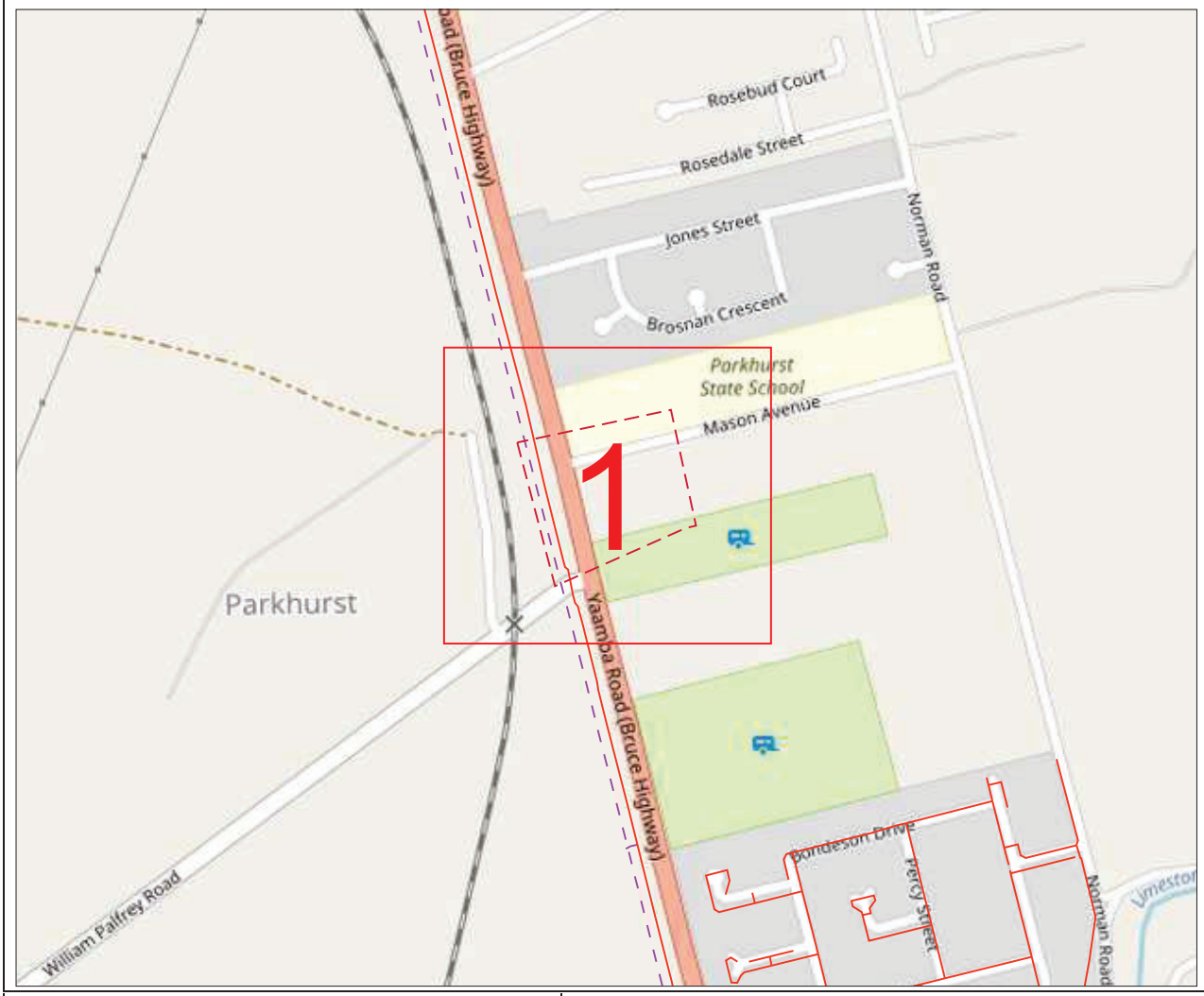
Yours faithfully

Dial Before You Dig Officer
APA Group

Email DBYDNetworksAPA@apa.com.au
Ph. 1800 085 628

09/09/2020 **SCALE: DO NOT SCALE** **REF NO:** 101636843

As work on APA underground plant is ongoing any drawing with an issue date of more than one month previous can no longer be considered valid. All persons planning civil works on any site are advised to contact APA to confirm location. All underground gas pipelines are the property of APA & are not to be accessed by unauthorised persons. All care is taken with preparation of the drawings & no responsibility is accepted for errors or omissions.



101636843

Scale: 1: 6000

0 0.08km

NORTH

Data Source

Pipeline Data Copyright APA Group, Property Parcels Copyright QLD Government, UBD Imagery – Copyright Sensis, DBYD Dig Location provided by DBYD.

operated by

This maps is created in colour and shall be printed in colour

Legend

Distribution Main
- Class 900 Transmission
- Class 600 Transmission
- Class 300 Transmission
- High Pressure Steel
- High Pressure PE Trunk
- High Pressure/ Class 500
- Medium Pressure PE/ Nylon
- Medium Pressure (Alloys)
- Low Pressure
- LPG
- TLP
- Proposed/ Under Construction
- Idle Gas Pipe
- Abandoned Gas Pipe
- Sleeve

Gas Assets and Fittings
- Gate Station
- R Regulator Station
- V Block/ Emergency Valve
- V Isolation Valve
- T Test Point
- S Syphon
- A Anode
- M Pipeline Marker
- W Trace Wire Point
- Reducer
- Pipe Connector/ Tee
- Pipe Connector
- End Cap

Pipe Materials

CI	Cast Iron
CU	Copper
GAL	Wrought Galvanised Iron
PGAL	Poly Coated Wrought Galvanised Iron
ST	Steel
NY/ NY11	Nylon
PE	Polyethylene
MDPE	Medium Density Polyethylene
HDPE	High Density Polyethylene
DN	Nominal Diameter
OD	Outside Diameter

Examples: 40PE in DN80 CI — 40mm Polyethylene in an 80mm (Nominal Diameter) Cast Iron Sleeve

63PE INS — 63mm Polyethylene inserted in another pipe

Line/ Polygon Request

APA Group does not guarantee the accuracy or completeness of the map and does not make any warranty about the data. APA Group is not under any liability to the user for any loss or damage (including consequential loss or damage) which the user may suffer resulting from the use of this map.



101636843 Map Sheet: 1

Scale: 1: 1000

0 0.01km

NORTH

Map Key:

1

Legend

Distribution Main	Gas Assets and Fittings	Pipe Materials
Class 900 Transmission	Gate Station	CI Cast Iron
Class 600 Transmission	Regulator Station	CU Copper
Class 300 Transmission	Block/ Emergency Valve	GAL Wrought Galvanised Iron
High Pressure Steel	Isolation Valve	PGAL Poly Coated Wrought Galvanised Iron
High Pressure PE Trunk	Test Point	ST Steel
High Pressure/ Class 500	Syphon	NY/ NY11 Nylon
Medium Pressure PE/ Nylon (1)	Anode	PE Polyethylene
Medium Pressure (Allgas)	Pipeline Marker	MDPE Medium Density Polyethylene
Low Pressure	Trace Wire Point	HDPE High Density Polyethylene
LPG	Reducer	DN Nominal Diameter
TLP	Pipe Connector/ Tee	OD Outside Diameter
Proposed/ Under Construction	Pipe Connector	
Idle Gas Pipe	End Cap	
Abandoned Gas Pipe		
Sleeve		

(1) Medium Pressure in ACN/ Nylon in Allgas

Examples: 40PE in DN80 CI — 40mm Polyethylene in an 80mm (Nominal Diameter) Cast Iron Sleeve

63PE INS — 63mm Polyethylene inserted in another pipe

Line/ Polygon Request

Data Source

Pipeline Data Copyright APA Group, Property Parcels Copyright QLD Government, UBD Imagery – Copyright Sensis, DBYD Dig Location provided by DBYD.

operated by apa

This maps is created in colour and shall be printed in colour

APA Group does not guarantee the accuracy or completeness of the map and does not make any warranty about the data. APA Group is not under any liability to the user for any loss or damage (including consequential loss or damage) which the user may suffer resulting from the use of this map

Working Around Gas Assets: Duty of Care and Responsibilities

It is illegal to interfere or tamper with gas infrastructure.
Offenders who interfere or tamper with gas infrastructure may be prosecuted under relevant legislation and there are very serious penalties for such offences

"Gas infrastructure" or "infrastructure" in this document refers to any infrastructure or property owned or operated by APA Group including, but not limited to natural gas mains, services and regulator/meter stations or regulator pits.

1. Planning Your Work

a. The constructor must:

i. Request plans of APA Group infrastructure for a particular location at a reasonable time before construction begins (at least 5 business days);
ii. Design for minimal impact and ensure protection of APA Group infrastructure, this includes networks managed by APA on behalf of Australian Gas Networks and Allgas; and
iii. Contact APA Group if their infrastructure is in any way affected by planned construction activities.

2. Before You Start Work

a. Please Note: **You will be responsible to pay for the repair of any damage by you to gas assets.**

b. You must obtain **Dial Before You Dig** (DBYD) documentation before any on-site construction or excavation commences. This document is to be read in conjunction with the Dial Before You Dig plans and other relevant documentation.
APA Group will provide free site plans if an APA Group infrastructure location request is made to APA on **1800 085 628**

c. If DBYD documents indicate you will be working within 3m of a high pressure or transmission gas pipeline, you must complete and submit the **Authority to Work Request** provided with your DBYD documentation **five (5) business days** prior to commencing the work. Requests under five (5) business days will incur extra charges.

d. APA Group shall assess your Authority to Work Request and will inform you if a Site Watch is required. A Site Watch involves the presence of an APA representative at site to advise on locating and working around the asset. Where on-site location advice is provided, the constructor is responsible for all hand digging (potholing) to visually locate and expose APA Group infrastructure. Vacuum excavations may only be used if permission is granted by APA and if it is used on high pressure mains Site Watch will be required. **Site Watch services are charged at an hourly rate.**

e. The principal contractor for the site must provide APA Group with a written construction methodology for all works impacting or encroaching on APA infrastructure. All construction methodology documents will be reviewed by APA Group prior to the commencement of site works. Construction methodology documents must be submitted as part of an Authority to Work Request (send to permitsqld@apa.com.au).

f. Site Plans

i. Plans and/or details provided by APA Group through DBYD or otherwise are current for one (1) month from the date of dispatch and should be disposed of by shredding or any other secure disposal method after use.
ii. APA Group retains copyright in all plans and details provided in connection with any request.
iii. APA Group plans or other details are provided for the use of the applicant, its servants, employees, contractors and agents, and must not be used for any unauthorised purpose.
iv. APA Group plans are pipe indication diagrams only and indicate the presence of plant in the general vicinity of the geographical area shown. Exact ground cover and alignments cannot be given with any certainty as such levels can change over time.
v. APA Group, its servants, employees, or agents shall not be liable for any loss or damage caused or occasioned by the use of plans and/or details so supplied to the applicant/constructor, its servants, employees, contractors and/or agents, and the applicant/constructor agrees to indemnify APA Group against any claim or demand for any such loss or damage.
vi. The constructor is responsible for all infrastructure damage occasioned to APA Group infrastructure.
vii. APA Group reserves all rights to recover compensation for loss or damage caused by interference or damage, including consequential loss and damages to its property and gas infrastructure.
viii. All care is taken in the preparation of location drawings and plans, but NO responsibility is accepted by APA Group for errors or omissions.

3. Working in the Vicinity of a Gas Pipeline

a. **Excavation** near Gas Mains and Services

PLEASE NOTE: Unless otherwise approved, mechanical excavation is not permitted above, or within 600mm of either side of APA Group infrastructure.

i. **Location of Gas Mains and Services:** Examining the DBYD documentation and other plans is not sufficient as reference points may change from the time of installation and recording on documentation. You MUST use appropriately qualified plant locators to accurately locate and prove the position of all assets and then validate these positions prior to commencing work. For all work to be done within 3.0 metres of APA Group infrastructure, the constructor is required to hand dig (pothole) and expose the plant, hence proving its exact location before work can commence. Vacuum excavation can cause failure of some types of gas mains and therefore APA Group must be contacted prior to any vacuum excavation.
Please note that new APA Group gas mains generally have a plastic warning tape or lightweight plastic board buried above the pipe but this is not the case for older mains or when pipe is laid by means of boring or located in conduit.

ii. **IMPORTANT NOTE:** Not all gas services (i.e. pipe from gas main to a gas meter in an individual property) are captured on APA Plans. Gas services shown on plans are indicative only and do not pinpoint the exact location of APA's asset. A gas service may also cross a road to reach a property. To confirm the presence of a gas service, please contact the APA DBYD number below for further information.

iii. **Installation of Utilities Parallel to Gas Mains and Services**: If construction work is being undertaken parallel to APA Group gas mains, then hand digging (potholing) at least every 4 m is required to establish the location of all gas mains. Nominal locations must be confirmed before work can commence. A minimum clearance of 600mm must be maintained from gas mains unless otherwise approved by APA. If an excavation exceeds the depth of the gas mains and it is likely that the covers or bedding material around the pipes will move, approval must be sought from APA Group's Capital Works team.

iv. **Installation of Utilities Across Gas Mains and Services:** A minimum clearance of 300mm above and below and APA Group gas mains must be maintained unless otherwise approved by APA. If the width or depth of the excavation is such that the gas mains will be exposed or unsupported, then APA Group must be contacted to determine whether the gas mains should be taken out of service, or whether they need to be protected or supported. Protective cover strips when removed must be replaced under APA Group supervision.

v. **Exposed Gas mains and Services:** Exposure of APA infrastructure shall be limited to potholing for location purposes. Any other exposure of pipe is not permitted unless expressly approved by APA Group. Exposed gas pipes must be protected by the constructor against the effects of heat by shielding or covering with a suitable material. Heating of exposed plastic pipes is dangerous. If depth of cover is compromised in any way due to works, please contact APA immediately.

vi. **Heavy machinery Operation over Gas Mains and Services:** Where heavy "Crawler" or "Vibration" type machinery is operated over the top of gas mains, a minimum cover of 750mm to the gas mains must be maintained using load bearing protection whilst the machinery is in operation.

vii. **Directional Drilling Near Gas Mains and Services:** When drilling parallel to gas mains, trial holes must be carefully hand dug at least every 4m to prove the actual location of the conduits/pipes before using drilling machinery. Where it is required to drill across the line of gas mains, the actual location of the gas mains must first be proven by the constructor by hand digging. A trench must be excavated one metre from the side of the gas mains where the auger will approach to ensure a minimum clearance of 600mm for gas mains can be maintained unless otherwise approved by APA.

viii. **Explosives:** Clearances must be obtained from APA Group's Networks Engineering Manager for use of explosives in the vicinity of gas mains. Please contact the APA Group.

b. **Damage Reporting**: All damage to conduits and pipes and any other gas infrastructure and property must be reported to APA Group no matter how insignificant the damage appears to be. Even very minor damage to protective coverings can lead to eventual failure through corrosion. All work in the vicinity of damaged infrastructure should cease and the area should be vacated until a clearance to continue work has been obtained from an APA Group officer. Please contact the Emergency number below to report damage.

c. **Solutions and Assistance**: If it is determined that APA Group infrastructure is likely to be impacted or encroached upon by planned construction, APA Group must be contacted to arrange for possible engineering solutions. If APA Group relocation or protection works are part of the agreed solution, then payment to APA Group for the cost of this work will be the responsibility of the principal contractor. APA Group will provide an estimated quotation for work on receipt of the order number before work will proceed.

d. **Reinstatement**: APA assets affected by third party works as highlighted above are to be reinstated as per APA requirements, potentially including but not limited to; warning tape/marker board, soft bedding/backfill materials, trench dimensions, depth of cover, trace wire for PE mains, compaction requirements, concrete protection, and surface re-instatement.

4. Contacting APA

GAS EMERGENCIES 24 HRS	GAS PLANT RELOCATIONS	APA GROUP GAS ASSET LOCATIONS	DIAL BEFORE YOU DIG
1800 GAS LEAK (1800 427 532)	APA CAPITAL WORKS PH: 07 3215 6709 FAX: 07 3215 6699 capitalworksqldnetworks@apa.com.au	TEAM (PERMITS OFFICE) PH: 07 3215 6644 FAX: 07 3215 6699 permitsqld@apa.com.au	SUPPORT PH: 1800 085 628

HIGH PRESSURE GAS DISTRIBUTION MAINS "AUTHORITY TO WORK" REQUEST

N.B. THIS IS NOT A PERMIT TO WORK

SITE ADDRESS: ……

SUBURB: ……UBD MAP REF:……

DBYD Sequence Number:…… Date of DBYD Enquiry…..

(Note: Only valid enquiries will be accepted and the currency of DBYD requests will affect your permit period. APA Group's DBYD requests are valid for one month only. Enquiries may need to be renewed and a new application may be required)

COMMENTS:……

……

BROAD DESCRIPTION OF WORK (please provide any approvals from APA Group related to these works)

……

……

……

WORK TO BE CARRIED OUT:

Class 1.	Location	
	Works crossing a high pressure gas mains	☐
Class 2.	Location	
	Works within 3 metres of a high pressure gas mains	☐
Class 3.	Location	
	Works involving large excavations that would cause ground movement, vibrations or blasting beyond 3m of a high pressure gas mains	☐
Class 4.	Location	
	Works within 1m of gas service or connection to industrial gas meter	☐

DETAILS OF WORK INVOLVED (Tick Applicable)

Excavation	☐	Change to surface level	☐
Service crossing (Gas CONNECTION)	☐	Boring	☐
Proving (Dial Before You Dig)	☐	Blasting	☐
Earthworks	☐	Road Construction/Change?	☐
Vacuum Excavation	☐	Other (give details)	☐

……

Relevant drawings, Block Plans etc, attached Yes ☐ No ☐

PROPOSED DATES AND TIMES	**From:**	**To:**
Excavation	…… / ……. / 20… ..... am/pm	…… / ……/ 20… ..... am/pm
Backfill	…… / ……. / 20… ..... am/pm	…… / ……/ 20… ..... am/pm

Insurance Cover – Current Level None ☐ $5M ☐ $10M ☐ $20M ☐ Other☐ _

NOTES

1. This Authority to Work applies only to work in the vicinity of the Gas Mains. It does not authorise work near or on the Gas Mains itself
2. A minimum of 5 business days must be allowed between receipt by APA Group of this Request and a response. However, more time for notification may be necessary
3. For Class 1 and Class 2 classifications, this application must be accompanied by a detailed sequence of events, outlining all aspects of work involved and work is not permitted until an Authority to Work is issued
4. For class 1 and 2 Dial Before You Dig, APA Group will arrange for an inspector to be on site as necessary during the work. An inspector must be present at all times for works involving excavation within 1m of the Gas Mains. APA Group will advise the requirement for an inspector for other works within 3m of the Gas Mains
5. The applicant is responsible for any damage resulting from the work and all consequential damages and losses arising from such damage and therefore must insure against every liability of the contractor in respect of or arising out of any loss of life, loss of or damage to property of person (both real and personal), arising out of or in any way connected to this permit

Such insurance must be arranged for an indemnity of not less than $20 Million unless otherwise agreed.

Permit Requested By:(print name)…….Signature: ……..Date …./…./….

Company:…… Postal Address:……..

Phone No:…… Fax number…….. Email……..……

Requestors PO Number……... Site Contact Details: Name……

Site Contact Number……..…….

Principal Contractors Details(if required)…….

Principal Contractors Contact details:……

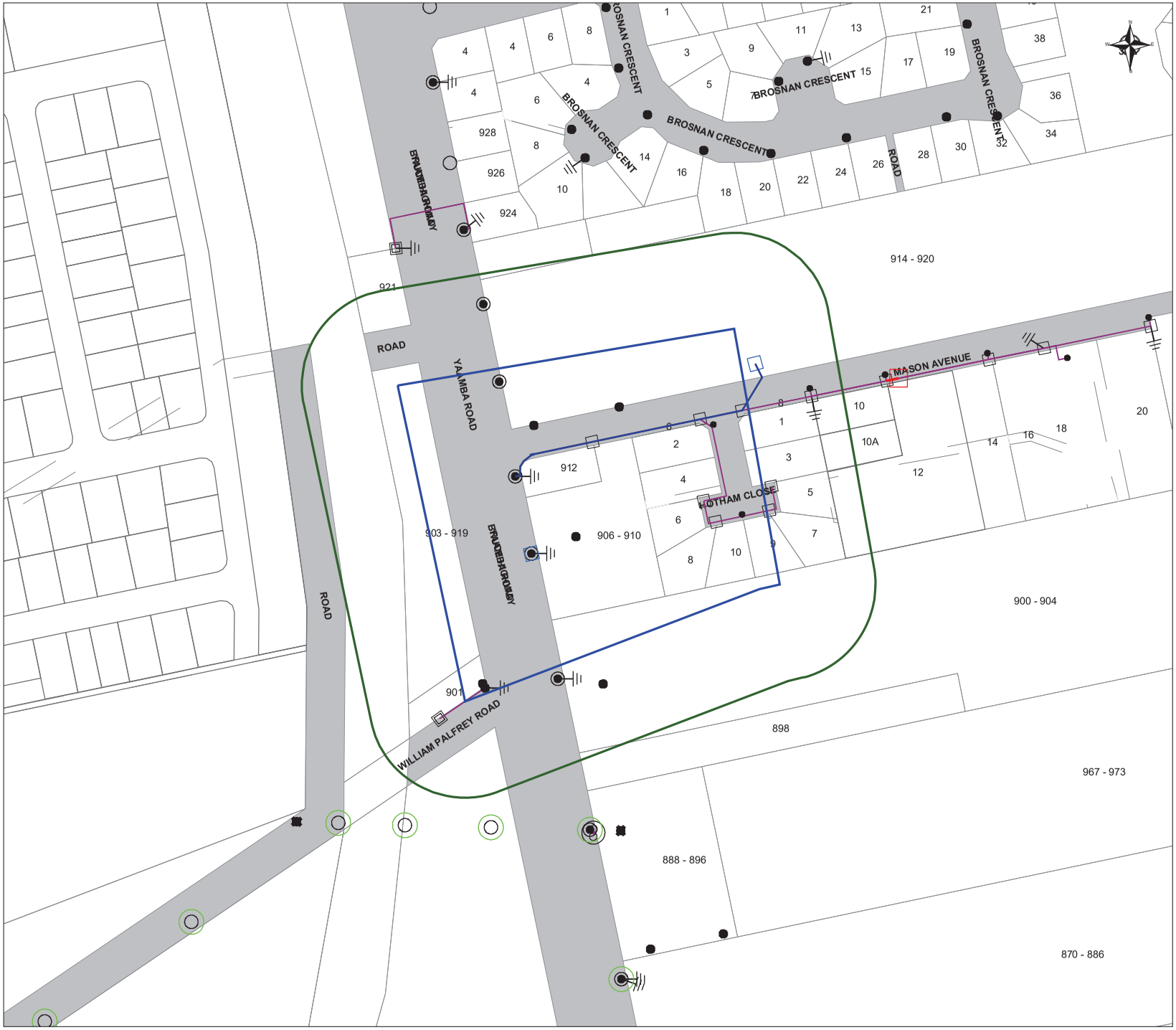
Please be advised;
Under the Work Health and Safety Act 2011, each work place has an obligation to comply to Workplace Health and Safety Regulations and Codes of Practice.

APA Group brings to your attention Work Health and Safety Regulations 2011, Chapter 4: Hazardous Work. Failure to comply to the above regulation may result in APA Group reporting the non-compliance to Workplace Health and Safety.

Office use only
Received: Date …/…./…. Site Watch required? **Yes/No** (please circle)

Pipeline Officer:
(print name)……...Signature: ……..Date: …/…/….

Further information can be requested via:
Post: **Permit Applications QLD**
PO Box 885 Hamilton Central QLD 4007
Phone: (07) 3215 6644 though an application will most likely be required
Email: permitsqld@apa.com.au



ERGON. ENERGY

101636841-20219484

Sheet: 1 Layer:All Layers

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Created Date 09/09/2020 16:47:25

Scale: 1:2000

LEGEND

Segments [Electric]
- Cable Segment.HV Route - 11kV
- Cable Segment.LV Route - 240V
- Cable Segment.LV Route - 415V
- Connector Point Installation.External Location - Cable Joint 11kV
- Connector Point Installation.External Location - Earth Existing

Distribution Structures [Electric]
- Accurate Route.Route
- Pedestal.Existing Location - Normal Pillar
- Pedestal.Existing Location - Cross Road Pillar
- Pole.Existing Location - HV
- Pole.Existing Location - HV/Comms
- Pole.Existing Location - HV/LV
- Pole.Existing Location - HV/LV/Comms
- Pole.Existing Location - LV
- Pole.Existing Location - SL
- Pole.Existing Location - Bollard

Substation Site [Electric]
- Substation.Existing Location - Pole Mounted Distribution
- Substation.Existing Location - Padmount

Communications [Electric]
- Communications Joint.Location - Existing
- Communications Pit.Location - Existing

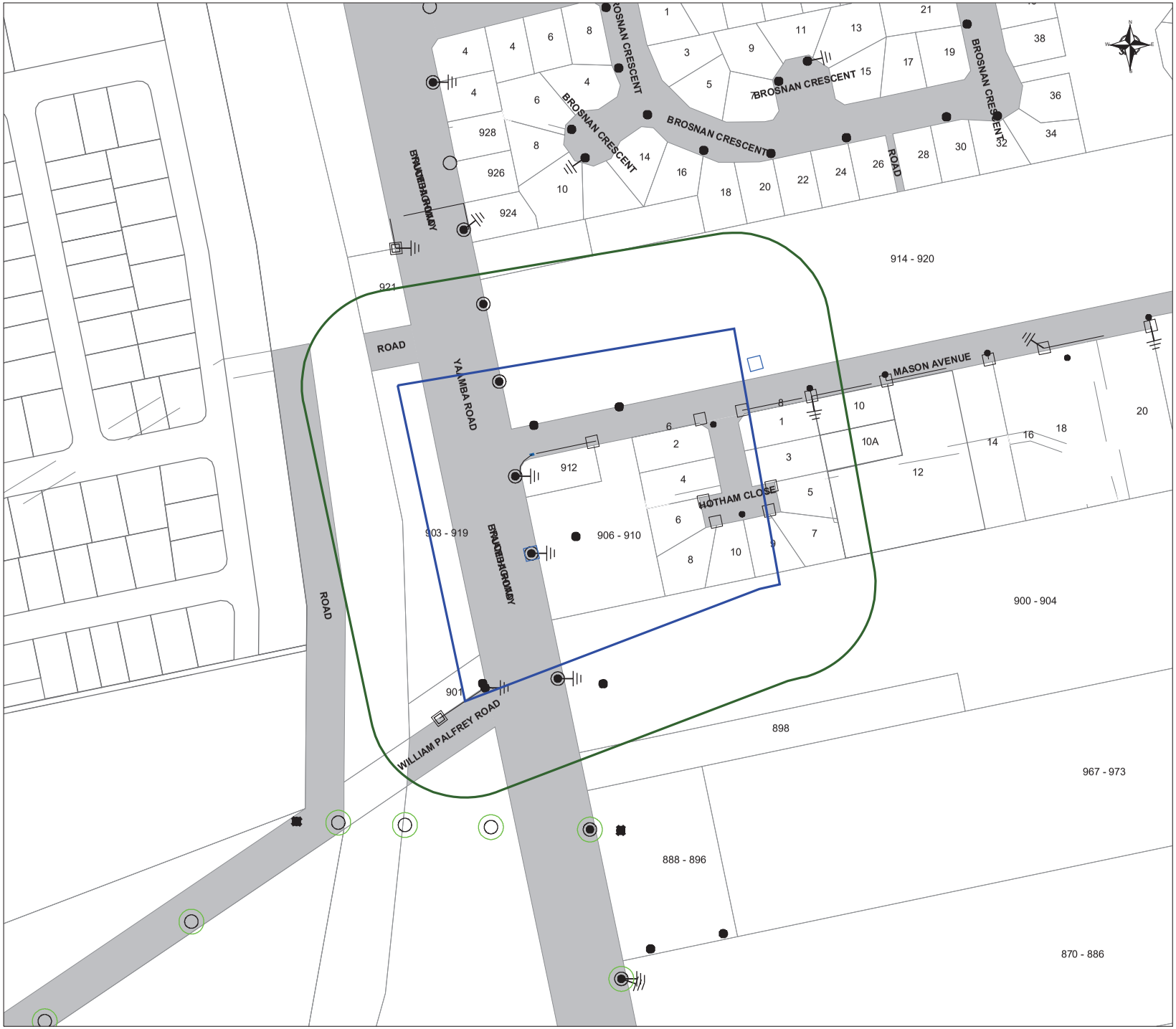
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- DBYD Request.Area
- Abc Def Qvas.Label Geom

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- Abc Def Road Text.Name Annotation

DCDB [Operational_cadastre]
- Land Parcel.Area Geom
- Land Parcel Large.Area Geom
- Land Parcel Medium.Area Geom
- Easement.Area Geom
- Road Coverage.Area Geom

Unregistered Plan [Operational_cadastre]
- URP Lot.Geometry
- Planned Asset.Centreline - Cable/Duct
- Planned Asset.Location - Pedestal

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ERGON. ENERGY

101636841-20219484

Sheet: 1 Layer:Conduits

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Created Date 09/09/2020 16:47:45

Scale: 1:2000

LEGEND

Segments [Electric]
- Connector Point Installation.External Location - Cable Joint 11kV
- Connector Point Installation.External Location - Earth Existing

Distribution Structures [Electric]
- Accurate Route.Route
- Pedestal.Existing Location - Normal Pillar
- Pedestal.Existing Location - Cross Road Pillar
- Pole.Existing Location - HV
- Pole.Existing Location - HV/Comms
- Pole.Existing Location - HV/LV
- Pole.Existing Location - HV/LV/Comms
- Pole.Existing Location - LV
- Pole.Existing Location - SL
- Pole.Existing Location - Bollard

Substation Site [Electric]
- Substation.Existing Location - Pole Mounted Distribution
- Substation.Existing Location - Padmount

DBYD [Misc_oracle]
- DBYD Request.Ergon Search Area
- DBYD Request.Area
- Abc Def Qvas.Label Geom

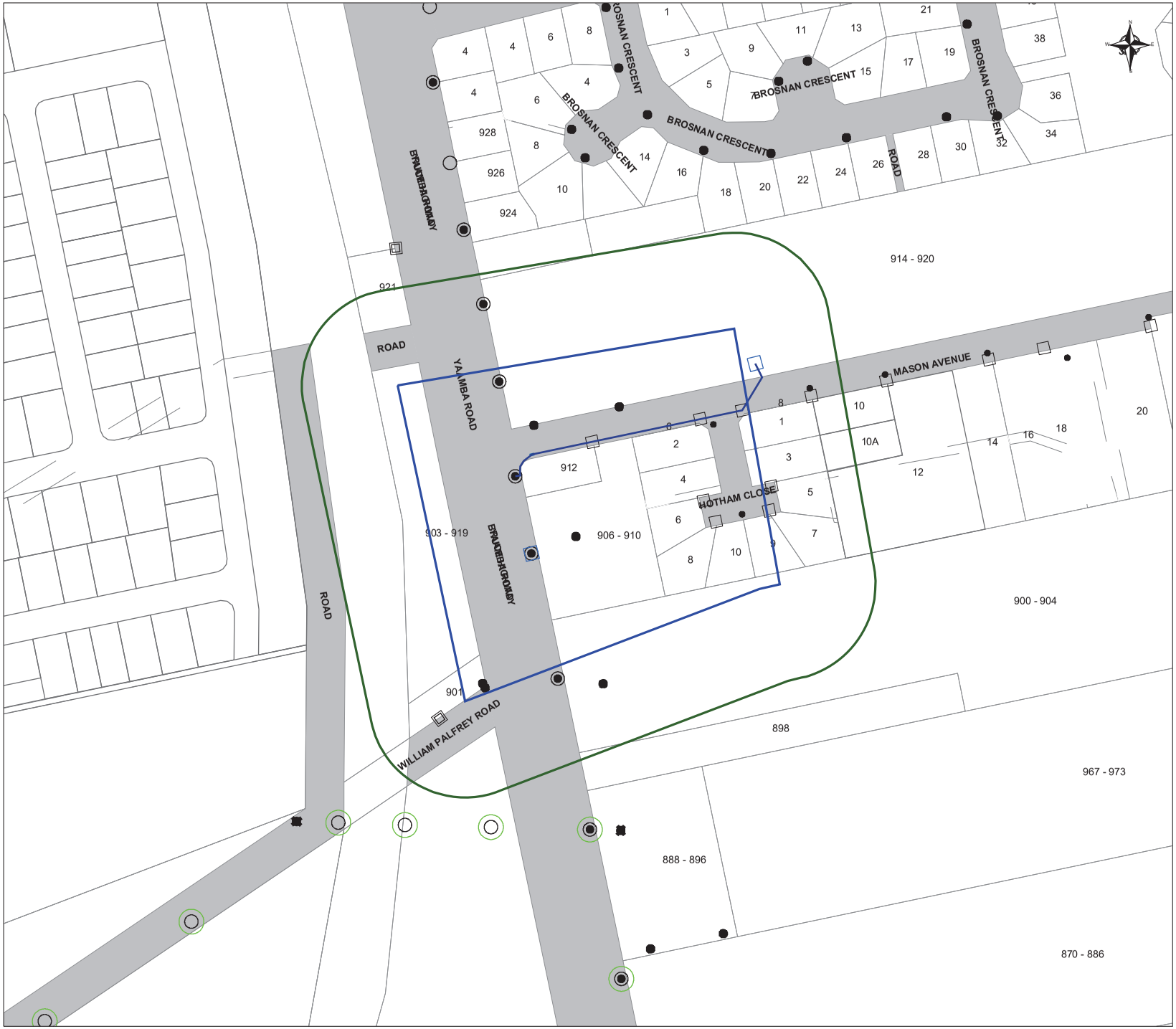
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- Abc Def Road Text.Name Annotation

DCDB [Operational_cadastre]
- Land Parcel.Area Geom
- Land Parcel Large.Area Geom
- Land Parcel Medium.Area Geom
- Easement.Area Geom
- Road Coverage.Area Geom

Unregistered Plan [Operational_cadastre]
- URP Lot.Geometry

NOTE : Cable/Conduits overlaying one another are displayed as geographically separated in the plot

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ERGON. ENERGY

101636841-20219484

Sheet: 1 Layer:Hv Cables

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Created Date 09/09/2020 16:47:38

Scale: 1:2000

LEGEND

Segments [Electric]
- Cable Segment.HV Route - 11kV
- Connector Point Installation.External Location - Cable Joint 11kV

Distribution Structures [Electric]
- Pedestal.Existing Location - Normal Pillar
- Pedestal.Existing Location - Cross Road Pillar
- Pole.Existing Location - HV
- Pole.Existing Location - HV/Comms
- Pole.Existing Location - HV/LV
- Pole.Existing Location - HV/LV/Comms
- Pole.Existing Location - LV
- Pole.Existing Location - SL
- Pole.Existing Location - Bollard

Substation Site [Electric]
- Substation.Existing Location - Pole Mounted Distribution
- Substation.Existing Location - Padmount

DBYD [Misc_oracle]
- DBYD Request.Ergon Search Area
- DBYD Request.Area
- Abc Def Qvas.Label Geom

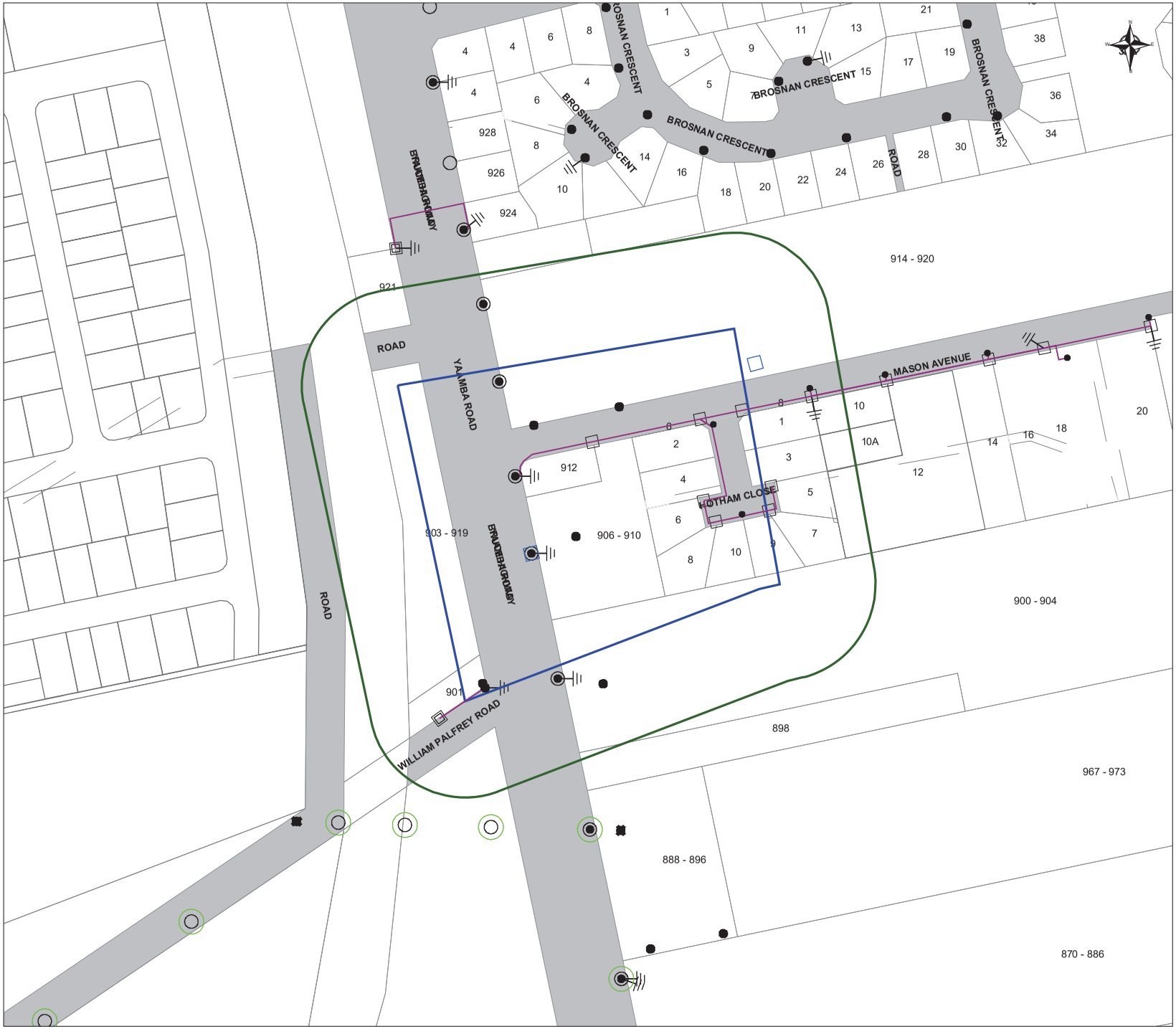
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- Abc Def Road Text.Name Annotation

DCDB [Operational_cadastre]
- Land Parcel.Area Geom
- Land Parcel Large.Area Geom
- Land Parcel Medium.Area Geom
- Easement.Area Geom
- Road Coverage.Area Geom

Unregistered Plan [Operational_cadastre]
- URP Lot.Geometry

NOTE : Cable/Conduits overlaying one another are displayed as geographically separated in the plot

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ERGON. ENERGY

101636841-20219484

Sheet: 1 Layer:Lv Cables

Created By: svc-SmallworldEO_PRD

Created Date 09/09/2020 16:47:32

Scale: 1:2000

LEGEND

Segments [Electric]
- Cable Segment.LV Route - 240V
- Cable Segment.LV Route - 415V
- Connector Point Installation.External Location - Earth Existing

Distribution Structures [Electric]
- Pedestal.Existing Location - Normal Pillar
- Pedestal.Existing Location - Cross Road Pillar
- Pole.Existing Location - HV
- Pole.Existing Location - HV/Comms
- Pole.Existing Location - HV/LV
- Pole.Existing Location - HV/LV/Comms
- Pole.Existing Location - LV
- Pole.Existing Location - SL
- Pole.Existing Location - Bollard

Substation Site [Electric]
- Substation.Existing Location - Pole Mounted Distribution
- Substation.Existing Location - Padmount

DBYD [Misc_oracle]
- DBYD Request.Ergon Search Area
- DBYD Request.Area
- Abc Def Qvas.Label Geom

DCDB Text [Operational_cadastre]
- Abc Def Road Text.Name Annotation

DCDB [Operational_cadastre]
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- Land Parcel Large.Area Geom
- Land Parcel Medium.Area Geom
- Easement.Area Geom
- Road Coverage.Area Geom

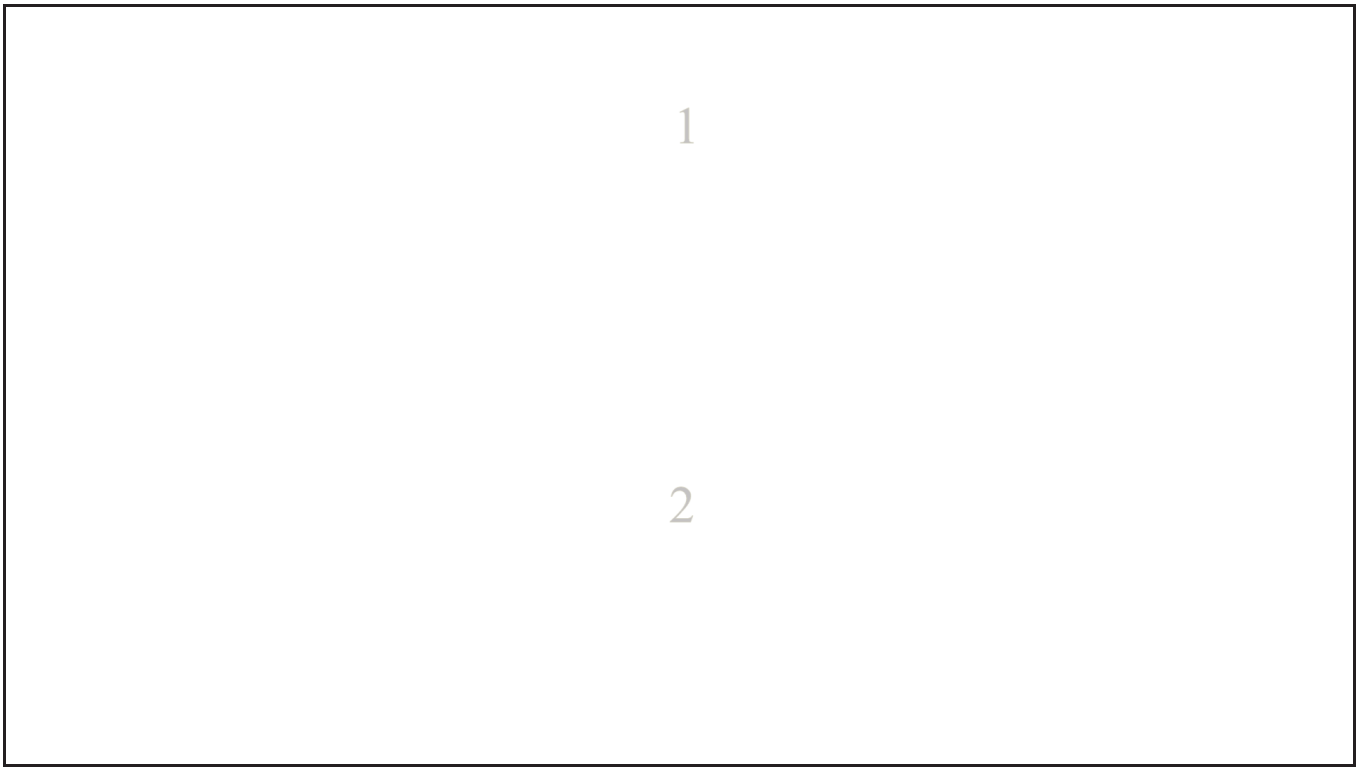
Unregistered Plan [Operational_cadastre]
- URP Lot.Geometry

NOTE : Cable/Conduits overlaying one another are displayed as geographically separated in the plot

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Indicative Plans

Issue Date:	09/09/2020
Location:	906-910 Yaamba Road , Parkhurst , QLD , 4702

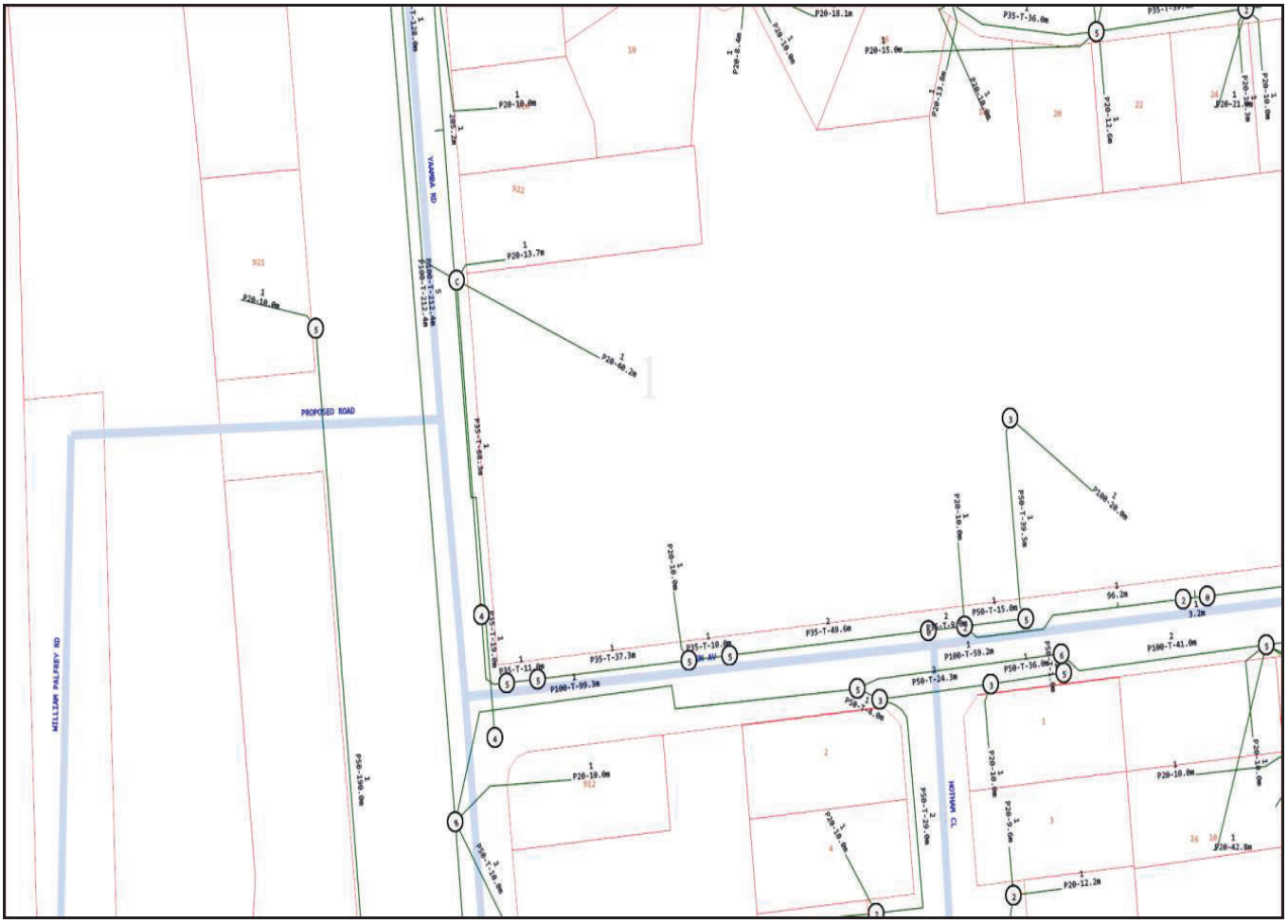


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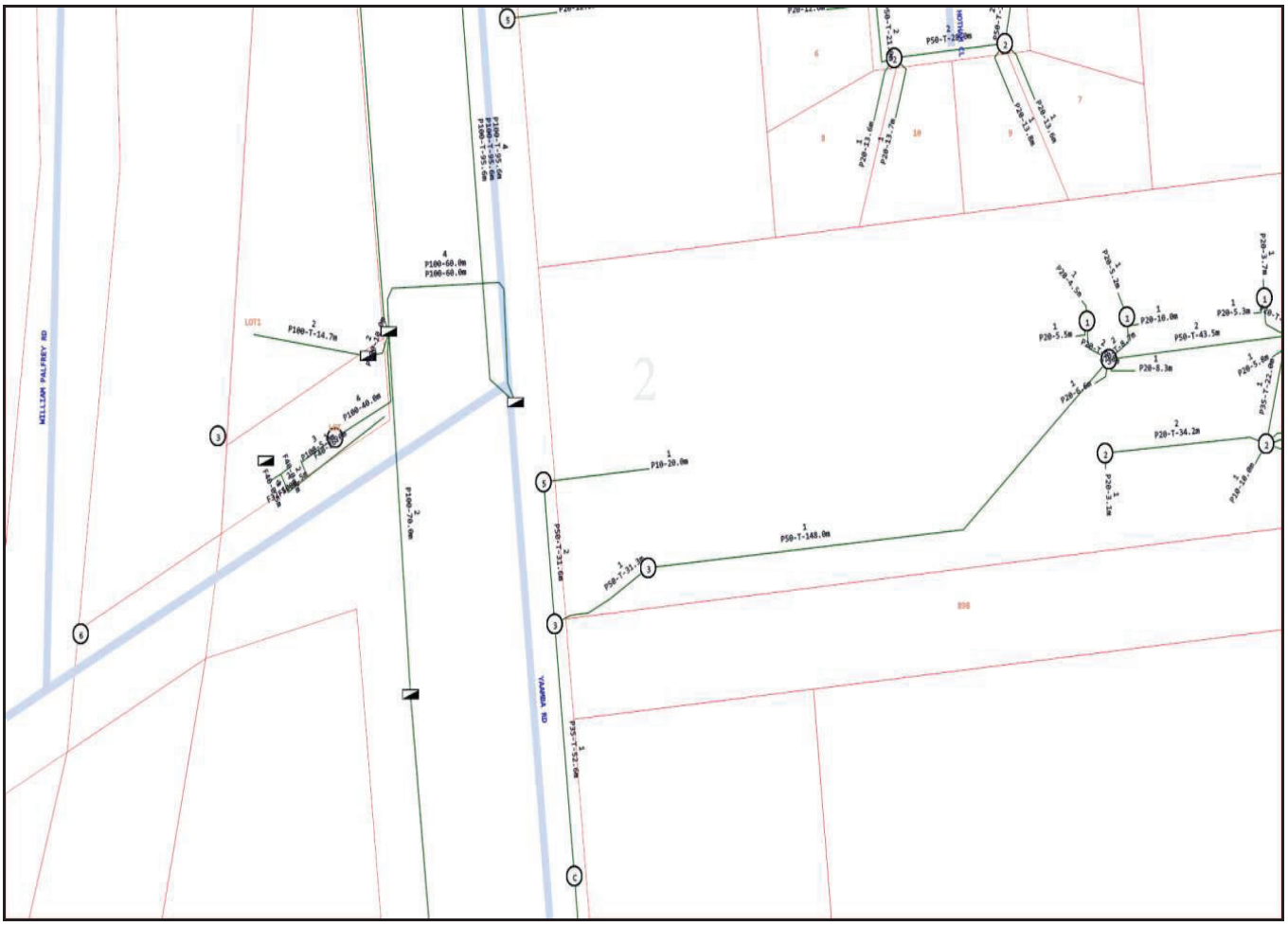
LEGEND

34	Parcel and the location
5	Pit with size "5"
2E	Power Pit with size "2E". Valid PIT Size: e.g. 2E, 5E, 6E, 8E, 9E, E, null.
	Manhole
	Pillar
2 PO – T- 25.0m P40 – 20.0m 5 9	Cable count of trench is 2. One "Other size" PVC conduit (PO) owned by Telstra (-T-), between pits of sizes, "5" and "9" are 25.0m apart. One 40mm PVC conduit (P40) owned by NBN, between pits of sizes, "5" and "9" are 20.0m apart.
2 10.0m 5 9	2 Direct buried cables between pits of sizes ,"5" and "9" are 10.0m apart.
5 9	Trench containing any INSERVICE/CONSTRUCTED (Copper/RF/Fibre) cables.
5 9	Trench containing only DESIGNED/PLANNED (Copper/RF/Fibre/Power) cables.
5 9	Trench containing any INSERVICE/CONSTRUCTED (Power) cables.
BROADWAY ST	Road and the street name "Broadway ST"
Scale	0 20 40 60 Meters 1:2000 1 cm equals 20 m

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Email info@nbn.com.au Web nbn.com.au



Level 11, 100 Arthur Street, North Sydney NSW 2060
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Email info@nbn.com.au Web nbn.com.au



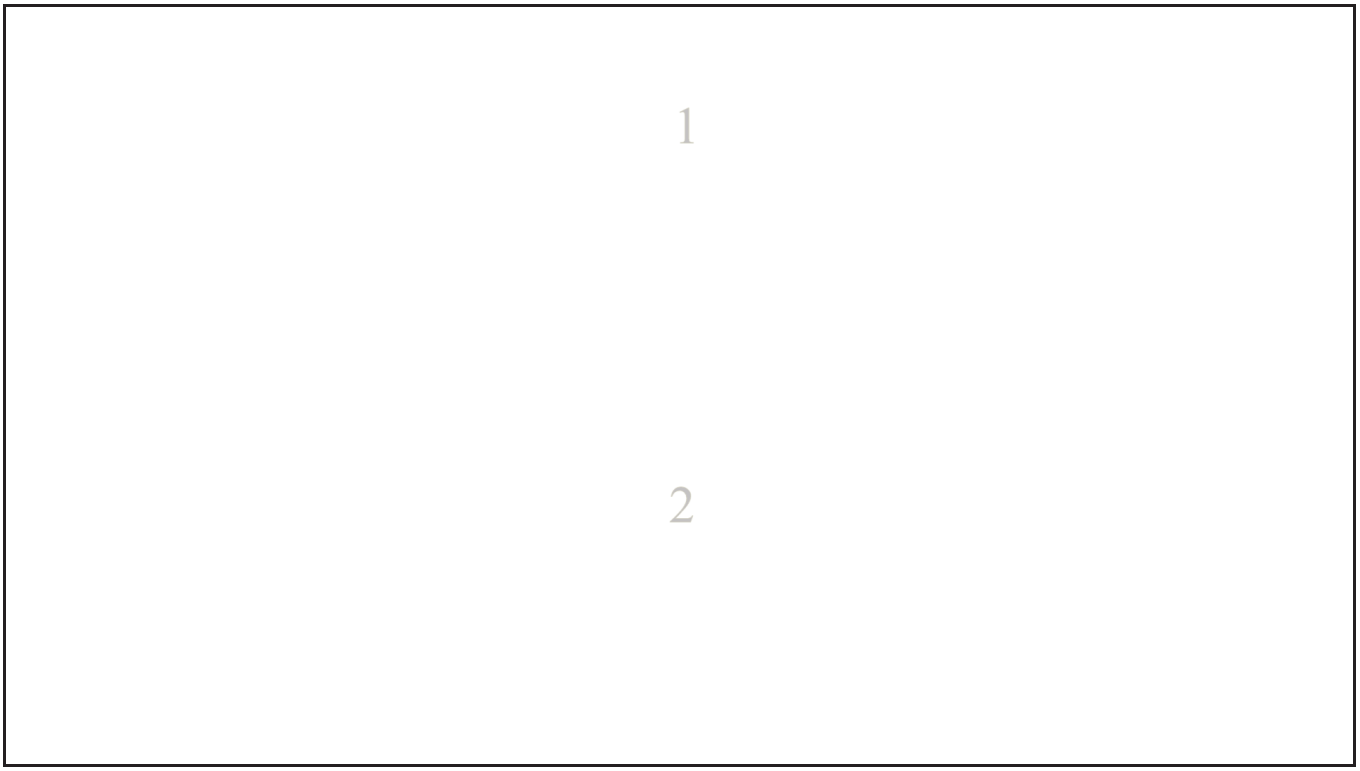
Emergency Contacts

You must immediately report any damage to **nbn™** network that you are/become aware of. Notification may be by telephone - 1800 626 329.

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Indicative Plans

Issue Date:	09/09/2020
Location:	906-910 Yaamba Road , Parkhurst , QLD , 4702



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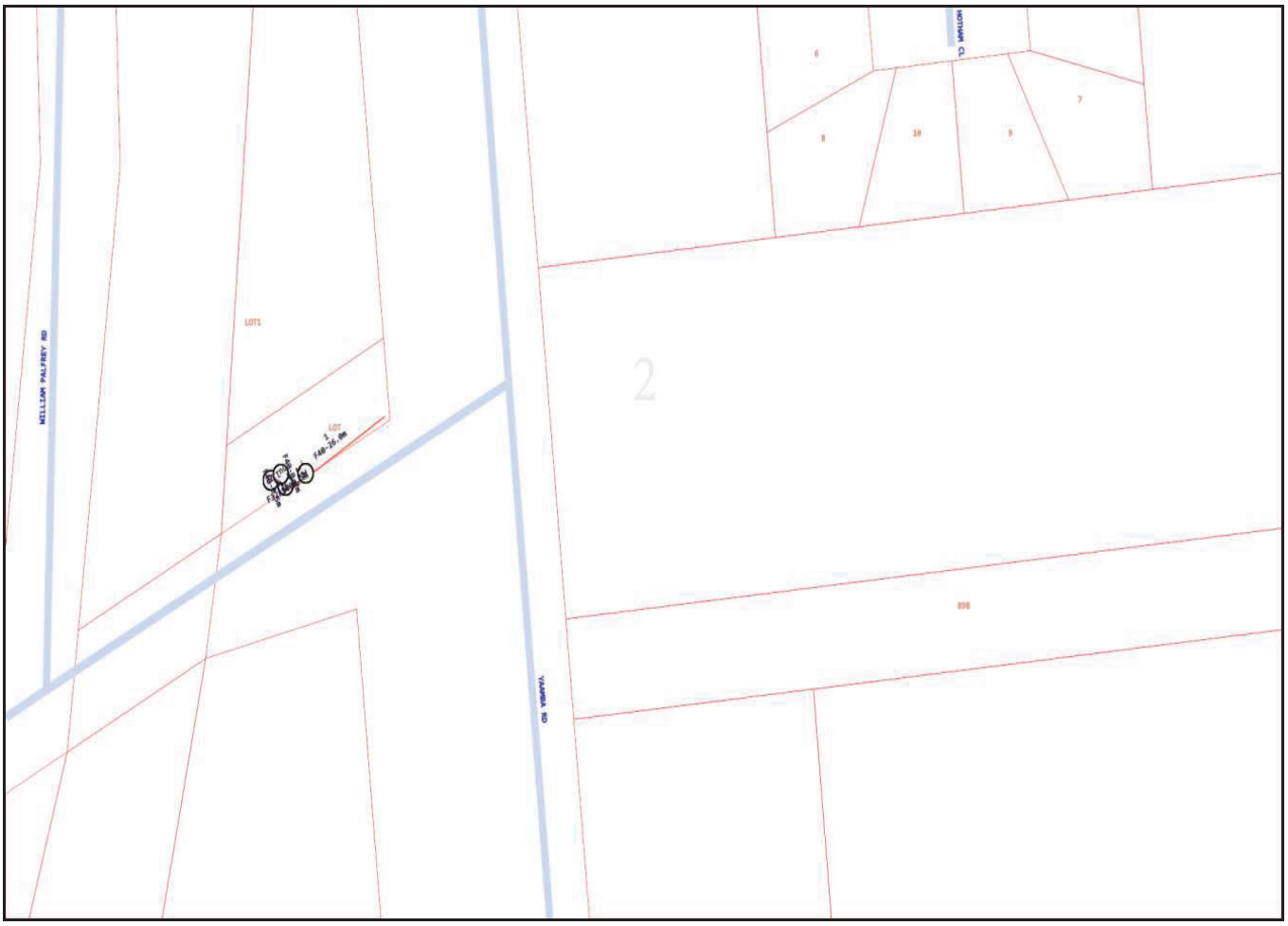
LEGEND

34	Parcel and the location
5	Pit with size "5"
2E	Power Pit with size "2E". Valid PIT Size: e.g. 2E, 5E, 6E, 8E, 9E, E, null.
	Manhole
	Pillar
2 PO – T- 25.0m P40 – 20.0m 5 9	Cable count of trench is 2. One "Other size" PVC conduit (PO) owned by Telstra (-T-), between pits of sizes, "5" and "9" are 25.0m apart. One 40mm PVC conduit (P40) owned by NBN, between pits of sizes, "5" and "9" are 20.0m apart.
2 10.0m 5 9	2 Direct buried cables between pits of sizes ,"5" and "9" are 10.0m apart.
5 9	Trench containing any INSERVICE/CONSTRUCTED (Copper/RF/Fibre) cables.
5 9	Trench containing only DESIGNED/PLANNED (Copper/RF/Fibre/Power) cables.
5 9	Trench containing any INSERVICE/CONSTRUCTED (Power) cables.
BROADWAY ST	Road and the street name "Broadway ST"
Scale	0 20 40 60 Meters 1:2000 1 cm equals 20 m

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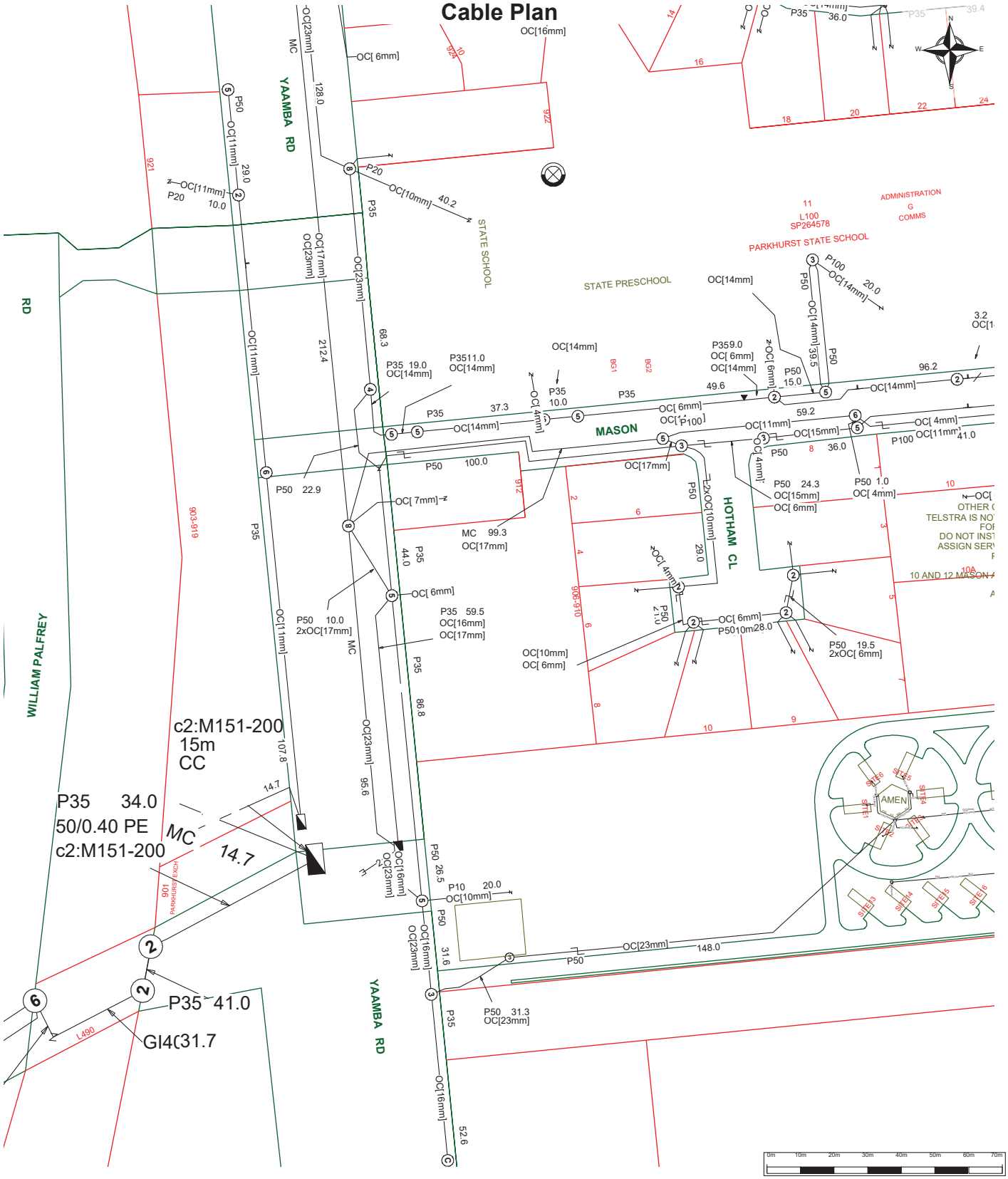


Emergency Contacts

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Cable Plan



For all Telstra DBYD plan enquiries -
email - Telstra.Plans@team.telstra.com
For urgent onsite contact only - ph 1800 653 935 (bus hrs)

TELSTRA CORPORATION LIMITED A.C.N. 051 775 556

Generated On 09/09/2020 16:50:00

Sequence Number: 101636842

CAUTION: Critical Network Route in plot area. DO NOT PROCEED with any excavation prior to seeking advice from Telstra Plan Services on : 1800 653 935

The above plan must be viewed in conjunction with the Mains Cable Plan on the following page

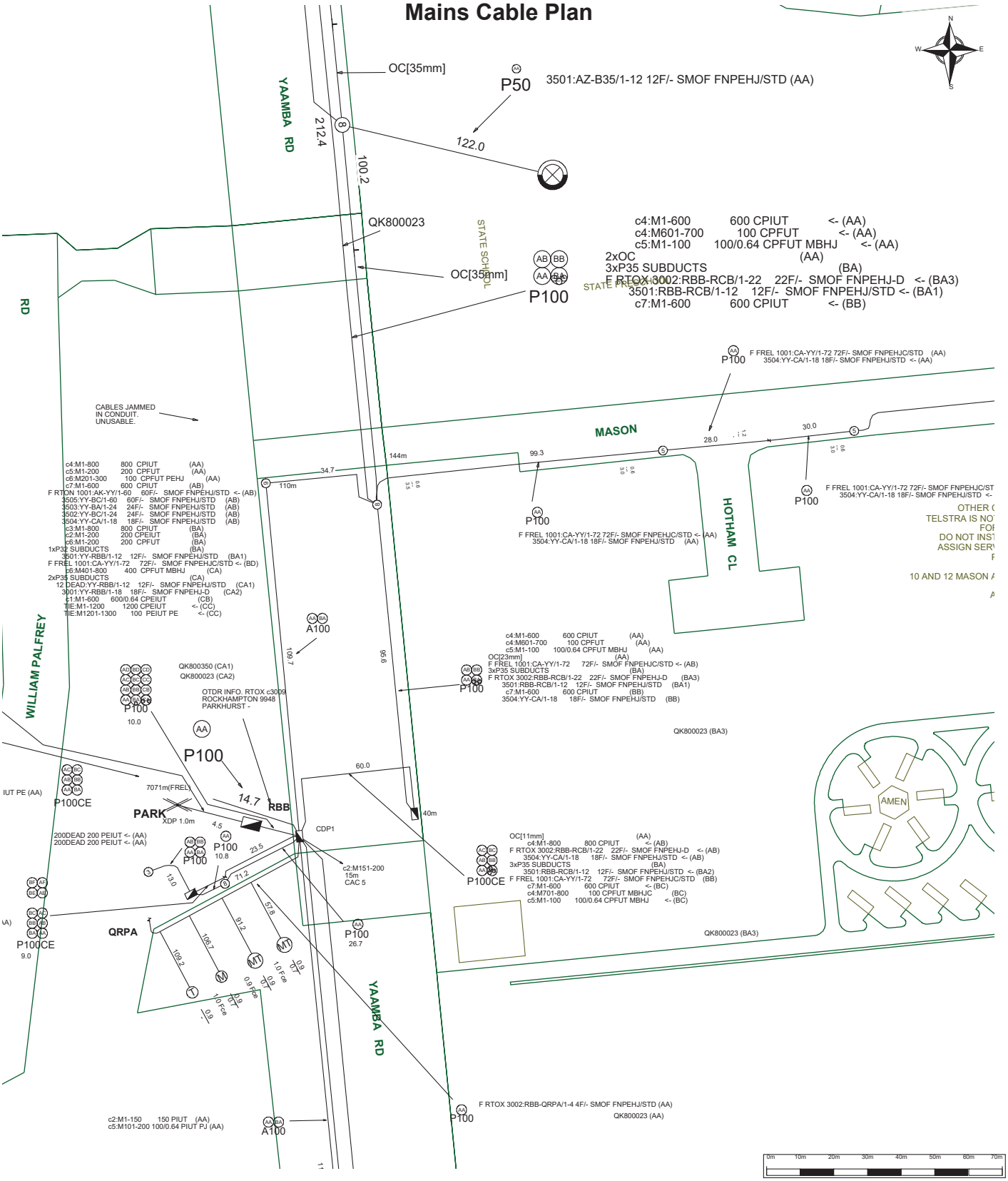
WARNING - Due to the nature of Telstra underground plant and the age of some cables and records, it is impossible to ascertain the precise location of all Telstra plant from Telstra's plans. The accuracy and/or completeness of the information supplied can not be guaranteed as property boundaries, depths and other natural landscape features may change over time, and accordingly the plans are indicative only. Telstra does not warrant or hold out that its plans are accurate and accepts no responsibility for any inaccuracy shown on the plans.

It is your responsibility to locate Telstra's underground plant by careful hand pot-holing prior to any excavation in the vicinity and to exercise due care during that excavation.

Please read and understand the information supplied in the duty of care statement attached with the Telstra plans. TELSTRA WILL SEEK COMPENSATION FOR LOSS CAUSED BY DAMAGE TO ITS PLANT.

Telstra plans and information supplied are valid for 60 days from the date of issue. If this timeframe has elapsed, please reapply for plans.

Mains Cable Plan



For all Telstra DBYD plan enquiries -
email - Telstra.Plans@team.telstra.com
For urgent onsite contact only - ph 1800 653 935 (bus hrs)

TELSTRA CORPORATION LIMITED A.C.N. 051 775 556

Generated On 09/09/2020 16:50:02

Sequence Number: 101636842

CAUTION: Critical Network Route in plot area.
DO NOT PROCEED with any excavation prior to seeking advice from Telstra Plan Services on : 1800 653 935

WARNING - Due to the nature of Telstra underground plant and the age of some cables and records, it is impossible to ascertain the precise location of all Telstra plant from Telstra's plans. The accuracy and/or completeness of the information supplied can not be guaranteed as property boundaries, depths and other natural landscape features may change over time, and accordingly the plans are indicative only. Telstra does not warrant or hold out that its plans are accurate and accepts no responsibility for any inaccuracy shown on the plans.

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Telstra plans and information supplied are valid for 60 days from the date of issue. If this timeframe has elapsed, please reapply for plans.

LEGEND

IT'S HOW WE CONNECT

For more info contact a Telstra Accredited Locater or Telstra Plan Services 1800 653 935

Exchange
(major cable present)

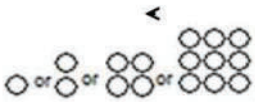
Footway access chamber
(can vary from 1-lid to 12-lid)

Pillar/cabinet
(above the ground / free standing)

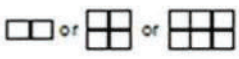
Above ground complex equipment housing (eg RIM)
Please Note: This equipment is powered by 240V electricity.

OC **other carrier**





Single to multiple round conduit
Configurations 1, 2, 4, 9 respectively
(Attached text denotes conduit type and size)



Multiple square conduit
Configurations 2, 4, 6 respectively
(Attached text denotes conduit type and size)

Some examples of conduit type and size:
A - Asbestos cement, P - PVC / plastic, C - Concrete, GI - Galvanised iron, E - Earthenware.
Conduit sizes *nominally* range from 20mm to 100mm.

P50	50mm PVC conduit
P100	100mm PVC conduit
A100	100mm asbestos cement conduit
E 85	85mm square earthenware conduit

Cable jointing pit
(number indicating pit type)

Elevated cable joint
(above ground joint on buried cable)

Telstra Plant in shared utility trench

Aerial Cable
(above ground)

Aerial Cable
(attached to joint use pole e.g. power)

Direct buried cable

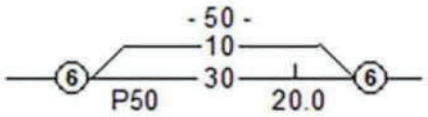
M **Marker post installed**

TR **Buried transponder**

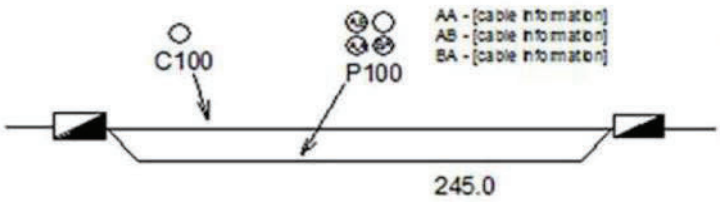
MT **Marker, transponder**

SMOF **Optical fibre cable direct buried**

Some examples of how to read Telstra plans:



One 50mm PVC conduit (P50) containing a 50-pair and a 10-pair cable between two 6-pits, 20.0m apart, with a direct buried 30-pair cable along the same route.



Two separate conduit runs between two footway access chambers (manholes) 245m apart. A nest of four 100mm PVC conduits (P100) containing assorted cables in three ducts (one being empty) and one empty 100mm concrete duct (C100) along the same route.

WARNING: Telstra plans and location information conform to Quality Level 'D' of the Australian Standard AS 5488 - Classification of Subsurface Utility Information. As such, Telstra supplied location information is indicative only. Spatial accuracy is not applicable to Quality Level D. Refer to AS 5488 for further details. Telstra does not warrant or hold out that its plans are accurate and accepts no responsibility for any inaccuracy shown on the plans. FURTHER ON SITE INVESTIGATION IS REQUIRED TO VALIDATE THE EXACT LOCATION OF TELSTRA PLANT PRIOR TO COMMENCING CONSTRUCTION WORK. A plant location service is an essential part of the process to validate the exact location of Telstra assets and to ensure the asset is protected during construction works. The exact position of Telstra assets can only be validated by physically exposing it. Telstra will seek compensation for damages caused to its property and losses caused to Telstra and its customers.

Plant Location Details

09/09/2020

Mr Jesse Hardman
Pinnacle Engineering Group
PO Box 517
Paradise Point, 4216
Phone: 0418784662
Mobile: Not Supplied
Email: jesse@pinnacleeng.com.au

Visionstream Pty Limited
ABN 80 062 604 193 20
Corporate Drive Heatherton,
Victoria 3202
T 1800 336 886
E reefdbydadmin@visionstream.com.au
W www.visionstream.com.au

The following is a response to your Dial Before You Dig enquiry

Sequence No: 101636839
Location: 906-910 Yaamba Road
Parkhurst, QLD, 4702
Activity Description: Mechanical Excavation
Planning and Design: No
Commencement Date: 10/09/2020

As a result of your inquiry based on the description of work provided by you, Visionstream believes that your enquiry impacts the Reef Network. To assist, Visionstream has enclosed a copy of the relevant plans of the network. You are reminded that this does not eliminate the need for you to take every possible care when conducting work close to the Reef Network.

Due to the nature of your work and the proximity to the cable network, Visionstream requires that one of our representatives carry out further investigation prior to the commencement of any construction. Subject to the outcome of this investigation, it may prove necessary to manually expose the cable network before you proceed. This service will be provided at your cost, which can be kept to a minimum with your assistance. Visionstream will contact you shortly to arrange a suitable on-site visit.

You should be aware that the Reef Network is a communications network with rights under the Telecommunications Act of 1975. Visionstream will invoke those rights should your works interrupt the cable and its communication traffic. This could involve seeking redress for the restoration of the cable and restitution of the penalties incurred by Visionstream as a result of the cable damage.

Should the scope of works supplied to Visionstream change, it is expected that you will seek further information from Visionstream for any proposed variations before they are to begin construction. Visionstream will provide onsite support, where required, for nominal rates.

Once again let me thank you for your interest and please do not hesitate to contact us again if we can be of service.

Yours faithfully

Jevat Jonuzi
for Mark Aguis

VISIONSTREAM PTY. LIMITED

WARNING - The accuracy and/or completeness of the information provided cannot be guaranteed as property boundaries, depths and other natural landscape features may change over time, and accordingly the plans are indicative only. Reef Networks does not warrant or hold out that its plans are accurate and accepts no responsibility for any accuracy shown on the plans. It is your responsibility to locate Reef Networks' underground plant by careful vacuum excavation/hand potholing prior to any excavation in the vicinity and to exercise due care during that excavation. Please read and understand the information provided. If you do not understand what your obligations are in respect to Duty of Care, please call 1800 336 886. REEF NETWORKS WILL SEEK COMPENSATION FOR LOSS CAUSED TO ITS PLANT. Reef Network's plans and information provided are valid for 28 days from the date of issue. If this timeframe has elapsed please reapply for plan

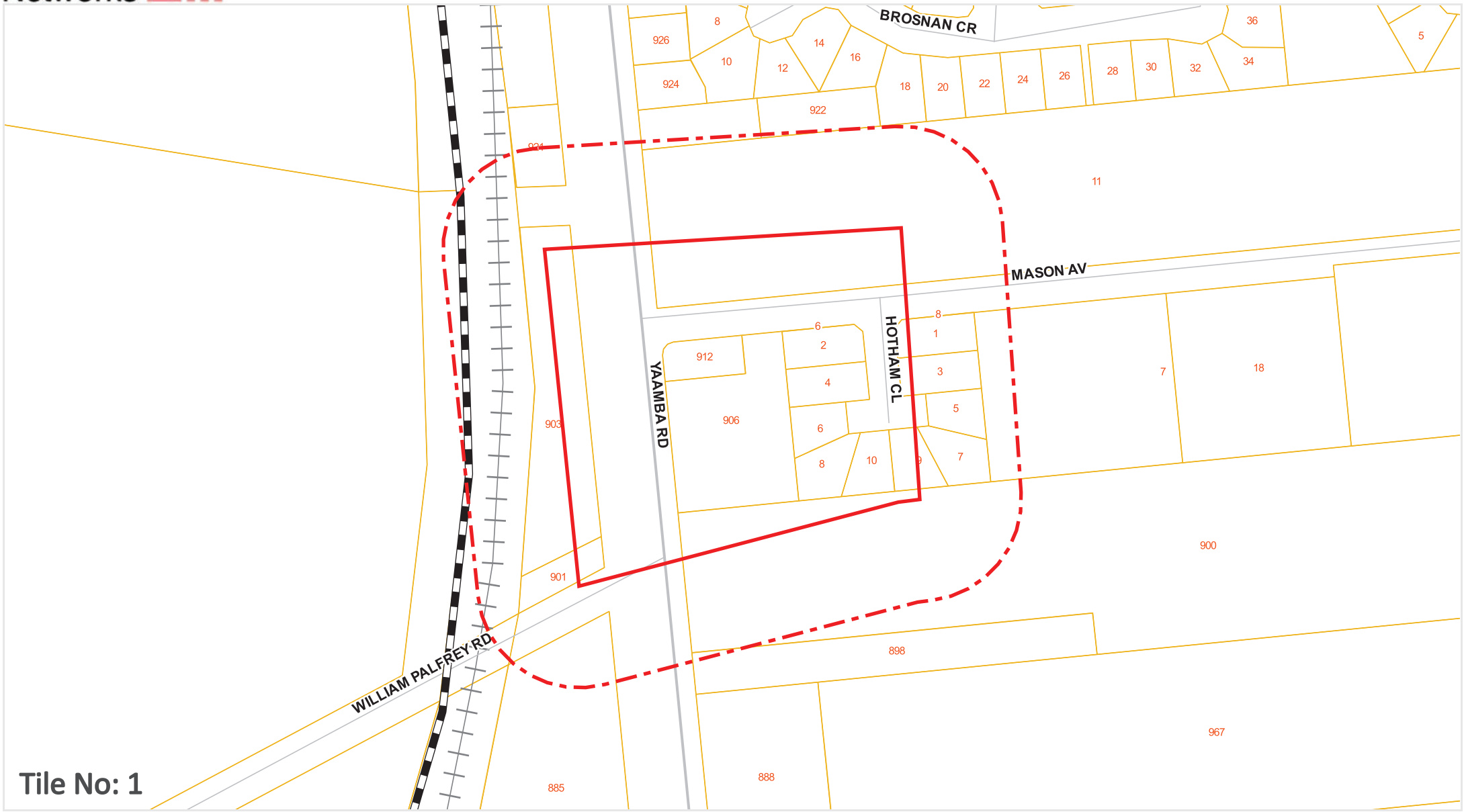
DIAL BEFORE YOU DIG www.1100.com.au The Essential First Step.

While reasonable measures have been taken to ensure the accuracy of the information contained in this plan response, neither Visionstream or PelicanCorp shall have any liability whatsoever in relation to any loss, damage, cost or expense arising from the use of this plan response or the information contained in it or the completeness or accuracy of such information. Use of such information is subject to and constitutes acceptance of these terms.

Reef Networks

Sequence No: 101636839
Job No: 20219484
Location: 906-910 Yaamba Road, Parkhurst, QLD 4702

DIAL BEFORE YOU DIG www.1100.com.au
The Essential First Step.



Legend | Scale: 1:2500

N

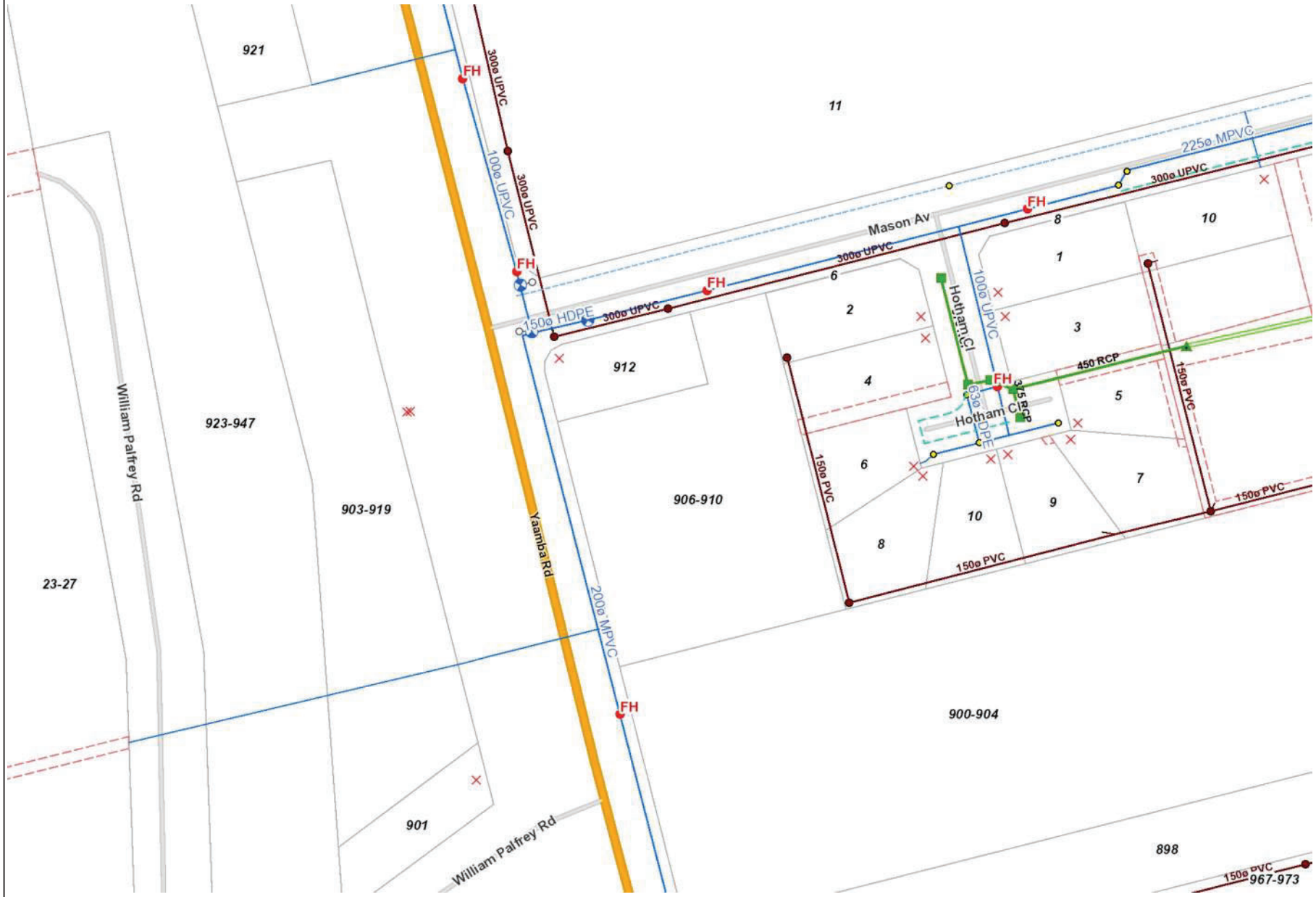
Cable

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DBYD Number: 20219484

Sequence Number: 101636840

906-910 Yaamba Road, Parkhurst QLD 4702



DBYD - Rockhampton Regional Council Infrastructure

CBD Parking sensor zones

Water
- Gate, Sluice, Butterfly
- Air Valve
- Ball Cock, Stop Cock
- Ball Valve
- Motor Sluice Valve
- Non Return Valve
- Pressure Reducing Valve
- RPZ Valve
- Reflux Valve
- Scour Valve
- Sluice Bypass Valve
- Tap
- Other Valve Type
- Open - Dialysis
- Closed - Zone
- Valve Normally Open
- Valve Normally Closed
- Trunk Main
- Reticulation Main
- Raw Water Main
- Scour Line
- Other Main Type
- Water Service
- Hydrants
- Reservoirs
- Intake
- Pump Station
- Treatment Plant
- Unknown
- Abandoned Mains

Private Water
- Private Water Hydrants
- Private Water Valves
- Private Water Mains
- Private Water Abandoned Mains

Stormwater
- Flood Mitigation Devices
- Culverts
- Headwalls
- Stormwater Junctions
- Pollution Trap
- Subsoil Clean-Out pit
- Stormwater Jump ups
- Connector; Reticulation Main
- Culvert Pipe; LinkSlab
- Inter-Allotment
- Low Flow Pipe
- Other
- Stormwater Drop Structures
- Batter Chute; Open Channel
- Bio-Retention Swale
- Subsoil Drain
- Weirs
- Bio-Retention Detention/Retention
- Abandoned Mains
- Abandoned Headwalls
- Abandoned Culverts
- Abandoned Junctions

Private Stormwater
- Culverts Private
- Headwalls Private
- Stormwater Junctions Private
- Pollution Trap Private
- Subsoil Clean-Out pit Private
- Stormwater Jump Up Private
- Stormwater Main Private
- Open Channel Private
- Subsoil Drain Private
- Retention Basins Private

Effluent
- Effluent Structures
- Effluent Valves
- Effluent Mains

Sewer
- Pump Station
- Treatment Plant
- Combined Main
- Reticulation Main
- Trunk Main
- Overflow Main
- Sewer Rising Mains
- Roll Over
- Lamp Hole | Inspection Opening
- Overflow Chamber
- Access Chambers
- Sewer Valves
- Sewer Jump Ups
- Sewer Access Chambers Abandoned
- Sewer Mains Abandoned

Private Sewer
- Pump Station
- Treatment Plant
- Sewer Access Chambers Private
- Sewer Joints Private
- Sewer Valves Private
- Sewer Gravity Mains Private
- Sewer Rising Mains Private
- Sewer Jump Ups Private
- Sewer Mains Abandoned Private
- Sewer Access Chambers Abandoned Private

Administrative
- Easements
- Property Parcels

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GDA2020

A3 Page scale at 1:1,000.00

Printed from GeoCortex on 10/09/2020

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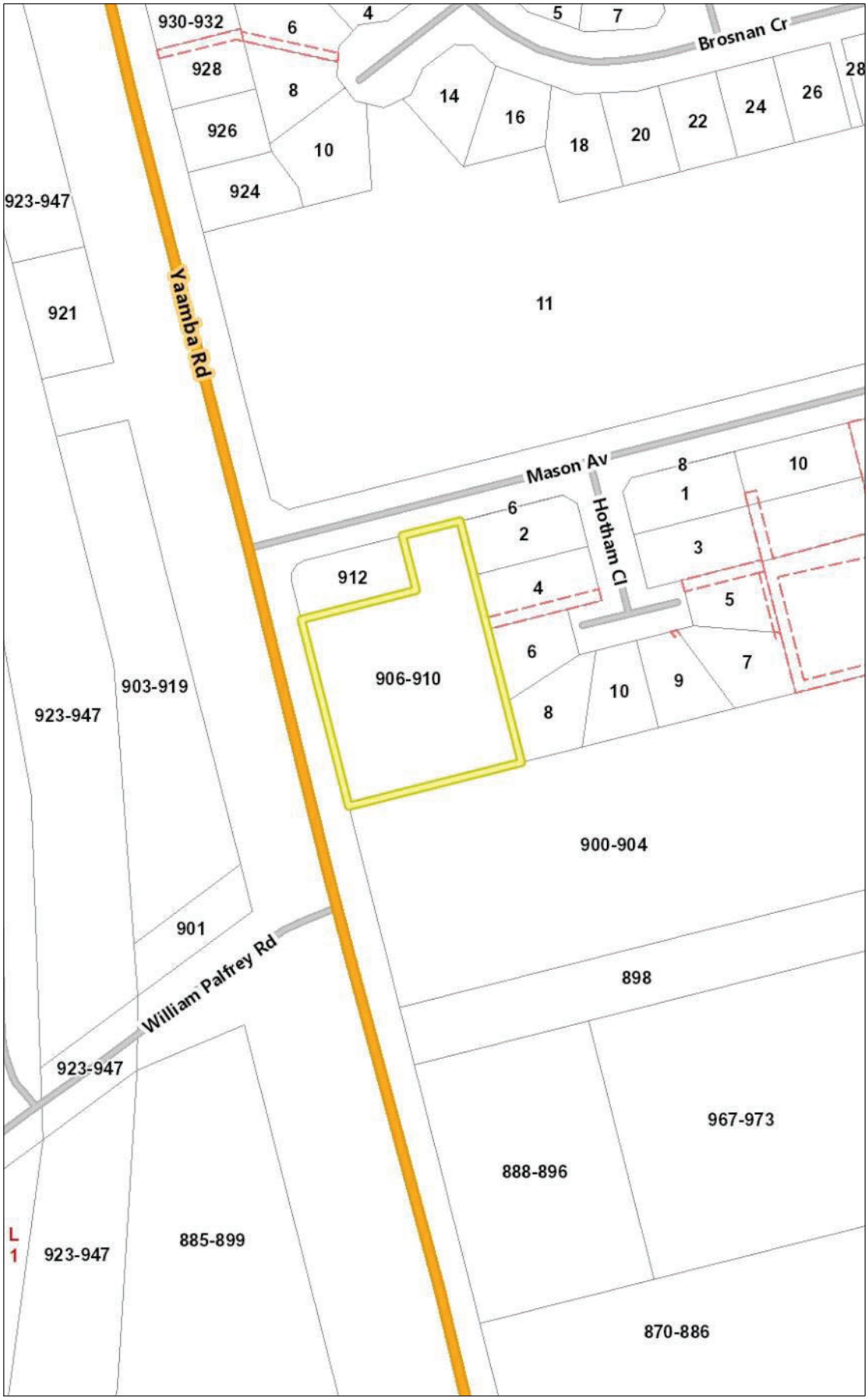
Appendix E

RRC Overlays and Codes

RichTextBox1

A4 scale at 1: 1,934.34

Printed from RRPS on: 09/09/20



Legend

- RRC Mask
- RRC Mask
- Bajool & Port Alma
- Acid Sulfate Soils
  - Land above 5m AHD and below 20m AHD
  - Land at or below 5m AHD
- Roads1
  - Main roads
  - Major council roads
  - Standard council roads
  - Access roads
  - Private roads
- Easements
- Property Parcels
- Ocean
- Rivers
- DCDB Parks
- CQ LGA Boundaries

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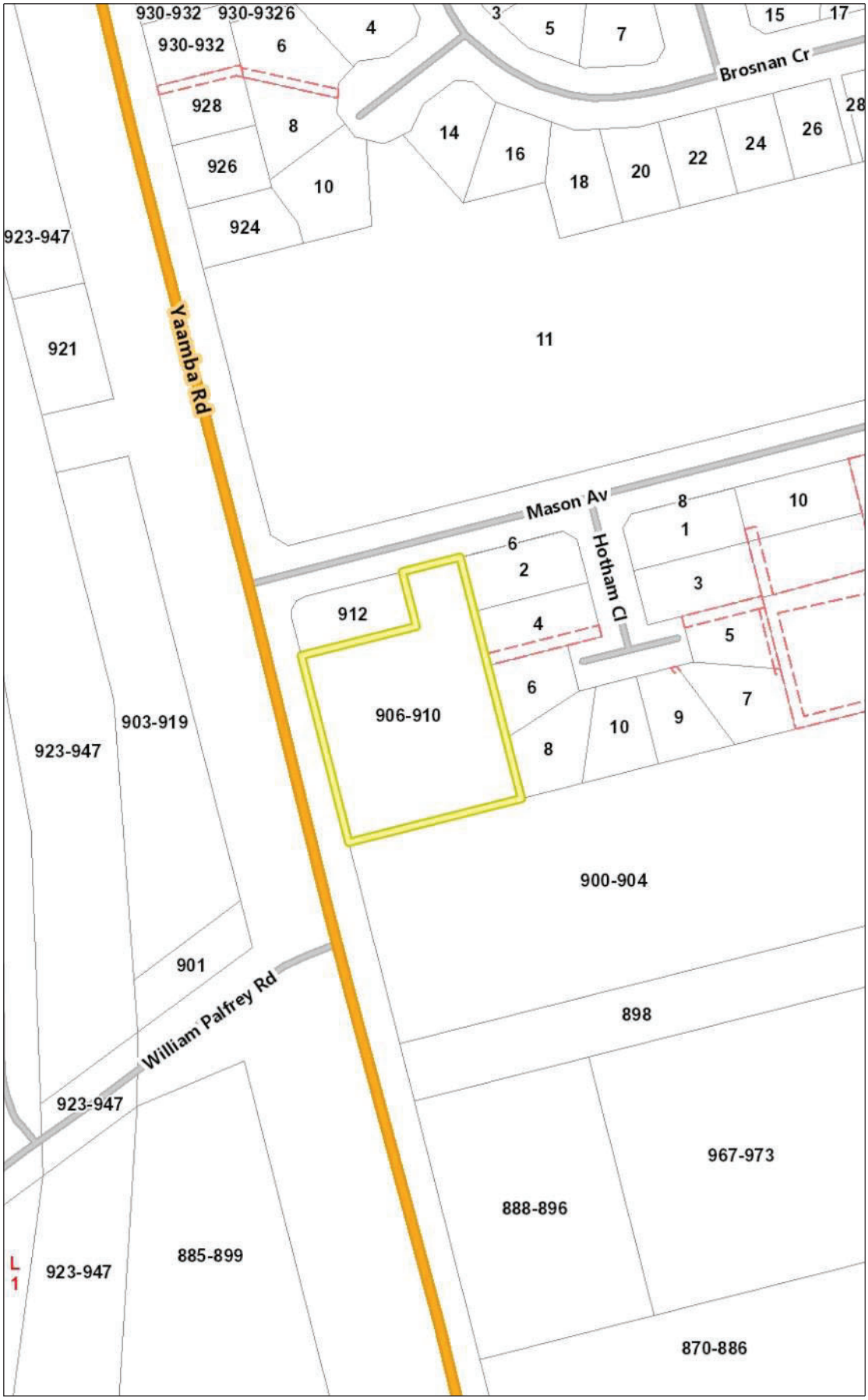
GDA 2020

Rockhampton Regional Council

RichTextBox1

A4 scale at 1: 1,934.34

Printed from RRPS on: 09/09/20



Legend

- Development Information
- RRC Mask
- RRC Mask
- Fitzroy River Flood
  - H1 (Low)
  - H2 (Medium)
  - H3 (High)
  - H4 (High)
  - H5 (Extreme)
  - H6 (Extreme)
- Floodplain Investigation Area
- Fitzroy River Defined Flood Event
- Planning Area 1
- Planning Area 2
- North Rockhampton Flood Management Area
- Roads1
  - Main roads
  - Major council roads
  - Standard council roads
  - Access roads
  - Private roads
- Easements
- Property Parcels
- Ocean
- Rivers
- DCDB Parks
- CQ LGA Boundaries

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GDA 2020

Rockhampton Regional Council

9.3.8 Water and sewer code

9.3.8.1 Application

This code applies to assessing development where the code is identified as applicable in the tables of assessment.

When using this code, reference should be made to section 5.3.2 and, where applicable, section 5.3.3 located in Part 5.

9.3.8.2 Purpose

(1) The purpose of the water and sewer code is to ensure that development is provided with potable water and sewerage infrastructure in an efficient and sustainable way, which maintains public health.

(1) The purpose of the code will be achieved through the following overall outcomes:
- (a) development facilitates the efficient provision of water, including infrastructure for supply, treatment, storage and reticulation;
- (b) development facilitates the efficient provision of sewerage infrastructure, including reticulation, treatment, storage and disposal;
- (c) whole of life cycle costs for water and sewerage infrastructure are minimised; and
- (d) adverse impacts on the environment and the amenity of the locality are avoided and optimal use of water resources is maintained.

9.3.8.3 Specific benchmarks for assessment

Table 9.3.8.3.1 — Development outcomes for assessable development

Performance outcomes	Acceptable outcomes	Assessment
Water		
PO1 A water supply is provided that is adequate for the current and future needs of the intended development.	**AO1.1** Where within a water supply planning area, the development is connected to Council's reticulated water supply system in accordance with SC6.21 — Water supply infrastructure planning scheme policy and the Capricorn Municipal Development Guidelines. Editor's note—A network analysis may be required to demonstrate compliance with this acceptable outcome. Editor's note—Where development is located outside of the water supply planning area to refer to the requirements under the Plumbing Code of Australia.	Complies

Performance outcomes	Acceptable outcomes	Assessment
PO2 Reticulated water supply networks ensure that the installation is sustainable and minimises whole of life cycle costs.	**AO2.1** Where within a water supply planning area, water supply systems and connections are designed and constructed in accordance with SC6.21 — Water supply infrastructure planning scheme policy and the Capricorn Municipal Development Guidelines. Editor's note—A network analysis may be required to demonstrate compliance with this acceptable outcome. **AND** **AO2.2** Where within a water supply planning area, staged developments are connected to the water supply network and operational prior to the commencement of the use or endorsement of the survey plan.	N/A
Sewer		
PO3 Sewerage treatment and disposal is provided that is appropriate for the level of demand generated, protects public health and avoids environmental harm.	**AO3.1** Where within a sewer planning area, the development is connected to Council's reticulated waste water system in accordance with SC6.17 — Sewerage infrastructure planning scheme policy and the Capricorn Municipal Development Guidelines. Editor's note—A network analysis may be required to demonstrate compliance with this acceptable outcome. Editor's note—Where development is located outside of the sewer planning area to refer to the requirements under the Plumbing Code of Australia.	Complies
PO4 Reticulated sewer networks ensure that the installation of infrastructure assets is	**AO4.1** Where within a sewer planning area, waste water systems and connections are designed	N/A

Performance outcomes	Acceptable outcomes	Assessment
sustainable and minimises whole of life cycle costs.	and constructed in accordance with SC6.17 — Sewerage infrastructure planning scheme policy and the Capricorn Municipal Development Guidelines. Editor's note—A network analysis may be required to demonstrate compliance with this acceptable outcome. **AND** **AO4.2** Where within a sewer planning area, staged developments are connected to the waste water network and operational prior to the commencement of the use or endorsement of the survey plan.	
Point source waste water management		
PO5 The waste water management plan provides that waste water is managed in accordance with a waste management hierarchy that: (a) avoids waste water discharge to waterways; or (b) minimises waste water discharge to waterways by reuse, recycling, recovery and treatment for disposal to sewer, surface water and groundwater if it is agreed waste water discharge to waterways can not practically and reasonably be avoided.	**AO5.1** A waste water management plan (WWMP) is prepared by a suitably qualified person. The waste water management plan accounts for: (a) waste water type; (b) climatic conditions; (c) water quality objectives; and (d) best practice environmental management.	N/A

PINNACLE ENGINEERING GROUP

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(PO Box 517, Paradise Point QLD 4216)
www.pinnacleeng.com.au

ACCESS TRAFFIC
CONSULTING









Childcare Centre – 906-910 Yaamba Road, Parkhurst

Traffic Impact Assessment

December 2020

ROCKHAMPTON REGIONAL COUNCIL
APPROVED PLANS
These plans are approved subject to the current conditions of approval associated with
Development Permit No.: D/118-2020
Dated: 12 January 2021

Prepared for Natural Wonders Berserker Pty Ltd

Quality Information

Document	Traffic Impact Assessment
Client	Natural Wonders Berserker Pty Ltd
Reference	ZON0120-002
Date	10 December 2020
Prepared By	Andrew Barrie

Revision History

Rev	Revision Date	Details	Authorised	
			Name / Position	Signature
0	02/10/2020	Draft for Client Comment	Andrew Barrie Principal Traffic Engineer	Original Signed
A	06/10/2020	Final	Andrew Barrie Principal Traffic Engineer	Original Signed
B	18/10/2020	Final (Revised Project Plans)	Andrew Barrie Principal Traffic Engineer	Original Signed
C	10/12/2020	RRC RFI Response	Andrew Barrie Principal Traffic Engineer RPEQ 12801	

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Executive Summary

Access Traffic Consulting (ATC) was commissioned by Natural Wonders Berserker Pty Ltd to undertake a Traffic Impact Assessment (TIA) for the proposed childcare centre development at 906-910 Yaamba Road, Parkhurst, on the land parcel formally described as Lot 900 SP247151. The development of the centre is proposed to be staged, with Stage 1 proposed to open in 2022 and cater for 108 children, with approximately 18 full time equivalent staff, while Stage 2 will open in 2025 increasing the capacity of the centre to 152 children, and the staff numbers to 22.

The development site is located within the Rockhampton Regional Council (RRC) Local Government Area, with access proposed to be provided from the RRC controlled Mason Avenue, with development traffic also utilising the adjacent State-controlled intersection of Yaamba Road (Bruce Highway) / Mason Avenue. Therefore, the Traffic Impact Assessment (TIA) was carried out to establish the traffic impacts of the Project on the operation of both the local Council and State-controlled road networks, and as such the proposal has been assessed considering the relevant State government guidelines and Council controls, including the Department of Transport and Main Roads' Guide to Traffic Impact Assessment (GTIA) December 2018 and Rockhampton Region Planning Scheme (Planning Scheme – 9.3.1 Access, parking and transport code).

The review of the proposed internal facilities / layout of the proposed childcare centre development undertaken as part of the assessment identified:

- The proposed on-site parking provision for both Stage 1 (**36 spaces**) and Stage 2 (**48 spaces**) is in accordance with Council's requirements (**Stage 1 - 36 spaces / Stage 2 – 48 spaces**) and as such is considered adequate to cater for the parking demand expected to be generated by the development, noting that the provision of tandem parking bays in Stage 2 is deemed acceptable due to the designation of both bays for longer term staff parking on-site.
- The on-site parking provision, all elements of the parking area and site access are proposed to be provided in accordance with the required standards and considered suitable to service the expected vehicle traffic from the childcare centre.
- The proposed servicing and refuse collection arrangements for the childcare centre can be considered adequate, with the swept paths of the nominated refuse collection vehicles shown to be able to enter the site, manoeuvre to the undertake the required refuse collection activities for the development and then egress the site in a forwards gear.

In addition to the review of the internal transport facilities proposed, an assessment of the potential traffic impact of the proposed development on the external road network was also undertaken. This assessment identified:

- That based on the expected increases in daily traffic volumes and the resultant post development volumes still being within the capacities of a multi-lane urban arterial / highway (Yaamba Road) and that expected for Mason Avenue, which currently provides the required configuration for a minor urban collector (750 - 3,000 vpd). As such, the additional traffic from the proposed childcare centre is not anticipated to have a significant impact on the operation of the surrounding road links.
- That based on a turn warrants assessment completed, minor BAR and BAL could be applied to the site access intersection, but that as design volumes were at the lower end of the turn warrants graph, the urban nature of the site, the low opposing traffic volumes to the turn movements and the existing constraints provided by the adjacent kerbside parking lanes on both sides of Mason Avenue in the vicinity of the site access, it was considered that formal road widening (i.e. BAR or BAL treatments) were not required at the proposed access location.
- That detailed intersection analysis of the proposed site access on Mason Avenue identified that the intersection was expected to operate satisfactorily under the required post development traffic

conditions at both the expected year of completion and 10 year design horizons for both Stage 1 (2022/2032) and Stage 2 (2025/2035) of the proposed childcare centre.

- That detailed analysis of the adjacent Yaamba Road / Mason Avenue intersection identified that the proposed RNAU configuration of the intersection (removal of right turn out of Mason Avenue) currently under construction, is expected to operate satisfactorily under all post development traffic scenarios assessed for the expected year of completion for both Stage 1 (2022) and Stage 2 (2025) of the Project.
- That the proposed development would have no impact on the configuration or operation of the existing public transport and active transport facilities in the vicinity of the site.

Based on the results of the assessments identified above, it was determined that the proposed childcare centre development can be considered to have a minor impact on the operation of the adjacent road network and can therefore be recommended to be approved from a traffic engineering perspective.

1.0 Introduction and Summary

1.1 Project Background

The applicant proposes to establish a childcare centre at 906-910 Yaamba Road, Parkhurst (Rockhampton), on the land parcel Lot 2 RP864537. The centre is proposed to cater for up to 152 children, with approximately 22 full time equivalent staff. It is anticipated that the development will occur over two stages with the first stage to open in 2022 to 108 children with 18 full time equivalent staff and the second stage to open in 2025 to the full capacity mentioned previously.

1.2 Project Context

Access Traffic Consulting (ATC) was commissioned by Natural Wonders Berserker Pty Ltd to undertake a Traffic Impact Assessment (TIA) for the proposed childcare centre development (the Project).

The Project site is located within the Rockhampton Regional Council (RRC) Local Government Area, with access proposed to be provided from the RRC-controlled Mason Avenue. Traffic generated by the development is anticipated to also utilise the adjacent RRC-controlled Norman Road and the adjacent State-controlled link of Yaamba Road, along with the intersection of Yaamba Road / Mason Avenue and the intersection of Norman Road / Mason Avenue.

The Traffic Impact Assessment (TIA) was carried out to determine the level of potential impacts of the Project on the operation of both the local Council and State-controlled road networks, and as such the proposal has been assessed considering the relevant State government guidelines and Council controls, including the Department of Transport and Main Roads' Guide to Traffic Impact Assessment (GTIA) December 2018 and Rockhampton Region Planning Scheme (Planning Scheme – 9.3.1 Access, parking and transport code).

1.2.1 Study Area

As identified above, the proposed childcare centre is to be located on the southern side of Mason Avenue, to the east of Yaamba Road, at 906-910 Yaamba Road which is formally described as Lot 2 RP864537. The location of the proposed development is shown in **Figure 1** below.



Figure 1 Study Area – Lot 2 RP864537 (906-910 Yaamba Road, Parkhurst) **[Source: Qld Globe]**

1.2.2 Previous Road Authority Advice

1.2.2.1 RRC Pre-lodgement Minutes

As part of the initial stage of the Project a pre-lodgement meeting was held with representatives of RRC on 27 July 2020, with the minutes of this meeting included for reference as **Appendix A**.

A summary of the main traffic related items identified for the Project are listed below.

- Parkhurst State School is expanding to accommodate additional students.
- Council receives numerous complaints about the parking and traffic conditions in Mason Avenue.
- Recommend consulting with DTMR to request a possible access onto Yaamba Road with movement limited to left-out only.
- Car parking allowance will not be relaxed, due to there being no available on-street parking in Mason Avenue.

1.2.2.2 RRC Request for Information

Following the submission of the development application, RRC provided an Information Request (dated 6 November) relating to the initial TIA for the Project, which identified two main queries regarding the previous assessment. These queries are summarised below, with a copy of the information request included in **Appendix A**:

- Council requested that the assumed peak hour traffic generation for the proposed childcare centre be increase from the previously assumed 0.63 trips / child to 0.86 trips / child, in line with data surveys completed by RRC.
- Council requested that the applicant pursue a left out exit onto Yaamba Road through further discussions with the Department of Transport and Main Roads (TMR), as a means to minimising the impact of the proposed development on the existing congestion on Mason Avenue during the school PM peak hour.

As such the requested peak hour generation rate has been adopted as part of the assessment, with the development traffic calculations and associated intersection analysis revised accordingly in this report. Further discussions were also had with TMR regarding the potential for the provision of a left only exit onto Yaamba Road as part of the Project, with further details of these discussions and the subsequent outcome identified in the section below.

1.2.2.3 TMR Referral Agency Response with Conditions and Additional Advice

Further discussion were undertaken with officers of TMR in relation to the additional provision of a left turn exit from the site onto Yaamba Road, with advice received that the proposed left turn exit onto Yaamba Road (as requested by RRC), was not supported by TMR due to expected safety concerns associated with the nearby Mason Street intersection and the adjacent bus stop facilities to the north provided as part of the Rockhampton Northern Access Upgrade project currently under construction in the vicinity of the development site. The outcomes of these discussions can be found in the email correspondence from TMR included for reference in **Appendix A**.

Following these discussions, TMR issued a formal Referral Agency Response with Conditions for the proposed childcare centre development, which further identified that no direct access would be permitted between Yaamba Road (Bruce Highway) and the subject site. A copy of this response is also provided in **Appendix A**.

Based on the outcomes of the discussions with TMR and the formal response received, no changes to the currently proposed access arrangements, being a single sole access point on Mason Avenue, are proposed as part of this revised traffic impact assessment.

1.3 Data Sources

The following sources of data have been used for the purpose of this assessment:

- TMR AADT Road Segment Data (2018) for Site 60926 (10F Bruce Highway – Yaamba Road between Rockhampton-Yeppoon Road and Terra Nova Drive) – refer **Appendix B**.
- TMR Weekly Volume (2018) for Site 60926 (10F Bruce Highway – Yaamba Road between Rockhampton-Yeppoon Road and Terra Nova Drive) – refer **Appendix B**.
- Intersection turning movement count of the existing Yaamba Road / Mason Avenue priority (give-way sign) controlled T intersection undertaken on Tuesday 21 June 2020. The raw traffic data from this intersection count is included for reference as **Appendix C**.
- Parkhurst State School Traffic Management Plan prepared by Bitzios Consulting, dated 23 July 2020 – refer **Appendix D**.
- Sign-in and sign-out times for a Rockhampton childcare centre collected over 1 week (5 days) in August 2020. The raw data cannot be shared however a break-down of the peak times is attached as **Appendix E**.
- Queensland Globe (https://qldglobe.information.qld.gov.au) - crash data in vicinity of the site.
- Queensland Government Traffic Generation Data (https://www.data.qld.gov.au/dataset/traffic-generation-data-2006-2019), for development trip generation.

2.0 Existing Conditions

2.1 Land Use and Zoning

The subject site of the proposed childcare development (formally Lot 2 RP864537) is approximately 4,342m^2 in area and is currently vacant, but designated as "low density residential" zoning under Council's Planning Scheme, as shown in **Figure 2**.

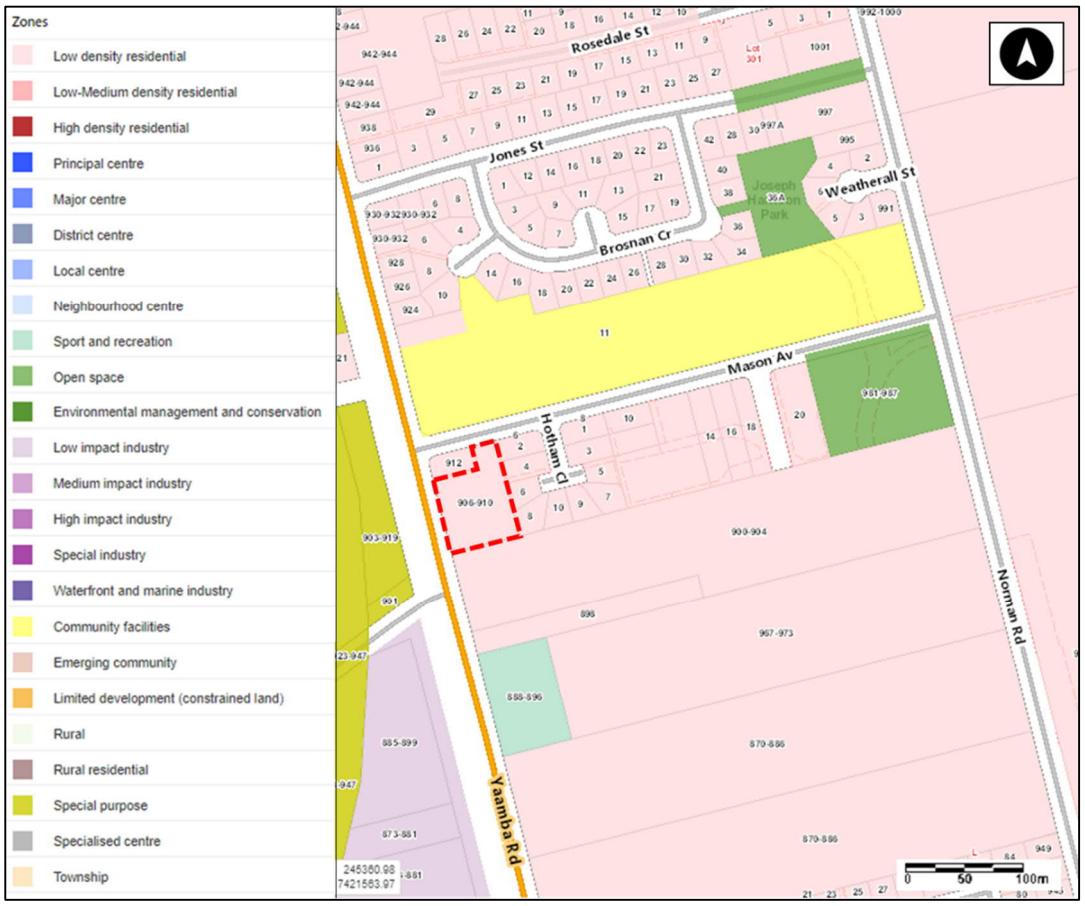


Figure 2 Land Use Zoning – Lot 2 RP864537 **[Source: RRC Rock e Plan]**

2.2 Adjacent Land Use / Approvals

As shown in **Figure 2** above, the surrounding land is predominantly zoned as "low density residential", with the area on the opposite side of Mason Avenue to the north of the site currently zoned as "community facilities" which encompasses the existing campus of the Parkhurst State School.

In addition to the current zoning of the adjacent land parcels, it is understood that there are plans to expand the current operations at the Parkhurst State School campus, as indicated in the pre-lodgement meeting minutes (refer to **Appendix A**). Further details of the proposed expansion are outlined in the Parkhurst State School Traffic Management Plan prepared by Bitzios Consulting (23 July 2020 – refer **Appendix D**), which identifies a proposed three stage expansion of the school, including:

- **Stage 1** – additional classrooms, increasing enrolments by 143 students and the staff by 18 members, with expected completion in late 2020.
- **Stage 2** – upgrade of the stop-drop-go facility and construction of a new administration building and new canteen facilities.
- **Stage 3** – additional classrooms, increasing enrolments by an additional 96 students (total increase

239 students) and the staff by an additional 12 members (total increase 30 staff), with expected completion in 2025.

It is noted that the expansion of the Parkhurst State School is anticipated to lead to an increase in traffic volumes on the surrounding road network in the vicinity of the proposed childcare centre development. These additional traffic volumes have been considered as part of this assessment, with further details of the traffic volumes associated with the school expansion works provided below.

Finally, apart from the school expansion, no further development approvals are understood to be currently held over adjacent lots to the proposed childcare development that would be relevant to this assessment.

2.2.1 Parkhurst State School Expansion Traffic Volumes

To ensure the additional traffic volumes associated with the proposed expansion of the Parkhurst State School were included in this assessment, estimates of the expected peak hour and daily traffic volumes generated by the expansion were established. The peak hour traffic estimates were calculated adopting a standard peak hour generation rate 0.2 trips per student, based on the rate identified for state primary schools in Table 3.9 of Appendix 3A of TMR's Road Planning and Design Manual - Chapter 3: Road Planning and Design Fundamentals. It is noted that no specific rate was available for daily traffic generation of this use, and as such the daily traffic volumes from the expansion works were conservatively estimated to be double the sum of AM and PM peak hour traffic generation. This method for estimating the daily volumes from the expansion works is considered appropriate as it reflects the fact that traffic volumes generated by school uses outside of peak morning (drop-off) and afternoon (pick up) periods is relatively low.

Based on the adoption of the traffic generation rates identified above, the expected number of additional vehicle trips generated by the full buildout (Stage 1-3) of the proposed school expansion works were estimated to be:

- **AM & PM School Peak:** 0.2 trips * 239 students = **48 trips per hour**
- **Daily:** (48 trips [AM peak] + 48 trips [PM peak]) * 2 = **192 trips per day**

These additional vehicle trips from the school expansion were then distributed on the surrounding road network, with further details of the full traffic generation and distribution calculations provided for reference in **Appendix F**, with the resultant peak hour and daily traffic volume estimates on the adjacent road network shown in **Figure 3** to **Figure 5** below.

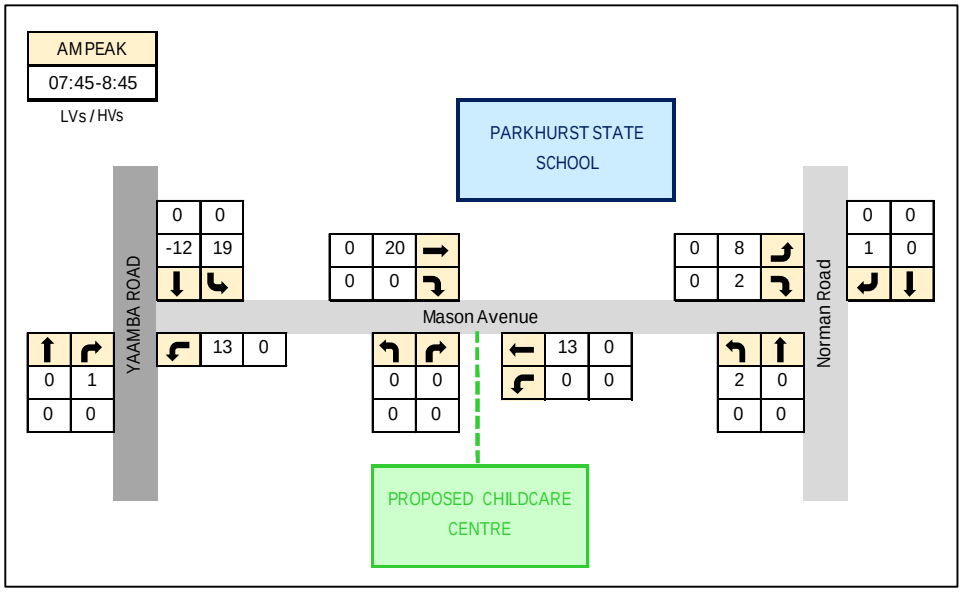


Figure 3 Parkhurst State School Expansion (Stage 1-3) – AM Peak Traffic Volumes

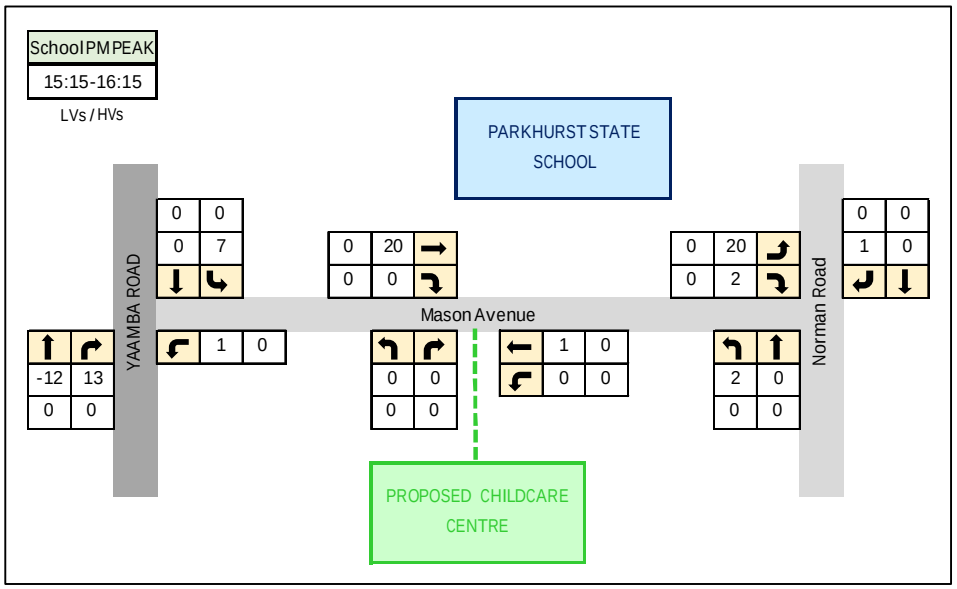


Figure 4 Parkhurst State School Expansion (Stage 1-3) – School PM Peak Traffic Volumes

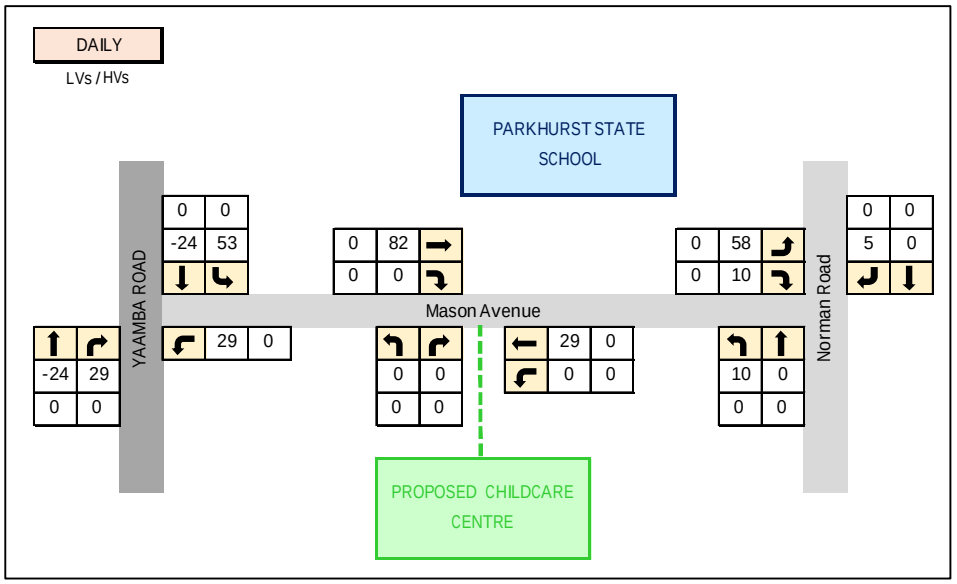


Figure 5 Parkhurst State School Expansion (Stage 1-3) – Daily Traffic Volumes

2.3 Surrounding Road Network Details

2.3.1 Road Links

Reference has been made to the existing road hierarchy identified in Council's Rock e Plan, with the classifications of the relevant sections of the network shown in **Figure 6**, with further details of the relevant road links provided in the following sections.



Figure 6 RRC Existing Road Hierarchy **[Source: RRC Rock e Plan]**

2.3.1.1 Yaamba Road (10F – Bruce Highway)

Yaamba Road forms part of the State-controlled Bruce Highway, which connects the east coast of Queensland from Brisbane to Cairns. The section of this link adjacent to the development site is aligned north-south and is identified as a highway by the RRC Road Hierarchy (refer **Figure 6** above). The link is also an approved PBS 2A (up to 25m B-double) multi-combination vehicle route.

Construction works are currently underway to duplicate Yaamba Road adjacent the project site as part of the Rockhampton Northern Access Upgrade (RNAU) project. The concept plan for the RNAU project is provided for reference in **Appendix G**, and indicates that at completion of construction, the adjacent section of Yaamba Road will be configured as a two way, four lane (two northbound/ two southbound), median divided carriageway with on-street bicycle facilities and a posted speed limit on the link is 70 km/h in both directions of travel.

2.3.1.2 Mason Avenue

Mason Avenue is a local government controlled road under the jurisdiction of RRC, which is classified as an Urban Access Street under Council's road hierarchy (refer **Figure 6**). The section of the link relevant to the Project is the east-west section connecting Yaamba Road to Norman Road, which primarily facilitates traffic access to the Parkhurst State School campus and adjacent residential properties on the southern side of the link.

The current configuration of Mason Avenue is a two way, two lane undivided cross-section, with formal (marked) on-street parallel parking along the school boundary and a wide shoulder to facilitate informal parallel parking on the southern side. In the vicinity of the proposed development site, the cross section provides an overall width of approximately 10.5m, including two 3m wide traffic lanes and adjacent kerbside parking.

A standard posted speed limit for residential streets of 50 km/h applies to the link, but a school zone speed limit of 40 km/h applies also applies to Mason Avenue on school days between the hours of 7:30-9:00am and 2:30-4:00pm.

A pedestrian footpath is also currently provided on the northern side of Mason Avenue, with plans to construct approximately 90m of footbath on the southern side of Mason Avenue as part of the RNAU project (refer to concept plans included in **Appendix G**).

2.3.2 Intersections

In addition to the road links discussed above, the State-controlled intersection of Yaamba Road / Mason Avenue, located to the west of the development site, has been identified as relevant to the assessment. Further details of this key intersection are provided below.

2.3.2.1 Yaamba Road / Mason Avenue

The current (2020) configuration of the Yaamba Road / Mason Avenue intersection provides a priority (stop sign) controlled T-intersection, with designated auxiliary left turn and channelised right turn lanes provided for turning movements from Yaamba Road.

As part of the RNAU project currently under construction, the intersection will be modified as identified in **Figure 7** below, with Yaamba Road to be re-constructed to two northbound lanes and two southbound lanes and on-road cycle lanes in both directions of travel, separated by a raised centre median. Further to this, a 90m channelised right-turn lane will be provided on the southern approach to the intersection and a 60m channelised left-turn lane provided on the northern approach for movements into Mason Avenue, which will continue to have one approach lane and one exit lane, with a suitable splitter island and control signage provided to restrict exit movements from Mason Avenue to left turns only.

It is noted that the RNAU works are anticipated to be completed prior to the opening of Stage 1 of the proposed childcare centre development.

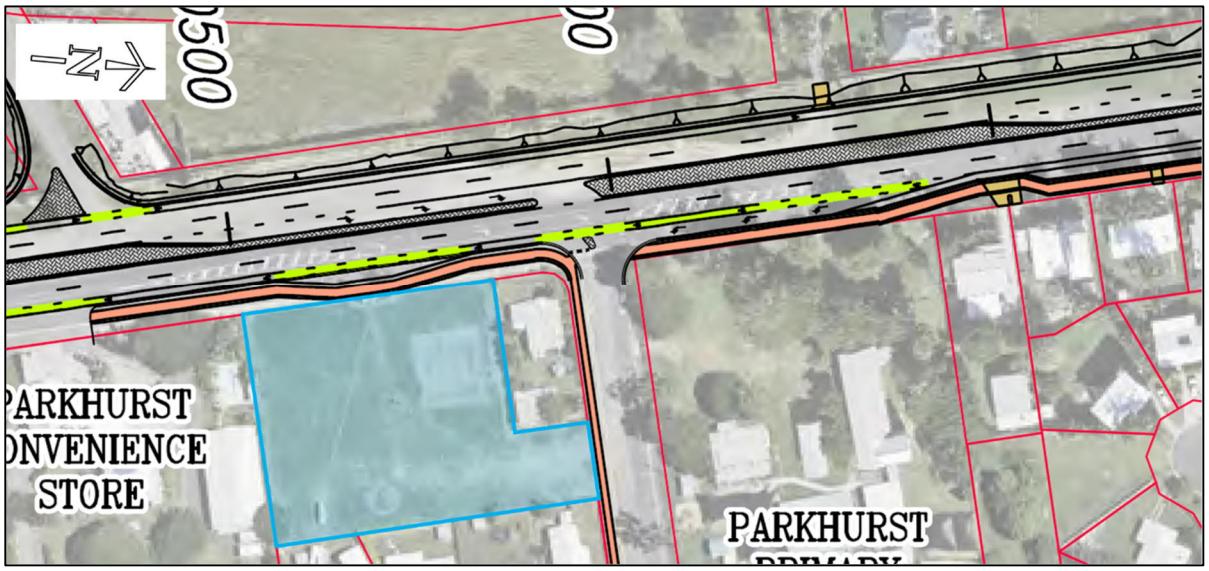


Figure 7 Yaamba Road (Bruce Highway) / Mason Avenue Intersection Concept Plan [Source: TMR RNAU Concept]

2.4 Existing Traffic Volumes

2.4.1 Road Link Volumes

The background traffic volumes for the relevant section of the state-controlled road network, Yaamba Road (Bruce Highway 10F) were established using the available 2019 Average Annual Daily Traffic (AADT) segment traffic count data provided by TMR (refer **Appendix B**).

The provided 2019 AADT data was then utilised to establish an estimate of the current (2020) daily traffic volumes on the link, by applying a 2.32% background traffic growth rate in line with the historical 10 year growth rate identified in the TMR AADT segment report for the adjacent section of Yaamba Road, which is included for reference in **Appendix B**.

As no suitable traffic volume data was available for Mason Avenue from RRC, an estimate of the daily traffic volumes on the link were established from a 12 hour count at the intersection of Yaamba Road / Mason Avenue collected by TMR in 2016, with the 12 hour count totals for the Mason Avenue approach to the intersection converted to daily (24 hour) traffic volumes by applying a factor of 1.30, which a standard 12hr to 24hr volume conversion factor for medium to low volume roads as identified in Section 5.2.1 of Austroads Guide to Pavement Technology Part 4K.

Further to this, as the majority of traffic using Mason Avenue is related to the Parkhurst State School, with minimal impact from the adjacent residential properties on the southern side of the link, no background traffic growth has been applied to the calculated base 2016 daily traffic volume to estimate the existing (2020) daily traffic volumes on the link.

A summary of the current (2020) traffic volume forecasts for each of the relevant road segments is provided in **Table 1** below.

Table 1 Existing (2020) AADT Traffic Volume Forecasts

Site ID	Road Segment		Base Data Year	Base Year AADT					10 Yr. GR %	Background AADT (2020)			
	Start (km)	End (km)		Gaz	% HV	A-Gaz	% HV	Bi-Dir		Gaz		A-Gaz	
										Total	HV	Total	HV
Yaamba Road (Bruce Highway – 10F)													
60926	8.550	**10.610**	2018	6,366	13.70	6,384	9.21	12,750	2.32	6,665	913	6,684	616
	10.610	13.180		6,366	13.70	6,384	9.21	12,750		6,665	913	6,684	616
Mason Avenue **													
RRC	0.000	**0.050**	2016	528	2.40	532	3.45	1,060	0.00	528	13	532	18
	0.050	0.460		528	2.40	532	3.45	1,060	0.00	528	13	532	18

** Chainage and gazettal direction for Mason Avenue assumed to be east from Yaamba Road.
TMR Ch. 10.61km (10F) – Yaamba Road / Mason Avenue intersection.
Ch. 0.050 km Mason Avenue is proposed Childcare Centre Access location (RHS).

2.4.2 Intersection Volumes

2.4.2.1 Yaamba Road / Mason Avenue

An intersection count was provided by TMR for the Yaamba Road / Mason Avenue intersection which was collected between 06:15am and 06:15pm on Tuesday 21 June 2016. Review of the raw data for this count (provided for reference in **Appendix C**) indicates a morning peak hour at the intersection between 7:45am and 8:45am, a minor afternoon peak period associated with the end of the school day from 3:15pm to 4:15pm and the major afternoon peak period between 5:00pm and 6:00pm.

To establish the future traffic volume forecasts at the intersection, a compound growth rate of 2.32% per annum has been applied to the through traffic movements on Yaamba Road, while as discussed previously, no growth was applied to the Mason Avenue approach.

Based on the assumptions noted above, the resultant estimates of the 2020 AM peak hour, school PM peak hour and major PM peak hour traffic volumes at the Yaamba Road / Mason Avenue intersection are shown in **Figure 8**, **Figure 9** and **Figure 10**, respectively.

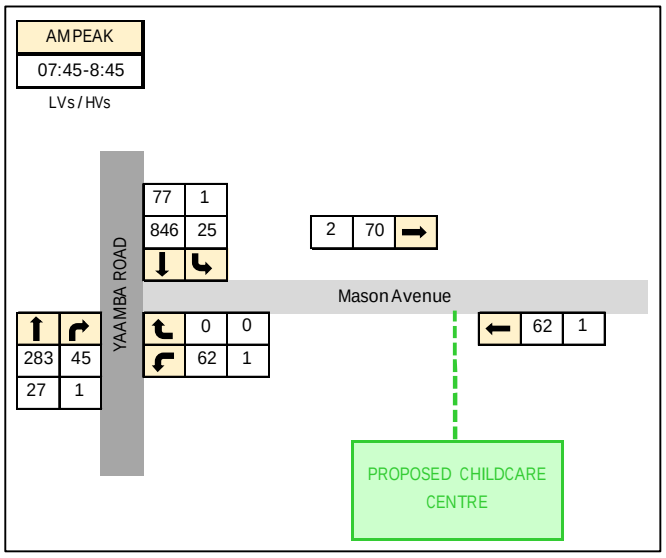


Figure 8 2020 AM Peak Hour Traffic Volumes – Yaamba Road / Mason Avenue (Existing Configuration)

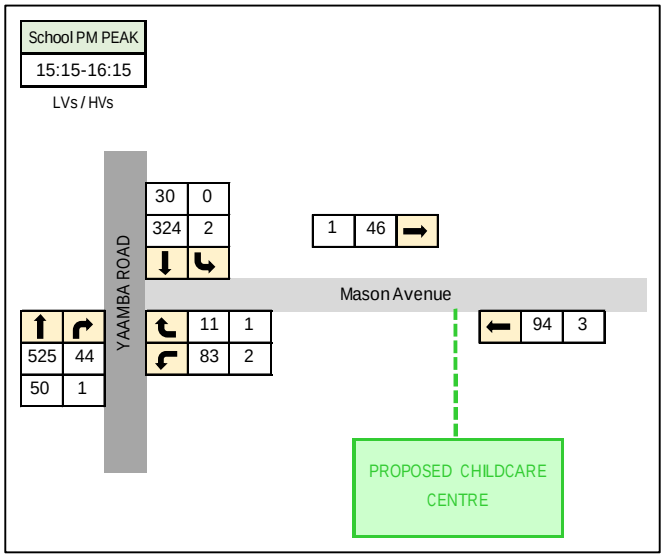


Figure 9 2020 School PM Peak Hour Traffic Volumes – Yaamba Road / Mason Avenue (Existing Configuration)

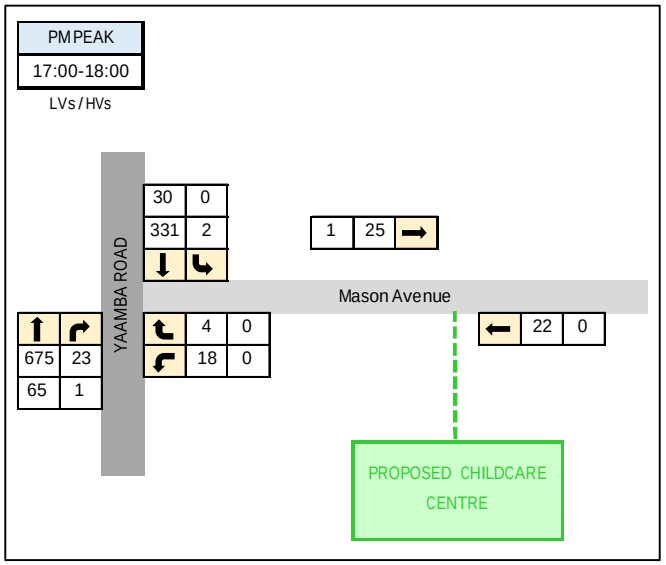


Figure 10 2020 PM Peak Hour Traffic Volumes – Yaamba Road / Mason Avenue (Existing Configuration)

2.5 Intersection and Network Performance

2.5.1 Road Links

Mason Avenue currently (2020) carries a daily traffic volume of approximately 1,060 vpd, which is noted to be greater than the recommended upper traffic volume for an urban access street (approx. 750 vpd), which it is classified as under the current RRC road hierarchy (refer **Figure 6** above). Notwithstanding this, as Mason Avenue is a well-constructed urban street with suitable carriageway width (approx. 10.5m), clear markings for traffic lanes and parking, and the fact that most vehicles on Mason Avenue are associated with the Parkhurst State School and occur in two distinct peak periods, the link can be considered to be currently operating satisfactorily. Further to this, it is noted that the current daily volume on Mason Street falls within the range for a Minor Urban Collector road (750 - 3,000 vpd), and currently provides the required carriageway width (min 7.5m) for this higher order road.

Meanwhile, the existing (2020) daily traffic volumes in the order of 13,349 vpd are expected on the relevant section of Yaamba Road (Bruce Highway). While such volumes are relatively high for a two lane section of highway, as the adjacent link is currently being upgraded to a four lane, median-divided highway with two northbound lanes and two southbound lanes, it is expected to operate well within the capacity of an urban multi-lane highway.

2.5.2 Intersections

2.5.2.1 Yaamba Road / Mason Avenue Intersection

As mentioned previously, the existing configuration of the Yaamba Road / Mason Avenue intersection will be modified prior to the opening of the development as part of the RNAU project currently being constructed on Yaamba Road. Therefore, the analysis of the current operation of this intersection is based on the proposed reconfiguration of the intersection, including the provision of two through lanes in each direction on Yaamba Road and the removal the right-turn exit movement from Mason Avenue.

It is noted that the restriction of this right-turn movement at Mason Avenue is expected to lead to a redistribution of the traffic previously assumed to be undertaking this movement, with these vehicles now expected to use Norman Road to connect to Olive Street and use the proposed signalised Yaamba Road / Olive Street intersection to head north on Yaamba Road (Bruce Highway). Adopting this expected redistribution of traffic, the forecast 2020 AM, PM (school) and PM peak hour traffic volumes at the relevant Yaamba Road / Mason Street intersection are shown in **Figure 11**, **Figure 12** and **Figure 13** below.

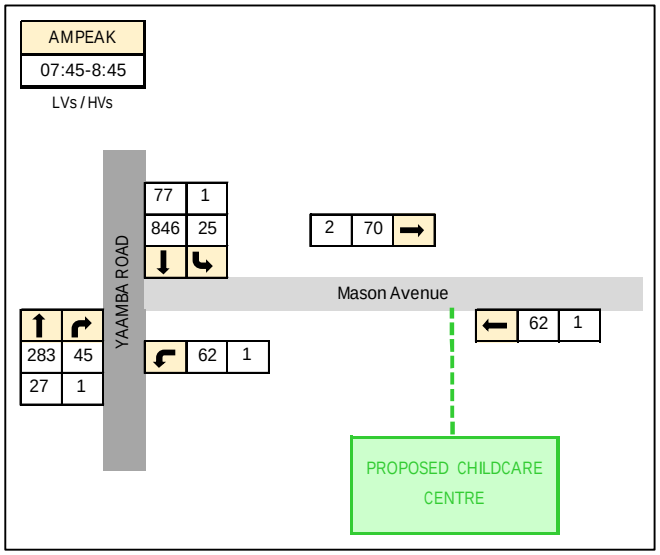


Figure 11 2020 AM Peak Hour Traffic Volumes – Yaamba Road / Mason Avenue (No RT Out Mason Avenue)

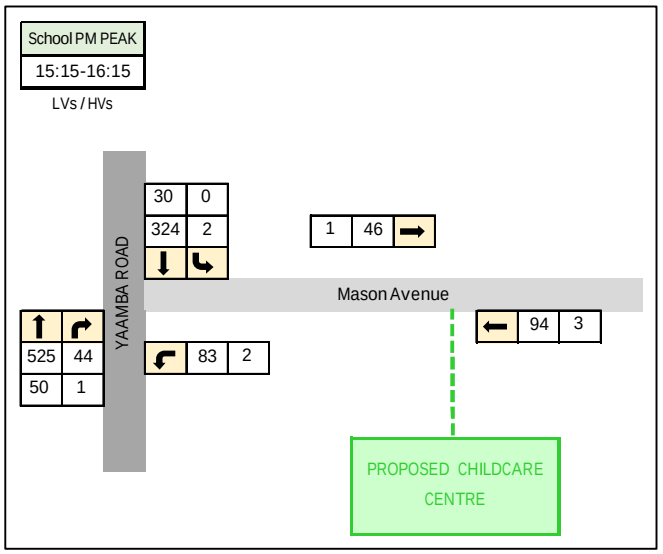


Figure 12 2020 School PM Peak Hour Traffic Volumes – Yaamba Road / Mason Avenue (No RT Out Mason Avenue)

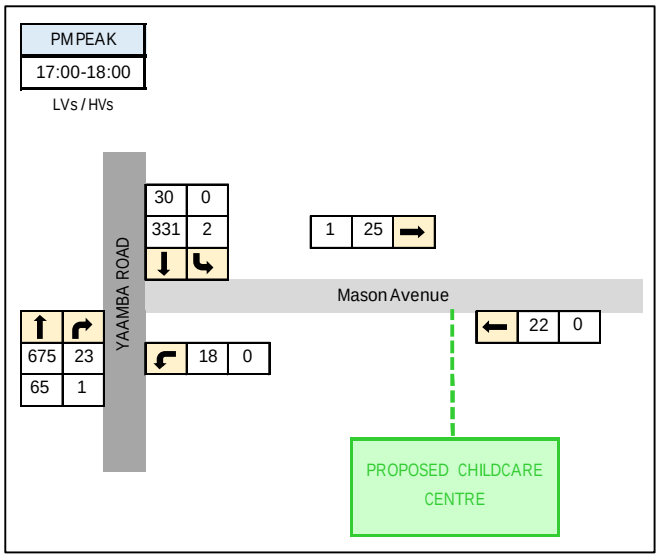


Figure 13 2020 PM Peak Hour Traffic Volumes – Yaamba Road / Mason Avenue (No RT Out Mason Avenue)

The estimated traffic volumes at the Yaamba Road / Mason Avenue intersection identified in **Figure 11** to **Figure 13** above were utilised to undertake preliminary intersection analysis (using SIDRA software) to establish the operational performance of the proposed intersection configuration under current (2020) traffic conditions. A summary of the results is provided in **Table 2** below, with further detailed results included for reference as **Appendix H**.

Table 2 2020 (Existing) SIDRA Results – Yaamba Road / Mason Avenue (No RT Out Mason Avenue)

Analysis Scenario	Intersection Degree of Saturation	Level of Service**	Intersection Average Delay (sec)	Maximum 95% Back of Queue Length (m)
Yaamba Road / Mason Avenue (RT Out Mason Ave Removed)				
2020 AM Peak	0.260	LOS B	1.2	4.6
2020 School PM Peak	0.163	LOS A	0.9	2.5
2020 PM Peak	0.210	LOS A	0.3	1.0

** LOS value identified is for worst movement at the intersection, not the overall intersection.

The results above indicate that the intersection configuration proposed to be constructed at the Yaamba Road / Mason Avenue intersection as part of TMR's RNAU project is expected to operate satisfactorily for the forecast 2020 traffic conditions, with all values for DOS, average delay and vehicle queueing being within acceptable limits of operation for a priority controlled intersection.

2.6 Road Safety

2.6.1 Existing Site Conditions

A site inspection of the existing traffic conditions on the relevant road network was undertaken by Andrew Barrie (RPEQ / Senior Road Safety Auditor) on Thursday 20 August 2020. As part of this inspection a number of minor road safety considerations regarding the operation of the existing road network and its potential use by development traffic were identified, including:

1) Vehicle Queuing on Mason Avenue in Afternoon School Peak

As part of the site inspection undertaken, a review of the existing traffic conditions during both the AM and PM school peak periods. From this inspection it was identified that negligible queueing occurred on Mason Avenue in the vicinity of the site during the morning school peak, but that significant vehicle queues formed from the existing entrance to the school pick up / drop off zone, located approximately 130m to the east of the proposed site, during the afternoon school peak.

This significant queueing was noted to occur for a period of approximately 15 minutes between 3:00-3:15pm, with vehicle queues on average extending to the proposed site access location, but temporarily extending back to the adjacent Bruce Highway / Mason Avenue intersection. Based on this, the length of the existing vehicle queues from the school during this PM peak can be considered a safety concern as they have the potential to impact the operation of the adjacent Bruce Highway / Mason Avenue intersection, which in turn could lead to an increase in vehicle accidents on the surrounding road network.

Notwithstanding this, it is understood that as part of the proposed expansion works to the Parkhurst State School an upgrade to the existing pick up / drop off facilities is to be provided (prior to 2025), which is expected to significantly reduce the current vehicle queuing on Mason Street during the PM school peak period.

2.6.2 Road Crash History Review

A review of the road crash history in proximity to the subject site was undertaken. This review was completed using the road crash data available from the Queensland Globe database, which includes data from 2001-2019.

As shown in **Figure 14** below, there have been 3 recorded crashes on the relevant section of the Bruce Highway during this period, while no vehicle crashes have been recorded along the section of Mason Avenue along the frontage of the subject site. Further details of the recorded road crash incidents in the vicinity of the development site are provided in **Table 3**.



Figure 14 Road Crash Locations (2001-2019) **[Source: QLD Globe]**

Table 3 Summary of Road Crash History (2001-2019)

Crash Ref.	Crash Year	Crash Severity	Vehicles Involved	Crash Type	DCA Code and Crash Description
Bruce Highway / Mason Avenue Intersection					
311565	2002	Property damage only	Multi-Vehicle	Rear End	303 - Veh's Same Direction: Right Rear
8655	2004	Property damage only	Multi-Vehicle	Angle	202 - Veh's Opposite Approach: Thru-Right
270225	2011	Hospitalisation	Single Vehicle	Hit Parked Vehicle	705 – Off Path Straight: Out of Control on Carriageway

As outlined in the table above, there were only 3 recorded crashes on the relevant sections of the Bruce Highway and Mason Avenue over the period from 2001 to 2019 inclusive, which equates to less than 1 accident per year. The details of the recorded crashes therefore do not identify any specific existing safety issue on the network in the vicinity of the site.

Further to this, it is expected that the proposed duplication of the Bruce Highway adjacent to the site and the restriction of the right turn movement out of Mason Avenue as part of the Rockhampton Northern Access Upgrade project currently being constructed will further improve the safety of vehicles both at the Bruce Highway / Mason Avenue intersection, and on the major and minor road approaches.

2.7 Site Access

Currently, there is no constructed access to the site's frontage along the southern side of Mason Avenue, although based on the current provision of mountable kerb at this location, vehicles have informally been using this frontage to gain entry to the site. This informal access on Mason Street is located approximately 50m from the intersection with Yaamba Road, with a gated access to the subject site currently provided as shown in **Figure 15**.

Further to this, another unconstructed informal access point, consisting of a break in the existing barrier kerb, is currently provided along the Yaamba Road frontage of the subject site as shown in **Figure 16**.



Figure 15 Existing Site Access Location (Mason Avenue)



Figure 16 Existing Site Access Location (Yaamba Road) [Source: Google Streetview]

2.8 Existing Public Transport Facilities

As identified in **Figure 17**, the section of Yaamba Road adjacent the development site forms part of Sunbus bus route 410. A copy of the relevant bus network map is included for reference in **Appendix I**.

Currently the nearest public bus stop to the proposed development site is located on the eastern side of Yaamba Road, approximately 55m north of the Yaamba Road / Mason Avenue intersection. It is however noted that as part of the RNAU project (refer **Figure 7** in **Section 2.3.2.1** above) the existing bus stop is to be relocated, with an indented bus stop provided on the Yaamba Road frontage of the Project site, approximately 50m south of the Mason Street intersection.

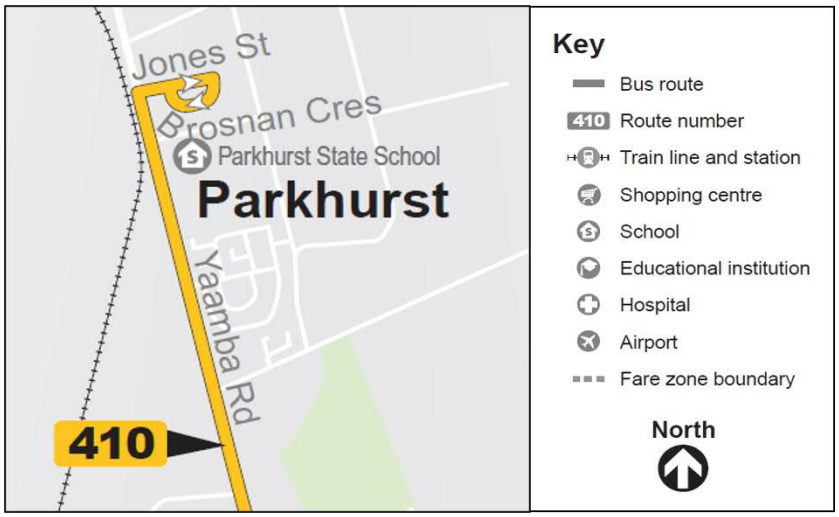


Figure 17 Existing Bus Routes in Vicinity of Site [Source: Sunbus Network Map]

2.9 Existing Active Transport Facilities

In addition to the public transport facilities provided in the vicinity of the proposed development, it is also noted that current active transport facilities are also provided on Mason Avenue and Yaamba Road in the vicinity of the site. As shown in **Figure 18**, off street pedestrian footpaths are currently provided on the northern side of Mason Avenue, and on the Yaamba Road boundary of the site.

Further to this, the concept plans for the RNAU project (refer **Figure 7** in **Section 2.3.2.1** above) indicate that a footpath will be maintained on the eastern side of Yaamba Road and the footpath network will be extended along the southern side of Mason Avenue past the frontage of the proposed development site. It is also noted that Yaamba Road forms part of the priority cycle network, with on-road provisions for bicycles provided in both directions of travel as part of the RNAU works currently under construction.



Figure 18 Active Transport & On Street Parking Facilities [Source: QLD Globe]

2.10 Existing On-Street Parking Facilities

As identified in **Figure 18** above, kerbside parallel parking is currently available in the marked bays along both sides of Mason Avenue, however parking is prohibited across the frontage of the development site. Further to this, kerbside parking (unmarked) is also currently available along the Yaamba Road frontage of the site, however this parking is proposed to be removed as part of the RNAU works currently under construction on the adjacent section of Yaamba Road.

3.0 Proposed Development Details

3.1 Operational Details

As previously identified the applicant is seeking to establish a childcare centre development at 906-910 Yaamba Road, Parkhurst (Rockhampton) on land formally described as Lot 2 RP864537. The proposal is for the centre to be developed over two stages, with the first stage expected to cater for up to 108 children, with 18 full time equivalent staff and the second stage proposed to increase total enrolments to 152 children, with 22 full time equivalent staff. Based on preliminary discussions it is understood that Stage 1 of the development is anticipated to be constructed and operational by 2022, with the second stage expected to open in 2025.

A copy of the proposed plans for the development have been produced by Jardine Architects and have been included for reference in **Appendix J**, with an extract showing the proposed development site layout provided in **Figure 19** below.



Figure 19 Proposed Childcare Centre Site Layout **[Source: Jardine Architects Dwg. 20685-DD02-B]**

3.2 Development Proposal

3.2.1 Site Access

As part of the childcare centre development, it is proposed that a new access crossover be provided on the Mason Avenue frontage of the subject site, approximately 45m to the east of the Bruce Highway / Mason Avenue intersection, with the location of the proposed access shown indicatively on **Figure 20** below.



Figure 20 Proposed Childcare Centre Access Location **[Source: Dwg 20685-DD02-B / QLD Globe]**

In addition to the proposed site access location, it is proposed that a crossover/access width of 6.2m be provided for use by the childcare centre development. Further details of the access crossover arrangements are provided below:

- The proposed parking area for the childcare centre includes 22 parking bays for staff (Class 1/1A) and 26 bays for visitors (Class 3), and that the two classes of parking on-site have varying access category requirements as per Table 3.1 of AS2890.

- Notwithstanding this, the proposed provision of a 6.2m wide access is in excess of the minimum width requirements (6m) for a Category 2 access driveway, based on the provision of 48 parking bays and the local road classification of Mason Avenue along the frontage of the site.
- Crossover connection to existing kerbline to be generally in accordance with CMDG standard drawing CMDG-R-042 Type A – Two Way Commercial Driveway Slab.

Based on the information provided above, it can be concluded that the proposed site access arrangements can be expected to be adequate to cater for the traffic volumes generated by the proposed childcare centre development.

3.2.2 Internal Site Facilities

In order to assess the adequacy of the internal traffic facilities, reference has been made to RRC's Access, Parking and Transport Parking Code and relevant planning scheme policies, as well as the relevant Australian Standards (AS2890.1). Compliance with the requirements of these documents is discussed in the following sections.

3.2.2.1 Car Parking

Table 9.3.1.3.2 Parking Requirements within the Council's Access, Parking and Transport Code stipulates a car parking requirement of one (1) space per 6 children and 1 space per employee (FTE) for childcare centre developments. Given the proposed childcare centre is expected to accommodate 108 children and 18 FTE staff in Stage 1 and 152 children and 22 staff, this would equate to a recommended minimum parking provision of 36 parking spaces (18 for visitors/children and 18 for staff) for Stage 1 and 48 parking spaces (26 for visitors/children and 22 for staff).

As shown in the site plan Dwg. 20685-DD08-B (included within **Appendix J**), a total of 36 parking spaces are proposed to be provided on site as part of Stage 1 of the development, while an additional 12 parking spaces will be provided as part of Stage 2 (as shown in Dwg. 20685-DD14-B). Further details of the proposed configuration of the parking area for the childcare centre are provided below:

- Visitor parking spaces are generally 5.4m long and 2.6m wide, which meets the requirements for short term, high turnover (Class 3) parking as per Figure 2.2 of AS2890.1.
- Staff parking spaces are generally 5.4m long and 2.4m wide, which meets the requirements for employee (Class 1/1A) parking as per Figure 2.2 of AS2890.1.
- The parking bays are accessed from a 6.2m wide parking aisle which exceeds the minimum requirements for Class 3 parking (5.8m) and is in accordance with the requirements for Class 1 parking as stipulated in Figure 2.2 of AS2890.1.
- The proposed provision of tandem parking bays is deemed acceptable due to the designation of both bays for longer term staff parking on-site.
- The provision of 1 PWD bay for the proposal aligns with the general PWD bay provision rate of between 1-2% of the overall parking bays on site. Further to this, the proposed PWD bay is in accordance with the requirements of AS2890.6, including the provision of a 2.4m x 5.4m bay and adjacent 2.4m x 5.4m shared area.
- The provision of turnaround bay and 1m wide blind aisle extension at the western end of the parking area in front of the building (adjacent to parking bay 17) is in accordance with the requirements of requirements of Clause 2.4.2 (c) of AS2890.1

As such it can be seen that the proposed parking provision on site is in accordance with the parking requirements under RRC's Access, Parking and Transport Code and can therefore be deemed acceptable for the proposed childcare centre development.

3.2.2.2 Service Vehicle Arrangements

It is noted that no specific requirement for service bays for childcare centres is identified within RRC's Access, Parking and Transport Code. Notwithstanding this, the design service vehicle for childcare centres are typically vans (as per Brisbane City Council's TAPS policy) and as such they are expected to utilise the standard parking bays on site, which is considered acceptable as the service vehicle movements are expected to be infrequent.

In addition to the van service vehicle movements, an assessment of the required refuse collection vehicle (RCV) movements to the site was also undertaken. It is noted that the applicant has advised that the childcare centre is proposed to utilise two 1100L bulk bins on site to be stored on the western side site, which will be wheeled to the RCV as part of the refuse collection arrangements. Further to this, it is noted that the applicant proposes to utilise a private waste contractor to collect the waste from the site, with the associated collection arrangements proposed to be undertaken outside the general operating hours for the site.

Detailed vehicle swept path analysis (refer **Appendix K**) has been undertaken for the expected RCV vehicle (10.24m RCV) configuration for the proposed development, with the resultant swept paths indicating that the RCV can access the site via the proposed site access, before undertaking a three point turn on site and undertaking the refuse collection activities, before exiting the site in a forwards gear, as shown in **Figure 21** over page. It is also noted that the RCV is shown to utilise parking spaces on-site to complete the required movements, however as the refuse collection movements are proposed to be undertaken outside of hours for the childcare centre this is considered acceptable.

Based on the information above, it is considered that the service vehicle provision on site is generally in accordance with RRC's Access, Parking and Transport Code and is adequate to cater for the expected service vehicle movements associated with the operation of the proposed childcare centre development.

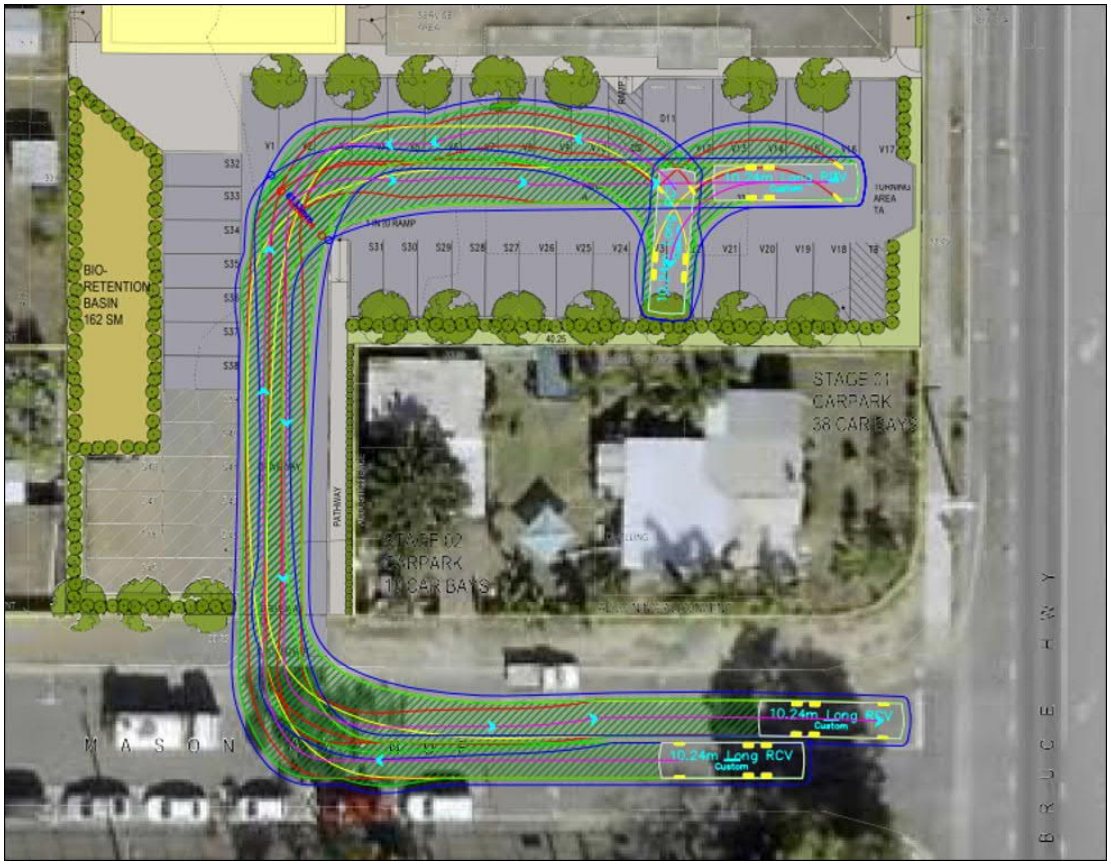


Figure 21 RCV Swept Paths – Proposed Childcare Centre Development [Source: Dwg 20685-DD02-B]

4.0 Development Traffic

4.1 Traffic Generation

Whilst it is noted that standard daily and peak hour (AM and PM peak) traffic generation rates for childcare centres are specified in the RMS Guide to Traffic Generating Developments (v2 2002), reference has been made to the more recent data within the Traffic Generation Data—2006–2019 recently published on the Queensland Government website (https://www.data.qld.gov.au/dataset/traffic-generation-data-2006-2019). This dataset includes the recorded weekday trip generation rates for 17 separate childcare centres in Queensland, with 2 located within Rockhampton and has been included for reference as **Appendix L**.

A summary of the relevant childcare centre data is provided in **Table 4** below, which reveals that the two existing centres located in Rockhampton have an average daily trip generation rate of 3.8 trips / childcare space and a peak hour trip generation rate of 0.86 trips / childcare space.

Table 4 Summary of Trip Generation Data (Childcare Centres)

Year	Land use	Suburb	Local Government Area	Variable Units	Variable Value	Start Date	End Date	Average Weekday Volume	Average Weekday Rate	Weekday Peak Volume	Weekday Peak Rate
2006	Child Care	ROBERTSON	Brisbane City	Childcare Spaces	75	9/05/2006	23/05/2006			50	0.67
2006	Child Care	ROTHWELL	Moreton Bay Regional	Childcare Spaces	74	9/05/2006	23/05/2006			56	0.76
2006	Child Care	OXLEY	Brisbane City	Childcare Spaces	75	9/05/2006	23/05/2006			49	0.65
2006	Child Care	NORTH LAKES	Moreton Bay Regional	Childcare Spaces	75	9/05/2006	23/05/2006			48	0.64
2009	Child Care	ROBERTSON	Brisbane City	Childcare Spaces	75	5/05/2009	11/05/2009	186	2.5	32	0.43
2009	Child Care	ROTHWELL	Moreton Bay Regional	Childcare Spaces	74	5/05/2009	11/05/2009	228	3.1	42	0.57
2009	Child Care	OXLEY	Brisbane City	Childcare Spaces	75	5/05/2009	11/05/2009	138	1.8	30	0.4
2009	Child Care	HENDRA	Brisbane City	Childcare Spaces	75	17/05/2009	23/05/2009	162	2.2	30	0.4
2010	Child Care	KENMORE	Brisbane City	Childcare Spaces	72	4/10/2010	10/10/2010	220	3.1	50	0.69
2010	Child Care	ANNERLEY	Brisbane City	Childcare Spaces	72	4/10/2010	10/10/2010	262	3.6	53	0.74
2010	Child Care	EIGHT MILE PLAINS	Brisbane City	Childcare Spaces	72	4/10/2010	10/10/2010	271	3.8	52	0.72
2010	Child Care	BOONDALL	Brisbane City	Childcare Spaces	72	4/10/2010	10/10/2010	265	3.7	53	0.74
2010	Child Care	NEW FARM	Brisbane City	Childcare Spaces	48	4/10/2010	10/10/2010	80	1.7	15	0.31
2010	Child Care	THE RANGE	Rockhampton Regional	Childcare Spaces	72	22/11/2010	28/11/2010	253	3.5	58	0.81
2010	Child Care	BARGARA	Bundaberg Regional	Childcare Spaces	72	22/11/2010	28/11/2010	222	3.1	46	0.64
2010	Child Care	THABEBAN	Bundaberg Regional	Childcare Spaces	72	22/11/2010	28/11/2010	204	2.8	47	0.65
2010	Child Care	FRENCHVILLE	Rockhampton Regional	Childcare Spaces	72	22/11/2010	28/11/2010	297	4.1	65	0.9
							Queensland Average		**3.0**		**0.63**
							Rockhampton Average		**3.8**		**0.86**

Source: https://data.qld.gov.au/dataset/traffic-generation-data-2006-2018/resource/73079dc1-c34e-44cf-9e9a-8acb13591c1b

Further to the standard peak AM and PM periods of traffic generation for the proposed childcare development, an additional minor generation period that coincided with the PM school peak (3:15-4:15pm) for the adjacent Parkhurst State School was also established for the proposed childcare centre development to enable an assessment of the traffic conditions on the network during this period to be analysed, as per the Council's requests. It is noted that while this PM school peak period sees the peak traffic generation from the adjacent school, this period is not the peak PM period for the proposed development, with this period typically occurring later in the afternoon to align with commuter traffic movements.

Notwithstanding this, to estimate the number of trips for the minor school PM peak hour, sign-in and sign-out time data for a similar childcare centre in Rockhampton (Natural Wonders Berserker) was utilised to establish the ratio of the traffic movements in this minor PM peak period to the main PM peak period. From this analysis it was identified that the overall PM Peak period for the existing childcare centre was between 4:30pm to 5:30pm, with the minor PM school peak period (3:15pm to 4:15pm) seeing movements in the order of 87% of those recorded in the main PM peak period for the centre. Further details of the analysis of the sign-in and sign-out data information is included for reference in **Appendix E.**

Further to this, based on the location of the childcare centre in close proximity to the Parkhurst State School, it is expected that there will be a percentage of trips associated with the development that are linked trips with the student drop-off or pick-up movements at the school. That is that a child will be dropped off / picked up from the centre in the same vehicle trip as a student being dropped off / picked up from the school. As the trips associated with the school are already accounted for in the background traffic volumes, the occurrence of these linked trips can be expected to lead to a reduction in the traffic generation of the proposed childcare centre. For the purpose of this assessment, the reduction due to these school linked trips has conservatively been assumed to be 20% during the AM peak and School PM peak periods, with full traffic generation assumed to occur for the childcare centre for the later PM peak which occurs outside of school hours.

Adopting the trip generation assumptions identified above, the following traffic generation volumes were established for the proposed childcare centre development:

Table 5 Traffic Generation Summary - Proposed Childcare Centre Development

Scenario	AM Peak	PM School Peak	PM Peak	Daily
Traffic Generation Rates	**0.86 trips / child**	**0.75 trips / child**	**0.86 trips / child**	**3.80 trips / child**
Stage 1 (108 Childcare Spaces)	93 trips	81 trips	93 trips	410 trips
Stage 2 (152 Childcare Spaces)	131 trips	114 trips	131 trips	578 trips
Linked Trip Reduction	**20%**	**20%**	**0%**	**N/A**
Stage 1 (108 Childcare Spaces)	**74 trips**	**65 trips**	**93 trips**	**410 trips**
Stage 2 (152 Childcare Spaces)	**105 trips**	**91trips**	**131trips**	**578 trips**

4.2 Traffic Distribution

Based on the location of the proposed childcare centre adjacent to Yaamba Road, which is the main connection for outer residential areas such as Glenlee, Glendale, Rockyview to Rockhampton, it is anticipated that the centre will be heavily utilised by families with parents who commute to work in Rockhampton. As such it has been assumed that approximately 75% of the overall trips generated by the site will be undiverted “drop-in” trips undertaken by vehicles already travelling past the site, with the expected vehicle movements shown in **Figure 22** below.

In addition to these undiverted “drop-in” trips, it has also been assumed that the remaining 25% of the traffic generated by the childcare centre, will be “new trips” which also travel to and from the site from adjacent residential areas.

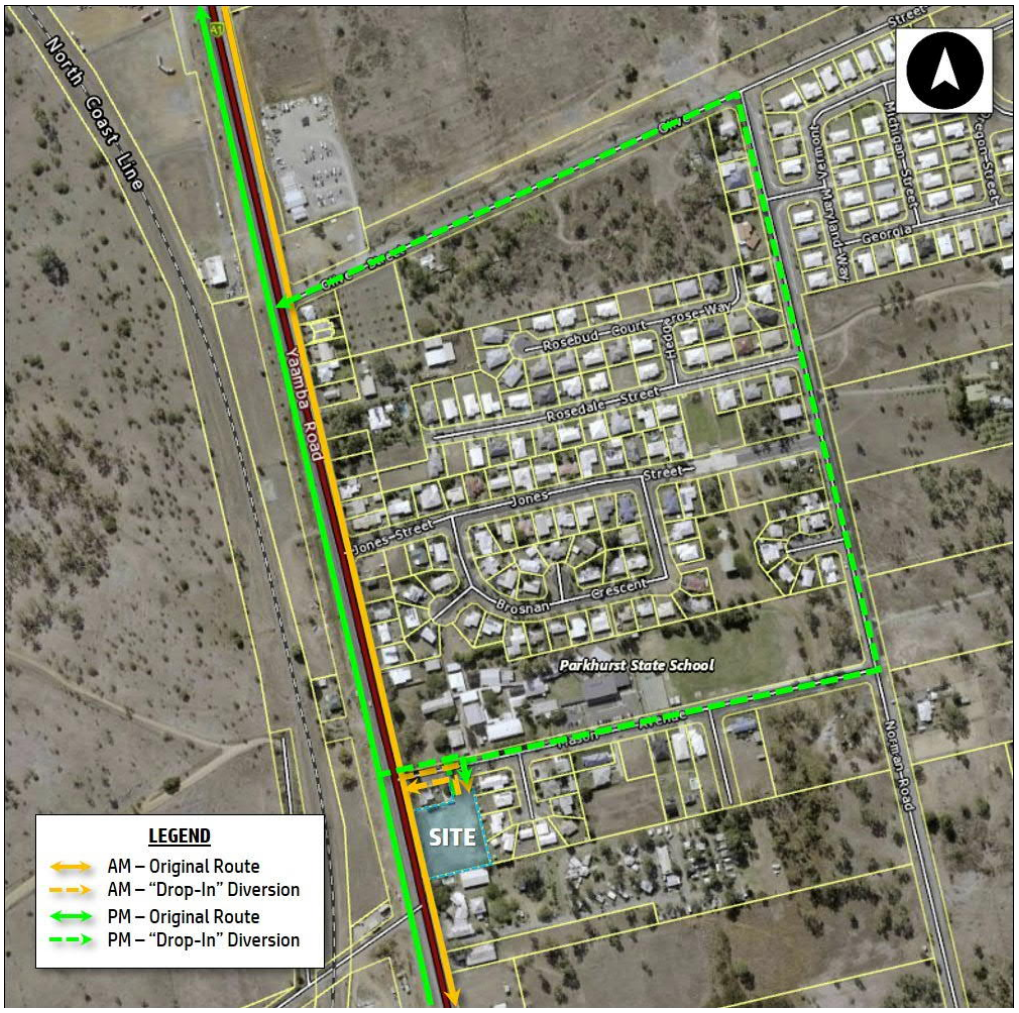


Figure 22 Undiverted "Drop-In" Routes - Proposed Childcare Centre Development [Source: QLD Globe]

A summary of the expected distribution of traffic generated by the proposed childcare centre development adopted for the purpose of this assessment is provided in **Table 6**.

Table 6 Traffic Distribution Summary - Proposed Childcare Centre Development

AM Peak	PM School Peak & PM Peak
Arrival / Departure Split	
• 50% traffic inbound to development • 50% traffic outbound from development	• 50% traffic inbound to development • 50% traffic outbound from development
"Drop-In" Trip Distribution (75% Overall Trips)	
Inbound • 100% from Yaamba Road (North)	**Inbound** • 100% from Yaamba Road (South)
Outbound • 100% to Yaamba Road (South)	**Outbound** • 100% to Yaamba Road (North) via Norman Road / Olive Street
"New" Trip Distribution (25% Overall Trips)	
Inbound • 60% from North via Yaamba Road • 10% from South via Yaamba Road • 10% from North-East via Norman Road • 20% from South-East via Norman Road	**Inbound** • 60% from North via Yaamba Road • 10% from South via Yaamba Road • 10% from North-East via Norman Road • 20% from South-East via Norman Road

AM Peak	PM School Peak & PM Peak
Outbound • 60% to Yaamba Road (North) via Norman Road / Olive Street • 10% to South via Yaamba Road • 10% to North-East via Norman Road • 20% to South-East via Norman Road	**Outbound** • 60% to Yaamba Road (North) via Norman Road / Olive Street • 10% to South via Yaamba Road • 10% to North-East via Norman Road • 20% to South-East via Norman Road

4.3 Development Traffic Volumes on the Network

Based on the information outlined above and the traffic distribution assumptions applied, an estimate of the development traffic volumes on the surrounding road network were established, with a summary of the resultant AM, school PM and PM peak hour development traffic volumes for Stage 1 and Stage 2 provided in **Figure 22** to **Figure 24** and **Figure 25** to **Figure 27** respectively. Further details of the calculations undertaken to establish the development traffic volumes on the network are provided in for reference in **Appendix M**.

4.3.1 Summary of Development Traffic Volumes

As shown in the figures below, the anticipated increase in traffic volumes as a result of the proposed childcare centre is relatively minor at the majority of points on the road network, with the larger increases in traffic volumes confined to the turning movements at the Yaamba Road / Mason Avenue, Mason Avenue / Childcare Centre Access, Mason Avenue / Norman Road and Yaamba Road / Olive Street intersections.

In regard to the Norman Road / Mason Avenue intersection, the childcare centre is expected to increase traffic volumes for the left-turn movement from Mason Avenue onto Norman Road by up to 61vph (minor late PM peak), which is equivalent to an additional vehicle undertaking this movement approximately every minute. As the main movement for development traffic at this intersection is the left turn out of Mason Avenue, which only conflicts with one opposing traffic stream on Norman Road, the impact on the capacity and delay at the intersection is expected to be minimal. Further to this, the main development traffic movement at the Yaamba Road / Olive Street intersection is the right turn onto Yaamba Road, which based on the proposed upgrade of Yaamba Road / Olive Street will be undertaken under the control of traffic signals.

Based on this, the proposed development it is not considered to lead to a significant change in the operational performance of either the Norman Road / Mason Avenue or Yaamba Road / Olive Street intersections, and as such further detailed traffic analysis of these intersections was not deemed necessary.

Therefore, in summary, based on the information provided above it was determined that the critical elements of the surrounding road network in terms of the potential traffic impact of the proposed childcare centre development were the adjacent sections of Yaamba Road and Mason Avenue, and the key Yaamba Road / Mason Avenue and Mason Avenue / Childcare Centre Access intersections.

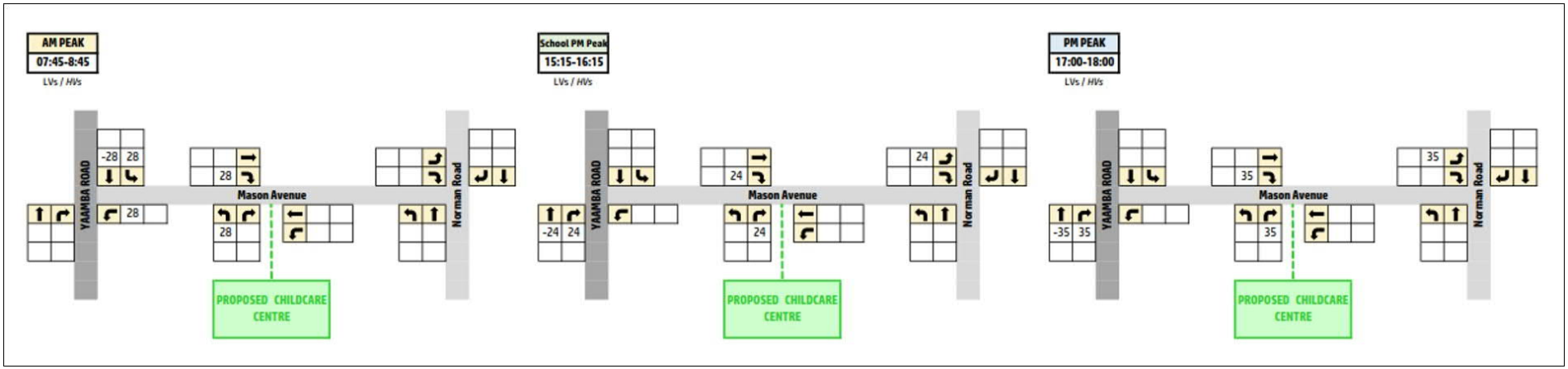


Figure 22 Stage 1 - AM, School PM and PM Peak Development Volumes (Drop-In Trips)

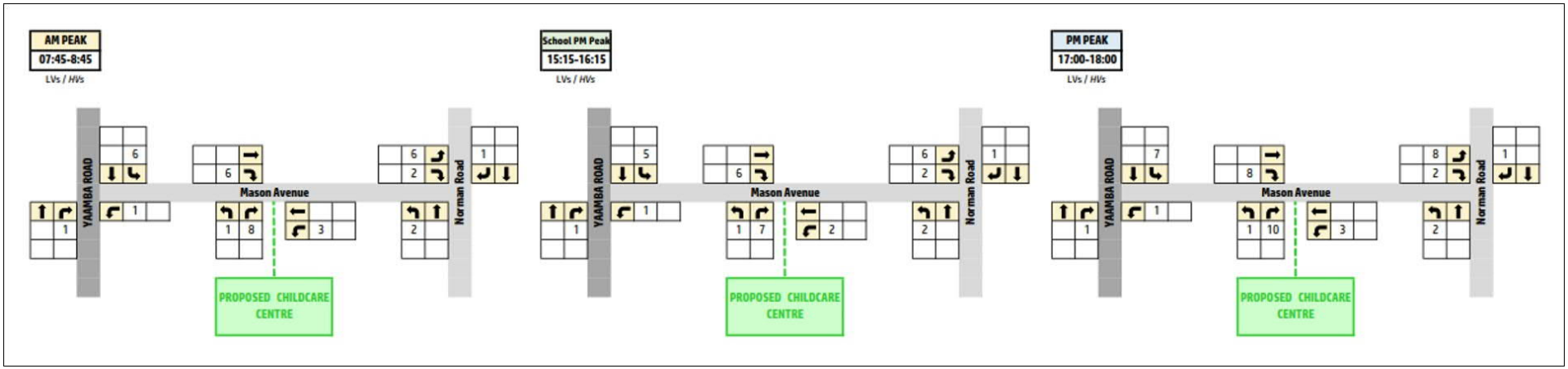


Figure 23 Stage 1 - AM, School PM and PM Peak Development Volumes (New Trips)

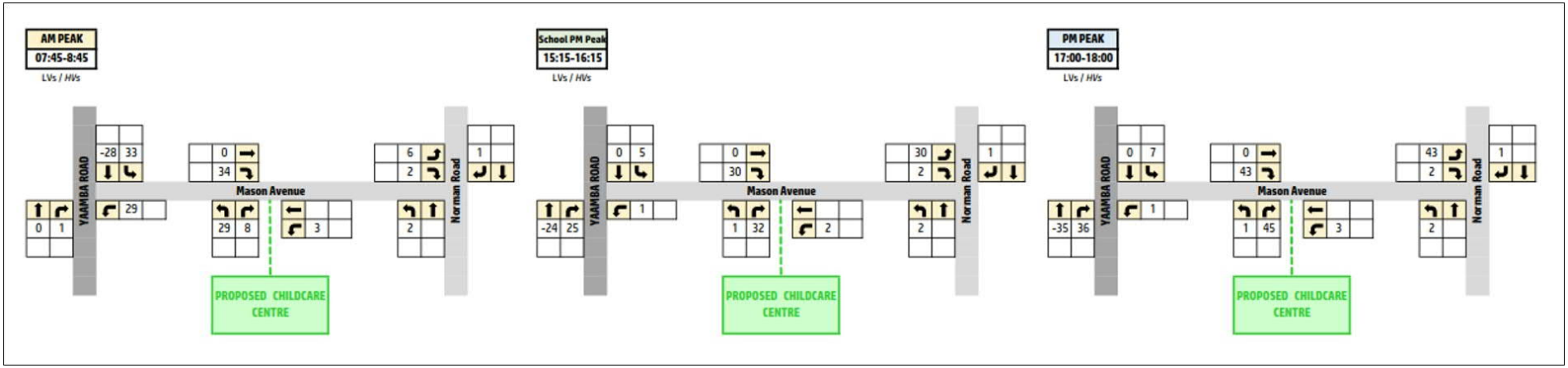


Figure 24 Stage 1 - AM, School PM and PM Peak Total Development Volumes

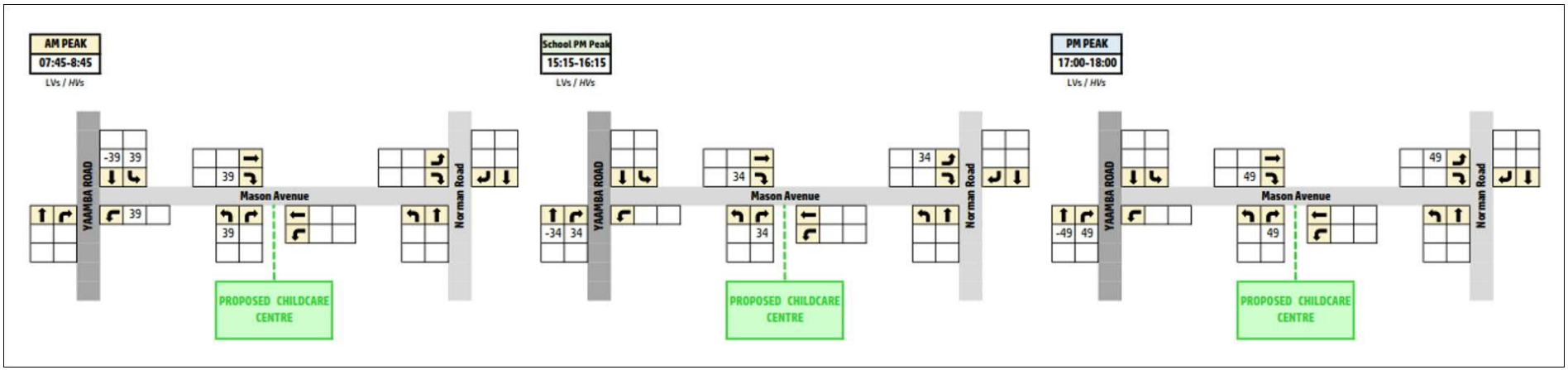


Figure 25 Stage 2 - AM, School PM and PM Peak Development Volumes (Drop-In Trips)

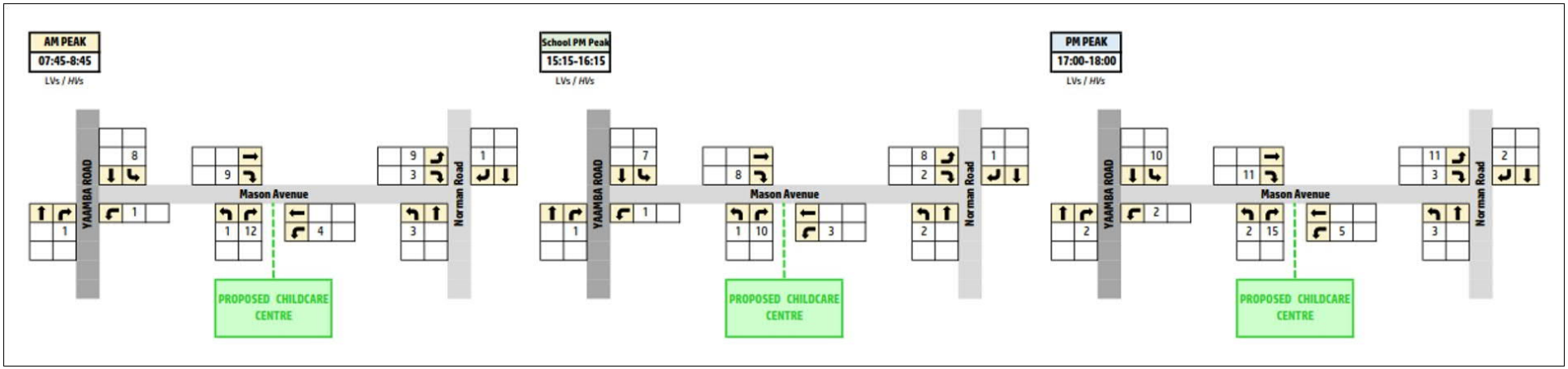


Figure 26 Stage 2 - AM, School PM and PM Peak Development Volumes (New Trips)

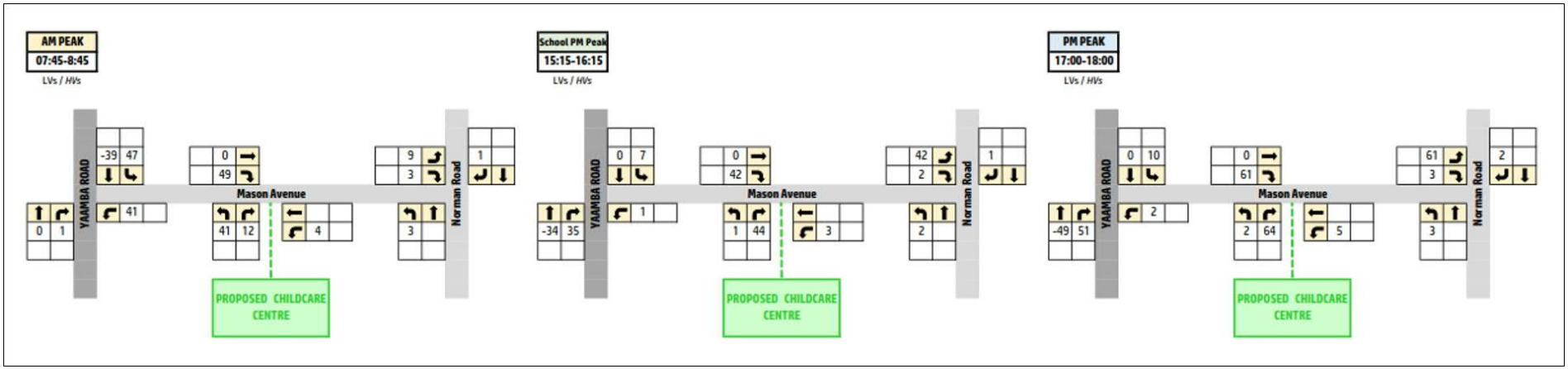


Figure 27 Stage 2 - AM, School PM and PM Peak Total Development Volumes

5.0 Traffic Impact Assessment

As noted above, based on the information provided above it was determined that the critical elements of the surrounding road network in terms of the potential traffic impact of the proposed childcare centre development were the adjacent sections of Yaamba Road and Mason Avenue, the Yaamba Road / Mason Avenue intersection and the proposed site access to the childcare centre off Mason Avenue.

Further details of the assessment of the impact of the development on these elements of the road network is provided in the following sections, with road network volumes forecasts provided for reference in **Appendix N**.

5.1 With and Without Development Traffic Volumes

5.1.1 Road Link Volumes

Based on the adopted distribution of the Stage 1 and Stage 2 development traffic movements identified in **Section 4.2** above, the expected pre and post development traffic volumes (daily) as part of both Stage 1 and Stage 2 of the childcare centre development on the relevant sections of the road network were established, as shown in **Table 7**.

Table 7 Forecast Pre and Post Development Traffic Volumes (Daily)

Site ID	Road Segment		Pre Development Daily Volumes				Development Traffic (Daily)				Post Development Daily Volumes			
	Start (km)	End (km)	2022		2025		Stage 1		Stage 2		2022		2025	
			Gaz	A-Gaz	Gaz	A-Gaz	Gaz	A-Gaz	Gaz	A-Gaz	Gaz	A-Gaz	Gaz	A-Gaz
Yaamba Road (Bruce Highway) – 10F														
60926	8.550	**10.610**	6,981	7,000	7,480	7,501	5	5	7	7	6,986	7,005	7,487	7,508
	10.610	13.180	6,978	7,014	7,475	7,525	0	31	0	43	6,978	7,045	7,475	7,568
Mason Avenue**														
RRC	0.000	0.050	577	550	610	561	190	82	267	116	767	632	877	677
	0.050	0.460	569	541	596	547	123	15	173	22	692	556	769	569

** Chainage and gazettal direction for Mason Avenue assumed to be east from Yaamba Road.
TMR Ch. 10.61km (10F) – Yaamba Road / Mason Avenue intersection.
Ch. 0.050 km Mason Avenue is proposed Childcare Centre Access location (RHS).

5.1.2 Intersection Volumes

Based on the requirements of TMR's Guide to Traffic Impact Assessment, due to the fact that the Yaamba Road / Mason Avenue intersection is not the direct access to the site, the traffic assessment of the impacts of the proposed development on its operation are only required to be undertaken for the expected year of completion for Stage 1 (2022) and Stage 2 (2025). Meanwhile, based on the requirements of RRC's planning scheme the assessment of the Mason Avenue / Childcare Centre Access intersection is required to be provided for both the year of completion and the 10 year design horizon for both Stage 1 (2022/2032) and Stage 2 (2025/2035) of the Project.

As such estimates of the pre and post development traffic conditions at both intersections for the identified design horizons were established, noting that the post development volumes were established by combining the forecast background traffic volumes (including volumes from Parkhurst State School expansion) with the calculated development traffic volumes identified in **Section 4.3**.

The resultant volumes are shown in **Figure 27** to **Figure 30** for Stage 1 and **Figure 31** to **Figure 34** for Stage 2 of the proposed childcare centre development.

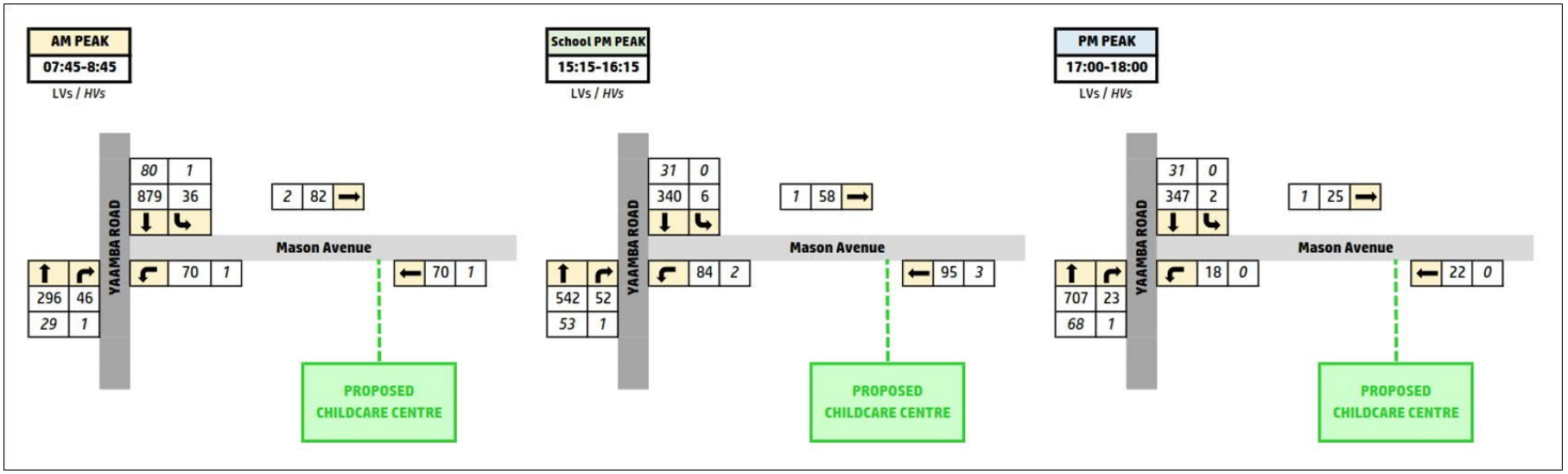


Figure 27 Pre Development Traffic Volumes – 2022 AM, School PM & PM Peak (No RT Out Mason Ave)

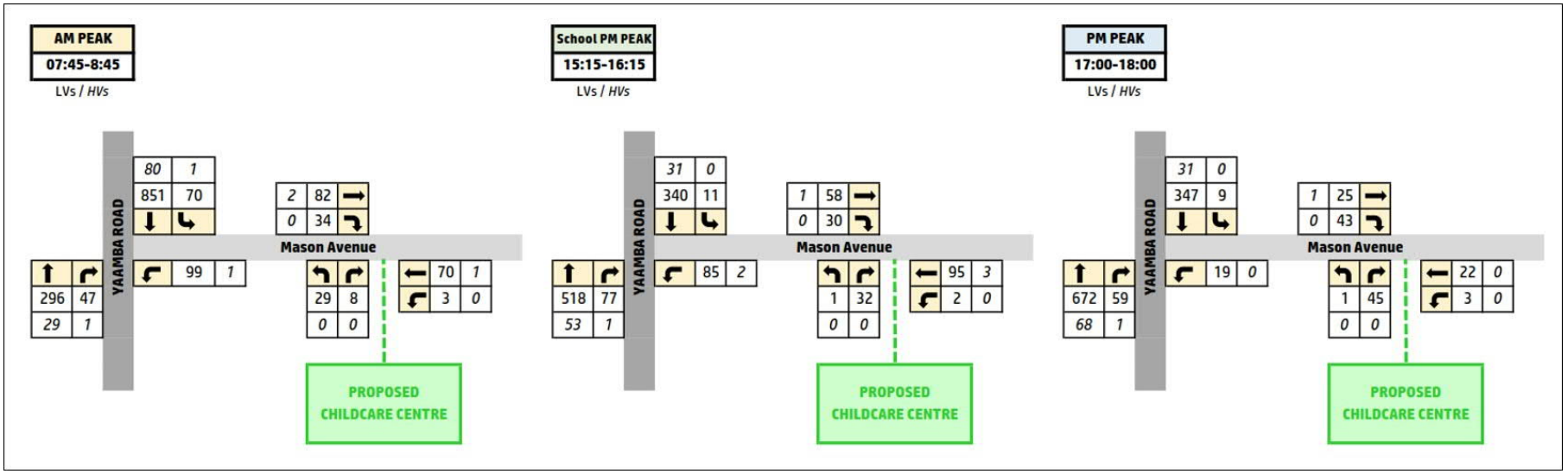


Figure 28 Post Development (Stage 1) Traffic Volumes – 2022 AM, School PM & PM Peak (No RT Out Mason Ave)

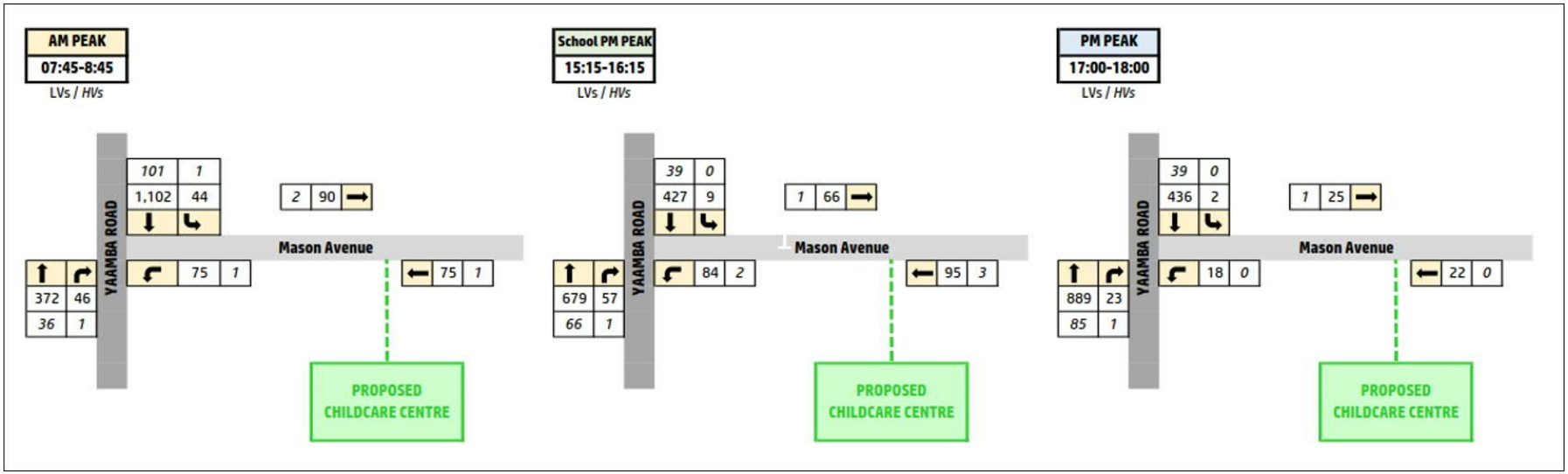


Figure 29 Pre Development Traffic Volumes – 2032 AM, School PM & PM Peak (No RT Out Mason Ave)

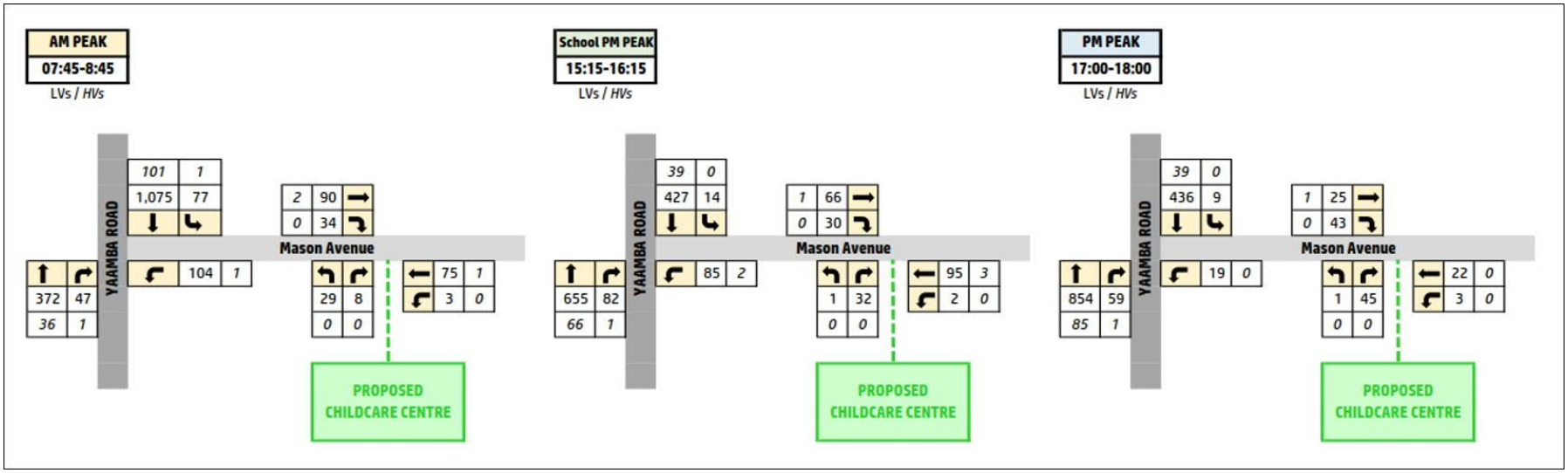


Figure 30 Post Development (Stage 1) Traffic Volumes – 2032 AM, School PM & PM Peak (No RT Out Mason Ave)

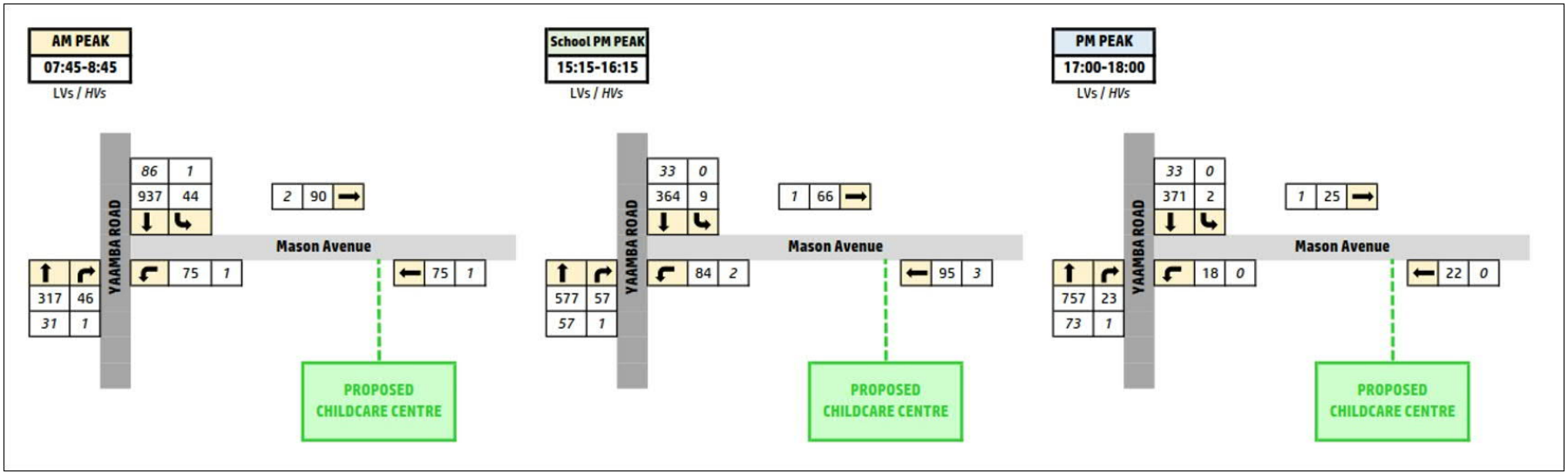


Figure 31 Pre Development Traffic Volumes – 2025 AM, School PM & PM Peak (No RT Out Mason Ave)

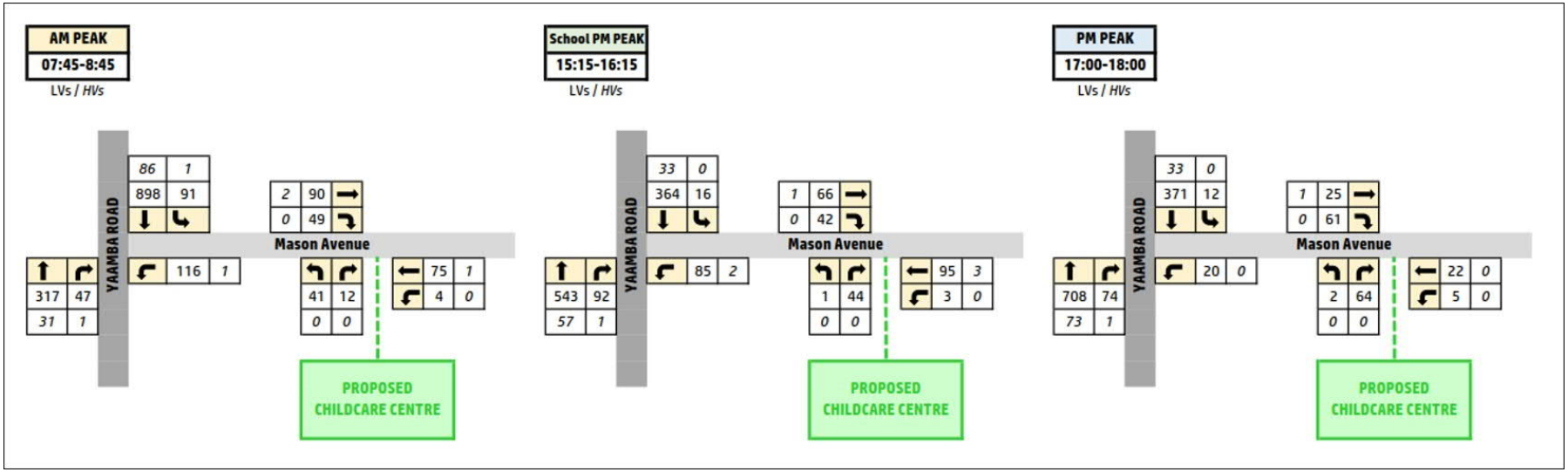


Figure 32 Post Development (Stage 2) Traffic Volumes – 2025 AM, School PM & PM Peak (No RT Out Mason Ave)

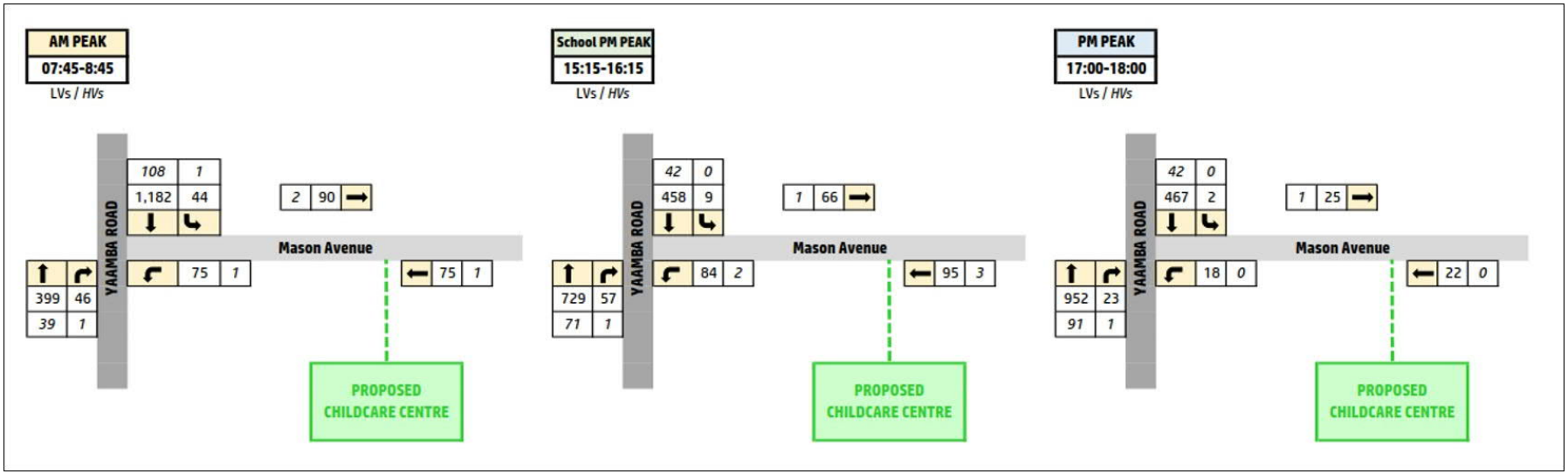


Figure 33 Pre Development Traffic Volumes – 2035 AM, School PM & PM Peak (No RT Out Mason Ave)

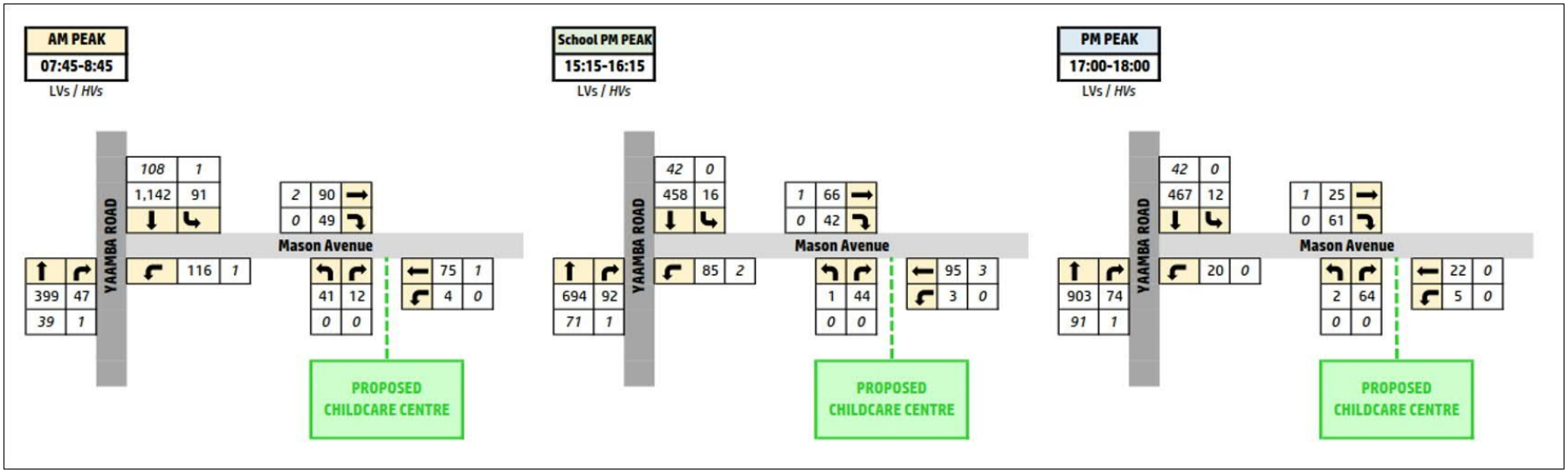


Figure 34 Post Development (Stage 2) Traffic Volumes – 2035 AM, School PM & PM Peak (No RT Out Mason Ave)

5.2 Road Safety Assessment and Mitigation

Based on the current operational environment of the adjacent road network (Bruce Highway >8,000 vpd and speed 60-70km/h) and the type of development proposed, it was determined that the completion of a lower order road safety assessment would be sufficient to establish the existing and post development road safety risks relevant to the proposed childcare centre development at 906-910 Yaamba Road, Parkhurst, in accordance with the requirements of Section 9.3.3 of TMR's Guide to Traffic Impact Assessments (2018).

To establish the level of risk regarding the identified road safety considerations, a safety risk score matrix as shown in **Figure 35** was utilised, with the results of the road safety risk assessment outlined in **Table 8**.

Figure 9.3.2(a) – Safety risk score matrix

Potential likelihood	Property only (1)	Minor injury (2)	Medical treatment (3)	Hospitalisation (4)	Fatality (5)
	Potential consequence				
Almost certain (5)	M	M	H	H	H
Likely (4)	M	M	M	H	H
Moderate (3)	L	M	M	M	H
Unlikely (2)	L	L	M	M	M
Rare (1)	L	L	L	M	M

L: Low risk
M: Medium risk
H: High risk

Figure 35 Adopted Risk Score Matrix **[Source: TMR GTIA]**

Table 8 Road Safety Assessment – Proposed Childcare Centre – 906-910 Yaamba Road, Parkhurst

	Existing / Pre-Development			Post Development				Post Development & Mitigation		
Risk Item	**Likelihood**	**Consequence**	**Risk Score**	**Likelihood**	**Consequence**	**Risk Score**	**Mitigation Measure**	**Likelihood**	**Consequence**	**Risk Score**
The Project is anticipated to lead to an increase in turning movements from Mason Avenue at the proposed site access intersection located approximately 45m to the east of the Bruce Highway. This increase in turning movements at the access location has the potential to lead to delays on Mason Avenue and additional vehicle conflicts due to turning traffic.	Rare	Minor Injury / Medical Treatment	**Low**	Unlikely	Minor Injury / Medical Treatment	**Low / Medium**	The provision of a suitable access treatment to the proposed childcare centre, in accordance with the requirements of AS2890.1 is anticipated to minimise the potential impact of the additional turning movements at the site access. Detailed analysis undertaken also identified that the proposed access intersection would operate satisfactorily for all development scenarios, with minimal impacts to the adjacent Mason Avenue.	Unlikely	Minor Injury / Medical Treatment	**Low / Medium**

The Project is anticipated to lead to an increase in right turn inbound movements at the Bruce Highway / Mason Avenue intersection, which could lead to excessive vehicle queueing, lower intersection performance and potentially additional vehicle conflicts.	Unlikely	Minor Injury / Medical Treatment	**Low / Medium**	Unlikely	Minor Injury / Medical Treatment	**Low / Medium**	The upgrade works to the intersection as part of the RNAU works currently under construction will remove the right turn out of Mason Avenue at the intersection which is the critical movement from a road safety perspective. Detailed intersection analysis undertaken as part of the assessment have identified that the impact of the increase in traffic volumes at the Bruce Highway / Mason Avenue intersection as a result of the proposed childcare centre was minimal and that all expected vehicle queues in the provided turning lanes would be accommodated in available storage lengths. **As such no further mitigation measures are deemed to be required.**	Unlikely	Minor Injury / Medical Treatment	**Low / Medium**
A review of the existing traffic conditions on Mason Avenue during the current PM school peak period identified significant queueing (>100m), past the proposed access site access point (130m) and back to the Bruce Highway (175m) from the current pick up/drop off area for the Parkhurst State School, during the short period between 3:00-3:15pm. This significant vehicle queuing has the potential to increase vehicle conflicts at both the proposed site access and Bruce Highway / Mason Avenue intersection, as well as reduce the operational performance of the intersections and the adjacent road links.	Likely	Minor Injury / Medical Treatment	**Medium**	Likely	Minor Injury / Medical Treatment	**Medium**	It is understood that as part of the proposed expansion of the Parkhurst State School an upgrade to the existing pick up / drop off facilities will be provided (prior to 2025), which is expected to significantly reduce the vehicle queuing on Mason Street during the PM school peak period. In addition, based on child sign in / sign out data from the Natural Wonders Early Learning - High Street site, it is expected that the proposed site (Stg 2) will only generate a small number of traffic movements (approx. 9-10 veh) during the critical 3:00-3:15pm period, with a large percentage (>50%) of these trips expected to be linked trips with movements to the adjacent school. Therefore the childcare centre is not anticipated to lead to a significant increase in vehicle queuing on Mason Avenue.	Unlikely	Minor Injury / Medical Treatment	**Low / Medium**

5.3 Access and Frontage Impact Assessment and Mitigation

5.3.1 Mason Avenue / Childcare Centre Access

A turn warrants assessment was undertaken for the proposed Mason Avenue / Childcare Centre Access intersection based on the forecast turning movement volumes at the access during the AM and School PM peak periods for 2035 post development (Stage 2) traffic conditions as identified in **Figure 34** above, which is considered the worst case traffic conditions at the access within the assessment design horizons.

This assessment was completed using Figure 2.26c of Austroads Guide to Traffic Management Part 6: Intersections, Interchanges and Crossings, which depicts the turn warrants graph for design speeds less 70km/h. The resultant graph from the assessment for the Stage 2 post development (2035) traffic conditions is provided in **Figure 36**, while further details of the turn warrants assessment calculations are provided for reference in **Appendix O**.

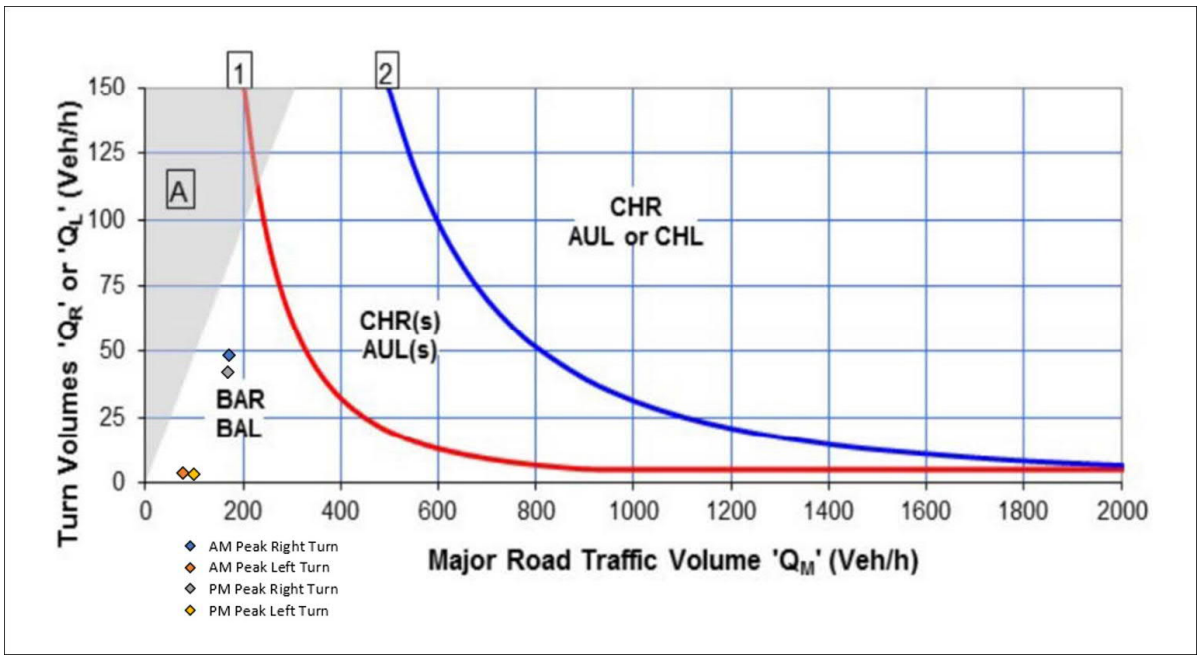


Figure 36 Turn Warrants Graph (<70km/hr) – Mason Avenue / Childcare Centre Access (Stage 2 Post Dev 2035)

The results of this assessment identified that minor BAR and BAL could be applied to the intersection, but that the design volumes were at the lower end of the graph. Based on this, and the urban nature of the site, the low opposing traffic volumes to the turn movements and the existing kerbside parking lanes on both sides of Mason Avenue in the vicinity of the site access, it was considered that formal road widening (i.e. BAR or BAL treatments) were not required at the proposed access location.

As such it is expected that the provision of the proposed access, including the crossover connection to the existing kerbline in accordance with CMDG standard drawing CMDG-R-042 Type A – Two Way Commercial Driveway Slab, will be suitable to cater for the expected traffic movements to the proposed childcare centre development.

5.3.2 On-Street Parking Facilities

As previously identified, kerbside parking is provided on both the northern and southern sides of Mason Avenue in the vicinity of the proposed site access, but that parking is currently prohibited across the frontage of the development site. As no works are proposed to be undertaken along the kerbside frontage of the development site on Mason Avenue, apart from the provision of the proposed access driveway and crossover connection in accordance with CMDG standard drawing CMDG-R-042, it is not anticipated that the proposed development will have a significant impact on the existing on-street parking.

5.4 Intersection Impact Assessment and Mitigation

5.4.1 Intersection Operation Analysis

The forecast pre and post development traffic volumes at the relevant intersections identified in **Section 5.1.2** above were utilised to undertake detailed intersection analysis (using SIDRA software) to establish their operational performance at the required assessment design horizons.

As it does not provide direct access to the proposed development site, the assessment of the Yaamba Road (Bruce Highway) / Mason Avenue intersection has only been undertaken for the identified year of completion for both Stage 1 (2022) and Stage 2 (2025) of the development, in accordance with the requirements of TMR's Guide to Traffic Impact Assessments. Meanwhile the assessment of the proposed Mason Avenue / Childcare Centre Access intersection has been completed for both the year of completion and the 10 year design horizon for both Stage 1 (2022/2032) and Stage 2 (2025/2035).

These assessments were undertaken adopting the traffic volumes forecast for the relevant design horizons at each intersection as per **Figure 27** to **Figure 30** (Stage 1) and **Figure 31** to **Figure 34** (Stage 2) above. Further details of the results of the analysis at each intersection are provided in the following sections.

5.4.1.1 Mason Avenue / Childcare Centre Access Intersection

A summary of the analysis results for the post development traffic conditions at the proposed Mason Avenue / Childcare Centre Access intersection is provided in **Table 9** below, with detailed SIDRA output results included for reference as **Appendix P**.

Table 9 SIDRA Results – Mason Avenue / Childcare Centre Access (Proposed Configuration

Analysis Scenario	Intersection Degree of Saturation	Level of Service**	Intersection Average Delay (sec)	Maximum 95% Back of Queue Length (m)
Stage 1 (108 Childcare Spaces)				
Post Development 2022 AM Peak	0.067	LOS A	1.2	1.4
Post Development 2022 PM School Peak	0.055	LOS A	1.2	1.2
Post Development 2022 PM Peak	0.041	LOS A	2.5	1.3
Post Development 2032 AM Peak	0.072	LOS A	1.2	1.5
Post Development 2032 PM School Peak	0.056	LOS A	1.2	1.3
Post Development 2032 PM Peak	0.041	LOS A	2.5	1.3
Stage 2 (152 Childcare Spaces)				
Post Development 2025 AM Peak	0.081	LOS A	1.5	2.0
Post Development 2025 PM School Peak	0.064	LOS A	1.5	1.7
Post Development 2025 PM Peak	0.059	LOS A	2.8	1.7
Post Development 2035 AM Peak	0.081	LOS A	1.5	2.0
Post Development 2035 PM School Peak	0.064	LOS A	1.5	1.7
Post Development 2035 PM Peak	0.059	LOS A	2.8	1.7

** LOS value identified is for worst movement at the intersection, not the overall intersection.

The results above indicate that the proposed configuration of the Mason Avenue / Childcare Centre Access intersection is expected to operate satisfactorily under all post development traffic conditions assessed for the expected year of completion and the required 10 year design horizon for Stage 1 (2022/2032) and Stage 2 (2025/2035) of the proposed development. This is demonstrated by all values for DOS, LOS, average delay and vehicle queueing calculated being well within acceptable limits of operation for a priority-controlled intersection.

As such it can be concluded that the proposed configuration of the Mason Avenue / Childcare Centre Access intersection will be adequate to cater for the additional traffic expected to be generated by the proposed childcare centre development.

5.4.1.2 Yaamba Road / Mason Avenue Intersection

A summary of the intersection analysis results for the relevant pre and post development traffic conditions at the Yaamba Road (Bruce Highway) / Mason Avenue intersection, assuming the proposed RNAU reconfiguration to remove the right turns out of Mason Street, is provided in **Table 10** , with detailed SIDRA output results included for reference as **Appendix Q**.

Table 10 Stage 1 SIDRA Results – Yaamba Road / Mason Avenue (RNAU Configuration – No RT from Mason Avenue)

Analysis Scenario	Intersection Degree of Saturation	Level of Service**	Intersection Average Delay (sec)	Maximum 95% Back of Queue Length (m)
Stage 1 (108 Childcare Spaces)				
Pre Development 2022 AM Peak	0.270	LOS B	1.3	5.2
Pre Development 2022 PM School Peak	0.169	LOS A	0.9	2.5
Pre Development 2022 PM Peak	0.220	LOS A	0.3	1.0
Post Development 2022 AM Peak	0.263	LOS B	1.5	5.3
Post Development 2022 PM School Peak	0.163	LOS A	1.1	3.2
Post Development 2022 PM Peak	0.211	LOS A	0.8	3.2
Stage 2 (152 Childcare Spaces)				
Pre Development 2025 AM Peak	0.288	LOS B	1.4	6.0
Pre Development 2025 PM School Peak	0.181	LOS A	0.9	2.5
Pre Development 2025 PM Peak	0.236	LOS A	0.3	1.0
Post Development 2025 AM Peak	0.278	LOS B	1.7	6.2
Post Development 2025 PM School Peak	0.171	LOS A	1.2	4.0
Post Development 2025 PM Peak	0.223	LOS A	0.8	3.2

** LOS value identified is for worst movement at the intersection, not the overall intersection.

The results above indicate that based on the identified RNAU configuration of the intersection to remove the right turn movements out of Mason Avenue, the Yaamba Road / Mason Avenue intersection is expected to operate satisfactorily under all pre and post development traffic conditions assessed. This is again demonstrated by all values for DOS, average delay and vehicle queueing calculated being within acceptable limits of operation for a priority controlled intersection.

Based on the results of these assessments, it can be seen that the proposed configuration of the Yaamba Road / Mason Avenue intersection has adequate capacity to accommodate the additional traffic volumes from the proposed childcare centre development.

5.4.2 Intersection Delay Analysis

In addition to the SIDRA analysis of the operational performance of the state controlled Yaamba Road / Mason Avenue intersection, an assessment of the impact of the proposed childcare centre (and associated intersection reconfiguration) on the intersection delay was also undertaken in accordance with the requirements of Clause 11.3.1 of TMR's Guide to Traffic Impact Assessment. A summary of this delay assessment is provided in **Table 11**.

As identified below, there is no increase in the overall (combined AM and PM peak) intersection delay between the pre development (2,568 seconds) and post development conditions (2,568 seconds). As such it can be seen that the proposed childcare centre development will have an insignificant impact on the vehicle delay at the adjacent Yaamba Road / Mason Avenue intersection.

Table 11 Intersection Delay Assessment (Stage 2) – Yaamba Road / Mason Avenue Intersection (2025)

Traffic Movement	2025 AM Peak					2025 PM Peak				
	Pre Dev Vols	Pre Dev Avg Delay	Pre Dev Total Delay	Post Dev Avg Delay	Post Dev Total Delay	Pre Dev Vols	Pre Dev Avg Delay	Pre Dev Total Delay	Post Dev Avg Delay	Post Dev Total Delay
Yaamba Road (South)										
Through	348	0.0	0	0	0	830	0	0	0	0
Right	47	23.2	1,090	23.2	1,090	24	9.5	228	9.8	235
Mason Avenue										
Left	76	10.9	828	10.8	821	18	8.5	153	8.5	153
Yaamba Road (North)										
Left	45	3.4	153	3.4	153	2	6.4	13	6.4	13
Through	1023	0.1	102	0.1	102	404	0	0	0	0
		Total	**2,174**	**Total**	**2,167**		**Total**	**394**	**Total**	**401**

5.5 Road Link Capacity Assessment and Mitigation

As identified in **Section 5.1.1** above, the expected pre and post development road link volumes were established, with a summary provided in **Table 12** below.

Table 12 Forecast Pre and Post Development Traffic Volumes (Daily)

Site ID	Road Segment		Pre Development Daily Volumes				Development Traffic (Daily)				Post Development Daily Volumes			
	Start (km)	End (km)	2022		2025		Stage 1		Stage 2		2022		2025	
			Gaz	A-Gaz	Gaz	A-Gaz	Gaz	A-Gaz	Gaz	A-Gaz	Gaz	A-Gaz	Gaz	A-Gaz
Yaamba Road (Bruce Highway) – 10F														
60926	8.550	**10.610**	6,981	7,000	7,480	7,501	5	5	7	7	6,986	7,005	7,487	7,508
	10.610	13.180	6,978	7,014	7,475	7,525	0	31	0	43	6,978	7,045	7,475	7,568
Mason Avenue**														
RRC	0.000	0.050	577	550	610	561	190	82	267	116	767	632	877	677
	0.050	0.460	569	541	596	547	123	15	173	22	692	556	769	569

** Chainage and gazettal direction for Mason Avenue assumed to be east from Yaamba Road.
TMR Ch. 10.61km (10F) – Yaamba Road / Mason Avenue intersection / Ch. 0.050 km Mason Avenue - Childcare Centre Access location (RHS).

Based on the relatively minor increases in daily traffic volumes and the resultant post development volumes on the relevant sections of the link, it can be seen that the additional traffic from the proposed childcare centre is not anticipated to have a significant impact on the operation of the surrounding road links as all post development volumes still within the capacity of a multi-lane urban arterial / highway (Yaamba Road) and Mason Avenue, which currently provides the required configuration for a minor urban collector.

5.6 Transport Infrastructure Impact Assessment and Mitigation

5.6.1 Public Transport Facilities

No works have been identified as part of the development that would be expected to impact on the operation of the public transport facilities in the vicinity of the site, including the proposed relocation of the southbound bus stop on Yaamba Road as part of the RNAU works currently under construction.

As such it is not anticipated that the proposed childcare centre development will have an impact on the configuration or operation of the adjacent public transport facilities.

5.6.2 Active Transport Facilities

Similarly, no works have been identified as part of the development that would be expected to impact on the active transport facilities in the vicinity of the site, including the proposed on-road cycle lanes and footpaths in both directions on Yaamba Road, and the pedestrian footpath on both sides of Mason Avenue (northern side = existing / southern side = proposed as part of RNAU).

As such it is not anticipated that the proposed childcare centre development will have an impact on the configuration or operation of the active transport facilities in the vicinity of the proposed development site.

6.0 Conclusions and Recommendations

6.1 Summary of Impacts and Mitigations

6.1.1 Internal Facilities

The traffic elements of the proposed plan of development have been designed generally in accordance with the requirements of AS2890 and RRC's Access, Parking and Transport Code.

The proposed on-site parking provision for both Stage 1 (**36 spaces**) and Stage 2 (**48 spaces**) is in accordance with Council's requirements (**Stage 1 - 36 spaces / Stage 2 – 48 spaces**) and as such is considered adequate to cater for the parking demand expected to be generated by the development, noting that the provision of tandem parking bays in Stage 2 is deemed acceptable due to the designation of both bays for longer term staff parking on-site.

In addition to the on-site parking provision, all elements of the parking area and site access are proposed to be provided in accordance with the required standards and considered suitable to service the expected vehicle traffic from the childcare centre.

Finally, the proposed servicing and refuse collection arrangements for the childcare centre can be considered adequate, with the swept paths of the nominated refuse collection vehicles shown to be able to enter the site, manoeuvre to the undertake the required refuse collection activities for the development and then egress the site in a forwards gear.

6.1.2 Traffic Impacts

In addition to the review of the internal transport facilities proposed, an assessment of the potential traffic impact of the proposed development on the external road network was also undertaken.

This assessment identified that based on the expected increases in daily traffic volumes and the resultant post development volumes still being within the capacities of a multi-lane urban arterial / highway (Yaamba Road) and that expected for Mason Avenue, which currently provides the required configuration (carriageway width) for a minor urban collector (750 - 3,000 vpd). As such, the additional traffic from the proposed childcare centre is not anticipated to have a significant impact on the operation of the surrounding road links.

A turn warrants check was also undertaken to assess the proposed Mason Avenue / Childcare Centre Access intersection for post development traffic conditions at the relevant design horizon (10 year design horizon – Stage 2 2035). The results of this assessment identified that minor BAR and BAL could be applied to the intersection, but that the design volumes were at the lower end of the graph. Based on this, and the urban nature of the site, the low opposing traffic volumes to the turn movements and the existing kerbside parking lanes on both sides of Mason Avenue in the vicinity of the site access, it was considered that formal road widening (i.e. BAR or BAL treatments) were not required at the proposed access location.

As such it is expected that the provision of the proposed access, including the crossover connection to the existing kerbline in accordance with CMDG standard drawing CMDG-R-042 Type A – Two Way Commercial Driveway Slab, will be suitable to cater for the expected traffic movements to the proposed childcare centre development.

Further detailed intersection analysis of the proposed site access identified that the intersection was expected to operate satisfactorily under the required post development traffic conditions at both the expected year of completion and 10 year design horizon of both Stage 1 (2022/2032) and Stage 2 (2025/2035) of the proposed childcare centre development.

In addition to the proposed site access intersection, detailed analysis was also undertaken for the adjacent Yaamba Road / Mason Avenue intersection to the west of the site. This assessment was undertaken

adopting the proposed RNAU configuration of the intersection (removal of right turn out of Mason Avenue) currently under construction, with the analysis showing that the upgraded intersection is expected to operate satisfactorily under all post development traffic scenarios assessed for the expected year of completion for both Stage 1 (2022) and Stage 2 (2025) of the Project.

Based on the results of this assessments, it can be seen that the proposed RNAU configuration of the Yaamba Road / Mason Avenue intersection has adequate capacity to accommodate the additional traffic volumes from the proposed childcare centre development.

Finally, it was also noted that the proposed development would have no impact to the configuration or operation of the existing and post RNAU public transport and active transport facilities in the vicinity of the site.

6.2 Recommendations

In light of the information provided above, it is concluded that the proposed childcare development will have a minor impact on the adjacent road network and can therefore be recommended to be approved from a traffic engineering perspective.

6.3 Certification Statement and Authorisation

A copy of the RPEQ certification and authorisation statement covering this assessment of the proposed childcare centre located at 906-910 Yaamba Road, Rockhampton, is included for reference as **Appendix R**.

Appendix A – Road Authority Advice (RRC & TMR)

PRELODGEMENT MEETING

MINUTES OF MEETING

MEETING DETAILS	
Date of Meeting: Monday 27th July 2020 – 10.30am	
Council Attendees:	**Applicant Attendees:**
▪ Thomas Gardiner – Senior Planning Officer, Development Assessment ▪ Patricia Farrow – Development Engineer, Community Services ▪ Kathy McDonald – Development Assessment (minutes) ▪ Emma-Leigh Castley – Environmental Health Officer, Community Services ▪ Rick Palmer – Senior Executive Industry Engagement - Advance Rockhampton	▪ Stephen Enders - Zone Planning Group ▪ Sarah Hunt - Zone Planning Group ▪ Scott Morrison - Natural Wonders Early Learning

PROPOSAL:
Address: 906-910 Yaamba Road, Parkhurst
Real Property Description: Lot 2 on RP864537
Details of Proposal:
Issues identified by the Applicant for discussion: • Proposed Child Care Centre and potential support from Council • Documents required for Application • Infrastructure upgrades required • Timeframes for Assessment • Potential Educational Establishment (Swim School)
Supporting information/documentation provided by Applicant: • Proposed Plans, 20685PD08 and 20685PD09

MINUTES
PLANNING ASSESSMENT:
Defined Use: Childcare Centre
Planning Area/Zone: Low Density Residential Zone
Type of Application Required: Material Change of Use for a Childcare Centre
Level of Assessment: Code Assessable

DEVELOPMENT ASSESSMENT:

- The proposal is for a Child Care Centre which will be constructed over two (2) stages. The first stage will accommodate 108 children (Stage One), with the second stage anticipated to accommodate 152 children (Stage Two).
- The subject site is located in a Low Density Residential Zone. A Childcare Centre is consistent with the intent of the Zone and will trigger "code-assessment".
- Council requires a full code-assessment against the relevant assessment benchmarks listed in the Tables of Assessment. These include the zone code, and associated development codes.
- Due to the adjoining residential lots to the east of the site, Council will require detail on screening and landscape features to protect the residential amenity of the adjoining residential properties (built form and noise). We will not require the submission of an Acoustic Assessment Report.
- As the site adjoins a State-controlled road (Yaamba Road), a referral to the Department of State Development, Tourism and Innovation will be required.
- The future intent of the site is to develop further with an additional Swim School. This could be defined as an Educational Establishment, if it is exclusively used for educational purposes. Alternatively, the use could be defined as an Indoor or Outdoor Sport and Recreation Facility – depending on how it operates. Any of these uses will require "impact-assessment". It was recommended that a further pre-lodgement meeting be organised in the future once more consideration has been given towards this further development scenario.
- We also discussed Council's position on the staging of the approval. Council can condition the proposal to occur over two (2) stages. Provided the first stage is completed within the currency period, the approval will remain active, leaving time for the completion of the second stage.
- Given the growth in the area 'Parkhurst' (Ellida Estate to the west and Paramount Park to the north), Council can in principle support an application for approval.

DEVELOPMENT ENGINEERING UNIT:

- Parkhurst State School is expanding by an additional 323 staff and students. Council receives numerous complaints about the parking and traffic conditions in Mason Ave.
- A Traffic Impact Assessment will be required to determine the impacts on the surrounding road and intersection.
- Recommend requesting from DTMR a possible limited access of a left out only onto the Highway (Yaamba Road)
- Car parking allowance as per the planning scheme is 1 park per 6 child and 1 park per fulltime staff member. (tandem carparks for staff can be supported) This allowance would not be relaxed due to there being no available on-street parking in Mason Ave.
- A site based Stormwater Management Plan will be required, assessing both stormwater quantity and quality.
- A Waste Management Plan will be required; and
- The development must be connected to Council's reticulated water supply and sewer services – no capacity issues identified

Infrastructure Charges (not including actual charges)

The Adopted Infrastructure Charges are available to view on Council's Website. These are located in the Fees and Charges Section. Please see the link below.

http://www.rockhamptonregion.qld.gov.au/Planning-and-Building/Infrastructure-Charges

PUBLIC AND ENVIRONMENTAL HEALTH:
▪ As mentioned consideration for adjoining residential lots in regards to noise should be addressed and a screen must be provided. ▪ Food will be provided as a service on-site. A 'Food Business Licence' application with a food safety program is required.
OUTCOME SUMMARY:
The Proposed Development is consistent with the intent of the Low Density Residential Zone and given the likely growth in the area Council would support the application. A further pre-lodgement meeting should be organised in the future once more consideration has been given towards the further development scenario of the site (swim school)

ADVISORY NOTE:
These notes have been provided as informal and non binding comments and are intended for use as a guide only in providing feedback on the proposal presented to the Unit. These discussions do not bind or fetter the Council in any way in exercising its statutory responsibilities in assessing any development application which might be made to the Council.
Link to DA Forms https://planning.dilgp.qld.gov.au/planning/resources Link to Planning Schemes http://www.rockhamptonregion.qld.gov.au/Planning-and-Building/Planning-Schemes-and-Studies Link to Development Assessment Fees http://www.rockhamptonregion.qld.gov.au/About-Council/Finance-Rates-and-Budget/Fees-and-Charges Development Incentives http://www.rockhamptonregion.qld.gov.au/Planning-and-Building/Development-Incentives

Rockhampton Office
232 Bolsover St, Rockhampton
Gracemere Office
1 Ranger St, Gracemere
Mount Morgan Office
32 Hall St, Mount Morgan

6 November 2020

Our reference: D/118-2020
Enquiries to: Thomas Gardiner
Telephone: 1300 22 55 77

Natural Wonders Berserker Pty Ltd
C/- Zone Planning Group
PO BOX 5332
GLADSTONE QLD 4680

Dear Sir/Madam

INFORMATION REQUEST – DEVELOPMENT APPLICATION D/118-2020 FOR A MATERIAL CHANGE OF USE FOR A CHILD CARE CENTRE – SITUATED AT 906-910 YAAMBA ROAD, PARKHURST – DESCRIBED AS LOT 2 ON RP864537, PARISH OF MURCHISON

Council refers to your application received by Council on 19 October 2020.

Council officers have undertaken a detailed assessment of the development application and require you to provide further information to address the following issues:

1.0 Stormwater management requirements

1.1 Consent is required from the owner of Lot 3 on RP866014 (4 Hotham Close, Parkhurst). The easement within Lot 3 on RP866014 only allows Council access to the easement area for the purposes of completing 'Council Works'. The easement terms refer to access by Council's employees and agents for this purpose. The proposed drainage works carried out as a consequence of the proposed development on Lot 2 on RP864537 are not captured under these easement terms. Subsequently, consent from this property owner is required.

1.2 Please provide hydraulic characteristics of the flow over the weir and within the easement.

1.3 Please provide engineering details of the works required on the easement land to discharge overland flow / gap flow from the development site to Hotham Close.

2.0 Traffic management requirements

2.1 The traffic impact assessment report adopted a 0.63 trips/child ratio for AM and PM peak hour traffic calculations. Council does not agree with 0.63 trips/child ratio as it is more relevant to south-east Queensland Child Care Centres. Council have surveyed that local Child Care Centres and have identified an average ratio of 0.86 trips/child to be appropriate. Please adopt this ratio and amend the Traffic Impact Assessment accordingly. Alternatively, the applicant may conduct their own survey of local Child Care Centres and provide appropriate justification for an alternate ratio.

2.2 In accordance with the post development (stage 2) traffic volumes, 33 vehicles will be right turning into Mason Avenue during school PM peak hour. Furthermore, the road safety assessment and mitigation section states that approximately 9 to 10 vehicles will be right turning into Mason Avenue during the critical school PM 15-20 minute period. Council has concerns that these right movements into Mason Avenue

will contribute to congestion within the development site and / or unsafe traffic movements onto Mason Avenue in the school PM time. In an attempt to mitigate the issues highlighted above, the applicant is requested to pursue a left out exit point onto Yaamba Road. Please contact the Department of Transport and Main Roads Fitzroy District Corridor Management Section regarding the left out egress onto Yaamba Road and amend the associated reports and plans accordingly.

2.3 Some outbound information in 'Table 6 traffic distribution summary' in the Traffic Impact Assessment appears to be incorrect. Please update the table with correct information.

Under section 13 of the Development Assessment Rules, the Applicant has three (3) options available in response to this information request. The Applicant must give the Assessment Manager:

1. all of the information requested; or
2. part of the information requested, together with a notice requiring the Assessment Manager and each referral agency to proceed with the assessment of the application; or
3. a notice:
    i. stating the Applicant does not intend to supply any of the information requested; and
    ii. requiring the Assessment Manager and each referral agency to proceed with the assessment of the application.

Response to this further information request should be forwarded to:
Development Assessment Section
Rockhampton Regional Council
PO Box 1860
ROCKHAMPTON QLD 4700

A response needs to be received within a period of three (3) months from the date of this letter, In accordance with section 68 (1) of the *Planning Act 2016* and sections 12 and 13 of the Development Assessment Rules. Please forward your response to this information request to Council at your earliest convenience, in order for the assessment of your application to progress further.

Should you have any queries regarding the above information request, please contact the undersigned on 1300 22 55 77.

Yours faithfully



Thomas Gardiner
Senior Planning Officer
Planning and Regulatory Services

Information Request Response Form
(to be returned to the Assessment Manager with the response)

I _____ choose to respond to the Assessment Manager's Information Request:

- □ in full;

  OR

- □ in part, with this notice requiring the Assessment Manager and each referral agency to proceed with the assessment of the application;

  OR

- □ stating that I do not intend to supply any of the information requested; and requiring the Assessment Manager and each referral agency to proceed with the assessment of the application.

A copy of the response to the Assessment Manager's information request has been provided to all Referral Agencies nominated on the Confirmation Notice.

I understand the requirements of this Information Request as listed above.

Signed : _____ Date : _____

Position : _____

From: Jason B Giddy <Jason.B.Giddy@tmr.qld.gov.au>
Sent: Friday, 13 November 2020 12:36 PM
To: Andrew Barrie <andrew.barrie@accesstraffic.com.au>; sarah@zoneplanning.com.au; 'Stephen Enders' <stephen@zoneplanning.com.au>
Cc: Central.Queensland.IDAS <Central.Queensland.IDAS@tmr.qld.gov.au>
Subject: 2010-19503; TMR20-031420 - Parkhurst child care centre - summary of discussion regarding council request for egress to the Bruce Highway

Good afternoon Andrew and Sarah,

Thank you for the discussion today regarding the proposed child care centre at Parkhurst. This discussion was regarding Rockhampton Council concerns about a single access/egress point onto Mason Avenue and the potential for this development to exacerbate existing efficiency issues on Mason Avenue. Council have requested TMR consider allowing an egress only onto the Bruce Highway.

As discussed in the meeting, TMR is not supportive of an egress only from this site onto the state-controlled road. This position has been maintain through several previous development applications. I won't delve into the historical discussions, as Tim Grimes (RNAU) advised in the meeting a similar, if not identical request has been refused in the past. I've provided some general comments below:

- Based on the current State Development Assessment Provisions (SDAP), TMR considers it would be very difficult for a proposal for an egress onto the Bruce Highway at this location to comply. In addition to the SDAP provisions, TMR also need to assess any proposal for access against the TMR Vehicular Access to the State-controlled Roads Policy
    - SDAP PO16 requires that the location and design of a vehicular access does not create a safety hazard for users of a state-controlled road or result in a worsening of operating conditions on a state-controlled road. An acceptable outcome it to provide access from the local road.
    - Other performance outcomes would also be relevant (PO19 – planned upgrades); PO21 (development does not impose traffic loadings on a state-controlled road which could be accommodated on the local road network).
- I note TMR raised potential safety concerns, including the following:
    - Noting there is a proposed bus bay to be constructed at this location as part of the RNAU project, conflict points would be introduced both vehicles exiting both Mason Ave and the egress at the same time, with the potential for a bus to be parked at this location (or arriving at) to also navigate.
    - All turns from Mason Ave will be left turns post RNAU. This will exacerbate the above.
    - There is concern that the request from council is attempting to mitigate/address an efficiency problem on Mason Avenue by potentially introducing safety issues on the state-controlled road. The decision framework TMR must assess such a proposal against, discussed above, wouldn't permit such an outcome.

The applicant is free to make a change to the application and respond in accordance with the requirements of the SDAP and access policy. It is TMR's view based on the information available that achieving compliance with these requirements is unlikely.

Should you require further information, my contact details are below.

Kind regards,

Jason Giddy
Town Planner | Fitzroy District / Central Queensland Region
Program Delivery & Operations | Department of Transport and Main Roads

Floor 1 | Rockhampton - Knight Street Complex | 31 Knight Street | North Rockhampton Qld 4701
PO Box 5096 | Red Hill Rockhampton Qld 4701
P: (07) 49311686 | F: (07) 49275020
E: jason.b.giddy@tmr.qld.gov.au
W: www.tmr.qld.gov.au

From: Anton Z De Klerk <Anton.Z.DeKlerk@tmr.qld.gov.au>
Sent: Tuesday, 8 December 2020 1:28 PM
To: stuart.harvey@rrc.qld.gov.au; Andrew Barrie <andrew.barrie@accesstraffic.com.au>
Subject: FW: Potential Egress onto Yaamba Road for Proposed Child Care Centre (609-610 Yaamba Road)

Hi Stuart and Andrew,

Please see below email send to Tilak and Jamie (which I believe are both on holidays at the moment) regarding TMR comments to a proposed egress onto the state-controlled road (Yaamba Road) to facilitate traffic movements within Mason Avenue and a Child Care Centre in Parkhurst. In short, unfortunately the District Director was not in favour of the proposed egress onto the SCR.

Happy to discuss further if required.

Kind regards,

Anton DeKlerk
Team Leader, Corridor Management | Fitzroy District / Central Queensland Region
Program Delivery & Operations | Department of Transport and Main Roads

Floor 1 | Rockhampton - Knight Street Complex | 31 Knight Street | North Rockhampton Qld 4701
PO Box 5096 | Red Hill Rockhampton Qld 4701
E: CorridorManagement@tmr.qld.gov.au
W: www.tmr.qld.gov.au

From: Anton Z De Klerk <Anton.Z.DeKlerk@tmr.qld.gov.au>
Sent: Friday, 4 December 2020 12:06 PM
To: Tilak Mudalige <Tilak.Mudalige@rrc.qld.gov.au>; Corridor Management <CorridorManagement@tmr.qld.gov.au>
Cc: Jamie McCaul <Jamie.McCaul@rrc.qld.gov.au>; Chris Y Murphy <Chris.Y.Murphy@tmr.qld.gov.au>
Subject: RE: Potential Egress onto Yaamba Road for Proposed Child Care Centre (609-610 Yaamba Road)

Hi Tilak and Jamie,

Chris Murphy and I had a brief meeting with Peter Trim (District Director) on Wednesday afternoon (2/12/2020) regarding this matter, and unfortunately the District Director was not in favour of the proposed egress onto the SCR as it does not support TMR's RNAU plans and vision. The District Director also stated that from a safety perspective, egress onto the SCR will have a higher safety risk due to being in a higher speed environment whereas the access onto Mason Avenue will have a lower risk due to the slower speed environment.

Hope and trust this address your initial enquiry, please do not hesitate to contact me should you require any additional information regarding the above mentioned.

Kind regards,

Anton DeKlerk
Team Leader, Corridor Management | Fitzroy District / Central Queensland Region
Program Delivery & Operations | Department of Transport and Main Roads

Floor 1 | Rockhampton - Knight Street Complex | 31 Knight Street | North Rockhampton Qld 4701
PO Box 5096 | Red Hill Rockhampton Qld 4701
E: CorridorManagement@tmr.qld.gov.au
W: www.tmr.qld.gov.au

From: Tilak Mudalige <Tilak.Mudalige@rrc.qld.gov.au>
Sent: Tuesday, 1 December 2020 5:01 PM
To: Anton Z De Klerk <Anton.Z.DeKlerk@tmr.qld.gov.au>
Cc: Jamie McCaul <Jamie.McCaul@rrc.qld.gov.au>
Subject: RE: Potential Egress onto Yaamba Road for Proposed Child Care Centre (609-610 Yaamba Road)

Hi Anton,

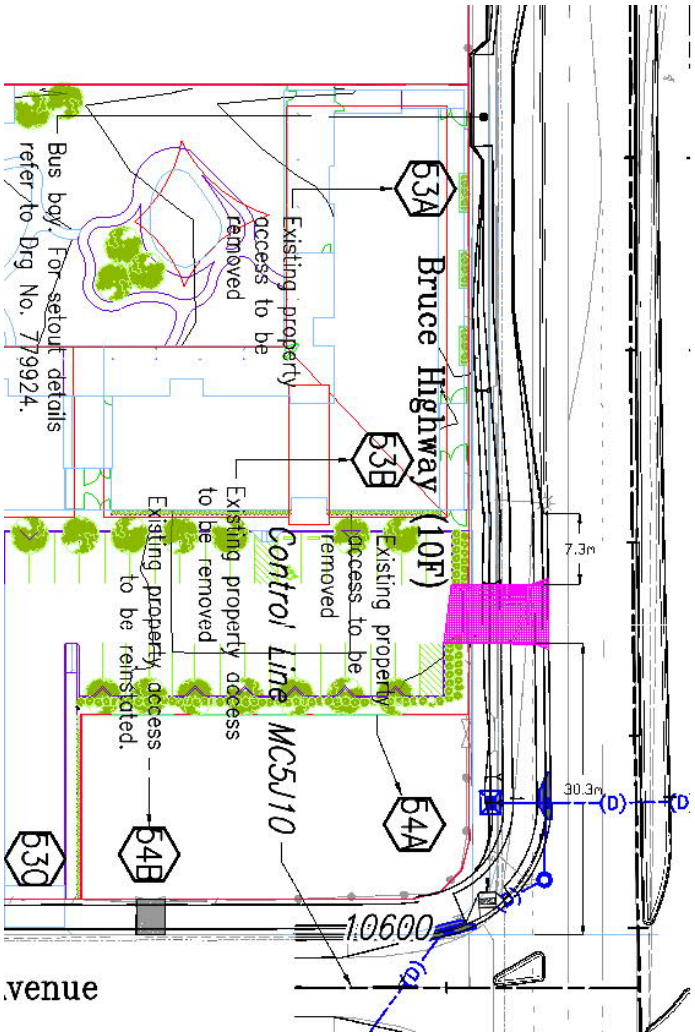
Council would like to provide following comments;

1. sight visibility from the proposed egress to Mason Avenue;
   Once the RNAU project is complete, the Yaamba Road southbound lane will be upgraded to two lanes. The distance between the proposed egress only crossover and Mason Av will be approximately 30m (See below drawing). Good sight visibility is evident for vehicles turning left out of Mason Avenue onto Yaamba Road and vehicles exiting the proposed child care site via the proposed egress only crossover. (please see attached photos). Furthermore, the width of the proposed Yaamba Road verge fronting the proposed egress only crossover will be approximately 10m and it provides adequate length to accommodate a vehicle if it needs to improve safety and visibility before it enters the through lane of Yaamba Road. There are no other sight distances issues relevant, hence Council believe the proposed egress only crossover is acceptable.

2. setbacks of the proposed egress to the new bus stop (does the bus stop need to potentially move further south?);
   It is noted that the bus movements at this bus stop will occur once an hour with the last bus movement to be at 5.00 PM. The peak PM hour for the proposed childcare centre will be 5.00PM – 6.00PM. Furthermore, there are numerous examples in the Region where Bus Stops and Entry/Exit points are located within close proximity to each other. For example Bus Stop at Yaamba Road - Stockland Shopping Centre Entry and Bus Stop at Yaamba Road – McDonalds Entry/Exit (near Glenmore Shopping Centre). The proposed egress only crossover will be approximately 7m from the taper of the bus stop. Hence council believe no requirement to move the Bus Stop further south and egress only crossover will be operate efficiently and safely with minimal risk.

3. interaction of vehicles exiting the site and the cycleway (including bus movements).
   Council does not believe there is any additional risk between this proposal and the other existing entry / exit points further to the south along Yaamba Road and cycleways in the SCR. Given the dual lane and excessive sight visibility towards the north (approximately 500m to the Olive Street traffic signals) from the proposed egress only crossover, vehicle movements can occur without compromising the safety of cyclists.

   General Comments - The proposed egress only crossover onto Yaamba Road from the subject site can be limited to 3.5m - 4m width and skewed to the south to discourage any potential entry from Yaamba Road into the development site. In general, Council do not see any significant risk in DTMR approving an egress only crossover from the development site onto the SCR. If this were to be approved it will provide significant improvements to traffic congestion within the development site and onto Mason Av which has been / will be concerning when the Parkhurst State School finish their extensions.



Thanks,

Regards

Tilak Mudalige
B.Eng.Civil (Hons), M.Eng (IE&M), GD (ISM), Dip (Mgt)
RPEQ, CPEng, NPER, MIEAust
Development Engineer l Planning and Regulatory Services
Rockhampton Regional Council – Walter Reid Office
Ph: 07 4936 8427 l E-mail: Tilak.Mudalige@rrc.qld.gov.au
Address: PO Box 1860, Rockhampton Q 4700 |Web: www.rockhamptonregion.qld.gov.au
Like us www.facebook.com/RockhamptonRegionalCouncil **Follow us** www.twitter.com/RRCouncil

SAFETY FIRST
ACCOUNTABLE | CUSTOMER FOCUSED | PEOPLE DEVELOPMENT | ONE TEAM | CONTINUOUS IMPROVEMENT

Queensland Government

Queensland Treasury

SARA reference: 2010-19503 SRA
Council reference: D/118-2020
Applicant reference: Z20241

1 December 2020

Chief Executive Officer
Rockhampton Regional Council
PO Box 1860
Rockhampton Qld 4700
enquiries@rrc.qld.gov.au

Attention: Thomas Gardiner

Dear Sir/Madam

SARA response—906-910 Yaamba Road, Parkhurst

(Referral agency response given under section 56 of the *Planning Act 2016*)

The development application described below was confirmed as properly referred by the State Assessment and Referral Agency on 3 November 2020.

Response

Outcome:	Referral agency response – with conditions.
Date of response:	1 December 2020
Conditions:	The conditions in **Attachment 1** must be attached to any development approval.
Advice:	Advice to the applicant is in **Attachment 2**.
Reasons:	The reasons for the referral agency response are in **Attachment 3**.

Development details

Description:	Development permit	Material Change of Use for a Child Care Centre
SARA role:	Referral Agency	
SARA trigger:	Schedule 10, Part 9, Division 4, Subdivision 2, Table 4 (Planning Regulation 2017) Development application for a material change of use within 25m of a	

Fitzroy/Central regional office
Level 2, 209 Bolsover Street,
Rockhampton
PO Box 113, Rockhampton QLD 4700

	state-controlled road
SARA reference:	2010-19503 SRA
Assessment Manager:	Rockhampton Regional Council
Street address:	906-910 Yaamba Road, Parkhurst
Real property description:	2RP864537
Applicant name:	Natural Wonders Berserker Pty Ltd
Applicant contact details:	PO Box 3805 Burleigh Town QLD 4220 eflett@zoneplanning.com.au

Representations

An applicant may make representations to a concurrence agency, at any time before the application is decided, about changing a matter in the referral agency response (s.30 Development Assessment Rules) Copies of the relevant provisions are in **Attachment 4**.

A copy of this response has been sent to the applicant for their information.

For further information please contact Kate Lipke, Principal Planning Officer, on 49242916 or via email RockhamptonSARA@dsdmip.qld.gov.au who will be pleased to assist.

Yours sincerely



Anthony Walsh
Manager Planning

cc Natural Wonders Berserker Pty Ltd, eflett@zoneplanning.com.au

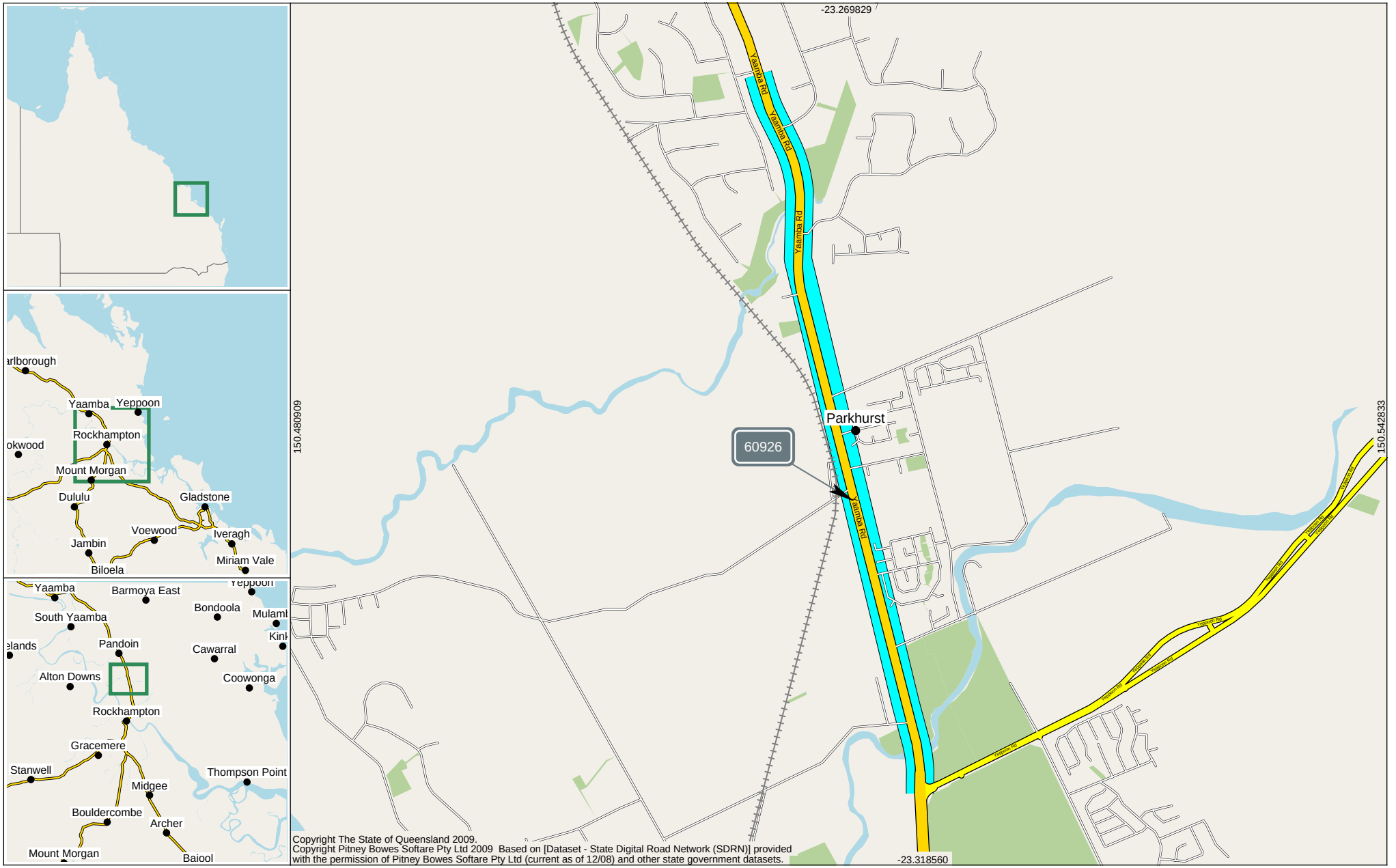
enc Attachment 1 - Referral agency conditions
Attachment 2 - Advice to the applicant
Attachment 3 - Reasons for referral agency response
Attachment 4 - Representations provisions

Attachment 1—Referral agency conditions

(Under section 56(1)(b)(i) of the *Planning Act 2016* the following conditions must be attached to any development approval relating to this application)

No.	Conditions	Condition timing
Material change of use		
Schedule 10, Part 9, Division 4, Subdivision 2, Table 4—The chief executive administering the *Planning Act 2016* nominates the Director-General of the Department of Transport and Main Roads to be the enforcement authority for the development to which this development approval relates for the administration and enforcement of any matter relating to the following condition(s):		
1.	Direct access is not permitted between the Bruce Highway (Rockhampton – St Lawrence) and the subject site.	At all times
2.	(a) Stormwater management of the development must ensure no worsening or actionable nuisance to the state-controlled road. (b) Any works on the land must not: (i) create any new discharge points for stormwater runoff onto the state-controlled road; (ii) interfere with and/or cause damage to the existing stormwater drainage on the state-controlled road; (iii) surcharge any existing culvert or drain on the state-controlled road; (iv) reduce the quality of stormwater discharge onto the state-controlled road.	At all times

Appendix B – TMR Road Traffic Count Data



Copyright The State of Queensland 2009.
Copyright Pitney Bowes Softare Pty Ltd 2009 Based on [Dataset - State Digital Road Network (SDRN)] provided with the permission of Pitney Bowes Softare Pty Ltd (current as of 12/08) and other state government datasets.

Site 60926. Point 260000686. Bruce Hwy 200m Sth Mason Ave (Parkhurst).

10.41 km

The width of each Road Segment is proportional to its AADT.



8.55 km

Start Point 260000303. Yaamba Rd/Bruce Hwy to City @ Yeppoon Rd.

13.18 km

End Point 260000531. Bruce Hwy to R'ton CBD @ Terra Nova Dr.

This report shows Annual Average Daily Traffic values (AADTs). Because the AADT values are converted to whole numbers, there will be occasional inaccuracies due to rounding. These inaccuracies are statistically insignificant.

All Vehicles (00)

G	6,366	100%
A	6,384	100%
B	12,750	100%

Light Vehicles (0A)

G	5,495	86.32%
A	5,796	90.79%
B	11,291	88.56%

Heavy Vehicles (0B)

G	872	13.70%
A	588	9.21%
B	1,460	11.45%

Short Vehicles (1A)

G	5,495	86.32%
A	5,796	90.79%
B	11,291	88.56%

Trucks and Buses (1B)

G	565	8.88%
A	306	4.79%
B	871	6.83%

Articulated Vehicles (1C)

G	142	2.23%
A	127	1.99%
B	269	2.11%

Road Trains (1D)

G	165	2.59%
A	155	2.43%
B	320	2.51%

Short 2-Axle Vehicles (2A)

G	5,340	83.88%
A	5,629	88.17%
B	10,969	86.03%

Short Vehicles Towing (2B)

G	155	2.43%
A	167	2.62%
B	322	2.53%

2-Axle Trucks and Buses (2C)

G	514	8.07%
A	254	3.98%
B	768	6.02%

3-Axle Trucks and Buses (2D)

G	43	0.68%
A	45	0.70%
B	88	0.69%

4-Axle Trucks (2E)

G	8	0.13%
A	7	0.11%
B	15	0.12%

3-Axle Articulated (2F)

G	13	0.20%
A	6	0.09%
B	19	0.15%

4-Axle Articulated (2G)

G	22	0.35%
A	15	0.23%
B	37	0.29%

5-Axle Articulated (2H)

G	22	0.35%
A	20	0.31%
B	42	0.33%

6-Axle Articulated (2I)

G	85	1.34%
A	86	1.35%
B	171	1.34%

B Double (2J)

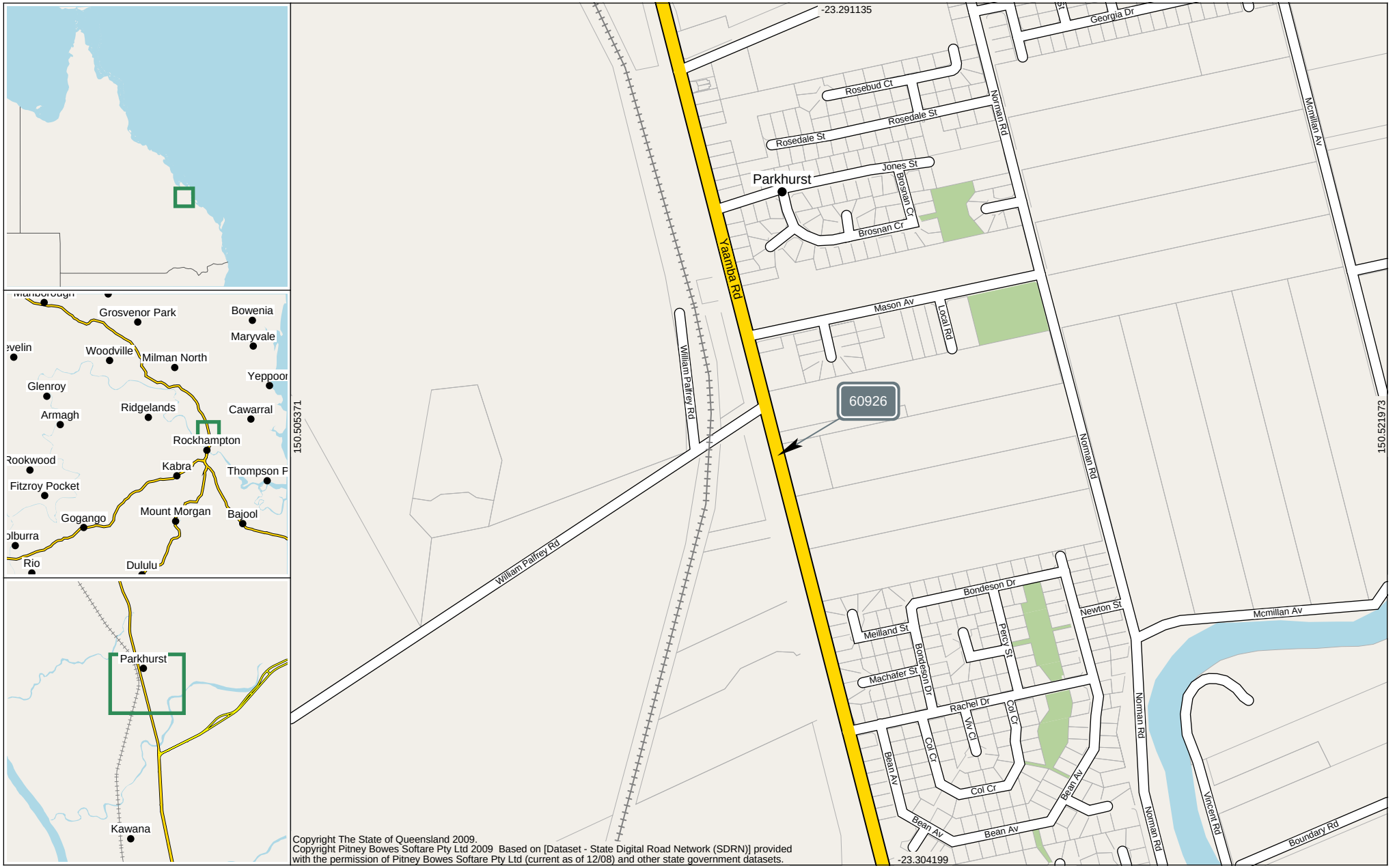
G	164	2.58%
A	154	2.41%
B	318	2.49%

Double Road Trains (2K)

G	1	0.02%
A	1	0.02%
B	2	0.02%

Triple Road Trains (2L)

G	0	0%
A	0	0%
B	0	0%

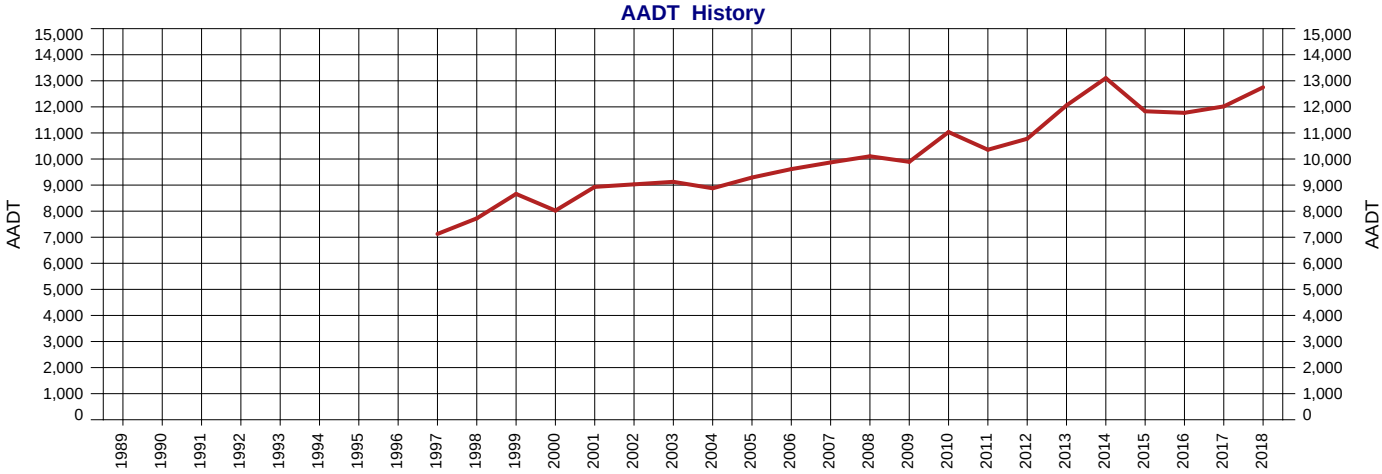


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Area	404 - Fitzroy District
Road Section	10F - BRUCE HIGHWAY (ROCKHAMPTON-ST LAWRENCE)
Site	60926 - Bruce Hwy 200m Sth Mason Ave (Parkhurst)
Thru Dist	10.41
Type	C - Coverage
Stream	TB - Bi-directional traffic flow

Year	2018	Growth last Year	6.10%
AADT	12,750	Growth last 5 Yrs	1.12%
Avg Week Day	13,260	Growth last 10 Yrs	2.32%
Avg Weekend Day	9,945		

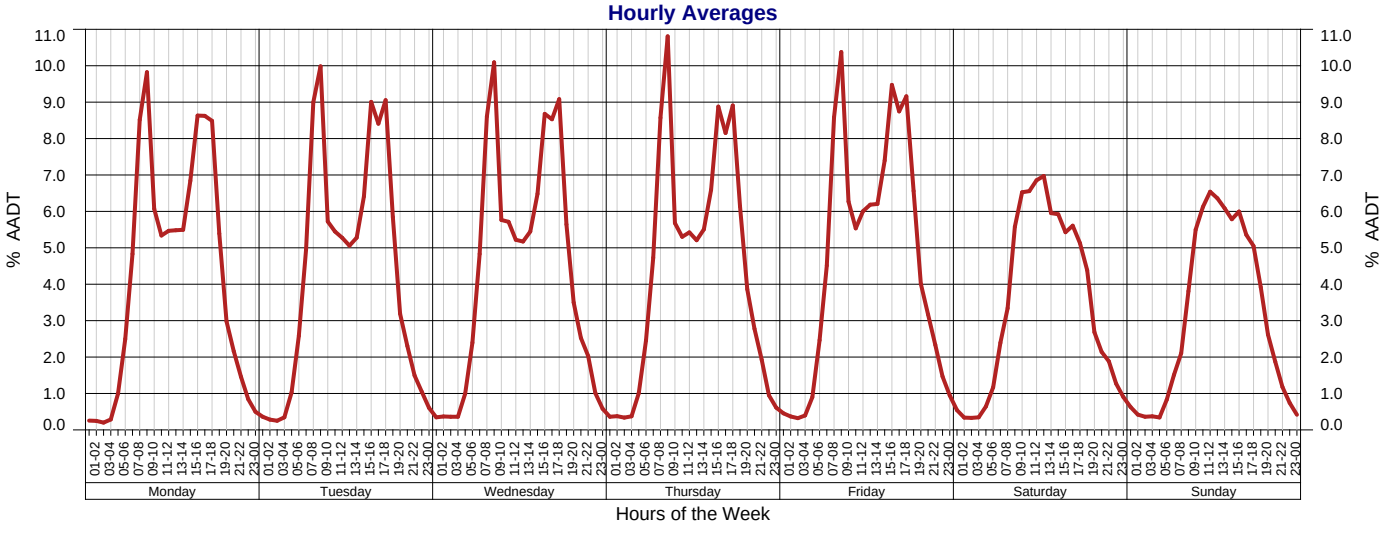
AADT History



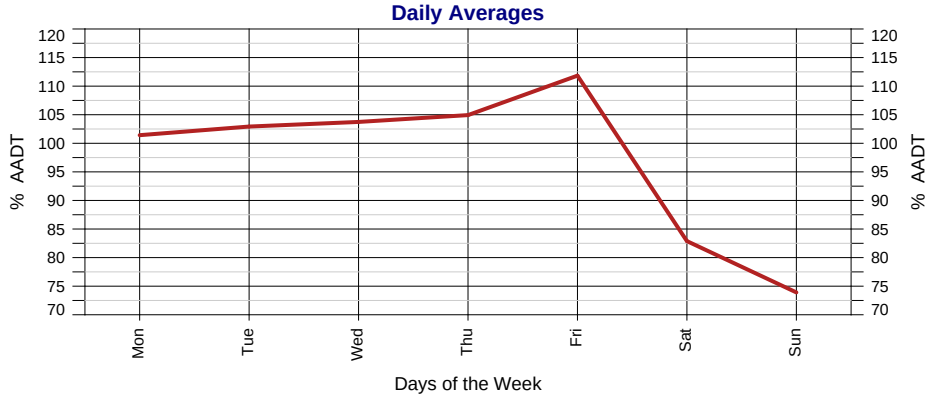
Year	AADT	1-Year Growth	5-Year Growth	10-Year Growth
2018	12,750	6.10%	1.12%	2.32%
2017	12,017	2.09%	0.59%	1.81%
2016	11,771	-0.51%	1.29%	1.87%
2015	11,831	-9.70%	1.87%	2.35%
2014	13,102	8.67%	6.13%	4.32%
2013	12,057	11.89%	4.38%	3.37%
2012	10,776	4.06%	1.74%	1.96%
2011	10,356	-6.14%	1.22%	1.60%
2010	11,034	11.54%	3.76%	3.00%
2009	9,892	-2.10%	1.58%	1.58%
2008	10,104	2.38%	2.58%	2.33%
2007	9,869	2.66%	2.25%	2.57%
2006	9,613	3.48%	1.78%	
2005	9,290	4.65%	1.94%	
2004	8,877	-2.72%	0.82%	

Year	AADT	1-Year Growth	5-Year Growth	10-Year Growth
2003	9,125	1.07%	2.73%	
2002	9,028	1.09%	4.04%	
2001	8,931	11.35%		
2000	8,021	-7.39%		
1999	8,661	12.15%		
1998	7,723	8.38%		
1997	7,126			
1996				
1995				
1994				
1993				
1992				
1991				
1990				
1989				

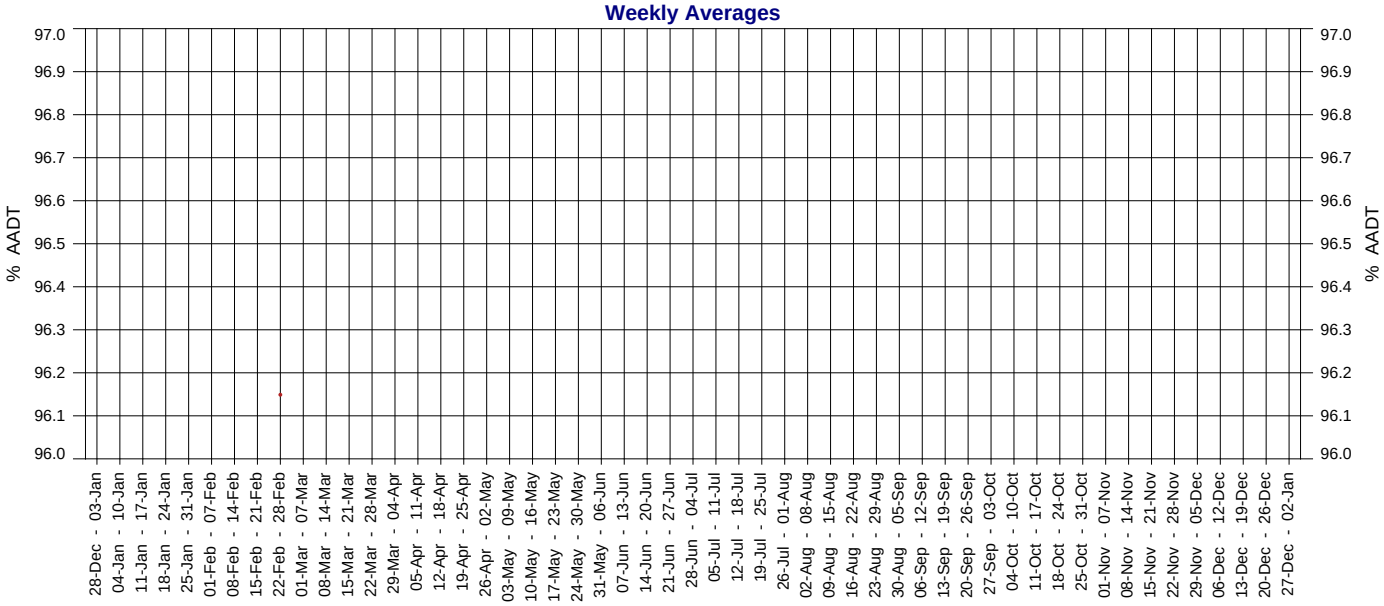
Hourly Averages



Daily Averages



Weekly Averages



2018 Calendar

January

M	T	W	T	F	S	S
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31				

February

M	T	W	T	F	S	S
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28				

March

M	T	W	T	F	S	S
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30	31	

April

M	T	W	T	F	S	S
30						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29

May

M	T	W	T	F	S	S
	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30	31			

June

M	T	W	T	F	S	S
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	

July

M	T	W	T	F	S	S
30	31					1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29

August

M	T	W	T	F	S	S
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	31		

September

M	T	W	T	F	S	S
					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30

October

M	T	W	T	F	S	S
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31				

November

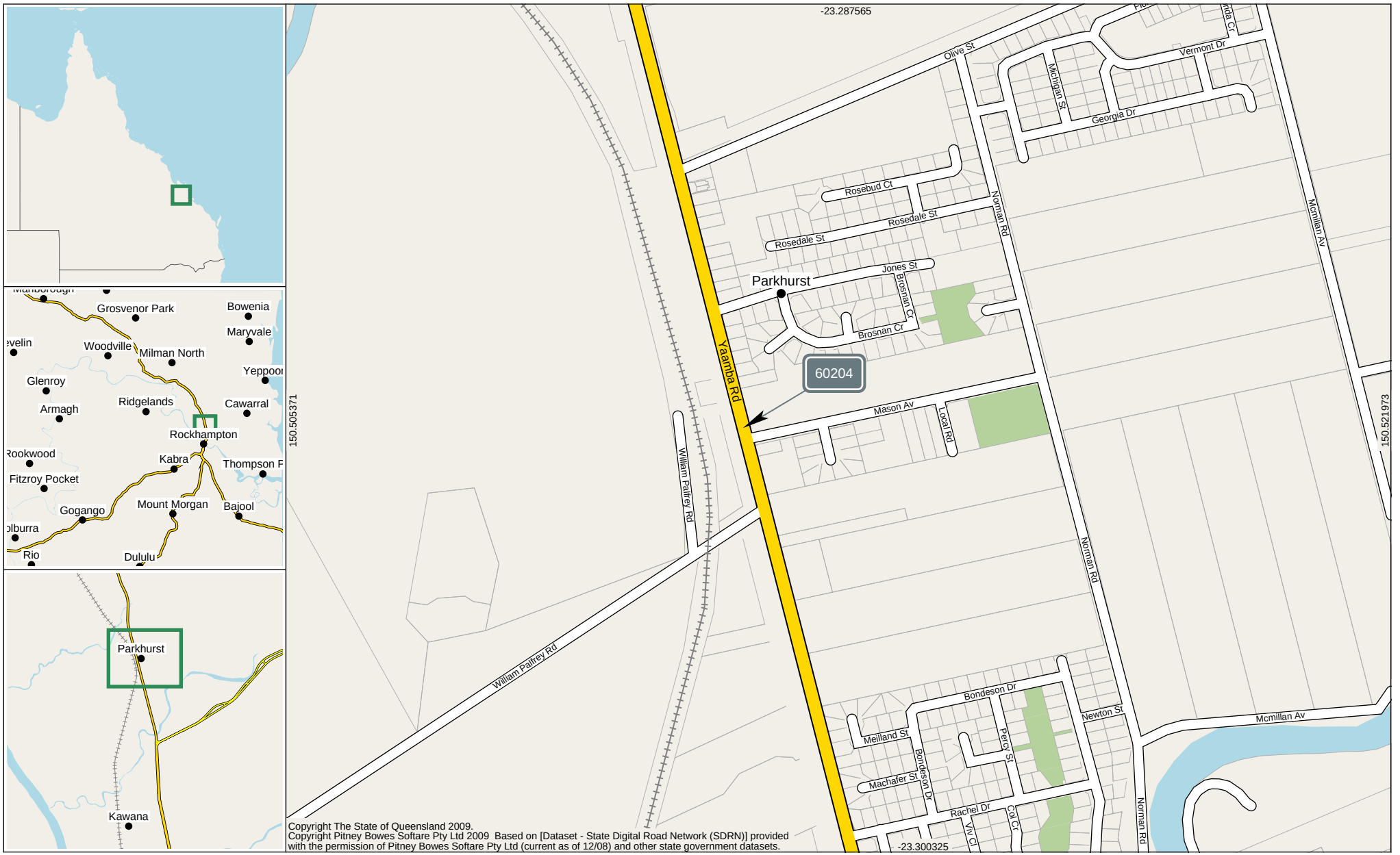
M	T	W	T	F	S	S
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30		

December

M	T	W	T	F	S	S
31					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30

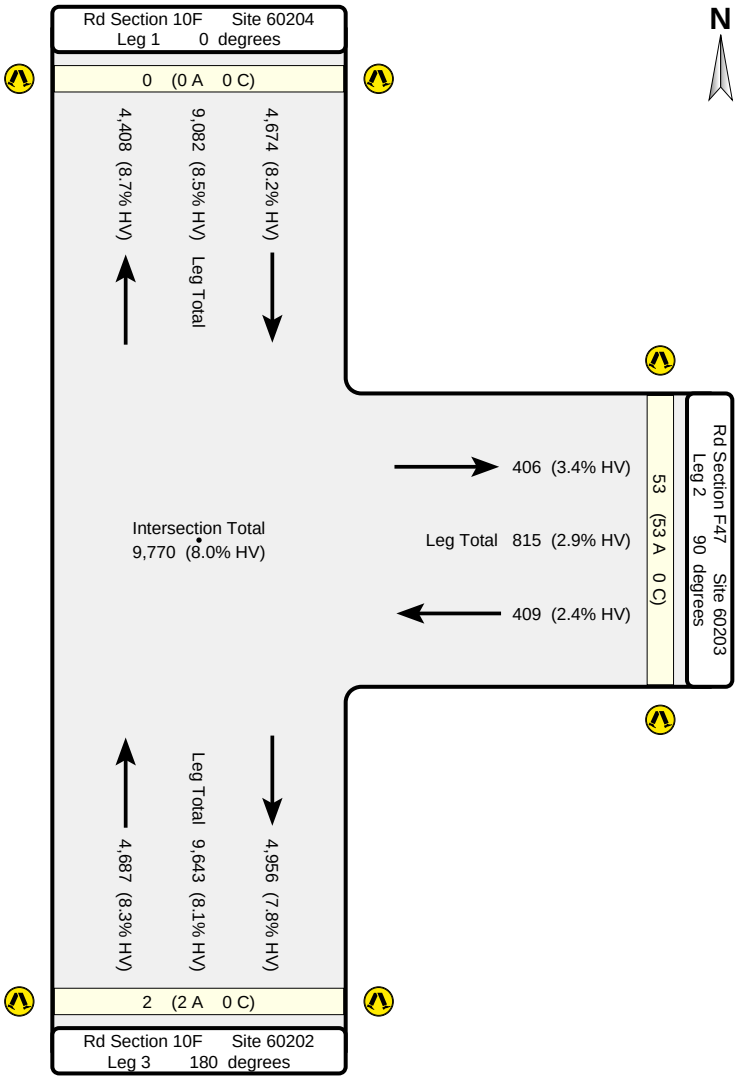
Days on which traffic data was collected.

Appendix C – TMR Yaamba Road / Mason Avenue Intersection Count



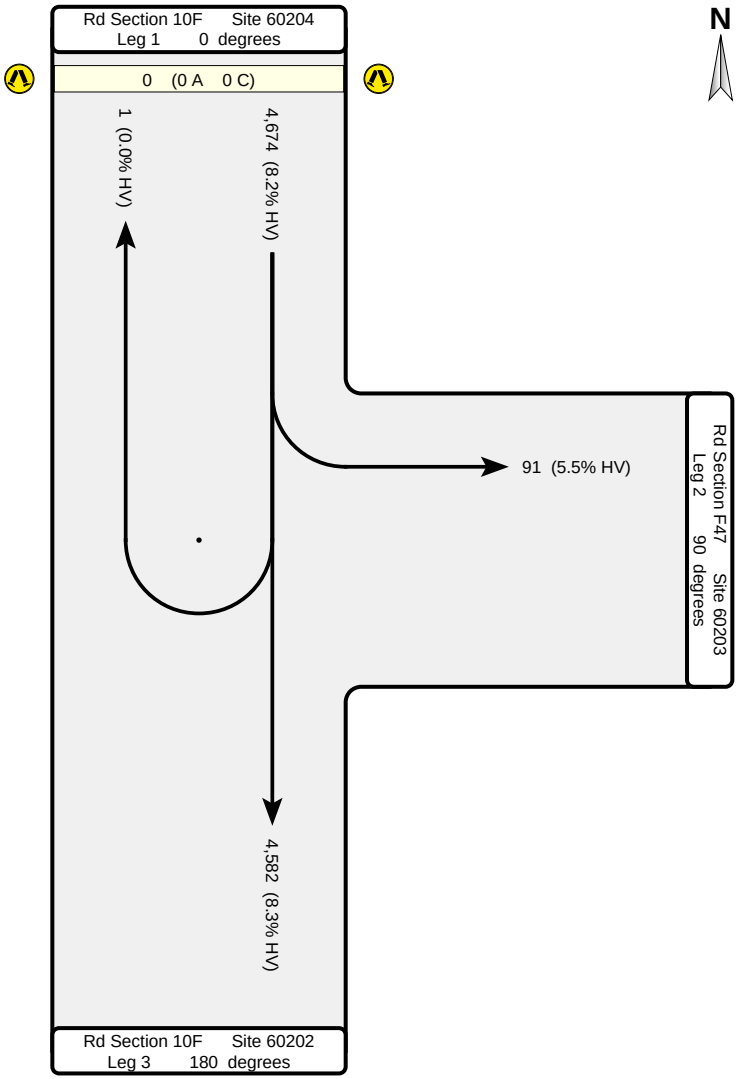
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Copyright Pitney Bowes Softare Pty Ltd 2009 Based on [Dataset - State Digital Road Network (SDRN)] provided with the permission of Pitney Bowes Softare Pty Ltd (current as of 12/08) and other state government datasets.

Summary



Leg	Angle	Road Section	Site	TDist	Site Description
1	0	10F	60204	10.638	Bruce Hwy to Mackay @ Mason Ave
2	90	F47	60203	0.000	Mason Ave @ Bruce Hwy
3	180	10F	60202	10.637	Bruce Hwy to Rockhampton @ Mason Ave

Leg 1 Site 60204 Tdist 10.638 km Bruce Hwy to Mackay @ Mason Ave



Leg 1 Site 60204 Tdist 10.638 km Bruce Hwy to Mackay @ Mason Ave

Time	Left	Through	Right	U-Turn	Pedestrians
00:00-00:15					
00:15-00:30					
00:30-00:45					
00:45-01:00					
01:00-01:15					
01:15-01:30					
01:30-01:45					
01:45-02:00					
02:00-02:15					
02:15-02:30					
02:30-02:45					
02:45-03:00					
03:00-03:15					
03:15-03:30					
03:30-03:45					
03:45-04:00					
04:00-04:15					
04:15-04:30					
04:30-04:45					
04:45-05:00					
05:00-05:15					
05:15-05:30					
05:30-05:45					
05:45-06:00					
06:00-06:15					
06:15-06:30	0	68		0	0
06:30-06:45	0	77		0	0
06:45-07:00	0	100		0	0
07:00-07:15	0	100		0	0
07:15-07:30	0	107		0	0
07:30-07:45	1	169		0	0
07:45-08:00	4	196		0	0

Time	Left	Through	Right	U-Turn	Pedestrians
08:00-08:15	7	231		0	0
08:15-08:30	7	234		0	0
08:30-08:45	8	181		0	0
08:45-09:00	17	147		0	0
09:00-09:15	8	109		0	0
09:15-09:30	2	95		0	0
09:30-09:45	0	85		0	0
09:45-10:00	2	95		0	0
10:00-10:15	1	95		0	0
10:15-10:30	1	74		0	0
10:30-10:45	1	69		0	0
10:45-11:00	0	70		0	0
11:00-11:15	1	71		0	0
11:15-11:30	0	72		0	0
11:30-11:45	0	64		0	0
11:45-12:00	1	59		0	0
12:00-12:15	0	69		0	0
12:15-12:30	0	90		0	0
12:30-12:45	1	72		0	0
12:45-13:00	0	89		0	0
13:00-13:15	0	85		0	0
13:15-13:30	0	78		0	0
13:30-13:45	0	74		0	0
13:45-14:00	1	81		0	0
14:00-14:15	1	76		0	0
14:15-14:30	2	84		0	0
14:30-14:45	1	72		0	0
14:45-15:00	4	84		1	0
15:00-15:15	13	83		0	0
15:15-15:30	1	85		0	0
15:30-15:45	0	84		0	0
15:45-16:00	0	76		0	0

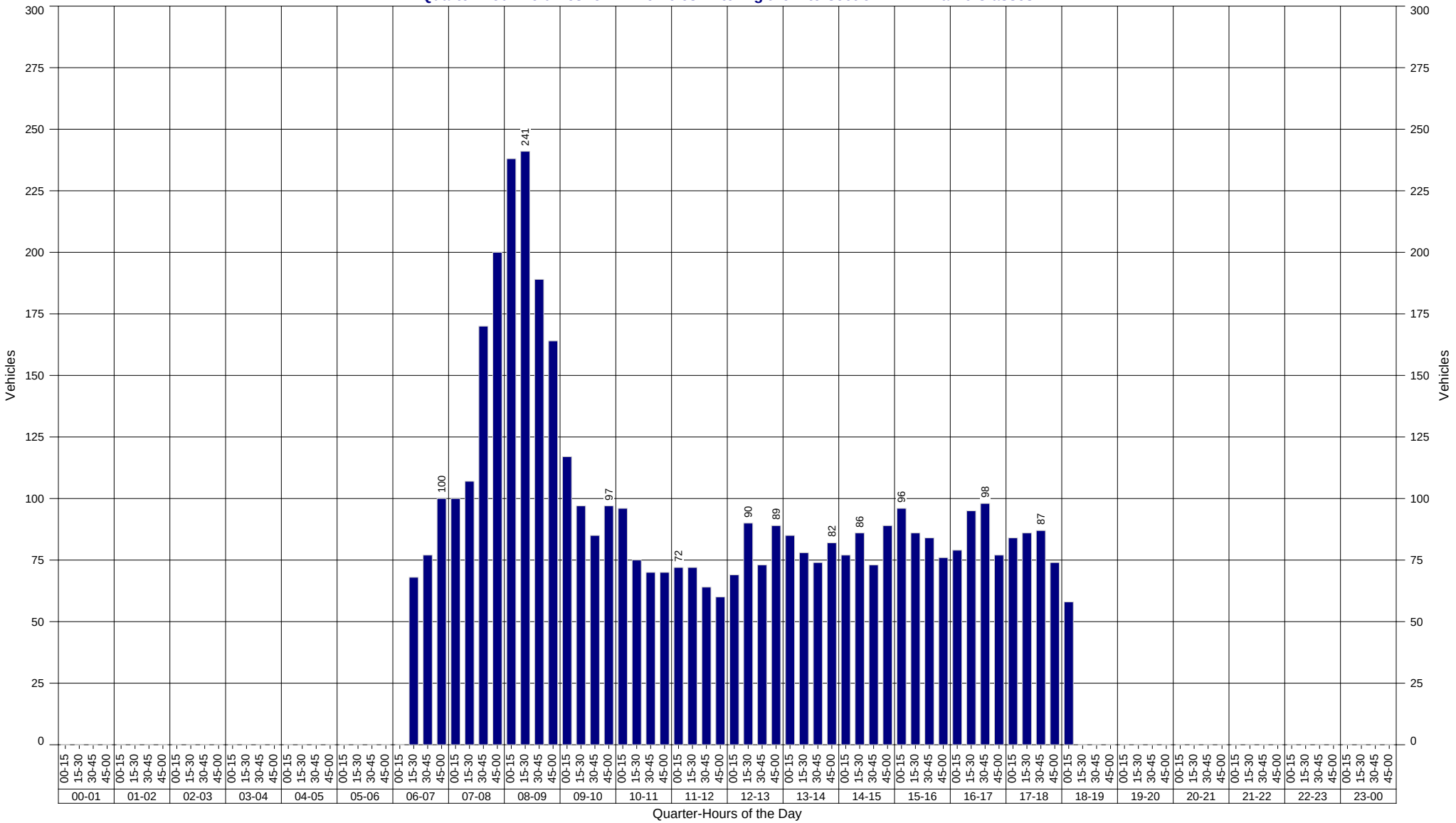
Time	Left	Through	Right	U-Turn	Pedestrians
16:00-16:15	1	78		0	0
16:15-16:30	0	95		0	0
16:30-16:45	2	96		0	0
16:45-17:00	1	76		0	0
17:00-17:15	0	84		0	0
17:15-17:30	2	84		0	0
17:30-17:45	0	87		0	0
17:45-18:00	0	74		0	0
18:00-18:15	0	58		0	0
18:15-18:30					
18:30-18:45					
18:45-19:00					
19:00-19:15					
19:15-19:30					
19:30-19:45					
19:45-20:00					
20:00-20:15					
20:15-20:30					
20:30-20:45					
20:45-21:00					
21:00-21:15					
21:15-21:30					
21:30-21:45					
21:45-22:00					
22:00-22:15					
22:15-22:30					
22:30-22:45					
22:45-23:00					
23:00-23:15					
23:15-23:30					
23:30-23:45					
23:45-24:00					

Blank cells indicate the non-collection of corresponding counts.

Leg 1 Site 60204 Tdist 10.638 km Bruce Hwy to Mackay @ Mason Ave

Total volume 4,674

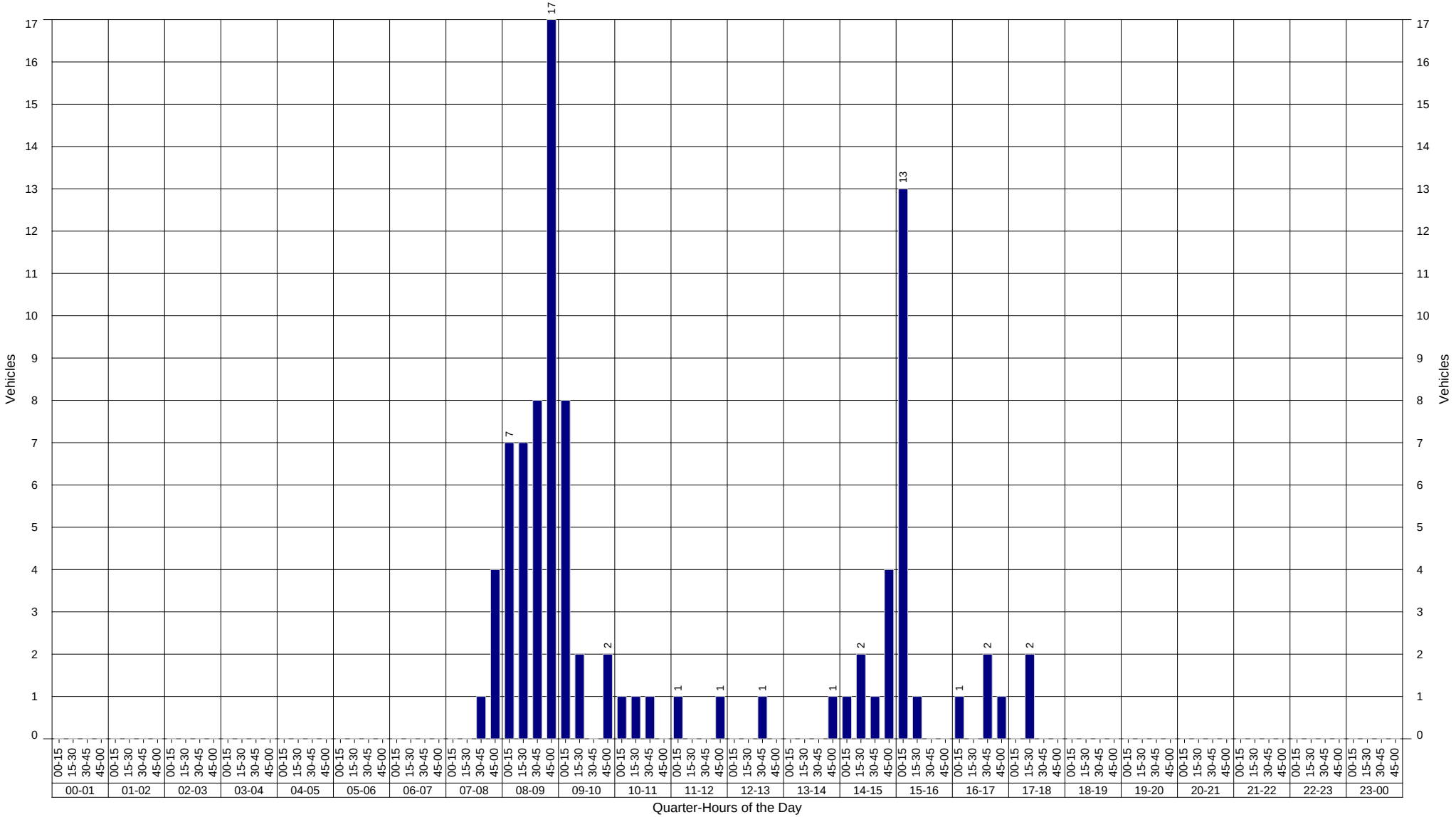
Quarter-Hour Volumes for All Vehicles Entering the Intersection - All Traffic Classes



Leg 1 Site 60204 Tdist 10.638 km Bruce Hwy to Mackay @ Mason Ave

Total volume 91

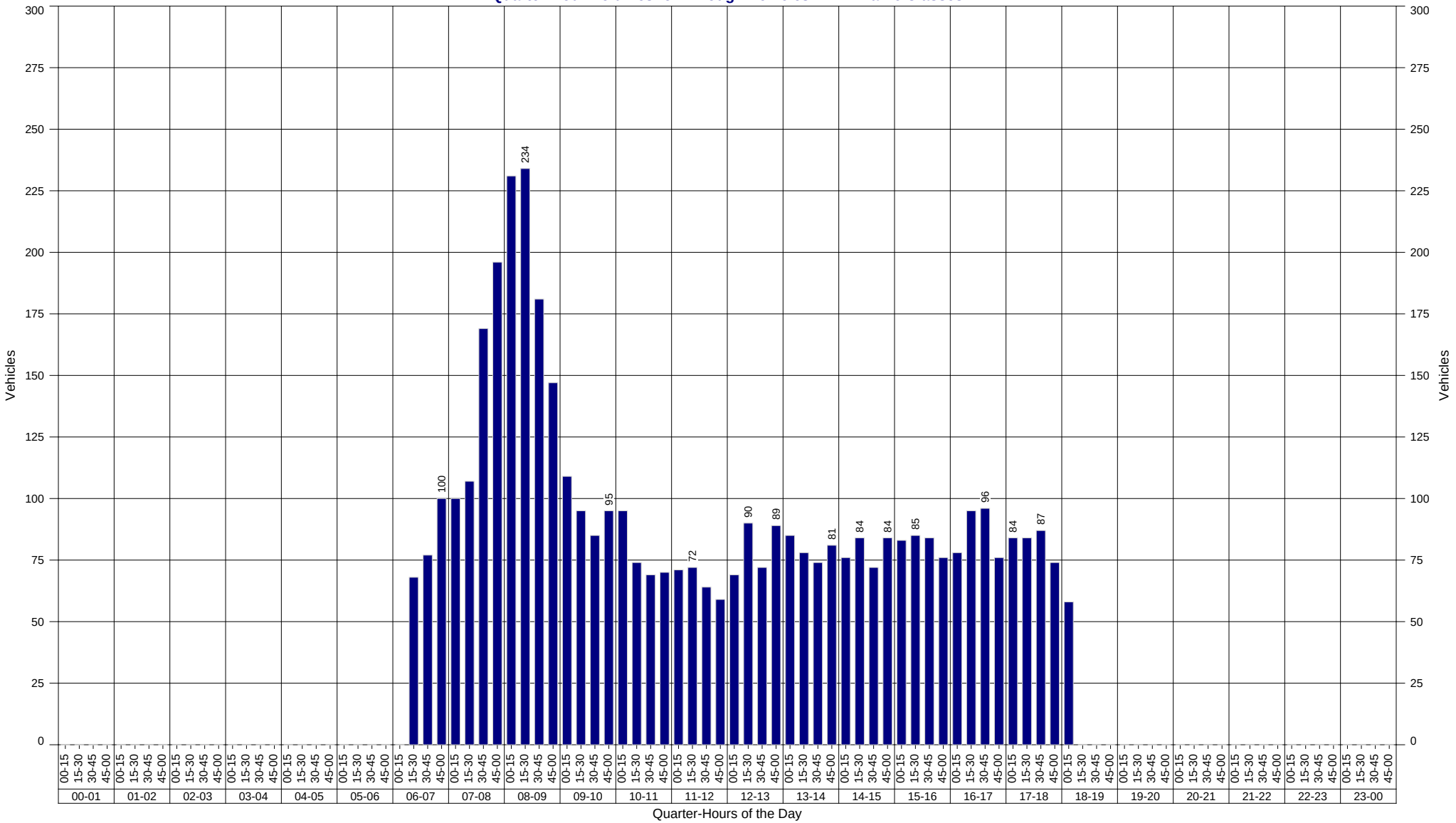
Quarter-Hour Volumes for Left-turning Vehicles - All Traffic Classes



Leg 1 Site 60204 Tdist 10.638 km Bruce Hwy to Mackay @ Mason Ave

Total volume 4,582

Quarter-Hour Volumes for Through Vehicles - All Traffic Classes

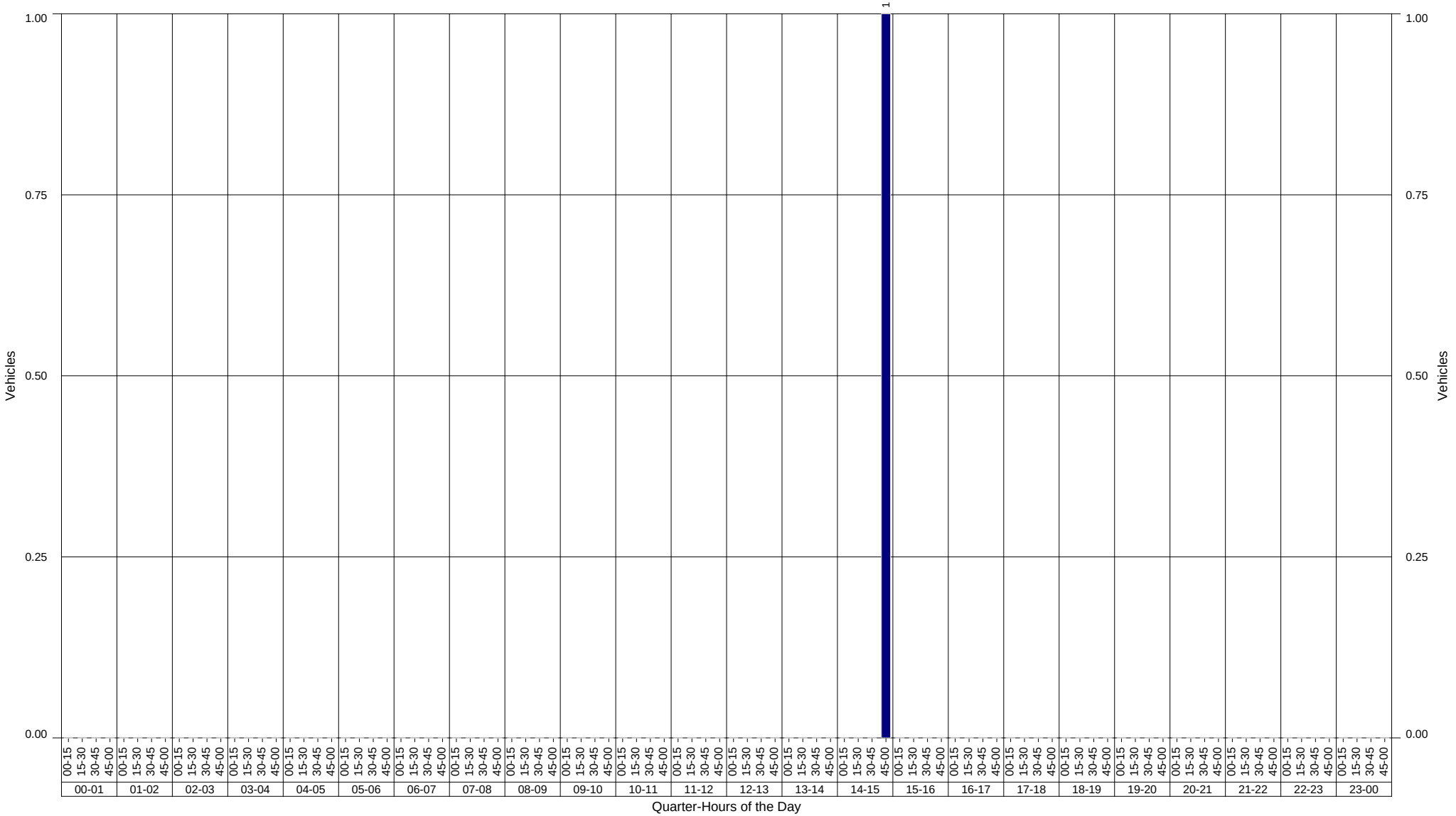


Traffic Analysis and Reporting System
Intersection Analysis Report
Area 404 - Fitzroy District
Road Section 10F - BRUCE HIGHWAY (ROCKHAMPTON-ST LAWRENCE)
Intersection 5436 - Yaamba Rd & Mason Ave (RHS)
Tuesday 21-Jun-2016 06:15 - 18:15

Leg 1 Site 60204 Tdist 10.638 km Bruce Hwy to Mackay @ Mason Ave

Total volume 1

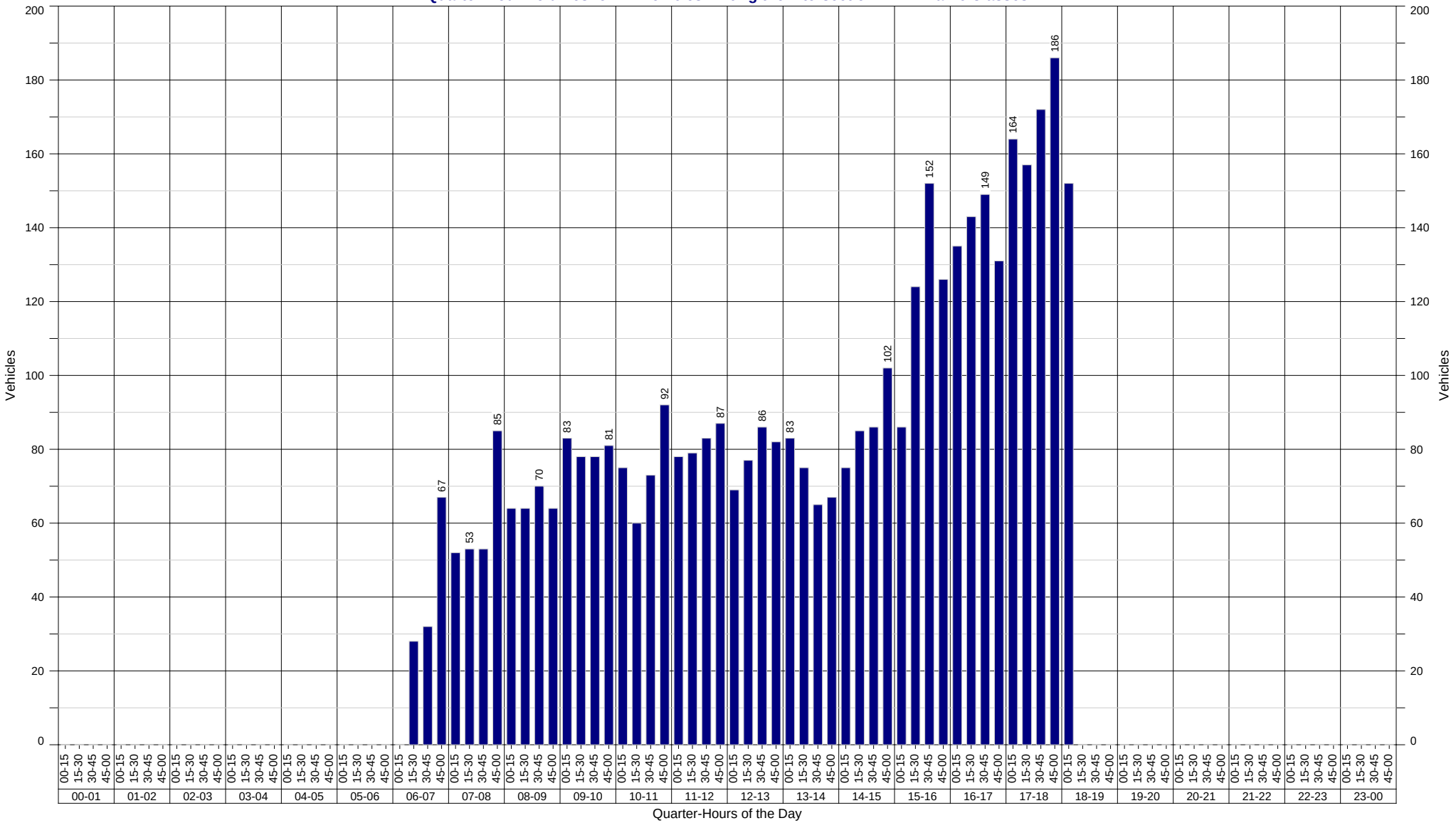
Quarter-Hour Volumes for U-turning Vehicles - All Traffic Classes



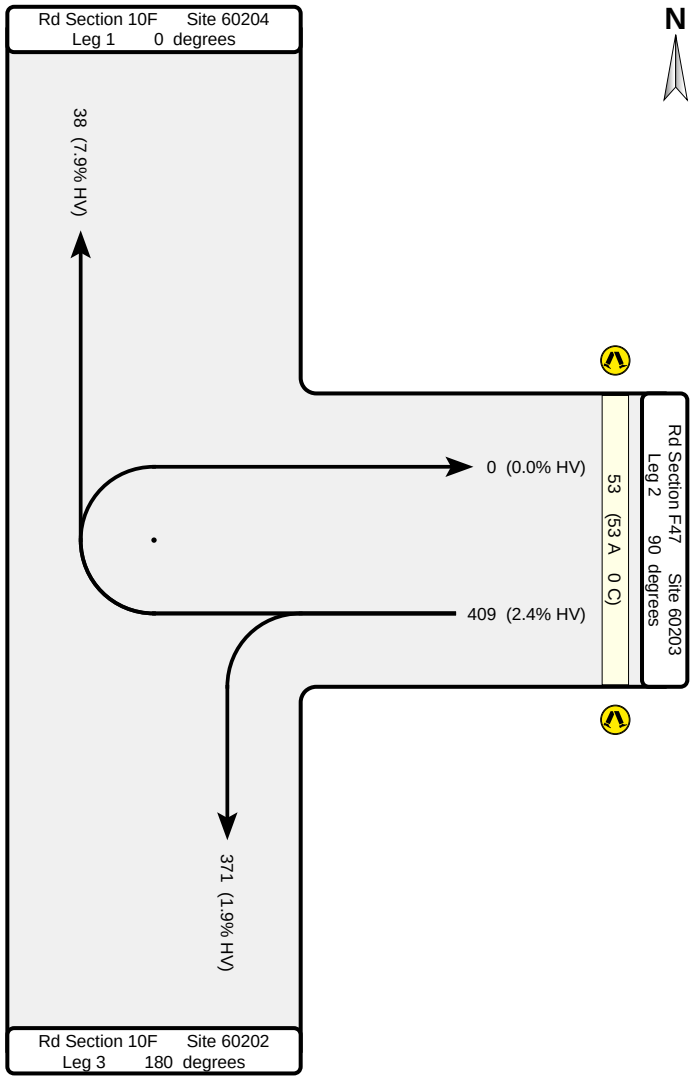
Leg 1 Site 60204 Tdist 10.638 km Bruce Hwy to Mackay @ Mason Ave

Total volume 4,408

Quarter-Hour Volumes for All Vehicles Exiting the Intersection - All Traffic Classes



Leg 2 Site 60203 Tdist 0.000 km Mason Ave @ Bruce Hwy



Leg 2 Site 60203 Tdist 0.000 km Mason Ave @ Bruce Hwy

Time	Left	Through	Right	U-Turn	Pedestrians
00:00-00:15					
00:15-00:30					
00:30-00:45					
00:45-01:00					
01:00-01:15					
01:15-01:30					
01:30-01:45					
01:45-02:00					
02:00-02:15					
02:15-02:30					
02:30-02:45					
02:45-03:00					
03:00-03:15					
03:15-03:30					
03:30-03:45					
03:45-04:00					
04:00-04:15					
04:15-04:30					
04:30-04:45					
04:45-05:00					
05:00-05:15					
05:15-05:30					
05:30-05:45					
05:45-06:00					
06:00-06:15					
06:15-06:30	4		0		0
06:30-06:45	6		0		1
06:45-07:00	7		0		0
07:00-07:15	4		1		0
07:15-07:30	3		0		1
07:30-07:45	7		1		1
07:45-08:00	5		0		2

Time	Left	Through	Right	U-Turn	Pedestrians
08:00-08:15	20		0		0
08:15-08:30	19		0		1
08:30-08:45	19		0		1
08:45-09:00	36		1		3
09:00-09:15	26		3		5
09:15-09:30	13		3		1
09:30-09:45	6		0		0
09:45-10:00	5		0		2
10:00-10:15	5		1		1
10:15-10:30	4		0		0
10:30-10:45	0		0		2
10:45-11:00	4		0		0
11:00-11:15	3		0		0
11:15-11:30	3		2		0
11:30-11:45	1		0		0
11:45-12:00	2		1		0
12:00-12:15	6		0		0
12:15-12:30	3		0		0
12:30-12:45	2		0		0
12:45-13:00	1		0		0
13:00-13:15	3		1		0
13:15-13:30	3		0		0
13:30-13:45	2		0		0
13:45-14:00	2		2		3
14:00-14:15	8		0		1
14:15-14:30	1		0		0
14:30-14:45	5		0		2
14:45-15:00	2		0		2
15:00-15:15	5		2		4
15:15-15:30	52		4		4
15:30-15:45	19		5		1
15:45-16:00	7		2		6

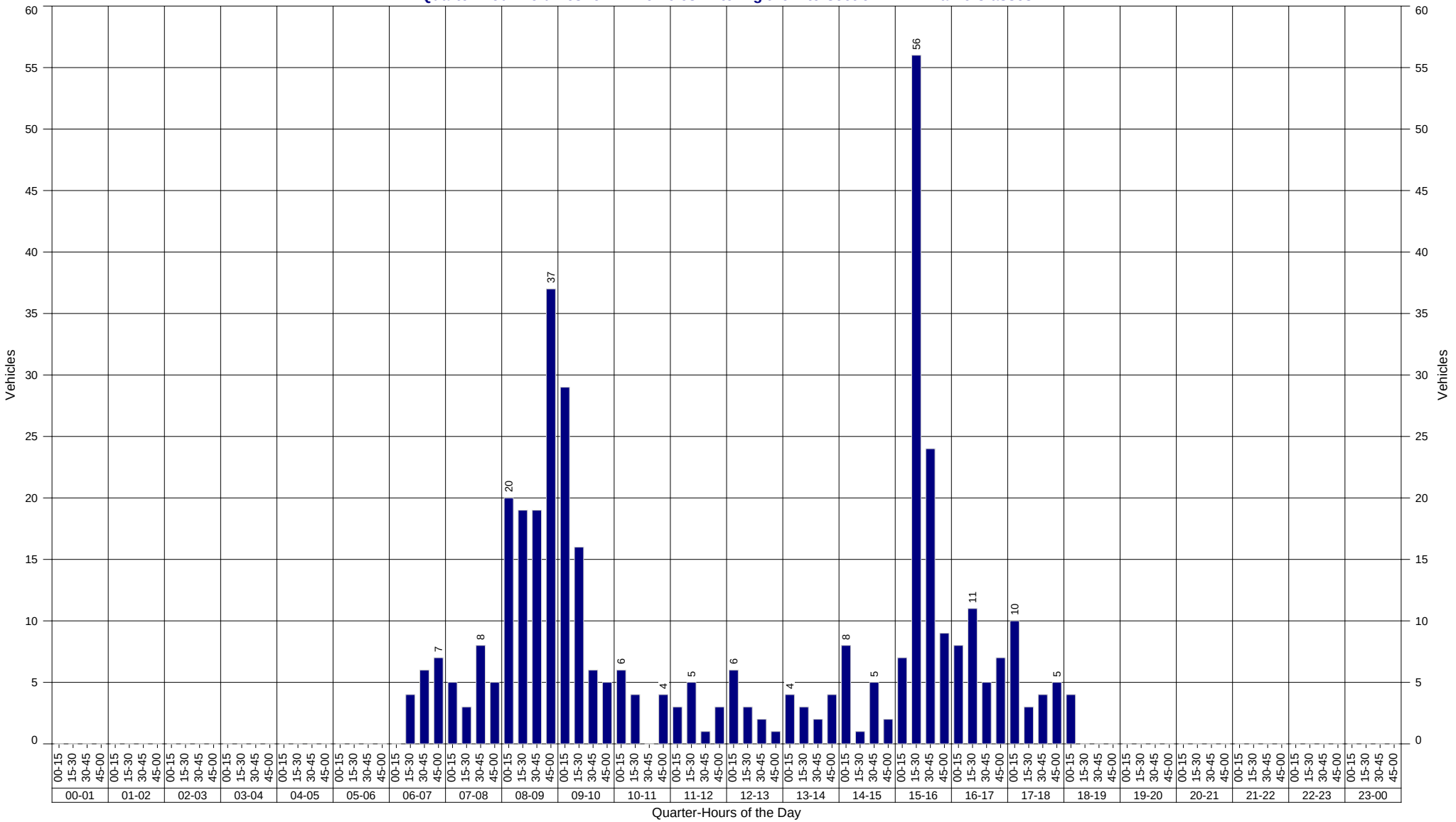
Time	Left	Through	Right	U-Turn	Pedestrians
16:00-16:15	7		1		0
16:15-16:30	10		1		0
16:30-16:45	4		1		1
16:45-17:00	6		1		2
17:00-17:15	9		1		2
17:15-17:30	2		1		3
17:30-17:45	3		1		1
17:45-18:00	4		1		0
18:00-18:15	3		1		0
18:15-18:30					
18:30-18:45					
18:45-19:00					
19:00-19:15					
19:15-19:30					
19:30-19:45					
19:45-20:00					
20:00-20:15					
20:15-20:30					
20:30-20:45					
20:45-21:00					
21:00-21:15					
21:15-21:30					
21:30-21:45					
21:45-22:00					
22:00-22:15					
22:15-22:30					
22:30-22:45					
22:45-23:00					
23:00-23:15					
23:15-23:30					
23:30-23:45					
23:45-24:00					

Blank cells indicate the non-collection of corresponding counts.

Leg 2 Site 60203 Tdist 0.000 km Mason Ave @ Bruce Hwy

Total volume 409

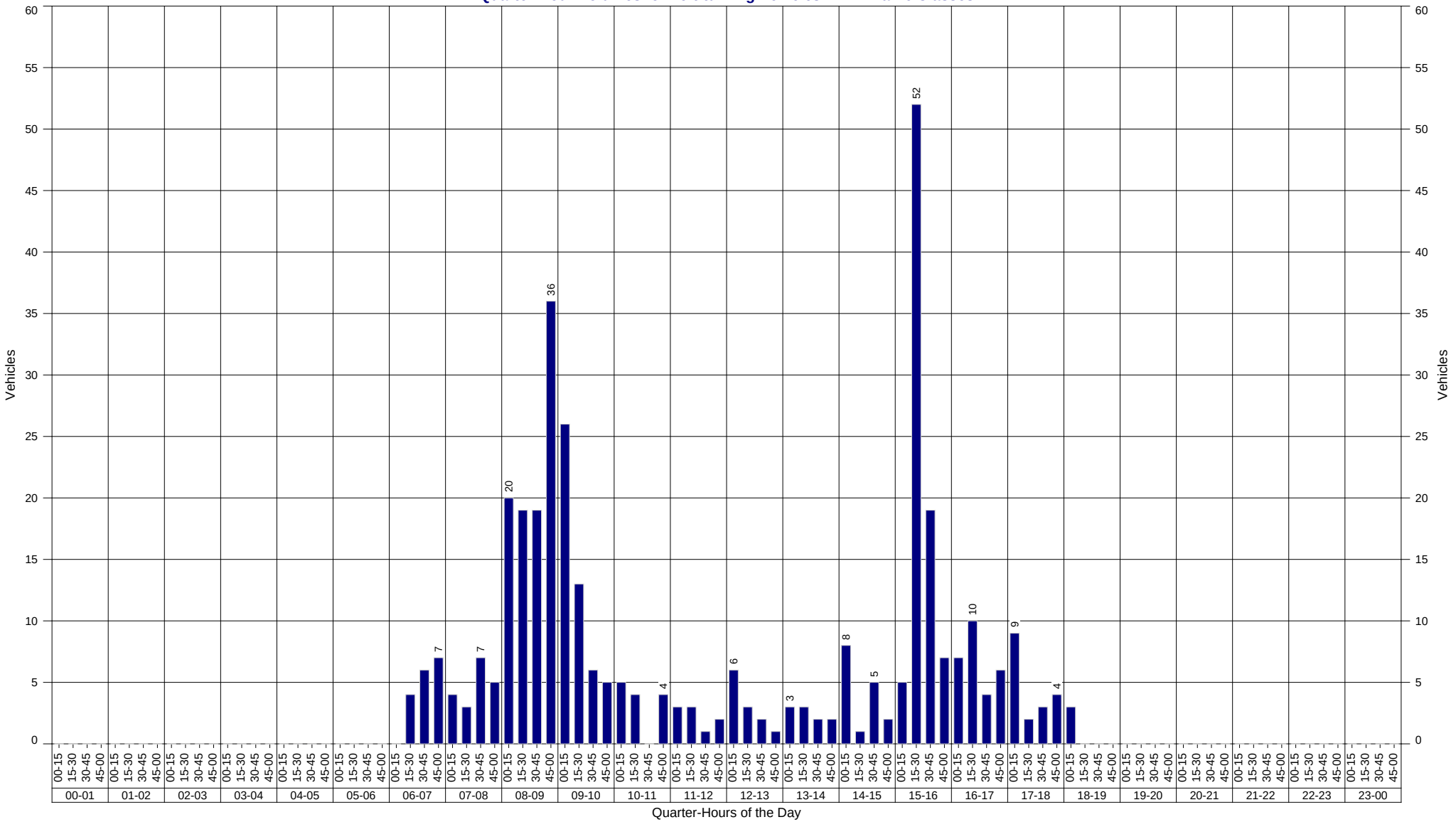
Quarter-Hour Volumes for All Vehicles Entering the Intersection - All Traffic Classes



Leg 2 Site 60203 Tdist 0.000 km Mason Ave @ Bruce Hwy

Total volume 371

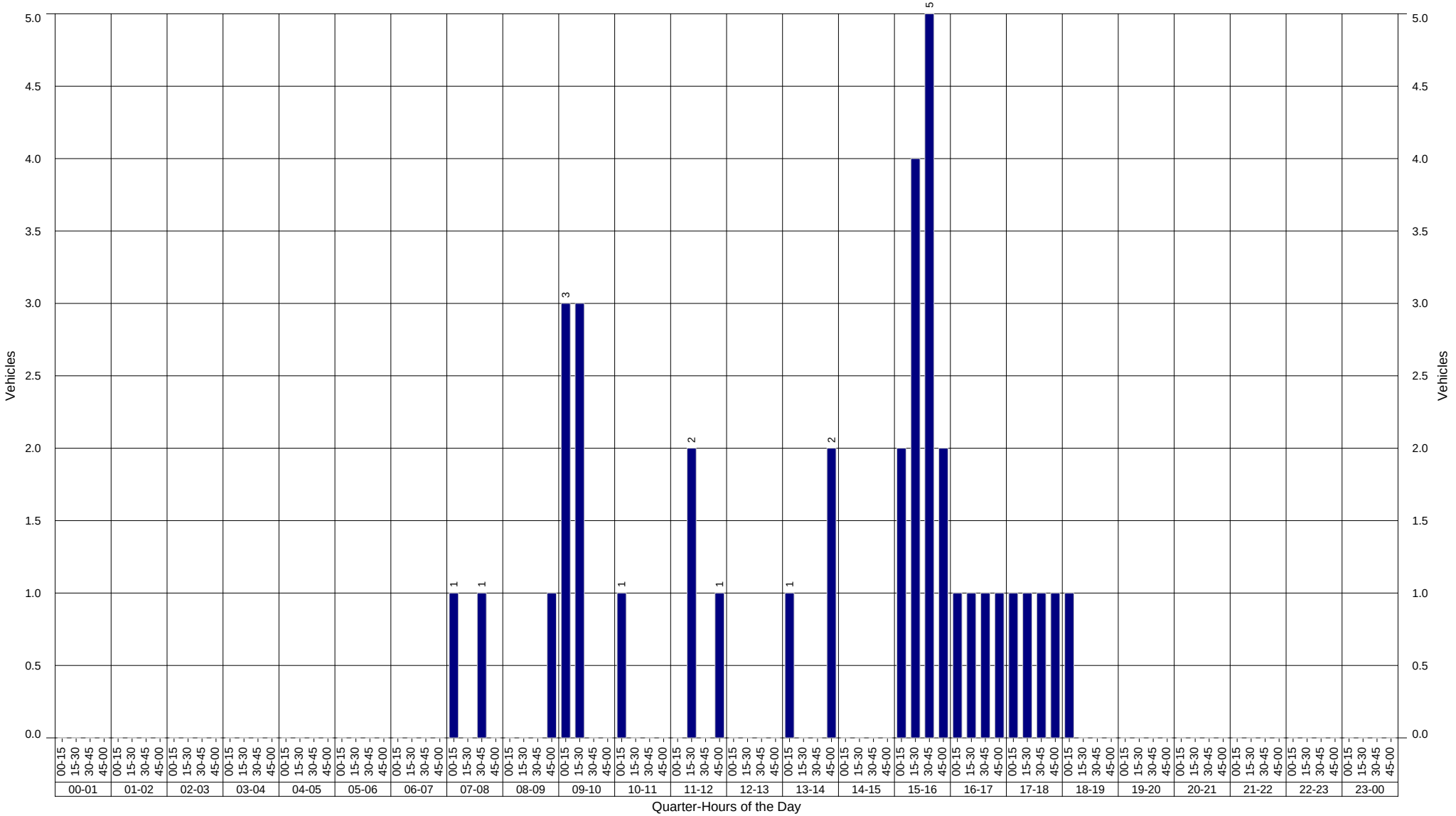
Quarter-Hour Volumes for Left-turning Vehicles - All Traffic Classes



Leg 2 Site 60203 Tdist 0.000 km Mason Ave @ Bruce Hwy

Total volume 38

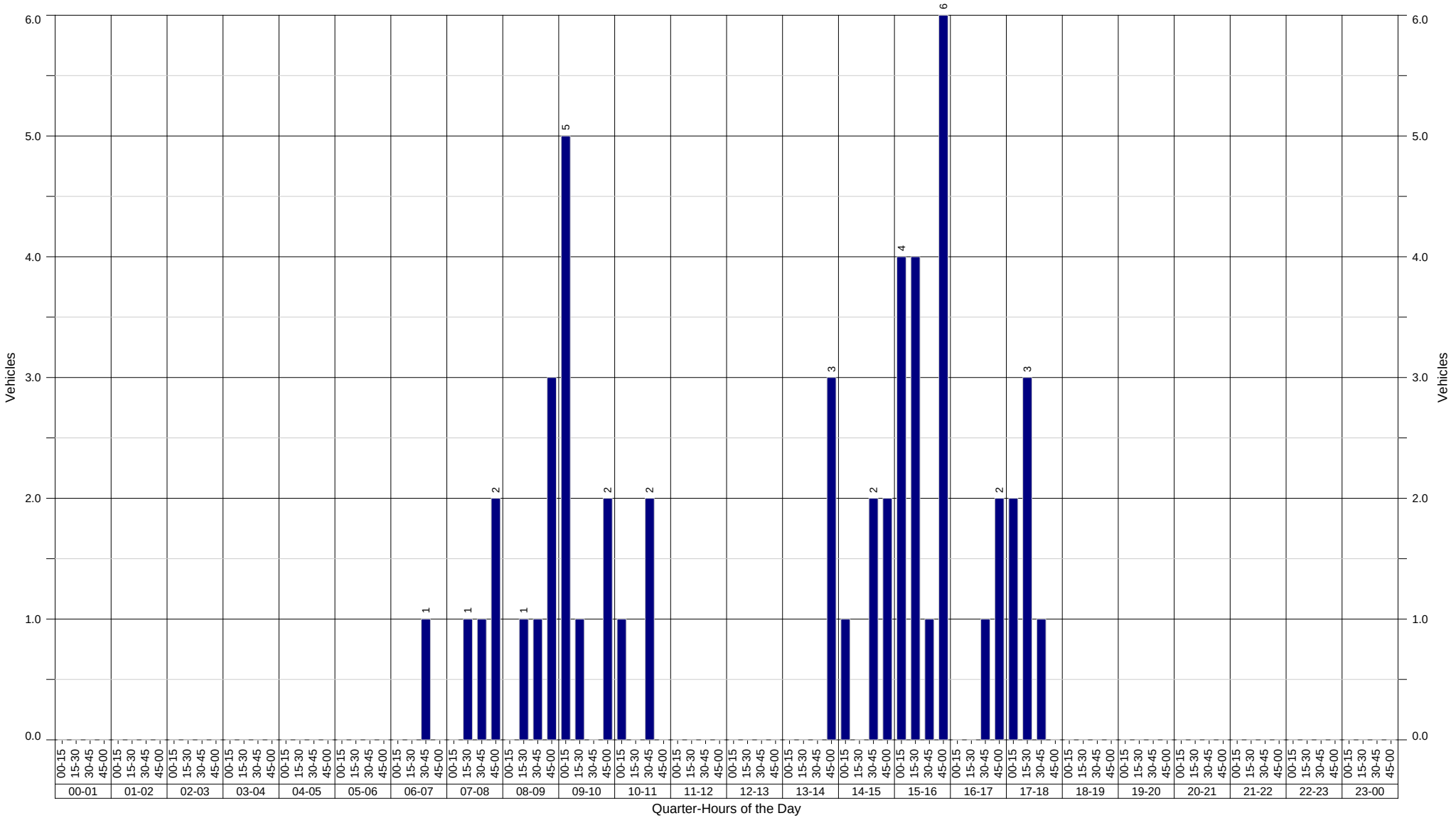
Quarter-Hour Volumes for Right-turning Vehicles - All Traffic Classes



Leg 2 Site 60203 Tdist 0.000 km Mason Ave @ Bruce Hwy

Total volume 53

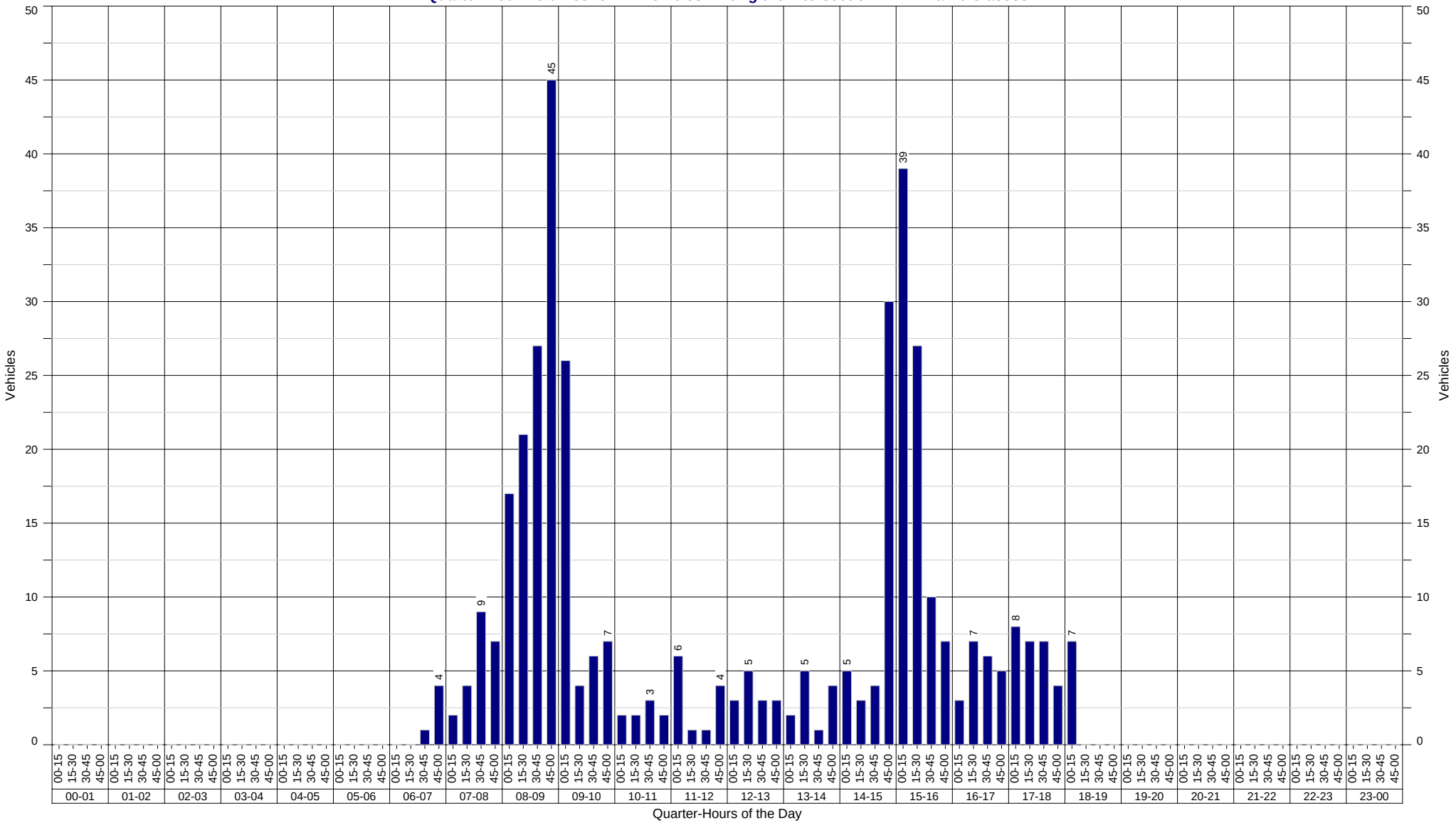
Quarter-Hour Volumes for Pedestrians



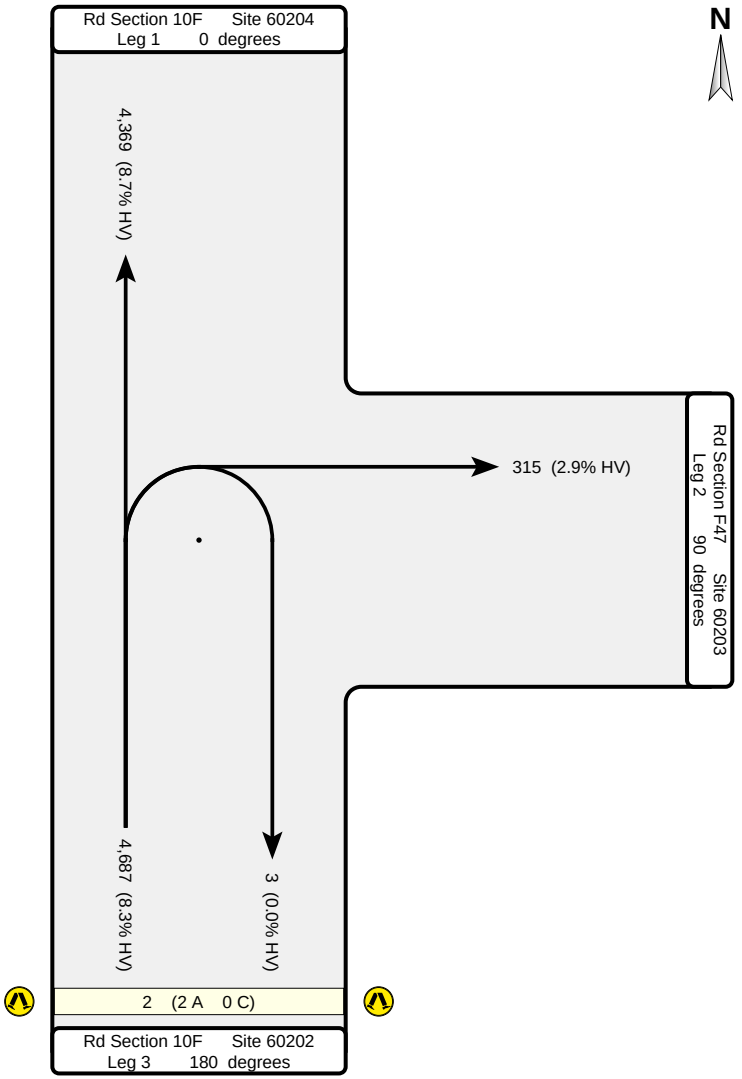
Leg 2 Site 60203 Tdist 0.000 km Mason Ave @ Bruce Hwy

Total volume 406

Quarter-Hour Volumes for All Vehicles Exiting the Intersection - All Traffic Classes



Leg 3 Site 60202 Tdist 10.637 km Bruce Hwy to Rockhampton @ Mason Ave



Leg 3 Site 60202 Tdist 10.637 km Bruce Hwy to Rockhampton @ Mason Ave

Time	Left	Through	Right	U-Turn	Pedestrians
00:00-00:15					
00:15-00:30					
00:30-00:45					
00:45-01:00					
01:00-01:15					
01:15-01:30					
01:30-01:45					
01:45-02:00					
02:00-02:15					
02:15-02:30					
02:30-02:45					
02:45-03:00					
03:00-03:15					
03:15-03:30					
03:30-03:45					
03:45-04:00					
04:00-04:15					
04:15-04:30					
04:30-04:45					
04:45-05:00					
05:00-05:15					
05:15-05:30					
05:30-05:45					
05:45-06:00					
06:00-06:15					
06:15-06:30		28	0	0	0
06:30-06:45		32	1	0	0
06:45-07:00		67	4	0	0
07:00-07:15		51	2	0	0
07:15-07:30		53	4	0	0
07:30-07:45		52	8	0	0
07:45-08:00		85	3	1	0

Time	Left	Through	Right	U-Turn	Pedestrians
08:00-08:15		64	10	0	0
08:15-08:30		64	14	0	0
08:30-08:45		70	19	0	1
08:45-09:00		63	28	0	0
09:00-09:15		80	18	0	0
09:15-09:30		75	2	0	0
09:30-09:45		78	6	0	0
09:45-10:00		81	5	0	0
10:00-10:15		74	1	0	0
10:15-10:30		60	1	0	0
10:30-10:45		73	2	0	0
10:45-11:00		92	2	0	0
11:00-11:15		78	5	0	0
11:15-11:30		77	1	0	0
11:30-11:45		83	1	0	0
11:45-12:00		86	3	0	0
12:00-12:15		69	3	0	0
12:15-12:30		77	5	0	0
12:30-12:45		86	2	0	0
12:45-13:00		82	3	2	0
13:00-13:15		82	2	0	0
13:15-13:30		75	5	0	0
13:30-13:45		65	1	0	0
13:45-14:00		65	3	0	0
14:00-14:15		75	4	0	0
14:15-14:30		85	1	0	0
14:30-14:45		86	3	0	0
14:45-15:00		101	26	0	0
15:00-15:15		84	26	0	0
15:15-15:30		120	26	0	0
15:30-15:45		147	10	0	0
15:45-16:00		124	7	0	1

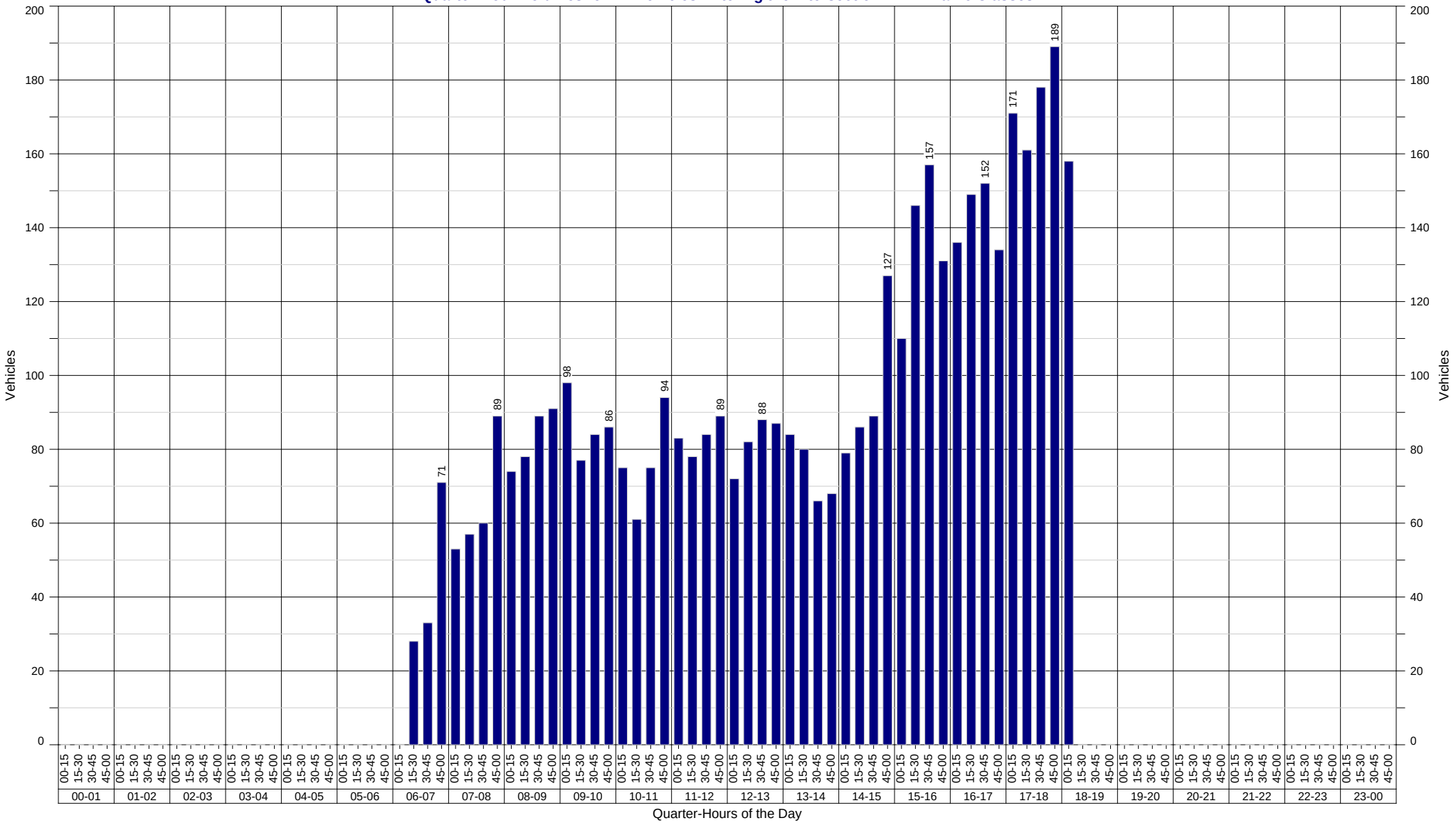
Time	Left	Through	Right	U-Turn	Pedestrians
16:00-16:15		134	2	0	0
16:15-16:30		142	7	0	0
16:30-16:45		148	4	0	0
16:45-17:00		130	4	0	0
17:00-17:15		163	8	0	0
17:15-17:30		156	5	0	0
17:30-17:45		171	7	0	0
17:45-18:00		185	4	0	0
18:00-18:15		151	7	0	0
18:15-18:30					
18:30-18:45					
18:45-19:00					
19:00-19:15					
19:15-19:30					
19:30-19:45					
19:45-20:00					
20:00-20:15					
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21:45-22:00					
22:00-22:15					
22:15-22:30					
22:30-22:45					
22:45-23:00					
23:00-23:15					
23:15-23:30					
23:30-23:45					
23:45-24:00					

Blank cells indicate the non-collection of corresponding counts.

Leg 3 Site 60202 Tdist 10.637 km Bruce Hwy to Rockhampton @ Mason Ave

Total volume 4,687

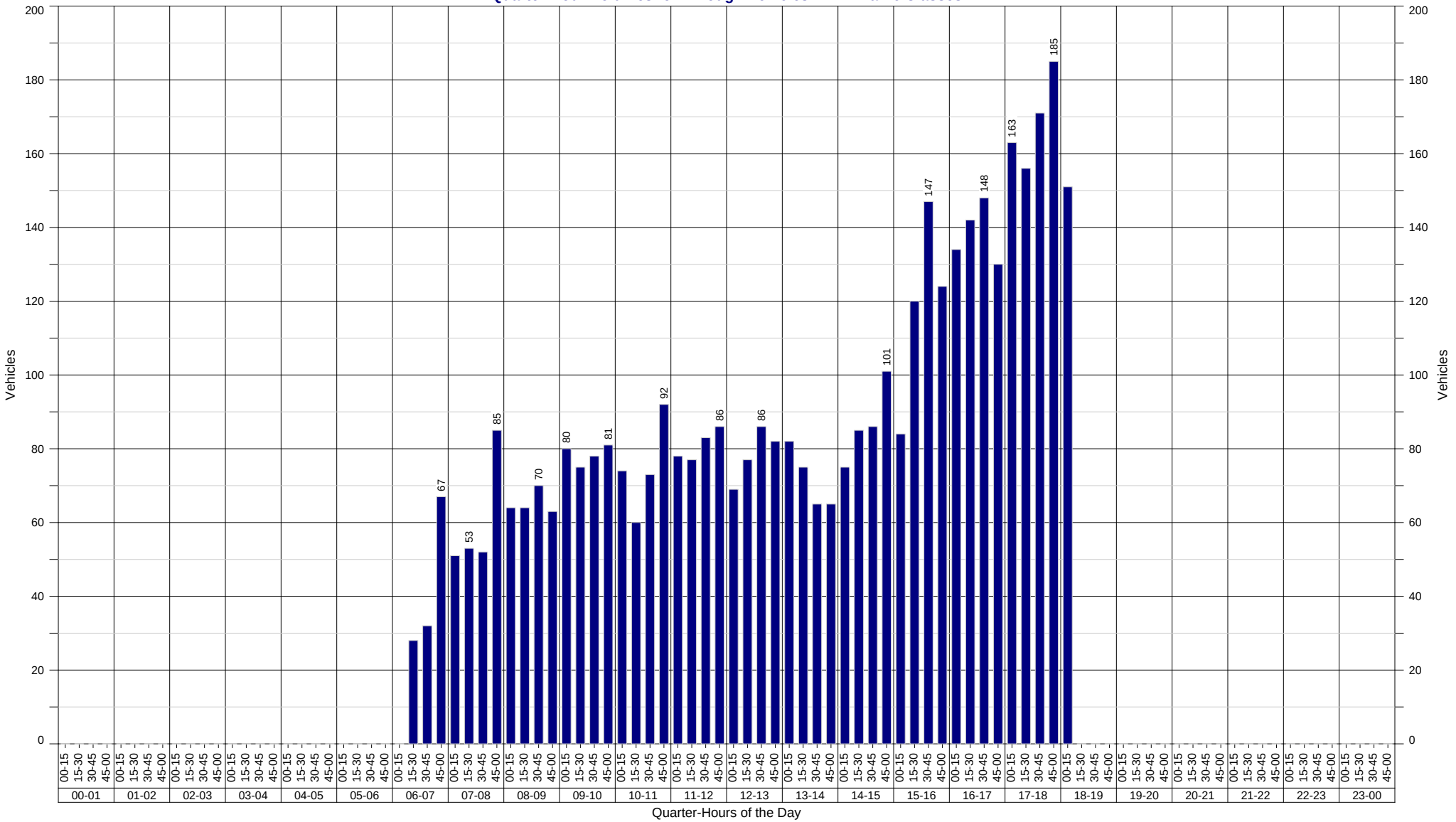
Quarter-Hour Volumes for All Vehicles Entering the Intersection - All Traffic Classes



Leg 3 Site 60202 Tdist 10.637 km Bruce Hwy to Rockhampton @ Mason Ave

Total volume 4,369

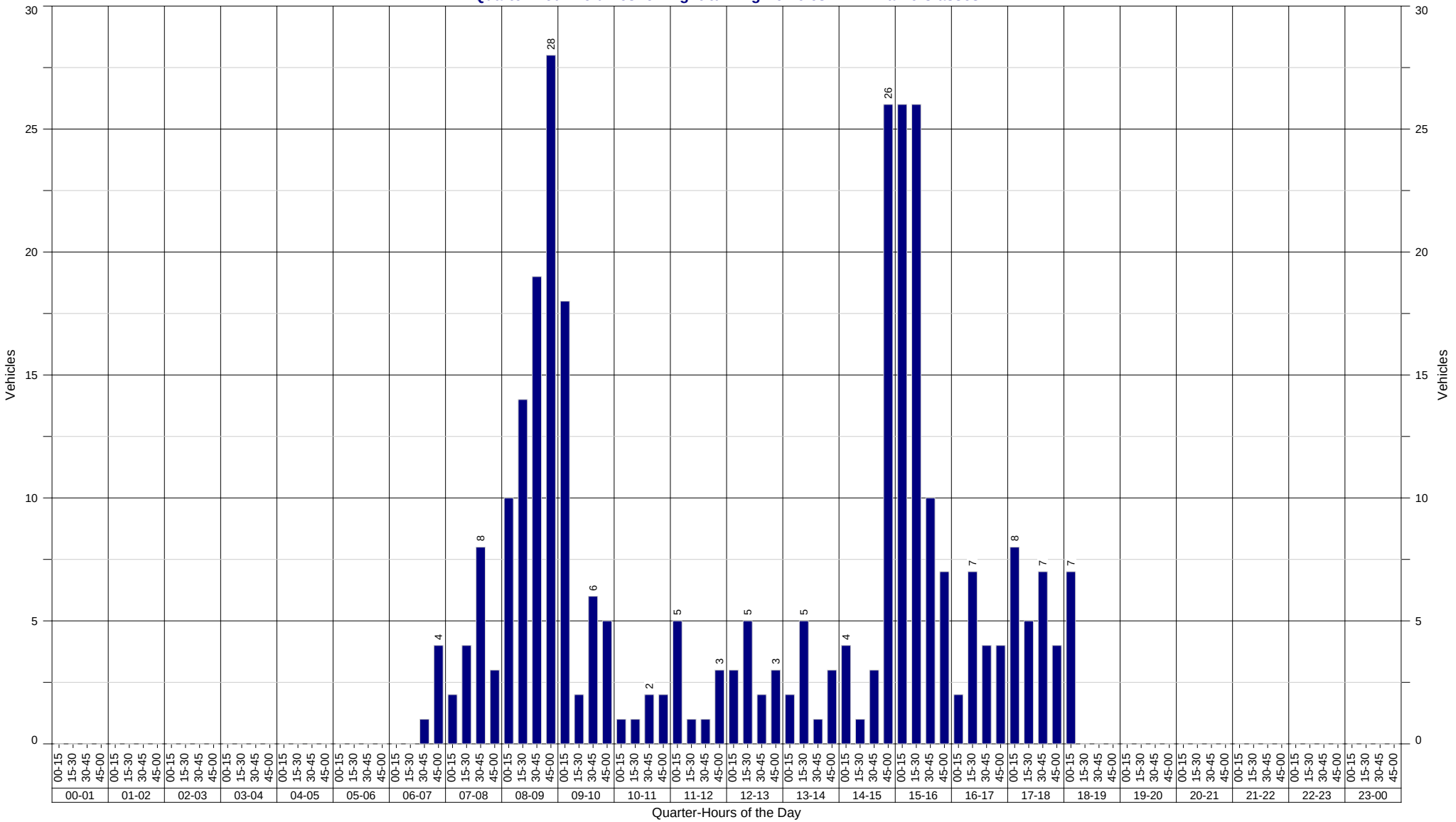
Quarter-Hour Volumes for Through Vehicles - All Traffic Classes



Leg 3 Site 60202 Tdist 10.637 km Bruce Hwy to Rockhampton @ Mason Ave

Total volume 315

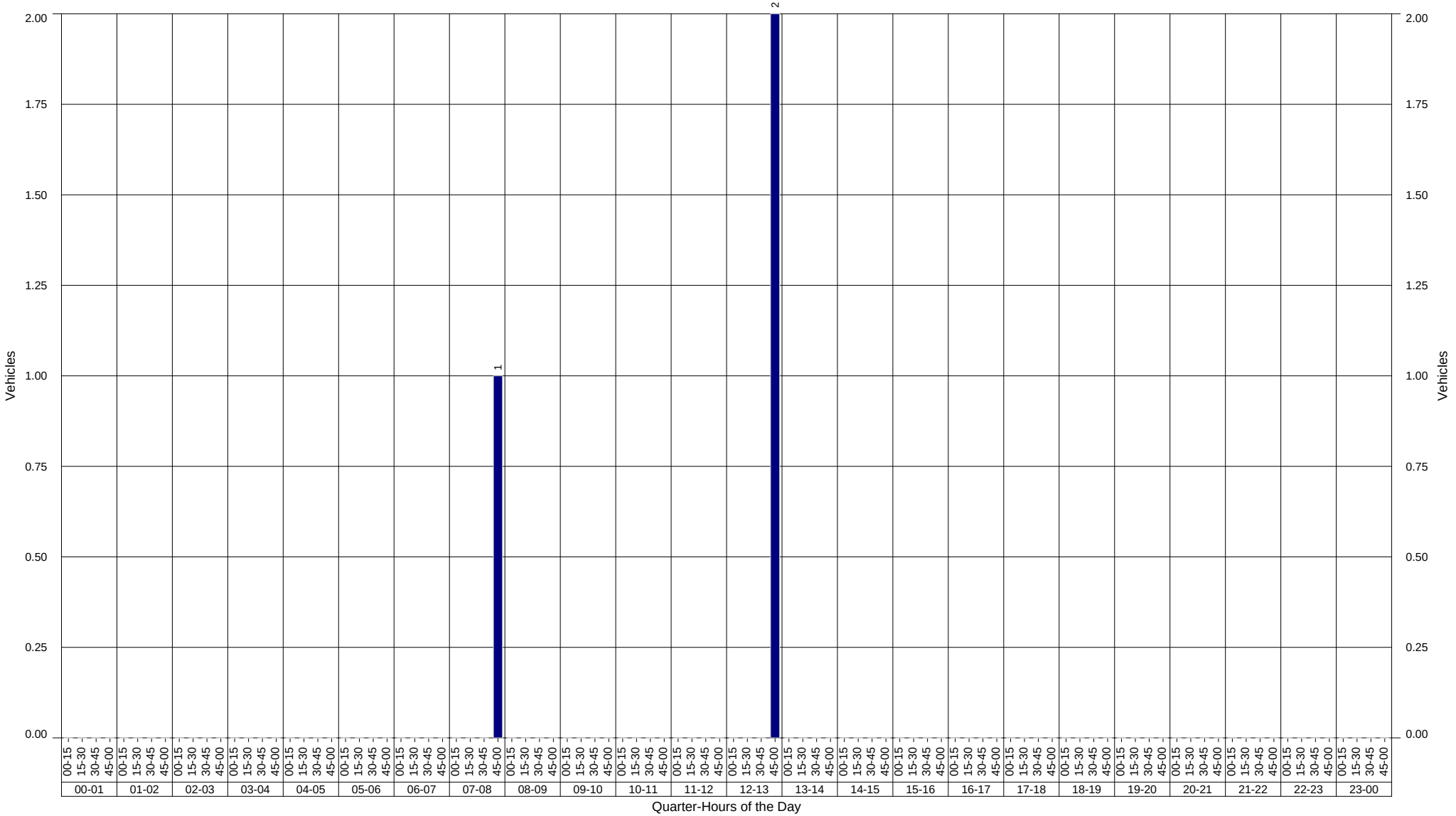
Quarter-Hour Volumes for Right-turning Vehicles - All Traffic Classes



Leg 3 Site 60202 Tdist 10.637 km Bruce Hwy to Rockhampton @ Mason Ave

Total volume 3

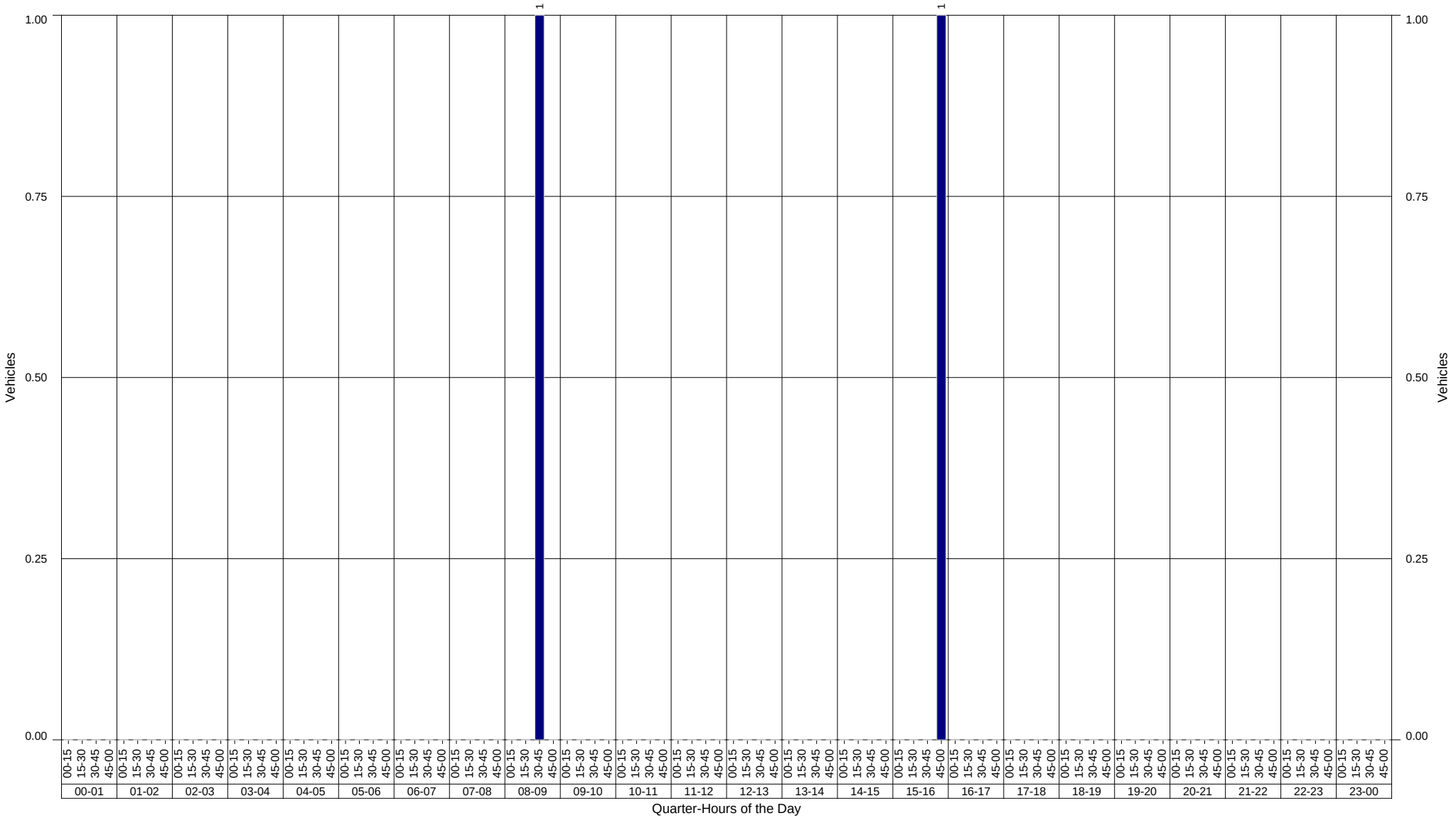
Quarter-Hour Volumes for U-turning Vehicles - All Traffic Classes



Leg 3 Site 60202 Tdist 10.637 km Bruce Hwy to Rockhampton @ Mason Ave

Total volume 2

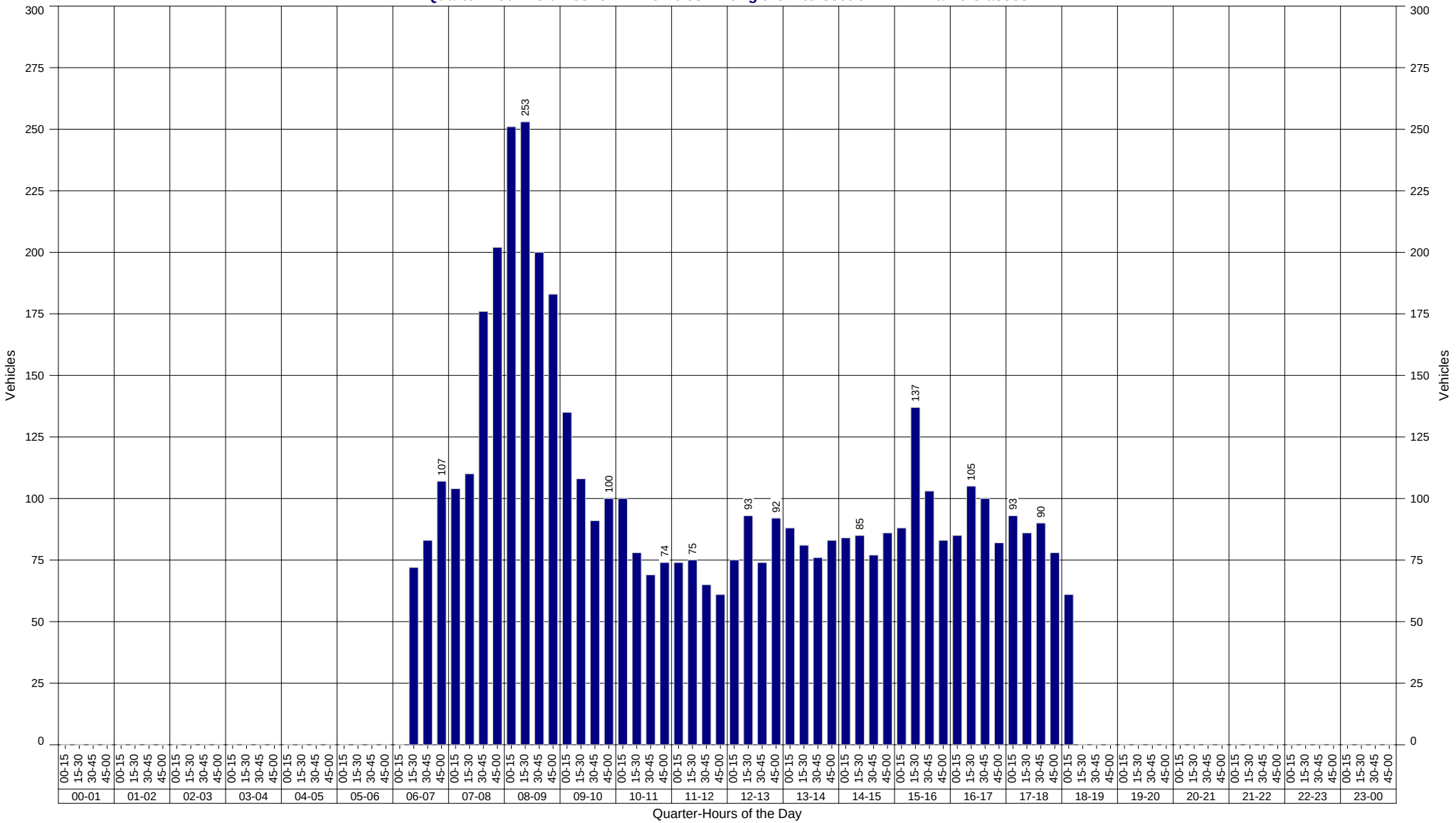
Quarter-Hour Volumes for Pedestrians



Leg 3 Site 60202 Tdist 10.637 km Bruce Hwy to Rockhampton @ Mason Ave

Total volume 4,956

Quarter-Hour Volumes for All Vehicles Exiting the Intersection - All Traffic Classes



Appendix D – Parkhurst State School Expansion TMP (Bitzios)

Parkhurst State School

Traffic Management Plan

BITZIOS consulting
traffic engineering • transport planning

GHD

23rd July 2020



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P4189.001R Parkhurst State School TMP	F. Jones	D. Scutt	N. Edwards	23/07/2020	Matthew Arnold at GHD via Email

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Appendices

Appendix A: Proposed Expansion Development Plans

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1. INTRODUCTION

1.1 Background

Bitzios Consulting has been engaged by GHD on behalf of the Department of Education (DoE) to prepare a traffic management plan (TMP) to support the future expansion of Parkhurst State School. The school is located at 11 Mason Avenue, Parkhurst (subject site).

Table 1.1 provides an overview of the works proposed as part of each expansion stage.

Table 1.1: Expansion Overview

Stage	Proposed Works
1	▪ Existing relocatable classrooms and music space removed ▪ New two (2) storey Learning Centre constructed with eight (8) new learning spaces on Level 1
2	▪ New administration building and new canteen constructed ▪ Upgraded pick up / drop off zone constructed
3	▪ Four (4) new learning spaces constructed on the ground floor of the Stage 1 Learning Centre

Table 1.2 provides a summary of the existing and expected future school population details.

Table 1.2: School Population Details

Persons	2019	Completion of Stage 1	Completion of Stage 2	Completion of Stage 3
Students	448	591 (+143)	591 (+143)	687 (+239)
Staff	56	74 (+18)	74 (+18)	86 (+30)
Total	**450**	**666 (+161)**	**666 (+161)**	**773 (+323)**

Stage 1 is due to be completed by the end of 2020 and Stage 3 is likely to be completed by 2025. It is noted that no changes to enrolment or staff numbers are expected as a result of the Stage 2 works.

A copy of the proposed development plans is provided at **Appendix A.**

1.2 Intersection Upgrade

The planned upgrade of the Bruce Highway / Mason Avenue intersection is expected to be completed prior to the completion of the school expansion. The upgrade will restrict right turn movements out of Mason Avenue, which will result in all motorists wanting to travel north having to use Norman Avenue. This TMP has been prepared based on the assumption the intersection has been upgraded.

1.3 Stakeholders

This TMP has been reviewed by the following organisations:

- Department of Transport and Main Roads (TMR)
- Rockhampton City Council (Council)
- Parkhurst State School
- Rothery's Rockhampton (bus company)

1.4 School Contact

(TBC by School) is responsible for the distribution and any follow up questions / concerns regarding the TMP and can be contacted on the following details:

- **Phone Number:** (07) 4954 6555
- **Email:** (TBC by the School).

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2. TRAFFIC MANAGEMENT PRINCIPLES

Traffic congestion around schools often occurs during the peak periods at the start and end of a school day. This can be dramatically reduced by encouraging students to use active or public transport travel modes (e.g. walking, cycling and bus).

In this case, any reduction in school related vehicular traffic will positively contribute to a reduction in school-based road congestion. Mason Avenue is expected to particularly benefit in this case.

2.1 Active Transport

Students walking, riding or scooting to school, either all or part of the way, will not only help ease traffic congestion and decrease pollution, but also promotes a healthy lifestyle and teaches children valuable road safety skills.

Due to the location of the subject site, all parents / students are unlikely to be able to use active modes to travel all the way to / from the school. In these cases, parents could drop-off and pick-up students on streets surrounding the school (where there is also likely to be more than sufficient street parking). Students could then walk / ride / scoot from there.

It is specifically noted that parking is available in the following streets, located within approximately 500m radius or 5-10 minutes' walk of the subject site:

- Rosebud Court
- Rosedale Street
- Jones Street
- Brosnan Crescent
- Norman Road.

Parking away from the school is an excellent way to increase physical activity and reduce congestion during the peak hours.

2.2 Public Transport

Public transport also dramatically helps to reduce the congestion and improve air quality around school. The average school bus can accommodate approximately 50 students. This can essentially prevent up to 50 separate vehicles accessing the school.

There are also educational benefits for students who learn to use public transport, as they will gain valuable skills for travelling to work and higher education institutions after leaving school.

Students and parents can see what public transport options may be available to them by visiting www.sunbus.com.au where they can also lodge an online query if they have any concerns.

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2.3 Parking

When driving to the school is considered essential and the above public and active transport options are not feasible, the following rules and regulations apply to motorists:

- **Drop & Go Zone:**
  - Motorists must listen to any instructions given by the traffic monitor / school staff member to ensure the smooth and safe operation of the zone. Motorists who fail to obey instructions given by the monitor may be prohibited from using the on-site drop and go zone. The teacher and / or traffic monitor on duty must also make sure that parents do not leave their vehicles unattended within the drop & go zone at any time
  - Parents must not park / drive in an unlawful manner. The traffic monitor / school staff member on duty will record details of the offending vehicle, such as the number plate, colour, make and model. After their shift, this information is to be added to the illegal parking / driving register located in the school office. This information is to be collated and the school will decide an appropriate course of action. This may include placing reminders in the school newsletter or contacting the police.
- **General Parking**
  - In the school newsletter, the school will encourage motorists accessing the site to use Norman Road. Increased use of Norman Avenue will decrease the likelihood for queues to extend through the Mason Avenue / Bruce Highway intersection. Parking utilisation along the southern side of Mason Avenue will also likely increase.

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3. PARKING AREAS

3.1 Overview

Figure 3.1 illustrates the location of available car parking areas and associated time restrictions.



Source: Nearmap

Figure 3.1: Parking Areas

3.2 Drop & Go Zone

Parents and carers are permitted to use the drop and go zone during the morning drop off and afternoon pick up periods. However, the drop and go zone is intended to operate like a taxi rank with motorists only being able to stop for two (2) minutes or less (i.e. the zone is not for short or long term parking).

Refer Section 4 for further details.

3.3 Short Term Parking

Short term (up to 15 minutes) parking is available for parents, carers and visitors via 26 kerbside parking spaces provided along the northern side of Mason Avenue, along the frontage of the school.

No off-street short term parking is provided by the school for use during drop off and pick up periods.

3.4 Long Term Parking

Long term (unrestricted) parking is available for parents, carers and visitors via 84 informal kerbside parking spaces located on Mason Avenue and Norman Road, within walking distance to the school.

Parents, carers and visitors are encouraged to use available kerbside parking, instead of the drop and go zone parking at all times, to reduce the potential of traffic congestion.

3.5 Staff Parking

Long term (unrestricted) parking is available for staff via 29 off-street car parking spaces, and nine (9) kerbside parking spaces located along the northern side of Mason Avenue.

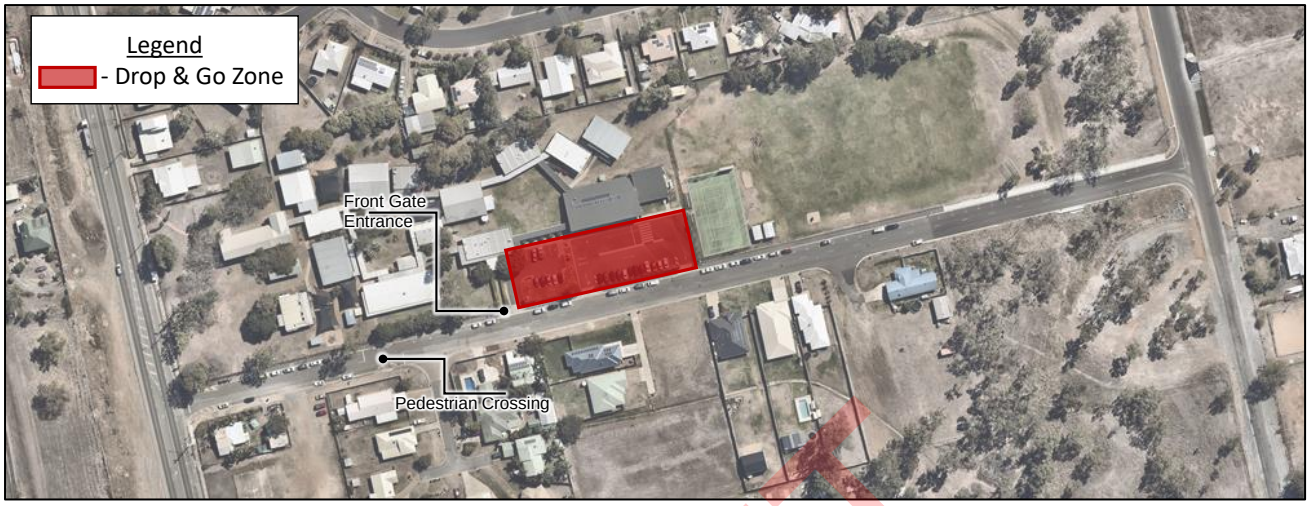
Parents, carers and visitors are not permitted to use designated staff parking spaces.

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4. DROP & GO ZONE

4.1 Overview

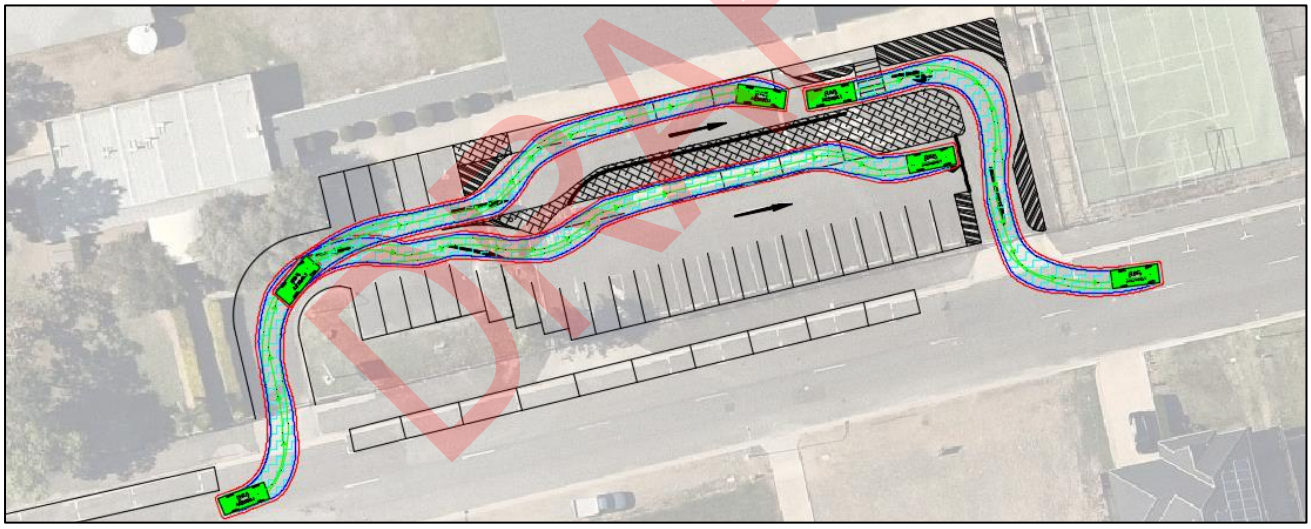
Figure 4.1 illustrates the location of the drop and go zone.



Source: Nearmap

Figure 4.1: Drop & Go Zone

Figure 4.2 illustrates the general flow of traffic through the drop and go zone.



Source: Nearmap

Figure 4.2: Drop & Go Zone – Traffic Flows

Relevant details in relation to the drop and go zone are noted below:

- It is located along the Mason Avenue frontage of the school, adjacent to the administrative office and will be supervised by staff during the afternoon pick up period
- It will operate with one-way traffic flows entering at the west end and exiting at the eastern end
- It is intended to operate like a taxi rank with motorists only being able to stop for two (2) minutes or less
- No long-term parking is permitted within the drop and go zone
- It will operate from 7:00am to 9:00am during the morning drop off period
- It will operate from 2:00pm to 4:00pm during the afternoon pick up period
- There are two (2) drop and go areas that will be supervised by staff in the afternoon.

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4.2 Morning Drop Off

Key notes in relation to the morning drop off are outlined below:

- The drop and go will not be supervised by staff
- Parents and carers are required to observe one-way traffic flow restrictions through the zone
- Parents and carers for students in all grades are permitted to use the northern zone
- Parents and carers for students in Grade 5 and 6 are permitted to use the southern zone, however they are encouraged to use the northern zone to reduce the number of pedestrians using the zebra crossing.

4.3 Afternoon Pick Up

Key notes in relation to the morning drop off are outlined below:

- The drop and go will be supervised by staff between 2:55pm and 3:30pm
- Parents and carers are required to observe the one-way traffic flows through the zone
- Parents and carers for students in Prep to Grade 4 are to use the northern zone
- Parents and carers for students in Grade 5 and 6 are to use the southern zone
- Parents and carers that have students in both of the above grade groupings, are to use the northern zone unless otherwise agreed with the school
- The staff member will call the student's name when possible (when the vehicle reaches the front of the queue, if not prior)
- If a vehicle reaches the front of the queue and students are not ready, the staff member will ask the parent or carer to exit the site and re-join the queue
- If a student is not collected by 3:30pm will be taken to the office by the staff member.

4.4 Management Rules

To improve the operation of the drop and go zone, the following management rules are noted:

- Parents and carers should delay or stagger their arrival times to give students enough time to reach the zone and avoid unnecessarily long queues on Mason Avenue
- Parents and carers must remain within their vehicle at all times
- Parents and carers must enter at the back of the queue and keep moving forwards in the queue as other vehicles leave. Do not 'cut' into the queue or 'double park' to load / unload
- Parents and carers will be asked by the staff member to exit the site and re-join the queue if they have been stationary in the queue for longer than two (2) minutes
- Students are only permitted to enter / exit the vehicle within the designated loading zone
- Parents and carers must position their vehicle as far left as possible on the approach to the drop and go zone to allow other motorists to pass if required
- Parents and carers must be considerate of opposing motorists attempting to enter / exit the site.

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5. PUBLIC TRANSPORT

5.1 Overview

Figure 5.1 illustrates the location of the relocated school bus zone on Mason Avenue.



Source: Nearmap

Figure 5.1: School Bus Zone on Mason Avenue

Relevant details in relation to the school bus zone are noted below:

- It is located along the school's Mason Avenue frontage, adjacent to the administration office
- There are two (2) bus bays located within bus zone
- Buses will enter from the west (via the Bruce Highway) and exit to the east (via Norman Road)
- There are two (2) school bus routes that service surrounding suburbs, such as Glendale Glenlee and Rockyview. These services are operated by Rothery's Rockhampton.

Table 5.1 provides an overview of the school bus routes which service the school.

Table 5.1: School Bus Services

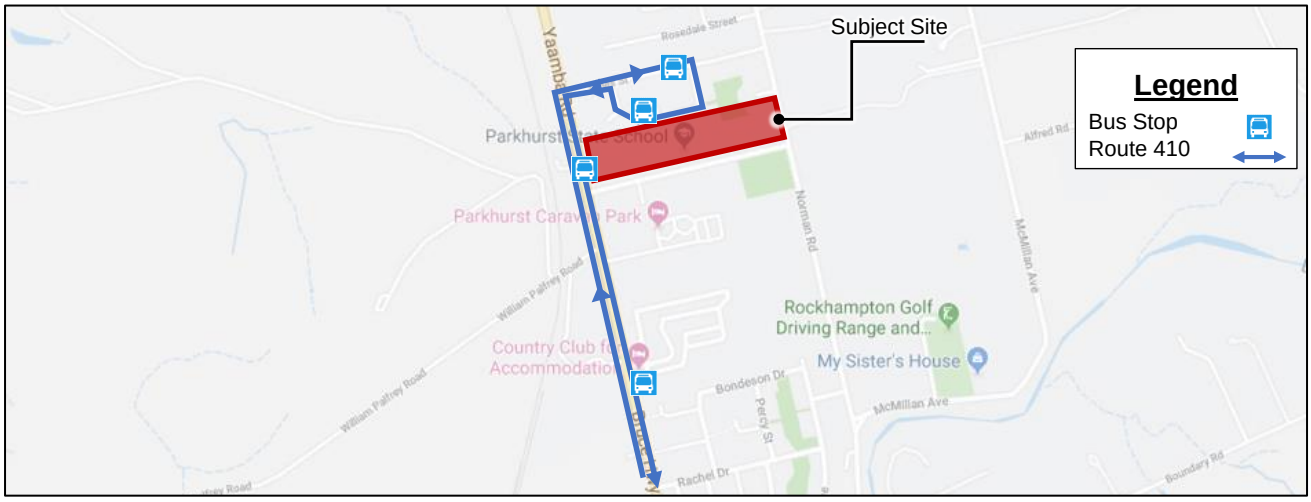
Route ID	Areas Serviced	Frequency
3	Glendale Park	1 morning and afternoon service
5	Norman Road Northridge Estate PM	1 afternoon service
13	Glendale Park/Olive Estate to Parkhurst Primary	1 morning and afternoon service
14	Glenlee Estate/Parkridge Estate/Paramout Park Estate to Parkhurst Primary	1 morning and afternoon service

Source: Rothery's Rockhampton

It is understood that approximately 25% of students currently travel to school by public or school bus. Therefore, the proposed expansion may result in an additional 35 students using public or school buses to travel to / from school after Stage 1, and an additional 60 students after Stage 3.

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Figure 5.2 illustrates the location of public bus stops and the travel pattern for Route 410.



Source: Google Maps

Figure 5.2: Public Bus Stops and Route 410

Relevant details in relation to the surrounding public transport network are noted below:

- Bus stops are located on Jones Street, Brosnan Crescent, and the Bruce Highway
- Route 410 services these bus stops in a clockwise loop on weekdays, from 8AM to 6PM.

Please refer to the Department of Transport and Main Roads website for further details.

5.2 Morning Drop off

Key notes in relation to the morning drop off are outlined below:

- The school bus zone will not be supervised by staff
- School buses will enter the bus zone from the Bruce Highway and exit via Norman Road
- When students arrive by bus, they are required to immediately enter the school grounds

5.3 Afternoon Pick Up

Key notes in relation to the afternoon pick up are outlined below:

- The bus zone will be supervised by staff between 2:45pm until all buses leave at 3:00pm
- Students who travel via school bus services will finish school at 2:45pm. This will allow the buses to leave the bus zone prior to vehicles entering the drop and go zone, reducing potential conflict

The students will meet at the "student storage area" within the school grounds (refer Source: Nearmap

- Figure 5.1). A staff member will guide students out of the school grounds and onto buses once they arrive
- School buses will enter the bus zone from the Bruce Highway and exit via Norman Road.

5.4 Management Rules

To improve the operation of the bus zone, the following management rules are noted:

- Parents, carers, visitors, and staff are not permitted to park within the bus zones at any time
- Student drop off or pick up is not permitted to occur within the bus zone at any time
- All motorists must be considerate of buses attempting to enter / exit the bus bays.

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6. ACTIVE TRANSPORT

6.1 Overview

Figure 6.1 illustrates the pedestrian footpath network surrounding the school.



Source: Nearmap

Figure 6.1: Active transport network

Relevant details in relation to the active transport network are noted below:

- A continuous footpath network is provided along the northern side of Mason Avenue, eastern side of the Bruce Highway and western side of Norman Avenue, north of Mason Avenue
- A supervised children's crossing is located on Mason Avenue to the west of Hotham Close. This crossing is supervised on school days from 8:00am to 8:45am, and 3:00pm to 3:30pm
- There are currently 28 bicycle spaces located within a designated parking area on site.

6.2 Management Rules

To improve safety outcomes, the following management rules are noted:

- It is recommended that younger students are accompanied by a parent, carer, or older sibling/s when using active transport modes
- At children's crossings, only commence crossing when directed by the supervisor
- When crossing at pedestrian refuges and unsignalised intersections, only commence crossing when there is a suitable gap in traffic flows
- When crossing at traffic lights, only commence crossing when the green pedestrian signal is displayed, and traffic has come to a complete stop.

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7. DEVELOPING AND IMPLEMENTING THE PLAN

7.1 Action Plan

The Traffic Management Committee (TMC) has developed an action plan with the aim of addressing traffic management issues. This plan is intended to be updated regularly and outlines traffic management issues and ways the school is trying to address them. The school will review the plan and the progress / outcomes of identified actions at pre-arranged meetings.

To plan for future growth and change, the school plans to proactively implement new programs and activities to decrease the likelihood of problems arising in the first place.

Table 7.1 outlines Parkhurst State School's current traffic management issue action plan.

Table 7.1: Action Plan

Date Raised	Description	Comments / Notes	Status
09/06/2020	Submissions against the proposed expansion	TMR and Council submitted concerns around the queuing exceeding Mason Avenue into the Bruce Highway. As such development upgrades are proposed to the pick up / drop off facilities.	To be implemented as part of Stage 2 expansion
19/06/2020	Provide a footpath on the southern side of Mason Avenue	Considered beneficial. However, it is considered unreasonable for the school to fund given these works are not along the site frontage. Request to Council for footpath to be installed.	To be confirmed
19/06/2020	Relocated bus bays in front of basketball court	The currently proposed location (in front of admin) is considered a more ideal solution as there is an existing footpath connection and would only require a loss of six (6) parking spaces. This is compared to the basketball court location, which would require eight (8) spaces if standard and 12 spaces if indented.	To be confirmed

7.2 Enforcement

The most effective way of addressing traffic management issues at schools is by clearly communicating rules, operational arrangements etc. to students, parents and carers. However, there may be times when the school considers it necessary for enforcement activities to be undertaken to reinforce good behaviours.

Parkhurst State School intends to clearly define what actions will be taken prior to making a formal request for enforcement and communicate this to students, parents and carers in advance. This will ensure the school community is aware of the steps the school has taken prior to making any requests for further enforcement measures, and why it is now considered necessary.

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Appendix E – Childcare Centre Sign In / Sign Out Data Analysis Summary

APPENDIX E

ZON0120-002 | Childcare Centre, 906-910 Yaamba Road, Rockhampton

Summary of Sign In and Sign Out Times for Typical Childcare Centre

Sign In Times

Time In (15min intervals)	Total (5 days of data)	Average per Day
6:00 to 6:15	0	0
6:15 to 6:30	2	0.4
6:30 to 6:45	12	2.4
6:45 to 7:00	7	1.4
7:00 to 7:15	14	2.8
7:15 to 7:30	26	5.2
7:30 to 7:45	32	6.4
7:45 to 8:00	66	13.2
8:00 to 8:15	65	13
8:15 to 8:30	65	13
8:30 to 8:45	69	13.8
8:45 to 9:00	46	9.2
9:00 to 9:15	28	5.6
9:15 to 9:30	19	3.8
9:30 to 9:45	13	2.6
9:45 to 10:00	7	1.4
10:00 to 10:15	1	0.2
10:15 to 10:30	1	0.2
10:30 to 10:45	2	0.4
10:45 to 11:00	2	0.4
11:00 to 11:15	1	0.2
11:15 to 11:30	3	0.6
11:30 to 11:45	0	0
11:45 to 12:00	1	0.2
6:00 to 12:00	482	96.4

Time In (hourly intervals)	Total (5 days of data)	Average per Day
6:00 to 7:00	21	4.2
6:15 to 7:15	35	7
6:30 to 7:30	59	11.8
6:45 to 7:45	79	15.8
7:00 to 8:00	138	27.6
7:15 to 8:15	189	37.8
7:30 to 8:30	228	45.6
7:45 to 8:45	265	53
8:00 to 9:00	245	49
8:15 to 9:15	208	41.6
8:30 to 9:30	162	32.4
8:45 to 9:45	106	21.2
9:00 to 10:00	67	13.4
9:15 to 10:15	40	8
9:30 to 10:30	22	4.4
9:45 to 10:45	11	2.2
10:00 to 11:00	6	1.2
10:15 to 11:15	6	1.2
10:30 to 11:30	8	1.6
10:45 to 11:45	6	1.2
11:00 to 12:00	5	1

Sign Out Times

Time Out (15min intervals)	Total (5 days of data)	Average per Day
12:00 to 12:15	0	0
12:15 to 12:30	3	0.6
12:30 to 12:45	0	0
12:45 to 13:00	0	0
13:00 to 13:15	0	0
13:15 to 13:30	0	0
13:30 to 13:45	1	0.2
13:45 to 14:00	2	0.4
14:00 to 14:15	4	0.8
14:15 to 14:30	8	1.6
14:30 to 14:45	6	1.2
14:45 to 15:00	17	3.4
15:00 to 15:15	30	6
15:15 to 15:30	33	6.6
15:30 to 15:45	43	8.6
15:45 to 16:00	35	7
16:00 to 16:15	41	8.2
16:15 to 16:30	34	6.8
16:30 to 16:45	34	6.8
16:45 to 17:00	45	9
17:00 to 17:15	51	10.2
17:15 to 17:30	44	8.8
17:30 to 17:45	26	5.2
17:45 to 18:00	10	2
18:00 to 18:15	7	1.4
18:15 to 18:30	4	0.8
18:30 to 18:45	3	0.6
12:00 to 18:45	481	96.2

Time Out (hourly intervals)	Total (5 days of data)	Average per Day	% of PM Peak Hour (16:30-17:30)
12:00 to 13:00	3	0.6	
12:15 to 13:15	3	0.6	
12:30 to 13:30	0	0	
12:45 to 13:45	1	0.2	
13:00 to 14:00	3	0.6	
13:15 to 14:15	7	1.4	
13:30 to 14:30	15	3	
13:45 to 14:45	20	4	
14:00 to 15:00	35	7	
14:15 to 15:15	61	12.2	35%
14:30 to 15:30	86	17.2	49%
14:45 to 15:45	123	24.6	71%
15:00 to 16:00	141	28.2	81%
15:15 to 16:15	152	30.4	87%
15:30 to 16:30	153	30.6	88%
15:45 to 16:45	144	28.8	83%
16:00 to 17:00	154	30.8	89%
16:15 to 17:15	164	32.8	94%
16:30 to 17:30	174	34.8	100%
16:45 to 17:45	166	33.2	95%
17:00 to 18:00	131	26.2	75%
17:15 to 18:15	87	17.4	50%
17:30 to 18:30	47	9.4	
17:45 to 18:45	24	4.8	

Appendix F – PSS Expansion Traffic Volume Calculations

ZON0120-002 | Childcare Centre, 906-910 Yaamba Road, Rockhampton

Parkhurst State School Expansion Traffic Generation Calculations

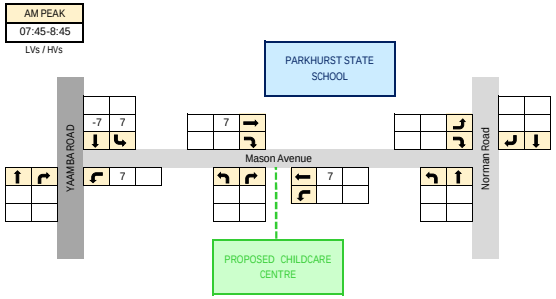
Proposed Increase in Number of Children	=	143	(Stage 1 - 2021)	

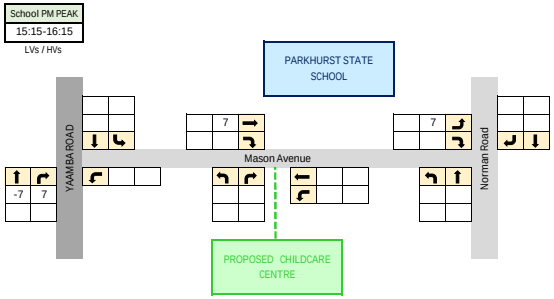
Traffic Generation

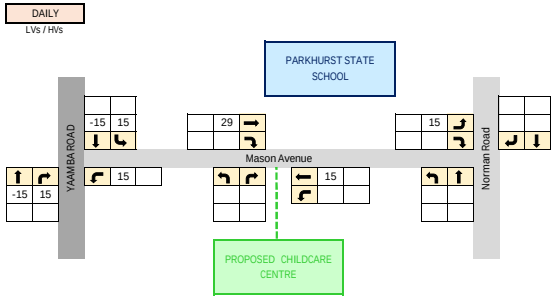
AM Peak Generation Rate	=	0.2	trips per primary school student (from TMR Road Planning and Design Manual Appendix 3A Table 3.9)
AM School Traffic Volume	=	29	
PM Peak Generation Rate	=	0.2	trips per primary school student (from TMR Road Planning and Design Manual Appendix 3A Table 3.9)
PM School Traffic Volume	=	29	
Daily Peak Generation Rate	=	-	no rate available
Assumed daily traffic as the sum of AM trips and School PM trips, with an increase factor			
Increase factor	=	2	
Daily Dev Traffic Volume	=	116	

AM PEAK			SCHOOL PM PEAK			DAILY		
% Drop In Trips	=	50%	% Drop In Trips	=	50%	% Drop In Trips	=	50%
Drop In Trips Volume	=	15	Drop In Trips Volume	=	15	Drop In Trips Volume	=	58
% Drop Ins From Yaamba Rd N to S	=	100%	% Drop Ins From Yaamba Rd S to N (via Mason, Norman, Olive)	=	100%	% Drop Ins From Yaamba Rd S to N (via Mason, Norman, Olive)	=	100%
Drop In Vol Yaamba Rd N to S	=	15	Drop In Vol Yaamba Rd S to N	=	15	Drop In Vol Yaamba Rd	=	58
Inbound Vol	=	7	Inbound Vol	=	7	Inbound Vol (N.to.S AM & S.to.N PM)	=	29
Outbound Vol	=	7	Outbound Vol	=	7	Outbound Vol (N.to.S AM & S.to.N PM)	=	29
% New Trips	=	50%	% New Trips	=	50%	% New Trips	=	50%
New Trips Volume	=	15	New Trips Volume	=	15	New Trips Volume	=	58
Inbound %	=	50%	Inbound %	=	50%	Inbound %	=	50%
Inbound Volume	=	7	Inbound Volume	=	7	Inbound Volume	=	29
Inbound from North via Yaamba Rd %	=	60%	Inbound from North via Yaamba Rd %	=	60%	Inbound from North via Yaamba Rd %	=	60%
Inbound from North Vol	=	4	Inbound from North Vol	=	4	Inbound from North Vol	=	17
Inbound from South via Yaamba Rd %	=	10%	Inbound from South via Yaamba Rd %	=	10%	Inbound from South via Yaamba Rd %	=	10%
Inbound from South Vol	=	1	Inbound from South Vol	=	1	Inbound from South Vol	=	3
Inbound from North-East via Norman Rd %	=	10%	Inbound from North-East via Norman Rd %	=	10%	Inbound from North-East via Norman Rd %	=	10%
Inbound from North-East Vol	=	1	Inbound from North-East Vol	=	1	Inbound from North-East Vol	=	3
Inbound from South-East via Norman Rd %	=	20%	Inbound from South-East via Norman Rd %	=	20%	Inbound from South-East via Norman Rd %	=	20%
Inbound from South-West Vol	=	1	Inbound from South-West Vol	=	1	Inbound from South-West Vol	=	6
Outbound %	=	50%	Outbound %	=	50%	Outbound %	=	50%
Outbound Volume	=	7	Outbound Volume	=	7	Outbound Volume	=	29
Outbound to North via Yaamba Rd %	=	60%	Outbound to North via Yaamba Rd %	=	60%	Outbound to North via Yaamba Rd %	=	60%
Outbound to North Vol	=	4	Outbound to North Vol	=	4	Outbound to North Vol	=	17
Outbound to South via Yaamba Rd %	=	10%	Outbound to South via Yaamba Rd %	=	10%	Outbound to South via Yaamba Rd %	=	10%
Outbound to South Vol	=	1	Outbound to South Vol	=	1	Outbound to South Vol	=	3
Outbound to North-East via Norman Rd %	=	10%	Outbound to North-East via Norman Rd %	=	10%	Outbound to North-East via Norman Rd %	=	10%
Outbound to North-East Vol	=	1	Outbound to North-East Vol	=	1	Outbound to North-East Vol	=	3
Outbound to South-East via Norman Rd %	=	20%	Outbound to South-East via Norman Rd %	=	20%	Outbound to South-East via Norman Rd %	=	20%
Outbound to South-West Vol	=	1	Outbound to South-West Vol	=	1	Outbound to South-West Vol	=	6

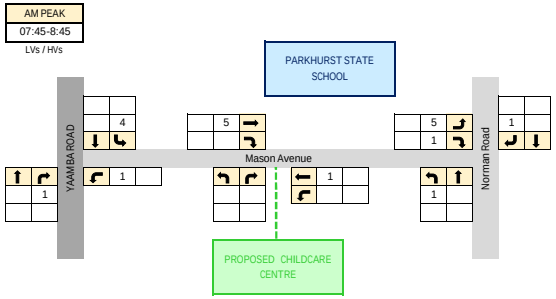
ZON0120-002 | Childcare Centre, 906-910 Yaamba Road, Rockhampton
Drop-In Trips - Parkhurst State School Expansion Traffic
(Stage 1 - 2021)

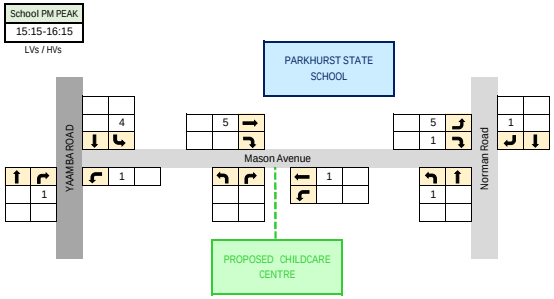


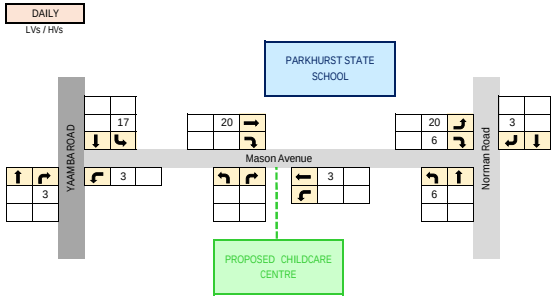




ZON0120-002 | Childcare Centre, 906-910 Yaamba Road, Rockhampton
New Trips - Parkhurst State School Expansion Traffic
(Stage 1 - 2021)



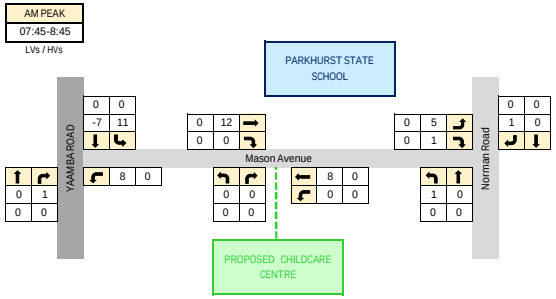


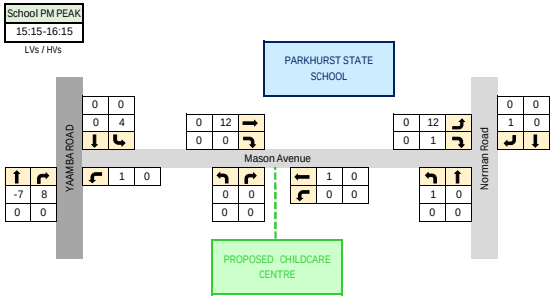


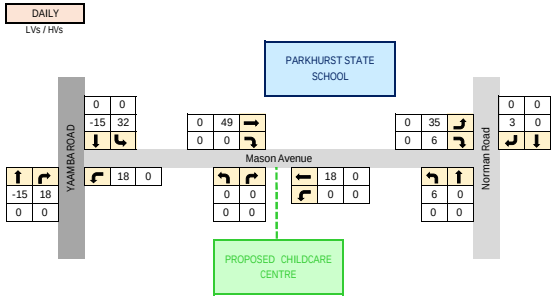
ZON0120-002 | Childcare Centre, 906-910 Yaamba Road, Rockhampton

Total Traffic Volumes - Parkhurst State School Expansion

(Stage 1 - 2021)







ACCESS TRAFFIC CONSULTING

ZON0120-002 | Childcare Centre, 906-910 Yaamba Road, Rockhampton

Parkhurst State School Expansion Traffic Generation Calculations

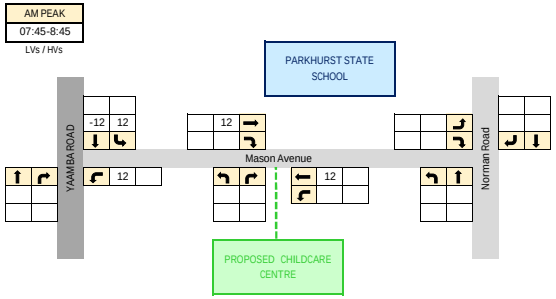
Proposed Increase in Number of Children	=	239	(Stage 2 - 2025)	
Traffic Generation				
AM Peak Generation Rate	=	0.2	trips per primary school student (from TMR Road Planning and Design Manual Appendix 3A Table 3.9)	
AM School Traffic Volume	=	48		
PM Peak Generation Rate	=	0.2	trips per primary school student (from TMR Road Planning and Design Manual Appendix 3A Table 3.9)	
PM School Traffic Volume	=	48		
Daily Peak Generation Rate	=	-	no rate available	
Assumed daily traffic as the sum of AM trips and School PM trips, with an increase factor				
Increase factor	=	2		
Daily Dev Traffic Volume	=	192		

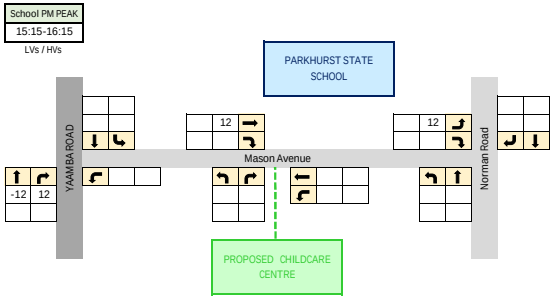
AM PEAK			SCHOOL PM PEAK			DAILY		
% Drop In Trips	=	50%	% Drop In Trips	=	50%	% Drop In Trips	=	50%
Drop In Trips Volume	=	24	Drop In Trips Volume	=	24	Drop In Trips Volume	=	96
% Drop Ins From Yaamba Rd N to S	=	100%	% Drop Ins From Yaamba Rd S to N (via Mason, Norman, Olive)	=	100%	% Drop Ins From Yaamba Rd S to N (via Mason, Norman, Olive)	=	100%
Drop In Vol Yaamba Rd N to S	=	24	Drop In Vol Yaamba Rd S to N	=	24	Drop In Vol Yaamba Rd	=	96
Inbound Vol	=	12	Inbound Vol	=	12	Inbound Vol (N.to.S AM & S.to.N PM)	=	48
Outbound Vol	=	12	Outbound Vol	=	12	Outbound Vol (N.to.S AM & S.to.N PM)	=	48
% New Trips	=	50%	% New Trips	=	50%	% New Trips	=	50%
New Trips Volume	=	24	New Trips Volume	=	24	New Trips Volume	=	96
Inbound %	=	50%	Inbound %	=	50%	Inbound %	=	50%
Inbound Volume	=	12	Inbound Volume	=	12	Inbound Volume	=	48
Inbound from North via Yaamba Rd %	=	60%	Inbound from North via Yaamba Rd %	=	60%	Inbound from North via Yaamba Rd %	=	60%
Inbound from North Vol	=	7	Inbound from North Vol	=	7	Inbound from North Vol	=	29
Inbound from South via Yaamba Rd %	=	10%	Inbound from South via Yaamba Rd %	=	10%	Inbound from South via Yaamba Rd %	=	10%
Inbound from South Vol	=	1	Inbound from South Vol	=	1	Inbound from South Vol	=	5
Inbound from North-East via Norman Rd %	=	10%	Inbound from North-East via Norman Rd %	=	10%	Inbound from North-East via Norman Rd %	=	10%
Inbound from North-East Vol	=	1	Inbound from North-East Vol	=	1	Inbound from North-East Vol	=	5
Inbound from South-East via Norman Rd %	=	20%	Inbound from South-East via Norman Rd %	=	20%	Inbound from South-East via Norman Rd %	=	20%
Inbound from South-West Vol	=	2	Inbound from South-West Vol	=	2	Inbound from South-West Vol	=	10
Outbound %	=	50%	Outbound %	=	50%	Outbound %	=	50%
Outbound Volume	=	12	Outbound Volume	=	12	Outbound Volume	=	48
Outbound to North via Yaamba Rd %	=	60%	Outbound to North via Yaamba Rd %	=	60%	Outbound to North via Yaamba Rd %	=	60%
Outbound to North Vol	=	7	Outbound to North Vol	=	7	Outbound to North Vol	=	29
Outbound to South via Yaamba Rd %	=	10%	Outbound to South via Yaamba Rd %	=	10%	Outbound to South via Yaamba Rd %	=	10%
Outbound to South Vol	=	1	Outbound to South Vol	=	1	Outbound to South Vol	=	5
Outbound to North-East via Norman Rd %	=	10%	Outbound to North-East via Norman Rd %	=	10%	Outbound to North-East via Norman Rd %	=	10%
Outbound to North-East Vol	=	1	Outbound to North-East Vol	=	1	Outbound to North-East Vol	=	5
Outbound to South-East via Norman Rd %	=	20%	Outbound to South-East via Norman Rd %	=	20%	Outbound to South-East via Norman Rd %	=	20%
Outbound to South-West Vol	=	2	Outbound to South-West Vol	=	2	Outbound to South-West Vol	=	10

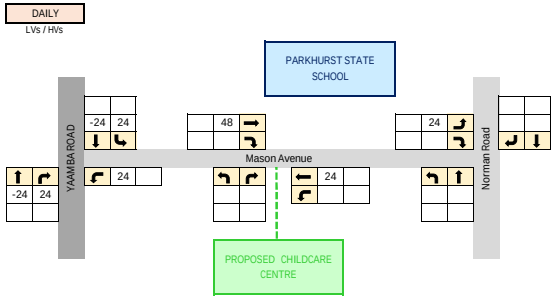
ZON0120-002 | Childcare Centre, 906-910 Yaamba Road, Rockhampton

Drop-In Trips - Parkhurst State School Expansion Traffic

(Stage 2 - 2025)

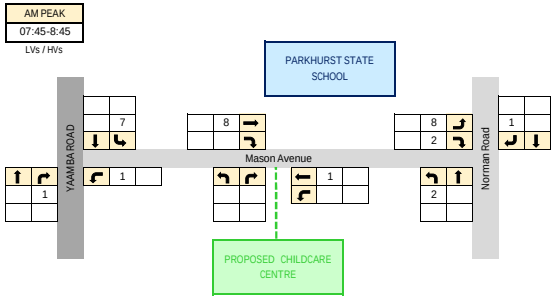


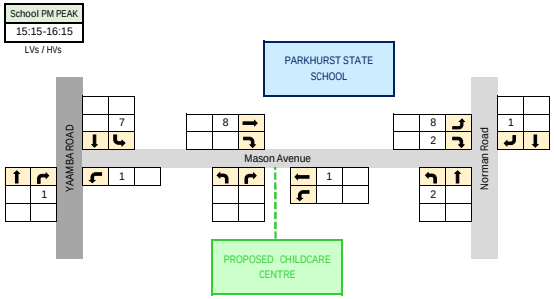


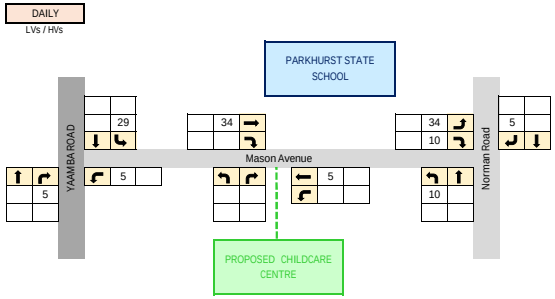


ACCESS TRAFFIC CONSULTING

ZON0120-002 | Childcare Centre, 906-910 Yaamba Road, Rockhampton
New Trips - Parkhurst State School Expansion Traffic
(Stage 2 - 2025)



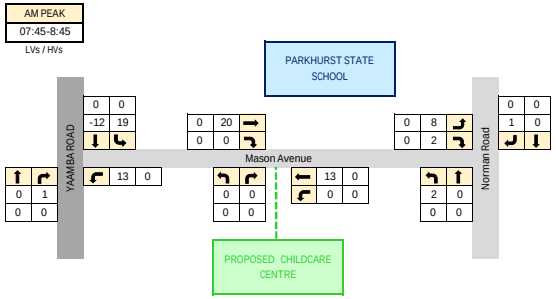


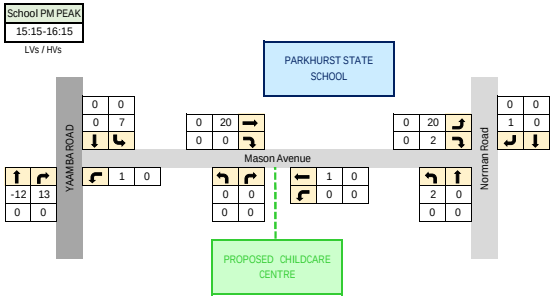


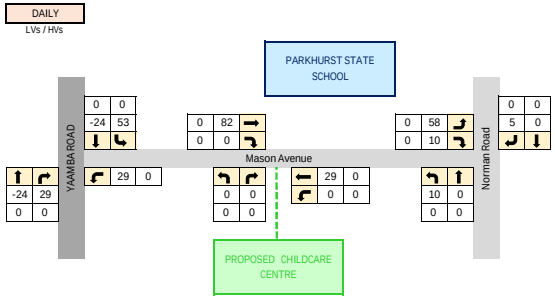
ZON0120-002 | Childcare Centre, 906-910 Yaamba Road, Rockhampton

Total Traffic Volumes - Parkhurst State School Expansion

(Stage 2 - 2025)







Appendix G – TMR RNAU Concept Plan



AECOM

Queensland Government
Department of Transport and Main Roads

RNAU
GENERAL LAYOUT PLAN

SK-60446330-00103

Appendix H – SIDRA Results - Existing Conditions

MOVEMENT SUMMARY

Site: 1 [EXIST RNAU 2020 AM Peak (Site Folder: Bruce Highway - Mason Avenue)]

Bruce Highway / Mason Avenue
RNAU Intersection Configuration
Site Category: -
Stop (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] veh/h	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Bruce Highway														
2	T1	310	27	326	8.7	0.088	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	40.0
3	R2	46	1	48	2.2	0.202	17.7	LOS B	0.7	4.6	0.80	0.91	0.85	22.8
Approach		356	28	375	7.9	0.202	2.3	NA	0.7	4.6	0.10	0.12	0.11	37.3
East: Mason Avenue														
4	L2	63	1	66	1.6	0.103	10.2	LOS A	0.4	2.6	0.52	0.96	0.52	29.1
Approach		63	1	66	1.6	0.103	10.2	LOS A	0.4	2.6	0.52	0.96	0.52	29.1
North: Bruce Highway														
7	L2	26	1	27	3.8	0.015	3.4	LOS A	0.0	0.0	0.00	0.45	0.00	36.5
8	T1	923	77	972	8.3	0.260	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	39.9
Approach		949	78	999	8.2	0.260	0.1	NA	0.0	0.0	0.00	0.01	0.00	39.8
All Vehicles		1368	107	1440	7.8	0.260	1.2	NA	0.7	4.6	0.05	0.08	0.05	38.7

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

MOVEMENT SUMMARY

Site: 1 [EXIST RNAU 2020 School PM Peak (Site Folder: Bruce Highway - Mason Avenue)]

Bruce Highway / Mason Avenue
RNAU Intersection Configuration
Site Category: -
Stop (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] veh/h	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Bruce Highway														
2	T1	575	50	605	8.7	0.163	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	40.0
3	R2	45	1	47	2.2	0.074	6.2	LOS A	0.2	1.8	0.44	0.62	0.44	31.8
Approach		620	51	653	8.2	0.163	0.5	NA	0.2	1.8	0.03	0.05	0.03	39.4
East: Mason Avenue														
4	L2	85	2	89	2.4	0.093	7.8	LOS A	0.3	2.5	0.31	0.89	0.31	31.1
Approach		85	2	89	2.4	0.093	7.8	LOS A	0.3	2.5	0.31	0.89	0.31	31.1
North: Bruce Highway														
7	L2	2	0	2	0.0	0.001	3.4	LOS A	0.0	0.0	0.00	0.45	0.00	36.5
8	T1	354	30	373	8.5	0.100	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	40.0
Approach		356	30	375	8.4	0.100	0.0	NA	0.0	0.0	0.00	0.00	0.00	40.0
All Vehicles		1061	83	1117	7.8	0.163	0.9	NA	0.3	2.5	0.04	0.10	0.04	39.0

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

MOVEMENT SUMMARY

Site: 1 [EXIST RNAU 2020 PM Peak (Site Folder: Bruce Highway - Mason Avenue)]

Bruce Highway / Mason Avenue
RNAU Intersection Configuration
Site Category: -
Stop (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] veh/h	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Bruce Highway														
2	T1	740	65	779	8.8	0.210	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	69.9
3	R2	24	1	25	4.2	0.040	9.1	LOS A	0.1	1.0	0.44	0.69	0.44	35.9
Approach		764	66	804	8.6	0.210	0.3	NA	0.1	1.0	0.01	0.02	0.01	68.4
East: Mason Avenue														
4	L2	18	0	19	0.0	0.019	8.4	LOS A	0.1	0.5	0.30	0.86	0.30	34.3
Approach		18	0	19	0.0	0.019	8.4	LOS A	0.1	0.5	0.30	0.86	0.30	34.3
North: Bruce Highway														
7	L2	2	0	2	0.0	0.001	6.4	LOS A	0.0	0.0	0.00	0.61	0.00	45.8
8	T1	361	30	380	8.3	0.102	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	69.9
Approach		363	30	382	8.3	0.102	0.0	NA	0.0	0.0	0.00	0.00	0.00	69.7
All Vehicles		1145	96	1205	8.4	0.210	0.3	NA	0.1	1.0	0.01	0.03	0.01	68.0

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

Appendix I – Sunbus Route Mapping

effective July 2015

Route
410

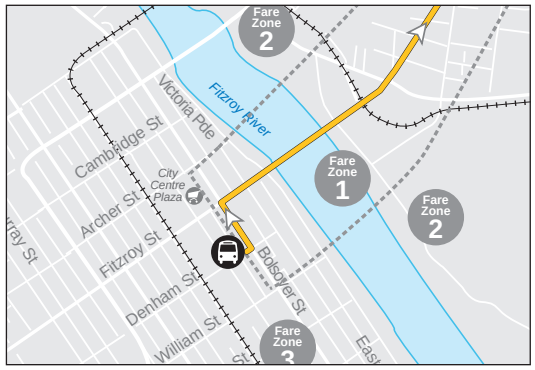
Parkhurst to city centre via Stockland

servicing Parkhurst and CQU

	Monday to Friday									
	am	am	am	am	pm	pm	pm	pm	pm	pm
Parkhurst (Jones St)	8.05	9.05	10.05	11.05	**12.05**	**1.05**	**2.05**	**3.05**	**4.05**	**5.05**
Central Queensland University	8.13	9.13	10.13	11.13	**12.13**	**1.13**	**2.13**	**3.13**	**4.13**	**5.13**
Glenmore Shopping Village	8.17	9.17	10.17	11.17	**12.17**	**1.17**	**2.17**	**3.17**	**4.17**	**5.17**
Stockland Rockhampton	8.23	9.23	10.23	11.23	**12.23**	**1.23**	**2.23**	**3.23**	**4.23**	**5.23**
City centre (Bolsover St)	8.31	9.31	10.31	11.31	**12.31**	**1.31**	**2.31**	**3.31**	**4.31**	**5.31**

	Monday to Friday										
	am	am	am	am	am	pm	pm	pm	pm	pm	pm
City centre (Denham St)	7.30	8.35	9.35	10.35	11.35	**12.35**	**1.35**	**2.35**	**3.35**	**4.35**	**5.35**
Stockland Rockhampton	7.40	8.45	9.45	10.45	11.45	**12.45**	**1.45**	**2.45**	**3.45**	**4.45**	**5.45**
Glenmore Shopping Village	7.45	8.50	9.50	10.50	11.50	**12.50**	**1.50**	**2.50**	**3.50**	**4.50**	**5.50**
Central Queensland University	7.50	8.55	9.55	10.55	11.55	**12.55**	**1.55**	**2.55**	**3.55**	**4.55**	**5.55**
Parkhurst (Jones St)	7.58	9.03	10.03	11.03	**12.03**	**1.03**	**2.03**	**3.03**	**4.03**	**5.03**	**6.03**







© State of Queensland (The Department of Transport and Main Roads) 2015

rocky sunbus web Rte 410 July 2015.indd 1 28/07/2015 2:09 pm

Appendix J – Proposed Plan of Development

DATE	ISSUE	AMMENDMENT
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CONTEXT PLAN

NOT TO SCALE

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LOT2 ON 605103

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DRAWING TITLE
CONTEXT PLAN
DESIGN DEVELOPMENT

SCALE
NIS @ A1
Use figured dimensions in preference to scaling.
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MG, ERS

DATE
JULY 2020

PROJECT No.	*DWG No.*	*ISSUE*
20685	DD01	A

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NOTE:
CARPARKING LAYOUT SHOWS LAYOUT FOR STAGE 01 AND STAGE 02 COMBINED.
CARPARKING FOR INDIVIDUAL STAGES IS INDICATED ON DRAWINGS 20685DD08 AND 20685DD14

SITE PLAN
STAGE 01 & STAGE 02
SCALE: 1 : 200

RPD
LOT2 ON 605103

DATE	ISSUE	AMMENDMENT
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12.10.2020	B	CARPARK LAYOUT/FENCES

LEGEND

XX.XX ----- EXISTING CONTOUR LINE & LEVELS

— — — SITE BOUNDARY

LEGEND

A	AISLE	6200 WIDE
D	DRIVEWAY	6200 WIDE
D1	DISABLED BAY	5400 x 2400
DS	DISABLED SHARED BAY	5400 x 2400
S1	STAFF PARKING	5400 x 2400
TA	TURNING AREA	1000 DEEP
TB	TURNING BAY	5400 x 2400
V1	VISITOR PARKING	5400 x 2600

DEVELOPMENT DATA

SITE AREA LOT02 ON RP605103	4342.0 SM
STAGE 01	
SITE COVER	1048.1 SM
IMPERVIOUS AREA	2305.3 SM
GROSS FLOOR AREA	726.5 SM
CHILDREN	108 CH
PARKING BAYS	18 VISITORS 18 STAFF
STAGE 02	
SITE COVER	317.3 SM
IMPERVIOUS AREA	635.5 SM
GROSS FLOOR AREA	187 SM
CHILDREN	44 CH
PARKING BAYS	08 VISITORS 04 STAFF
SITE COVER TOTAL	1365.4 SM (31.4%)
IMPERVIOUS AREA TOTAL	2940.8 SM (67.7%)
GROSS FLOOR AREA TOTAL	905.6 SM (20.9%)
CHILDREN TOTAL	152 CH

PARKING BAYS TOTAL	REQUIRED	PROVIDED
@ 1 CAR PER PERMANENT	26 VISITOR	26 VISITOR
STAFF & 1 CAR PER 6	22 STAFF	22 STAFF
CHILDREN	48 TOTAL	48 TOTAL

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DRAWING TITLE
SITE PLAN - STAGE 01 & 02
DESIGN DEVELOPMENT

SCALE
1:200 @ A1
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—— – —— SITE BOUNDARY

A	AISLE	6200 WIDE
D1	DISABLED BAY	5400 x 2400
DS	SHARED BAY	5400 x 2400
S1	STAFF PARKING	5400 x 2400
TA	TURNING AREA	1000 DEEP
TB	TURNING BAY	5400 x 2400
V1	VISITOR PARKING	5400 x 2600

ECS DATA

TOTAL CHILDREN		108 CH
GROSS FLOOR AREA		718.1 SM
UNENCUMBERED INDOOR SPACE	REQUIRED	PROVIDED
INDOOR SPACE 01 *12 CHILDREN* *00-24 MONTHS*	39.0 SM	42.0 SM
INDOOR SPACE 02 *12 CHILDREN* *00-24 MONTHS*	39.0 SM	41.9 SM
INDOOR SPACE 03 *20 CHILDREN* *24-35 MONTHS*	65.0 SM	68.1 SM
INDOOR SPACE 04 *20 CHILDREN* *24-35 MONTHS*	65.0 SM	69.4 SM
INDOOR SPACE 05 *22 CHILDREN* *26 MONTHS-SCHOOL AGE*	71.5 SM	73.6 SM
INDOOR SPACE 06 *22 CHILDREN* *26 MONTHS-SCHOOL AGE*	71.5 SM	73.7 SM
TOTAL INDOOR SPACE TOTAL CHILDREN *@ 3.25 sm per child*	351.0 SM 108 CH	368.7 SM
UNENCUMBERED OUTDOOR SPACE	REQUIRED	PROVIDED
OUTDOOR SPACE 01		1702.5 SM
OUTDOOR SPACE 02		38.4 SM
TOTAL OUTDOOR SPACE TOTAL CHILDREN *@ 7.0 sm per child*	756.0 SM 108 CH	1740.9 SM

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FLOOR PLAN
STAGE 01
SCALE: 1 : 100

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FLOOR PLAN- STAGE 01

SCALE
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PLANT PALETTE

SPECIES

TREES



CUPANIOPSIS ANACARDIOIDES
TUCKEROO

SHRUB



MURRAYA PANICULATA
'MOCK ORANGE'



PITTOSPORUM TOBIRA
'MISS MUFFET'

GROUND COVERS



BAUMEA RUBGINOSA
SOFT TWIG RUSH



DIETES BICOLOR
SPANISH IRIS



DIETES GRANDIFLORA
WILD IRIS



LOMANDRA HYSTRIX
CREEK MAT RUSH



LOMANDRA LONGIFOLIA
MAT RUSH



MYOPORUM ELLIPTICUM
CREEPING BOOBIALLA



OPHIOPOGON INTERMEDIANS VARIGATA
'STRIPEY WHITE'



ZEIPHANYRANTHES CANDIDA
CROSUS - 'RAIN LILY'



' SOFT LEAF' BUFFALO GRASS
SIR WALTER BUFFALO GRASS

NOTE:
PLANT SPECIES PREDOMINANTLY NATIVE TO THE CENTRAL QUEENSLAND REGION, IN ACCORDANCE WITH PERFORMANCE CRITERIA P3 OF CHAPTER 5 LANDSCAPE CODE AND CHAPTER 6 PLANNING POLICY 6 - PLANTING SPECIES



LANDSCAPE INTENT PLAN
STAGE 01
SCALE: 1 : 200

DATE	ISSUE	AMMENDMENT
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LEGEND

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LANDSCAPE INTENT-STAGE 01 DESIGN DEVELOPMENT

SCALE
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A	AISLE	6200 WIDE
D1	DISABLED BAY	5400 x 2400
DS	SHARED BAY	5400 x 2400
S1	STAFF PARKING	5400 x 2400
TA	TURNING AREA	1000 DEEP
TB	TURNING BAY	5400 x 2400
V1	VISITOR PARKING	5400 x 2600

ECS DATA

TOTAL CHILDREN		44 CH
GROSS FLOOR AREA		187.0 SM
UNENCUMBERED INDOOR SPACE	REQUIRED	PROVIDED
36 MONTHS-SCHOOL AGE INDOOR SPACE 07 *22 CHILDREN*	71.5 SM	73.6 SM
36 MONTHS-SCHOOL AGE INDOOR SPACE 08 *22 CHILDREN* *36 MONTHS-SCHOOL AGE*	71.5 SM	73.7 SM
TOTAL INDOOR SPACE	143.0 SM	147.3 SM
TOTAL CHILDREN *@ 3.25 sm per child*	44 CH	
UNENCUMBERED OUTDOOR SPACE	REQUIRED	PROVIDED
OUTDOOR SPACE		125.8 SM
TOTAL OUTDOOR SPACE	308.0 SM	125.8 SM
TOTAL CHILDREN *@ 7.0 sm per child*	44 CH	

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FLOOR PLAN
STAGE 02
SCALE: 1 : 100

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FLOOR PLAN - STAGE 02 DESIGN DEVELOPMENT

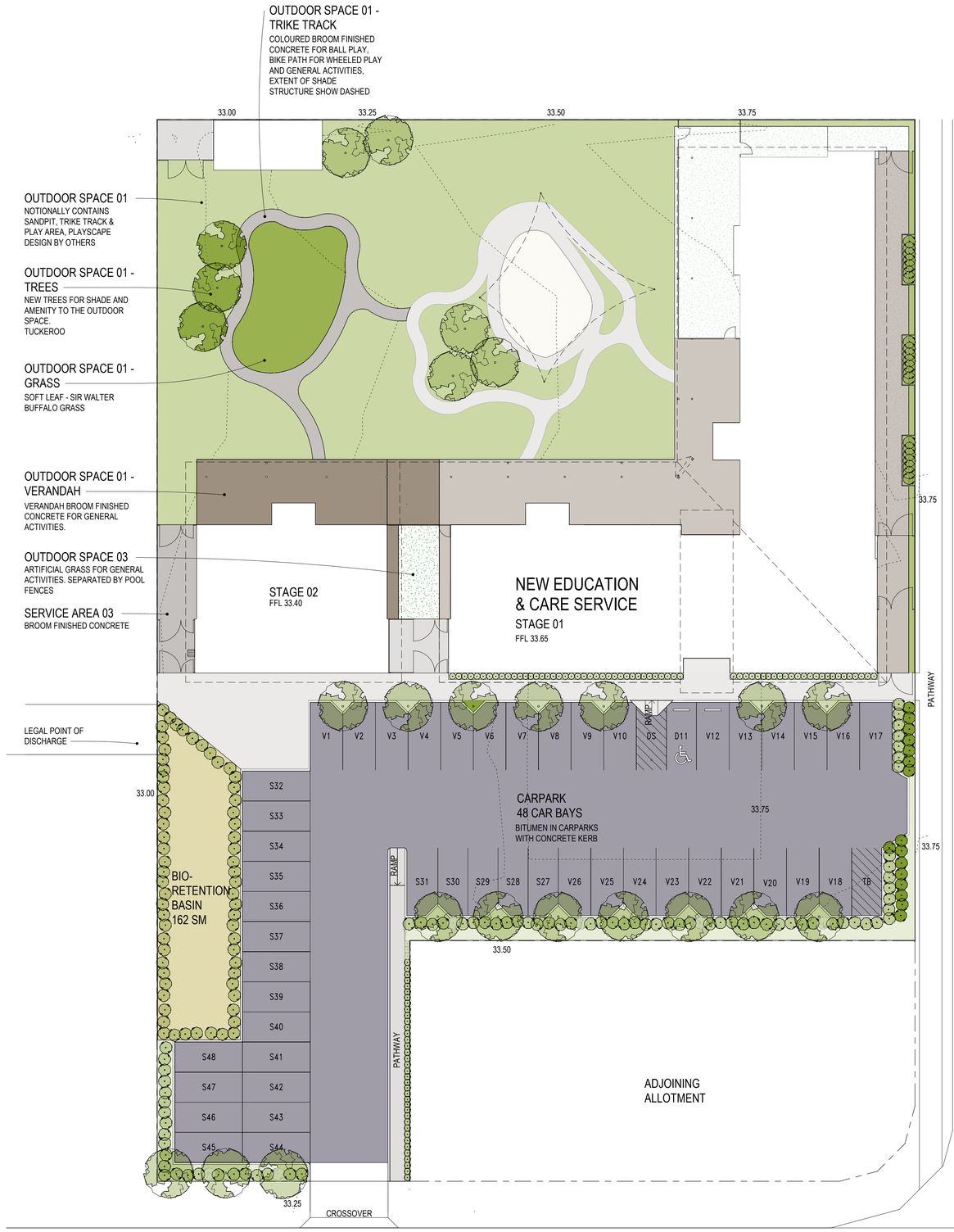
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JULY 2020

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PLANT PALETTE

SPECIES

TREES



CUPANIOPSIS ANACARDIOIDES
TUCKEROO

GROUND COVERS



'SOFT LEAF' BUFFALO GRASS
SIR WALTER BUFFALO GRASS

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LANDSCAPE INTENT PLAN

STAGE 02

SCALE: 1 : 200

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LANDSCAPE INTENT-STAGE 02
DESIGN DEVELOPMENT

SCALE

1:200 @ A1

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MG

DATE

JULY 2020

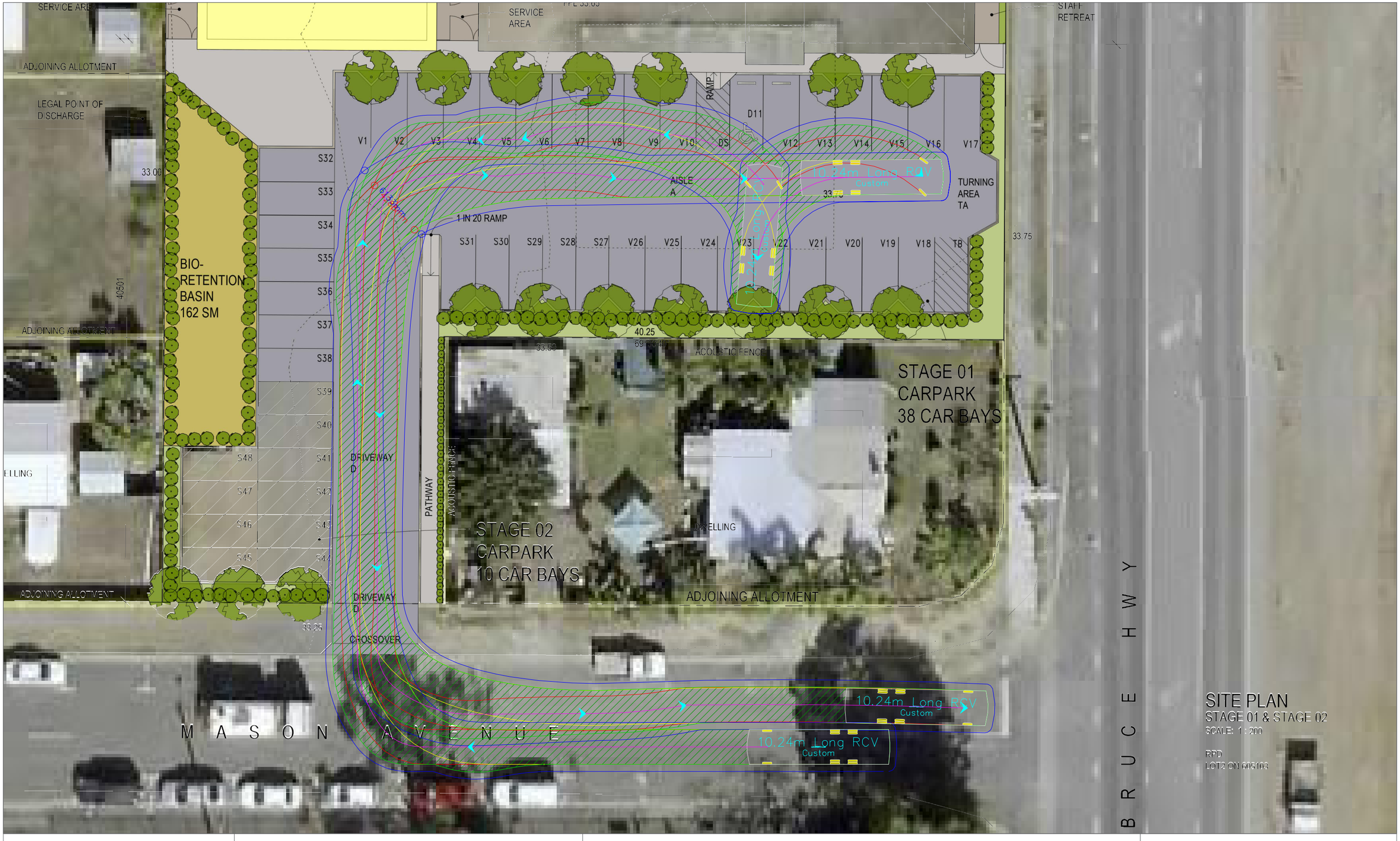
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Appendix K – Service Vehicle Swept Paths



SITE PLAN
STAGE 01 & STAGE 02
SCALE: 1 : 200

RPD
LOT2 ON 605103

ACCESS TRAFFIC CONSULTING

drawing prepared by

Access Traffic Consulting

PO Box 9864
Frenchville QLD 4701

project	Childcare Centre 906-910 Yaamba Road
drawing title	RCV Service Vehicle Swept Path

project no.	drawing no.	revision	date	scale
ZON0120-002	DWG01	A	02/10/2020	1:250 @ A3

FOR INFORMATION ONLY - NOT FOR CONSTRUCTION

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

Vehicle swept path diagrams prepared using computer generated turning path software and associated drawing platforms. Vehicle data based upon relevant Australian Standards (*AS/NZS 2890.1-2004 Parking facilities - Off-street car parking*, and/or *AS 2890.2-2002 Parking facilities - Off-street commercial vehicle facilities*). These standards make allowance for a degree of tolerance, however the vehicle characteristics in these standards represent a suitable design vehicle and do not account for all variations in vehicle dimensions / specifications and/or driver ability or behaviour.

Appendix L – TMR Traffic Generation Data – Childcare Centres

ZON0120-002 | Childcare Centre, 906-910 Yaamba Road, Rockhampton

TMR Traffic Generation Data - Childcare Centres

Year	Land use	Suburb	Local Government Area	Variable Units	Variable Value	Start Date	End Date	Average Weekday Volume	Average Weekday Rate	Weekday Peak Volume	Weekday Peak Rate
2006	Child Care	ROBERTSON	Brisbane City	Childcare Spaces	75	9/05/2006	23/05/2006			50	0.67
2006	Child Care	ROTHWELL	Moreton Bay Regional	Childcare Spaces	74	9/05/2006	23/05/2006			56	0.76
2006	Child Care	OXLEY	Brisbane City	Childcare Spaces	75	9/05/2006	23/05/2006			49	0.65
2006	Child Care	NORTH LAKES	Moreton Bay Regional	Childcare Spaces	75	9/05/2006	23/05/2006			48	0.64
2009	Child Care	ROBERTSON	Brisbane City	Childcare Spaces	75	5/05/2009	11/05/2009	186	2.5	32	0.43
2009	Child Care	ROTHWELL	Moreton Bay Regional	Childcare Spaces	74	5/05/2009	11/05/2009	228	3.1	42	0.57
2009	Child Care	OXLEY	Brisbane City	Childcare Spaces	75	5/05/2009	11/05/2009	138	1.8	30	0.4
2009	Child Care	HENDRA	Brisbane City	Childcare Spaces	75	17/05/2009	23/05/2009	162	2.2	30	0.4
2010	Child Care	KENMORE	Brisbane City	Childcare Spaces	72	4/10/2010	10/10/2010	220	3.1	50	0.69
2010	Child Care	ANNERLEY	Brisbane City	Childcare Spaces	72	4/10/2010	10/10/2010	262	3.6	53	0.74
2010	Child Care	EIGHT MILE PLAINS	Brisbane City	Childcare Spaces	72	4/10/2010	10/10/2010	271	3.8	52	0.72
2010	Child Care	BOONDALL	Brisbane City	Childcare Spaces	72	4/10/2010	10/10/2010	265	3.7	53	0.74
2010	Child Care	NEW FARM	Brisbane City	Childcare Spaces	48	4/10/2010	10/10/2010	80	1.7	15	0.31
2010	Child Care	THE RANGE	Rockhampton Regional	Childcare Spaces	72	22/11/2010	28/11/2010	253	3.5	58	0.81
2010	Child Care	BARGARA	Bundaberg Regional	Childcare Spaces	72	22/11/2010	28/11/2010	222	3.1	46	0.64
2010	Child Care	THABEBAN	Bundaberg Regional	Childcare Spaces	72	22/11/2010	28/11/2010	204	2.8	47	0.65
2010	Child Care	FRENCHVILLE	Rockhampton Regional	Childcare Spaces	72	22/11/2010	28/11/2010	297	4.1	65	0.9
							Queensland Average		3.0		0.63
							Rockhampton Average		3.8		0.86

Appendix M – Development Traffic Calculations

ACCESS TRAFFIC CONSULTING

ZON0120-002 | Childcare Centre, 906-910 Yaamba Road, Rockhampton

Development Traffic Generation Calculations

Proposed Number of Children	=	108	(Stage 1 - 2022)
Traffic Generation			
AM Peak Generation Rate	=	0.86	trips per child (from TMR traffic generation data)
AM Dev Traffic Volume	=	93	
Trip Reduction For Combined School Drop-Off Trips	=	20%	That is, trips to the school which already occur where a child will also be taken to the childcare centre. These trips are already included in traffic count data.
AM Dev Traffic Volume	=	74	
PM Peak Generation Rate	=	0.86	trips per child (from TMR traffic generation data)
PM Dev Traffic Volume	=	93	
School PM Peak Generation Factor	=	0.87	to factor the trips in the PM Peak to the trips in the School PM peak (from analysis of sign-in and sign-out times from an existing childcare centre)
	=	81	
Trip Reduction For Combined School Drop-Off Trips	=	20%	
School PM Dev Traffic Volume	=	65	
Daily Peak Generation Rate	=	3.8	trips per child (from TMR traffic generation data)
Daily Dev Traffic Volume	=	410	

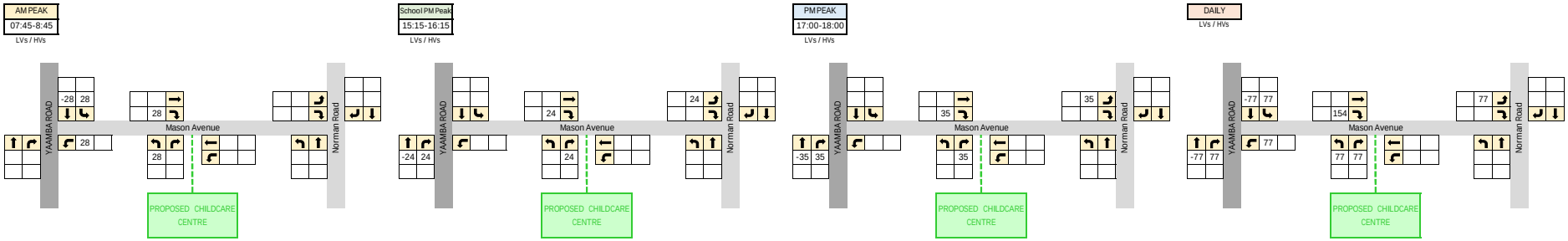
AM PEAK			PM PEAK			SCHOOL PM PEAK			DAILY		
% Drop In Trips	=	75%	% Drop In Trips	=	75%	% Drop In Trips	=	75%	% Drop In Trips	=	75%
Drop In Trips Volume	=	56	Drop In Trips Volume	=	70	Drop In Trips Volume	=	49	Drop In Trips Volume	=	308
% Drop Ins From Yaamba Rd N to S	=	100%	% Drop Ins From Yaamba Rd S to N (via Mason, Norman, Olive)	=	100%	% Drop Ins From Yaamba Rd S to N (via Mason, Norman, Olive)	=	100%	% Drop Ins From Yaamba Rd	=	100%
Drop In Vol Yaamba Rd N to S	=	56	Drop In Vol Yaamba Rd S to N	=	70	Drop In Vol Yaamba Rd S to N	=	49	Drop In Vol Yaamba Rd	=	308
Inbound Vol	=	28	Inbound Vol	=	35	Inbound Vol	=	24	Inbound Vol (N.to.S AM & S.to.N PM)	=	154
Outbound Vol	=	28	Outbound Vol	=	35	Outbound Vol	=	24	Outbound Vol (N.to.S AM & S.to.N PM)	=	154
% New Trips	=	25%	% New Trips	=	25%	% New Trips	=	25%	% New Trips	=	25%
New Trips Volume	=	19	New Trips Volume	=	23	New Trips Volume	=	16	New Trips Volume	=	103
Inbound %	=	50%	Inbound %	=	50%	Inbound %	=	50%	Inbound %	=	50%
Inbound Volume	=	9	Inbound Volume	=	12	Inbound Volume	=	8	Inbound Volume	=	51
Inbound from North via Yaamba Rd %	=	60%	Inbound from North via Yaamba Rd %	=	60%	Inbound from North via Yaamba Rd %	=	60%	Inbound from North via Yaamba Rd %	=	60%
Inbound from North Vol	=	6	Inbound from North Vol	=	7	Inbound from North Vol	=	5	Inbound from North Vol	=	31
Inbound from South via Yaamba Rd %	=	10%	Inbound from South via Yaamba Rd %	=	10%	Inbound from South via Yaamba Rd %	=	10%	Inbound from South via Yaamba Rd %	=	10%
Inbound from South Vol	=	1	Inbound from South Vol	=	1	Inbound from South Vol	=	1	Inbound from South Vol	=	5
Inbound from North-East via Norman Rd %	=	10%	Inbound from North-East via Norman Rd %	=	10%	Inbound from North-East via Norman Rd %	=	10%	Inbound from North-East via Norman Rd %	=	10%
Inbound from North-East Vol	=	1	Inbound from North-East Vol	=	1	Inbound from North-East Vol	=	1	Inbound from North-East Vol	=	5
Inbound from South-East via Norman Rd %	=	20%	Inbound from South-East via Norman Rd %	=	20%	Inbound from South-East via Norman Rd %	=	20%	Inbound from South-East via Norman Rd %	=	20%
Inbound from South-West Vol	=	2	Inbound from South-West Vol	=	2	Inbound from South-West Vol	=	2	Inbound from South-West Vol	=	10
Outbound %	=	50%	Outbound %	=	50%	Outbound %	=	50%	Outbound %	=	50%
Outbound Volume	=	9	Outbound Volume	=	12	Outbound Volume	=	8	Outbound Volume	=	51
Outbound to North on Yaamba Rd (via Mason, Norman, Olive) %	=	60%	Outbound to North on Yaamba Rd (via Mason, Norman, Olive) %	=	60%	Outbound to North on Yaamba Rd (via Mason, Norman, Olive) %	=	60%	Outbound to North on Yaamba Rd (via Mason, Norman, Olive) %	=	60%
Outbound to North Vol	=	6	Outbound to North Vol	=	7	Outbound to North Vol	=	5	Outbound to North Vol	=	31
Outbound to South via Yaamba Rd %	=	10%	Outbound to South via Yaamba Rd %	=	10%	Outbound to South via Yaamba Rd %	=	10%	Outbound to South via Yaamba Rd %	=	10%
Outbound to South Vol	=	1	Outbound to South Vol	=	1	Outbound to South Vol	=	1	Outbound to South Vol	=	5
Outbound to North-East via Norman Rd %	=	10%	Outbound to North-East via Norman Rd %	=	10%	Outbound to North-East via Norman Rd %	=	10%	Outbound to North-East via Norman Rd %	=	10%
Outbound to North-East Vol	=	1	Outbound to North-East Vol	=	1	Outbound to North-East Vol	=	1	Outbound to North-East Vol	=	5
Outbound to South-East via Norman Rd %	=	20%	Outbound to South-East via Norman Rd %	=	20%	Outbound to South-East via Norman Rd %	=	20%	Outbound to South-East via Norman Rd %	=	20%
Outbound to South-West Vol	=	2	Outbound to South-West Vol	=	2	Outbound to South-West Vol	=	2	Outbound to South-West Vol	=	10

ACCESS TRAFFIC CONSULTING

ZON0120-002 | Childcare Centre, 906-910 Yaamba Road, Rockhampton

Drop-In Trips - Development Traffic Volumes

(Stage 1 - 2022)

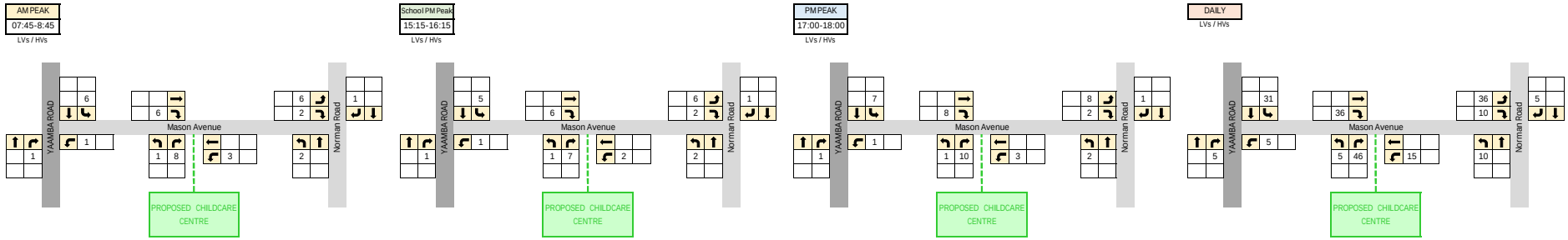


ACCESS TRAFFIC CONSULTING

ZON0120-002 | Childcare Centre, 906-910 Yaamba Road, Rockhampton

New Trips - Development Traffic Volumes

(Stage 1 - 2022)

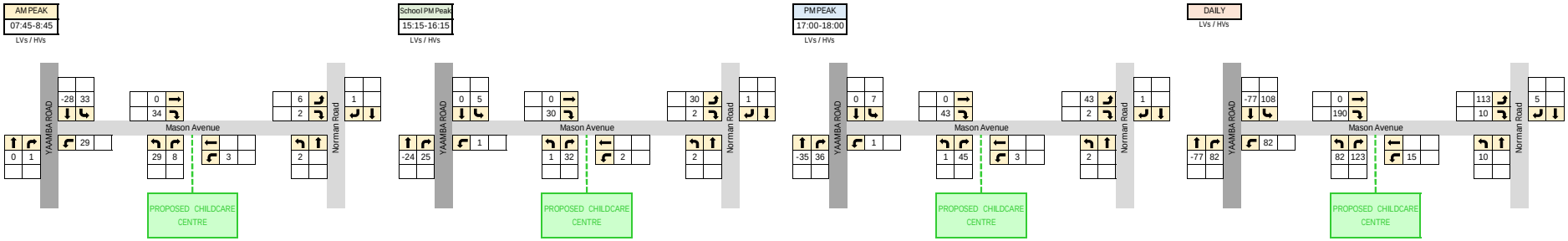


ACCESS TRAFFIC CONSULTING

ZON0120-002 | Childcare Centre, 906-910 Yaamba Road, Rockhampton

Total Development Traffic Volumes

(Stage 1 - 2022)



ACCESS TRAFFIC CONSULTING

ZON0120-002 | Childcare Centre, 906-910 Yaamba Road, Rockhampton

Development Traffic Generation Calculations

Proposed Number of Children	=	152	(Stage 2 - 2025)

Traffic Generation

AM Peak Generation Rate	=	0.86	trips per child (from TMR traffic generation data)
AM Dev Traffic Volume	=	131	
Trip Reduction For Combined School Drop-Off Trips	=	20%	That is, trips to the school which already occur where a child will also be taken to the childcare centre. These trips are already included in traffic count data.
AM Dev Traffic Volume	=	105	
PM Peak Generation Rate	=	0.86	trips per child (from TMR traffic generation data)
PM Dev Traffic Volume	=	131	
School PM Peak Generation Factor	=	0.87	to factor the trips in the PM Peak to the trips in the School PM peak (from analysis of sign-in and sign-out times from an existing childcare centre)
	=	114	
Trip Reduction For Combined School Drop-Off Trips	=	20%	
School PM Dev Traffic Volume	=	91	
Daily Peak Generation Rate	=	3.8	trips per child (from TMR traffic generation data)
Daily Dev Traffic Volume	=	578	

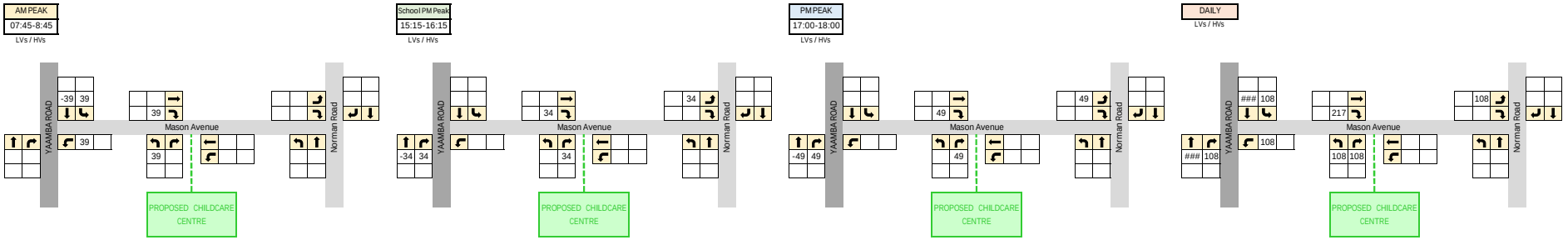
AM PEAK			PM PEAK			SCHOOL PM PEAK			DAILY		
% Drop In Trips	=	75%	% Drop In Trips	=	75%	% Drop In Trips	=	75%	% Drop In Trips	=	75%
Drop In Trips Volume	=	79	Drop In Trips Volume	=	98	Drop In Trips Volume	=	68	Drop In Trips Volume	=	434
% Drop Ins From Yaamba Rd N to S	=	100%	% Drop Ins From Yaamba Rd S to N (via Mason, Norman, Olive)	=	100%	% Drop Ins From Yaamba Rd S to N (via Mason, Norman, Olive)	=	100%	% Drop Ins From Yaamba Rd	=	100%
Drop In Vol Yaamba Rd N to S	=	79	Drop In Vol Yaamba Rd S to N	=	98	Drop In Vol Yaamba Rd S to N	=	68	Drop In Vol Yaamba Rd	=	434
Inbound Vol	=	39	Inbound Vol	=	49	Inbound Vol	=	34	Inbound Vol (N.to.S AM & S.to.N PM)	=	217
Outbound Vol	=	39	Outbound Vol	=	49	Outbound Vol	=	34	Outbound Vol (N.to.S AM & S.to.N PM)	=	217
% New Trips	=	25%	% New Trips	=	25%	% New Trips	=	25%	% New Trips	=	25%
New Trips Volume	=	26	New Trips Volume	=	33	New Trips Volume	=	23	New Trips Volume	=	145
Inbound %	=	50%	Inbound %	=	50%	Inbound %	=	50%	Inbound %	=	50%
Inbound Volume	=	13	Inbound Volume	=	16	Inbound Volume	=	11	Inbound Volume	=	72
Inbound from North via Yaamba Rd %	=	60%	Inbound from North via Yaamba Rd %	=	60%	Inbound from North via Yaamba Rd %	=	60%	Inbound from North via Yaamba Rd %	=	60%
Inbound from North Vol	=	8	Inbound from North Vol	=	10	Inbound from North Vol	=	7	Inbound from North Vol	=	43
Inbound from South via Yaamba Rd %	=	10%	Inbound from South via Yaamba Rd %	=	10%	Inbound from South via Yaamba Rd %	=	10%	Inbound from South via Yaamba Rd %	=	10%
Inbound from South Vol	=	1	Inbound from South Vol	=	2	Inbound from South Vol	=	1	Inbound from South Vol	=	7
Inbound from North-East via Norman Rd %	=	10%	Inbound from North-East via Norman Rd %	=	10%	Inbound from North-East via Norman Rd %	=	10%	Inbound from North-East via Norman Rd %	=	10%
Inbound from North-East Vol	=	1	Inbound from North-East Vol	=	2	Inbound from North-East Vol	=	1	Inbound from North-East Vol	=	7
Inbound from South-East via Norman Rd %	=	20%	Inbound from South-East via Norman Rd %	=	20%	Inbound from South-East via Norman Rd %	=	20%	Inbound from South-East via Norman Rd %	=	20%
Inbound from South-West Vol	=	3	Inbound from South-West Vol	=	3	Inbound from South-West Vol	=	2	Inbound from South-West Vol	=	14
Outbound %	=	50%	Outbound %	=	50%	Outbound %	=	50%	Outbound %	=	50%
Outbound Volume	=	13	Outbound Volume	=	16	Outbound Volume	=	11	Outbound Volume	=	72
Outbound to North on Yaamba Rd (via Mason, Norman, Olive) %	=	60%	Outbound to North on Yaamba Rd (via Mason, Norman, Olive) %	=	60%	Outbound to North on Yaamba Rd (via Mason, Norman, Olive) %	=	60%	Outbound to North on Yaamba Rd (via Mason, Norman, Olive) %	=	60%
Outbound to North Vol	=	8	Outbound to North Vol	=	10	Outbound to North Vol	=	7	Outbound to North Vol	=	43
Outbound to South via Yaamba Rd %	=	10%	Outbound to South via Yaamba Rd %	=	10%	Outbound to South via Yaamba Rd %	=	10%	Outbound to South via Yaamba Rd %	=	10%
Outbound to South Vol	=	1	Outbound to South Vol	=	2	Outbound to South Vol	=	1	Outbound to South Vol	=	7
Outbound to North-East via Norman Rd %	=	10%	Outbound to North-East via Norman Rd %	=	10%	Outbound to North-East via Norman Rd %	=	10%	Outbound to North-East via Norman Rd %	=	10%
Outbound to North-East Vol	=	1	Outbound to North-East Vol	=	2	Outbound to North-East Vol	=	1	Outbound to North-East Vol	=	7
Outbound to South-East via Norman Rd %	=	20%	Outbound to South-East via Norman Rd %	=	20%	Outbound to South-East via Norman Rd %	=	20%	Outbound to South-East via Norman Rd %	=	20%
Outbound to South-West Vol	=	3	Outbound to South-West Vol	=	3	Outbound to South-West Vol	=	2	Outbound to South-West Vol	=	14

ACCESS TRAFFIC CONSULTING

ZON0120-002 | Childcare Centre, 906-910 Yaamba Road, Rockhampton

Drop-In Trips - Development Traffic Volumes

(Stage 2 - 2025)

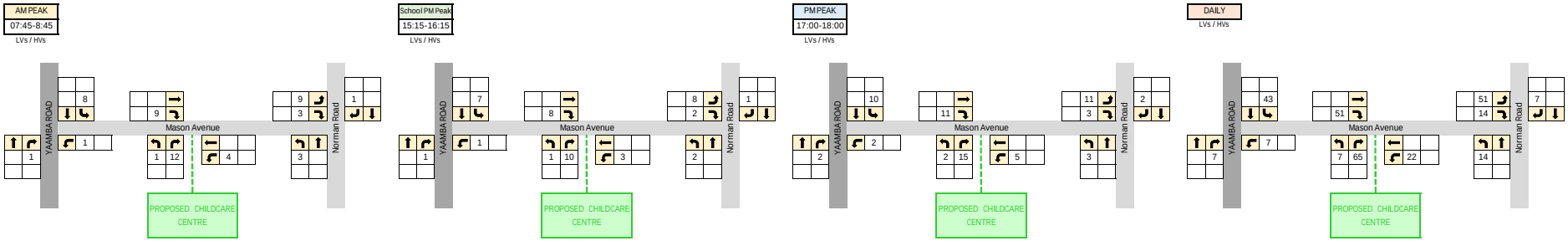


ACCESS TRAFFIC CONSULTING

ZON0120-002 | Childcare Centre, 906-910 Yaamba Road, Rockhampton

New Trips - Development Traffic Volumes

(Stage 2 - 2025)

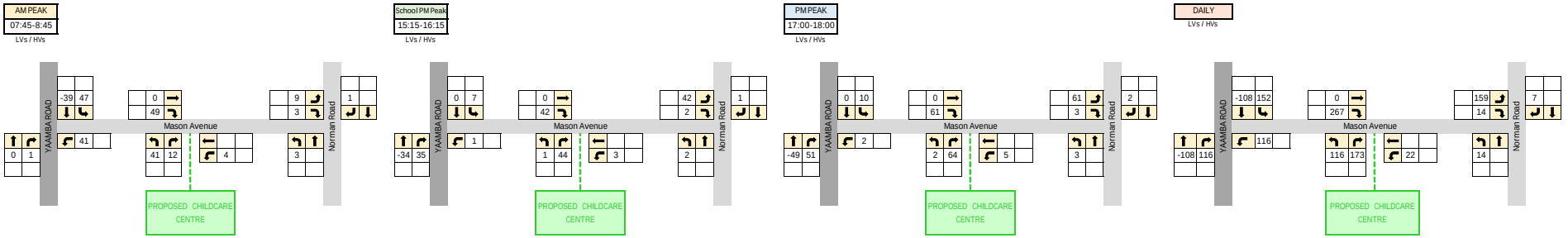


ACCESS TRAFFIC CONSULTING

ZON0120-002 | Childcare Centre, 906-910 Yaamba Road, Rockhampton

Total Development Traffic Volumes

(Stage 2 - 2025)

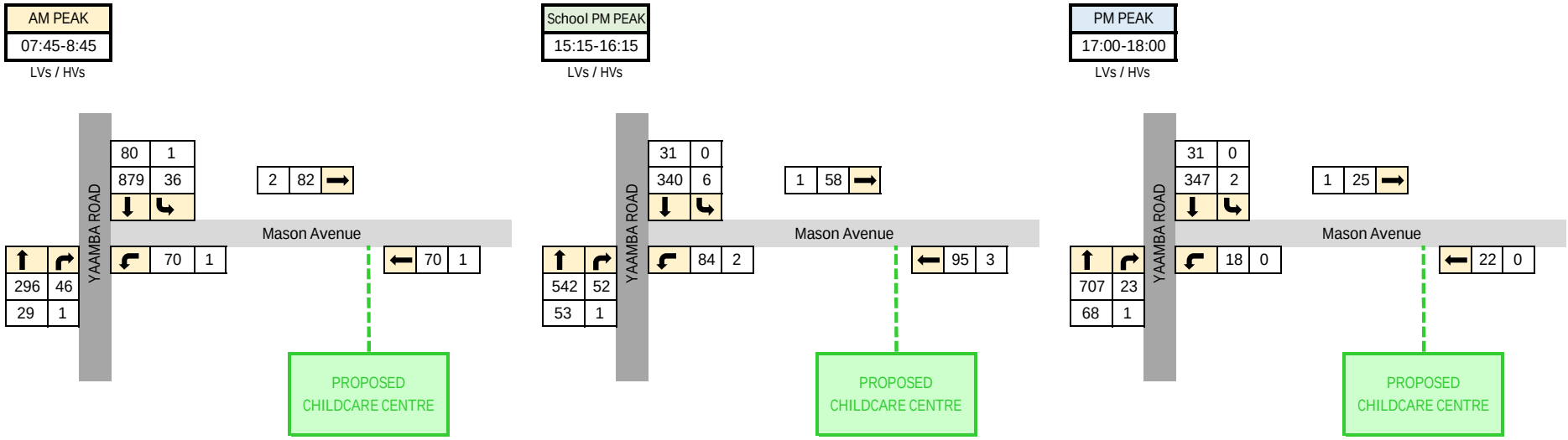


Appendix N – Road Network Volume Calculations

ZON0120-002 | Childcare Centre, 906-910 Yaamba Road, Rockhampton

Road Network Traffic Volumes

2022 Pre Development

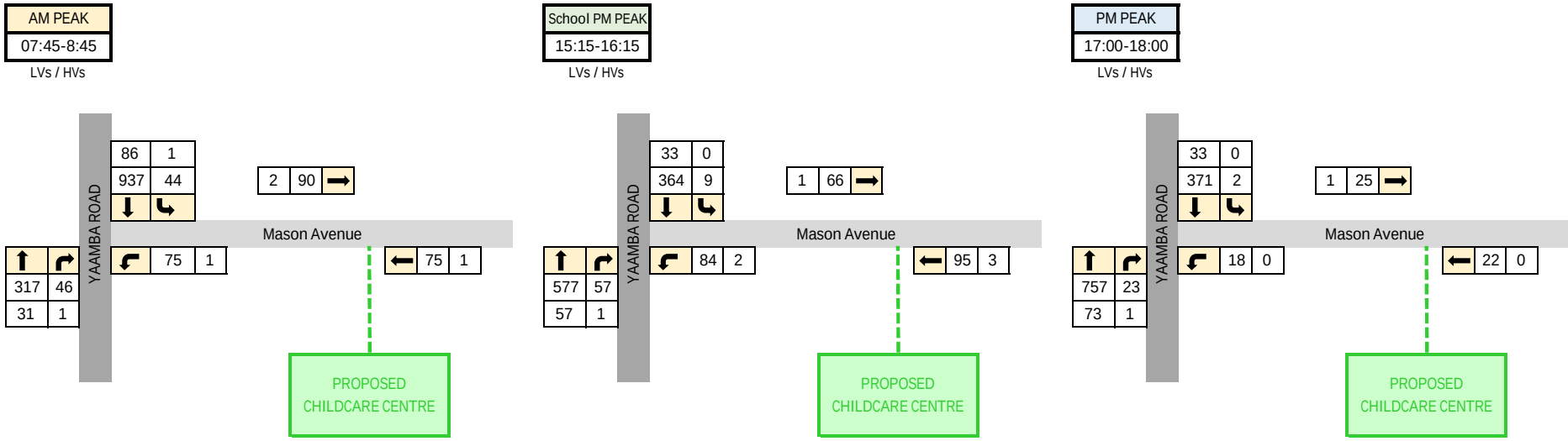


Pre-development traffic includes Background Traffic forecast for the relevant year, plus the additional trips associated with the expansion of Parkhurst State School.

ZON0120-002 | Childcare Centre, 906-910 Yaamba Road, Rockhampton

Road Network Traffic Volumes

2025 Pre Development

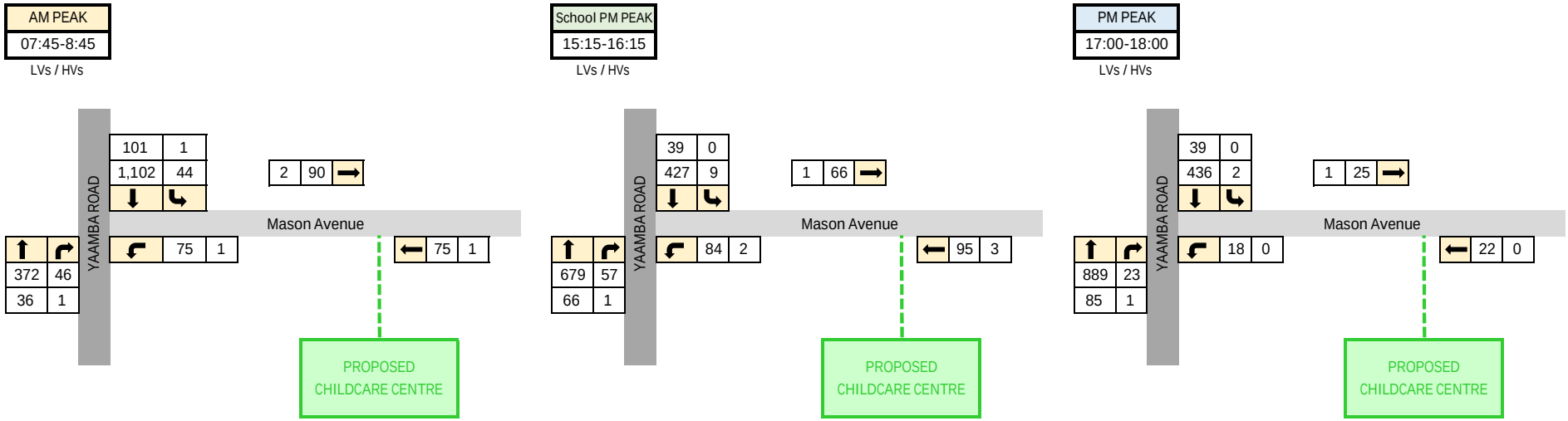


Pre-development traffic includes Background Traffic forecast for the relevant year, plus the additional trips associated with the expansion of Parkhurst State School.

ZON0120-002 | Childcare Centre, 906-910 Yaamba Road, Rockhampton

Road Network Traffic Volumes

2032 Pre Development

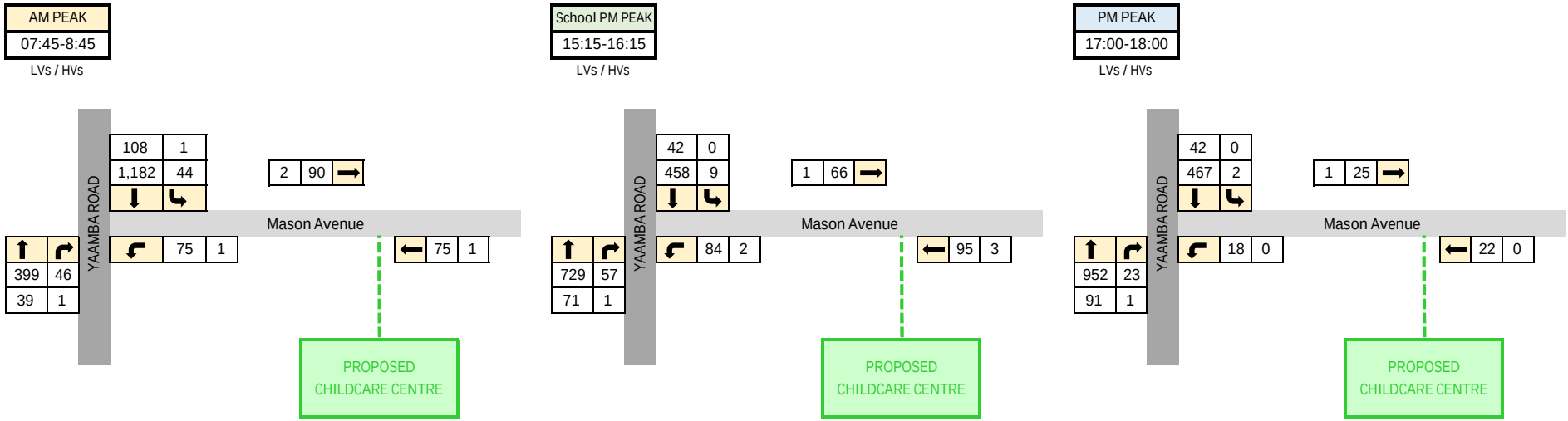


Pre-development traffic includes Background Traffic forecast for the relevant year, plus the additional trips associated with the expansion of Parkhurst State School.

ZON0120-002 | Childcare Centre, 906-910 Yaamba Road, Rockhampton

Road Network Traffic Volumes

2035 Pre Development

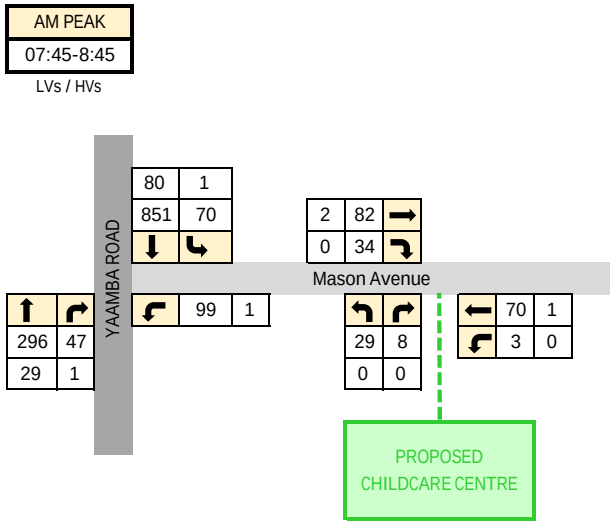


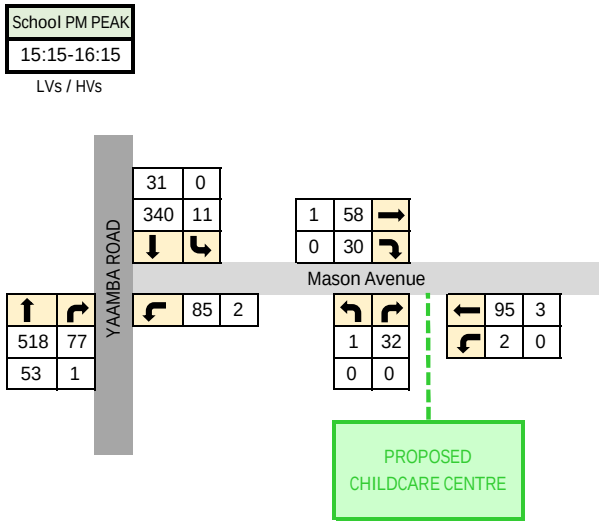
Pre-development traffic includes Background Traffic forecast for the relevant year, plus the additional trips associated with the expansion of Parkhurst State School.

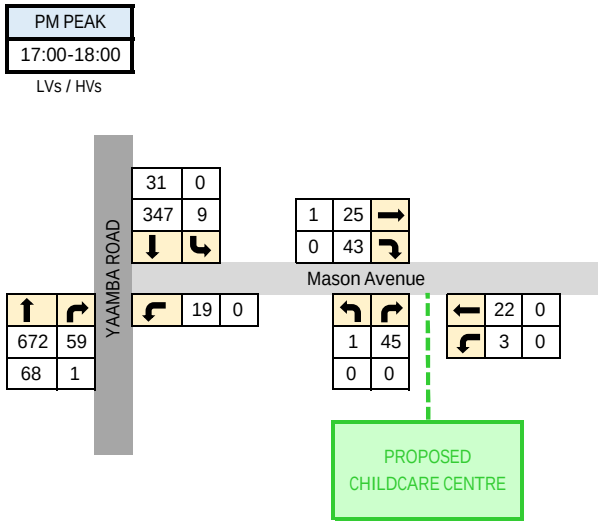
ZON0120-002 | Childcare Centre, 906-910 Yaamba Road, Rockhampton

Road Network Traffic Volumes

2022 Stage 1 Post Development



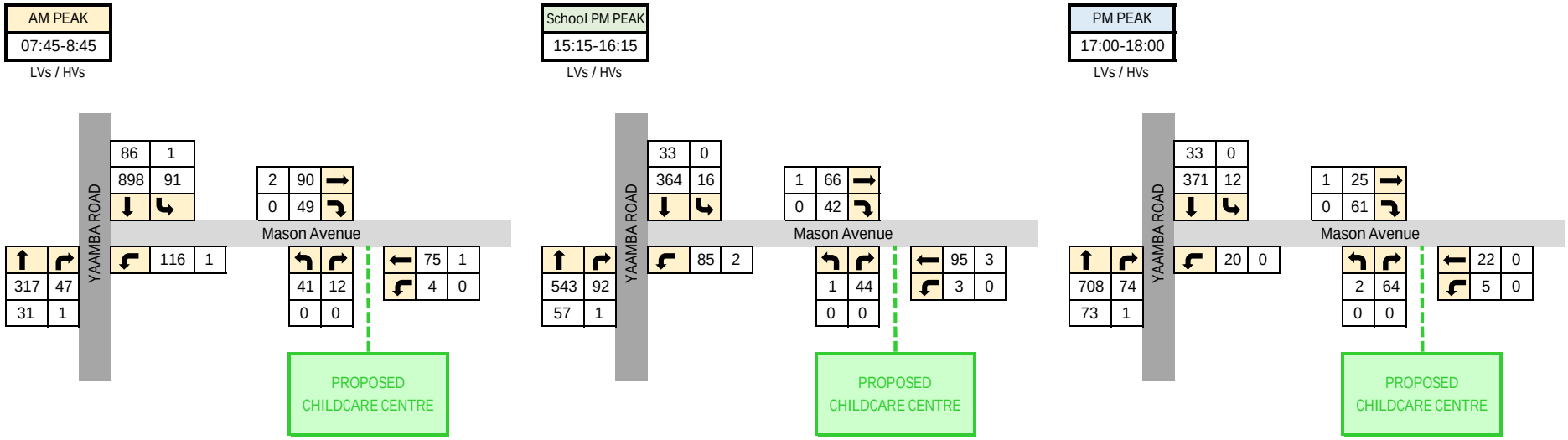




ZON0120-002 | Childcare Centre, 906-910 Yaamba Road, Rockhampton

Road Network Traffic Volumes

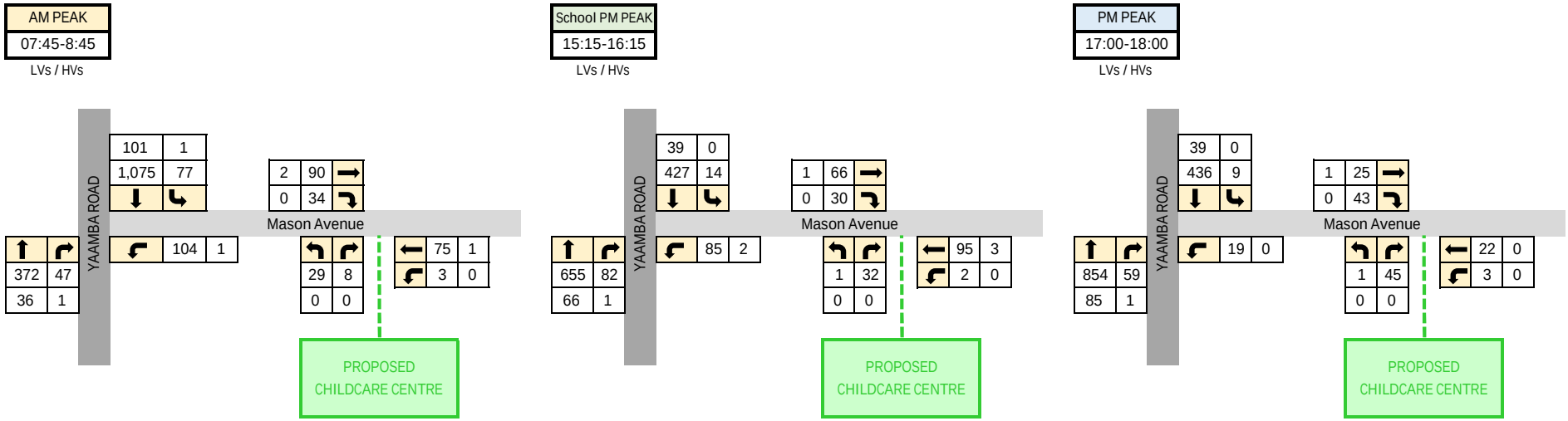
2025 Stage 2 Post Development



ZON0120-002 | Childcare Centre, 906-910 Yaamba Road, Rockhampton

Road Network Traffic Volumes

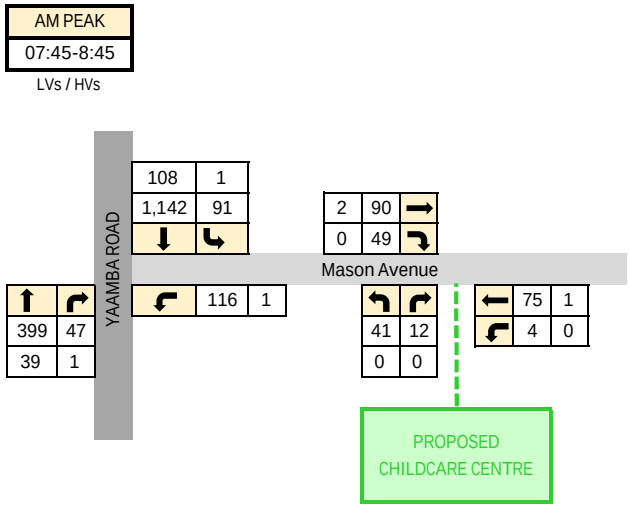
2032 Stage 1 Post Development

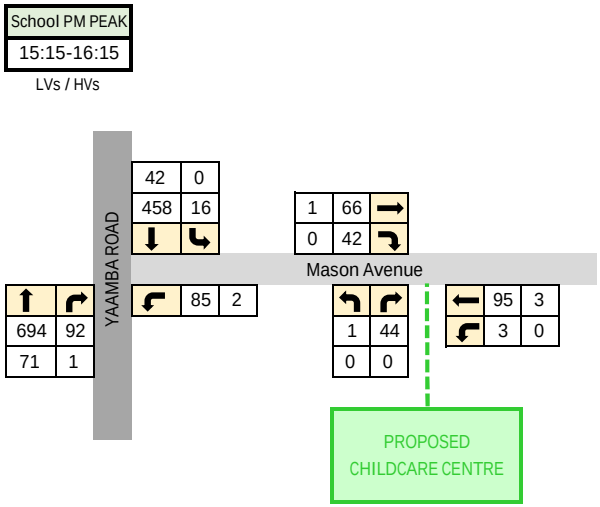


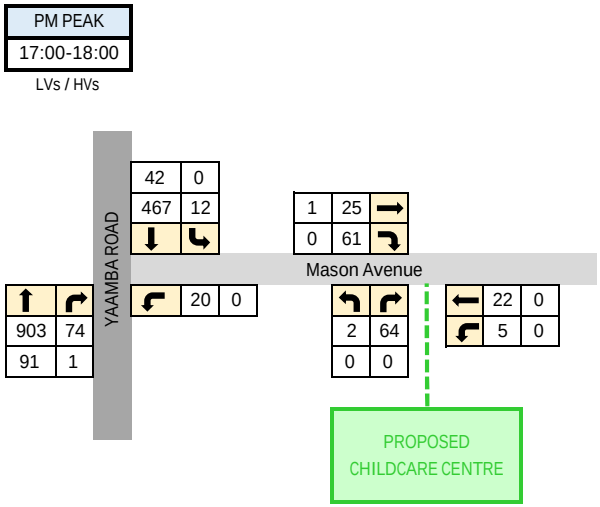
ZON0120-002 | Childcare Centre, 906-910 Yaamba Road, Rockhampton

Road Network Traffic Volumes

2035 Stage 2 Post Development







Appendix O – Turn Warrants Assessment

ACCESS TRAFFIC CONSULTING

Project No: ZON0120-002
Project: Parkhurst Childcare Centre
Client Name: Natural Wonders Berserker Pty Ltd

Turn Warrant Assessment

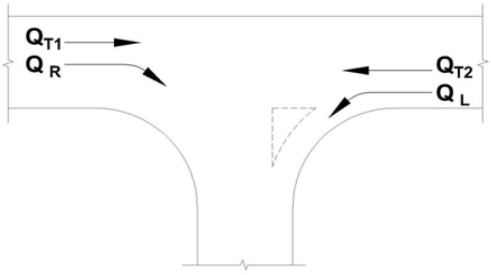
Intersection: **Mason Avenue / Childcare Centre Access** (Major Road / Minor Road)
Year / Peak: **2035 AM & School PM** Scenario: **Post Development**

Assessment based on Austroads Guide to Traffic Management Part 6. This warrant assessment applies only to turning movements from the major road only.

	AM Peak	PM Peak
Q_{T1} =	92	67
Q_R =	49	42

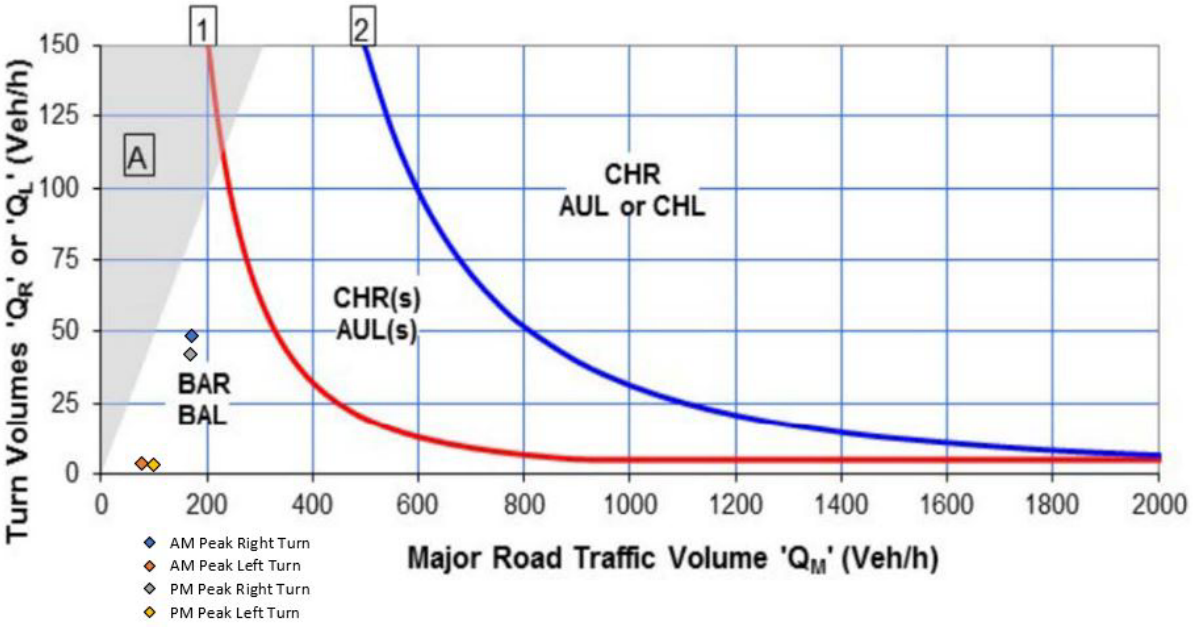
Splitter Island? No

Design speed (km/h) 60



	AM Peak	PM Peak
Q_{T2} =	76	98
Q_L =	4	3

Graph	Q_M	Q_R/Q_L
AM Peak		
Right	172	49
Left	76	4
PM Peak		
Right	168	42
Left	98	3



Recommended treatments:

Right Turn	BAR
Left Turn	BAL

Legend

BAR	Basic Right Turn	BAL	Basic Left Turn
CHR(S)	Channelised Right Turn (short)	AUL(S)	Auxiliary Left Turn (short)
CHR	Channelised Right Turn	AUL	Auxiliary Left Turn
		CHL	Channelised Left Turn

Comments:

While the graph above indicates that minor BAR and BAL could be applied to the intersection, based on the design volumes being at the lower end of the graph, the urban nature of the site, the low opposing traffic volumes to the turn movements and the existing constraint of adjacent kerbside parking lanes on both sides of Mason Avenue in the vicinity of the site access, it was considered that formal road widening (i.e. BAR or BAL treatments) are **not required** at the proposed access location.

Prepared by:	*A. Barrie*
Reviewed by:	*A. Barrie*
Date:	*9/12/2020*

Appendix P – SIDRA Results – Mason Avenue / Childcare Centre Access

MOVEMENT SUMMARY

Site: 2 [POST DEV STG 1 2022 AM Peak (Site Folder: Mason Avenue - Childcare Access)]

Mason Avenue - Childcare Access Intersection
Proposed Access Configuration
Site Category: -
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] veh/h	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Childcare Access														
1	L2	29	0	31	0.0	0.028	3.6	LOS A	0.1	0.7	0.16	0.45	0.16	29.7
3	R2	8	0	8	0.0	0.028	4.2	LOS A	0.1	0.7	0.16	0.45	0.16	28.2
Approach		37	0	39	0.0	0.028	3.7	LOS A	0.1	0.7	0.16	0.45	0.16	29.4
East: Mason Avenue														
4	L2	3	0	3	0.0	0.040	3.4	LOS A	0.0	0.0	0.00	0.02	0.00	36.0
5	T1	71	1	75	1.4	0.040	0.0	LOS A	0.0	0.0	0.00	0.02	0.00	39.5
Approach		74	1	78	1.4	0.040	0.1	NA	0.0	0.0	0.00	0.02	0.00	39.3
West: Mason Avenue														
11	T1	84	2	88	2.4	0.067	0.1	LOS A	0.2	1.4	0.11	0.14	0.11	35.3
12	R2	34	0	36	0.0	0.067	3.8	LOS A	0.2	1.4	0.11	0.14	0.11	33.8
Approach		118	2	124	1.7	0.067	1.2	NA	0.2	1.4	0.11	0.14	0.11	34.9
All Vehicles		229	3	241	1.3	0.067	1.2	NA	0.2	1.4	0.08	0.15	0.08	35.1

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

MOVEMENT SUMMARY

Site: 2 [POST DEV STG 1 2022 School PM Peak (Site Folder: Mason Avenue - Childcare Access)]

Mason Avenue - Childcare Access Intersection
Proposed Access Configuration
Site Category: -
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] veh/h	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Childcare Access														
1	L2	1	0	1	0.0	0.031	3.7	LOS A	0.1	0.7	0.25	0.51	0.25	28.7
3	R2	31	0	33	0.0	0.031	4.2	LOS A	0.1	0.7	0.25	0.51	0.25	27.2
Approach		32	0	34	0.0	0.031	4.2	LOS A	0.1	0.7	0.25	0.51	0.25	27.2
East: Mason Avenue														
4	L2	2	0	2	0.0	0.055	3.4	LOS A	0.0	0.0	0.00	0.01	0.00	36.3
5	T1	98	3	103	3.1	0.055	0.0	LOS A	0.0	0.0	0.00	0.01	0.00	39.7
Approach		100	3	105	3.0	0.055	0.1	NA	0.0	0.0	0.00	0.01	0.00	39.7
West: Mason Avenue														
11	T1	59	1	62	1.7	0.052	0.2	LOS A	0.2	1.2	0.14	0.16	0.14	34.4
12	R2	30	0	32	0.0	0.052	3.8	LOS A	0.2	1.2	0.14	0.16	0.14	33.0
Approach		89	1	94	1.1	0.052	1.4	NA	0.2	1.2	0.14	0.16	0.14	33.9
All Vehicles		221	4	233	1.8	0.055	1.2	NA	0.2	1.2	0.09	0.14	0.09	35.0

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

MOVEMENT SUMMARY

Site: 2 [POST DEV STG 1 2022 PM Peak (Site Folder: Mason Avenue - Childcare Access)]

Mason Avenue - Childcare Access Intersection
Proposed Access Configuration
Site Category: -
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] veh/h	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Childcare Access														
1	L2	1	0	1	0.0	0.041	3.5	LOS A	0.1	0.9	0.16	0.48	0.16	29.3
3	R2	45	0	47	0.0	0.041	3.9	LOS A	0.1	0.9	0.16	0.48	0.16	27.8
Approach		46	0	48	0.0	0.041	3.8	LOS A	0.1	0.9	0.16	0.48	0.16	27.8
East: Mason Avenue														
4	L2	3	0	3	0.0	0.013	3.4	LOS A	0.0	0.0	0.00	0.06	0.00	35.2
5	T1	22	0	23	0.0	0.013	0.0	LOS A	0.0	0.0	0.00	0.06	0.00	38.5
Approach		25	0	26	0.0	0.013	0.4	NA	0.0	0.0	0.00	0.06	0.00	38.1
West: Mason Avenue														
11	T1	26	1	27	3.8	0.040	0.1	LOS A	0.2	1.3	0.09	0.30	0.09	32.4
12	R2	43	0	45	0.0	0.040	3.6	LOS A	0.2	1.3	0.09	0.30	0.09	31.0
Approach		69	1	73	1.4	0.040	2.3	NA	0.2	1.3	0.09	0.30	0.09	31.5
All Vehicles		140	1	147	0.7	0.041	2.5	NA	0.2	1.3	0.10	0.31	0.10	31.2

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

MOVEMENT SUMMARY

Site: 2 [POST DEV STG 1 2032 AM Peak (Site Folder: Mason Avenue - Childcare Access)]

Mason Avenue - Childcare Access Intersection
Proposed Access Configuration
Site Category: -
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] veh/h	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Childcare Access														
1	L2	29	0	31	0.0	0.028	3.6	LOS A	0.1	0.7	0.16	0.45	0.16	29.7
3	R2	8	0	8	0.0	0.028	4.3	LOS A	0.1	0.7	0.16	0.45	0.16	28.1
Approach		37	0	39	0.0	0.028	3.8	LOS A	0.1	0.7	0.16	0.45	0.16	29.3
East: Mason Avenue														
4	L2	3	0	3	0.0	0.043	3.4	LOS A	0.0	0.0	0.00	0.02	0.00	36.1
5	T1	76	1	80	1.3	0.043	0.0	LOS A	0.0	0.0	0.00	0.02	0.00	39.5
Approach		79	1	83	1.3	0.043	0.1	NA	0.0	0.0	0.00	0.02	0.00	39.4
West: Mason Avenue														
11	T1	92	2	97	2.2	0.072	0.1	LOS A	0.2	1.5	0.11	0.13	0.11	35.5
12	R2	34	0	36	0.0	0.072	3.8	LOS A	0.2	1.5	0.11	0.13	0.11	34.0
Approach		126	2	133	1.6	0.072	1.1	NA	0.2	1.5	0.11	0.13	0.11	35.1
All Vehicles		242	3	255	1.2	0.072	1.2	NA	0.2	1.5	0.08	0.14	0.08	35.3

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

MOVEMENT SUMMARY

Site: 2 [POST DEV STG 1 2032 School PM Peak (Site Folder: Mason Avenue - Childcare Access)]

Mason Avenue - Childcare Access Intersection
Proposed Access Configuration
Site Category: -
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] veh/h	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Childcare Access														
1	L2	1	0	1	0.0	0.031	3.7	LOS A	0.1	0.7	0.26	0.51	0.26	28.6
3	R2	31	0	33	0.0	0.031	4.2	LOS A	0.1	0.7	0.26	0.51	0.26	27.2
Approach		32	0	34	0.0	0.031	4.2	LOS A	0.1	0.7	0.26	0.51	0.26	27.2
East: Mason Avenue														
4	L2	2	0	2	0.0	0.055	3.4	LOS A	0.0	0.0	0.00	0.01	0.00	36.3
5	T1	98	3	103	3.1	0.055	0.0	LOS A	0.0	0.0	0.00	0.01	0.00	39.7
Approach		100	3	105	3.0	0.055	0.1	NA	0.0	0.0	0.00	0.01	0.00	39.7
West: Mason Avenue														
11	T1	67	1	71	1.5	0.056	0.1	LOS A	0.2	1.3	0.13	0.15	0.13	34.8
12	R2	30	0	32	0.0	0.056	3.8	LOS A	0.2	1.3	0.13	0.15	0.13	33.3
Approach		97	1	102	1.0	0.056	1.3	NA	0.2	1.3	0.13	0.15	0.13	34.3
All Vehicles		229	4	241	1.7	0.056	1.2	NA	0.2	1.3	0.09	0.14	0.09	35.2

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

MOVEMENT SUMMARY

Site: 2 [POST DEV STG 1 2032 PM Peak (Site Folder: Mason Avenue - Childcare Access)]

Mason Avenue - Childcare Access Intersection
Proposed Access Configuration
Site Category: -
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] veh/h	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Childcare Access														
1	L2	1	0	1	0.0	0.041	3.5	LOS A	0.1	0.9	0.16	0.48	0.16	29.3
3	R2	45	0	47	0.0	0.041	3.9	LOS A	0.1	0.9	0.16	0.48	0.16	27.8
Approach		46	0	48	0.0	0.041	3.8	LOS A	0.1	0.9	0.16	0.48	0.16	27.8
East: Mason Avenue														
4	L2	3	0	3	0.0	0.013	3.4	LOS A	0.0	0.0	0.00	0.06	0.00	35.2
5	T1	22	0	23	0.0	0.013	0.0	LOS A	0.0	0.0	0.00	0.06	0.00	38.5
Approach		25	0	26	0.0	0.013	0.4	NA	0.0	0.0	0.00	0.06	0.00	38.1
West: Mason Avenue														
11	T1	26	1	27	3.8	0.040	0.1	LOS A	0.2	1.3	0.09	0.30	0.09	32.4
12	R2	43	0	45	0.0	0.040	3.6	LOS A	0.2	1.3	0.09	0.30	0.09	31.0
Approach		69	1	73	1.4	0.040	2.3	NA	0.2	1.3	0.09	0.30	0.09	31.5
All Vehicles		140	1	147	0.7	0.041	2.5	NA	0.2	1.3	0.10	0.31	0.10	31.2

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

MOVEMENT SUMMARY

Site: 2 [POST DEV STG 2 2025 AM Peak (Site Folder: Mason Avenue - Childcare Access)]

Mason Avenue - Childcare Access Intersection
Proposed Access Configuration
Site Category: -
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] veh/h	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Childcare Access														
1	L2	41	0	43	0.0	0.040	3.6	LOS A	0.2	1.1	0.17	0.46	0.17	29.6
3	R2	12	0	13	0.0	0.040	4.4	LOS A	0.2	1.1	0.17	0.46	0.17	28.1
Approach		53	0	56	0.0	0.040	3.8	LOS A	0.2	1.1	0.17	0.46	0.17	29.3
East: Mason Avenue														
4	L2	4	0	4	0.0	0.043	3.4	LOS A	0.0	0.0	0.00	0.02	0.00	35.9
5	T1	76	1	80	1.3	0.043	0.0	LOS A	0.0	0.0	0.00	0.02	0.00	39.4
Approach		80	1	84	1.3	0.043	0.2	NA	0.0	0.0	0.00	0.02	0.00	39.2
West: Mason Avenue														
11	T1	92	2	97	2.2	0.081	0.1	LOS A	0.3	2.0	0.13	0.17	0.13	34.5
12	R2	49	0	52	0.0	0.081	3.8	LOS A	0.3	2.0	0.13	0.17	0.13	33.0
Approach		141	2	148	1.4	0.081	1.4	NA	0.3	2.0	0.13	0.17	0.13	34.0
All Vehicles		274	3	288	1.1	0.081	1.5	NA	0.3	2.0	0.10	0.18	0.10	34.2

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

MOVEMENT SUMMARY

Site: 2 [POST DEV STG 2 2025 School PM Peak (Site Folder: Mason Avenue - Childcare Access)]

Mason Avenue - Childcare Access Intersection
Proposed Access Configuration
Site Category: -
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] veh/h	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Childcare Access														
1	L2	1	0	1	0.0	0.044	3.7	LOS A	0.1	1.0	0.27	0.52	0.27	28.5
3	R2	44	0	46	0.0	0.044	4.3	LOS A	0.1	1.0	0.27	0.52	0.27	27.1
Approach		45	0	47	0.0	0.044	4.3	LOS A	0.1	1.0	0.27	0.52	0.27	27.1
East: Mason Avenue														
4	L2	3	0	3	0.0	0.055	3.4	LOS A	0.0	0.0	0.00	0.01	0.00	36.2
5	T1	98	3	103	3.1	0.055	0.0	LOS A	0.0	0.0	0.00	0.01	0.00	39.6
Approach		101	3	106	3.0	0.055	0.1	NA	0.0	0.0	0.00	0.01	0.00	39.5
West: Mason Avenue														
11	T1	67	1	71	1.5	0.064	0.2	LOS A	0.2	1.7	0.16	0.19	0.16	33.8
12	R2	42	0	44	0.0	0.064	3.9	LOS A	0.2	1.7	0.16	0.19	0.16	32.4
Approach		109	1	115	0.9	0.064	1.6	NA	0.2	1.7	0.16	0.19	0.16	33.3
All Vehicles		255	4	268	1.6	0.064	1.5	NA	0.2	1.7	0.12	0.18	0.12	34.1

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

MOVEMENT SUMMARY

Site: 2 [POST DEV STG 2 2025 PM Peak (Site Folder: Mason Avenue - Childcare Access)]

Mason Avenue - Childcare Access Intersection
Proposed Access Configuration
Site Category: -
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] veh/h	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Childcare Access														
1	L2	2	0	2	0.0	0.059	3.5	LOS A	0.2	1.4	0.18	0.49	0.18	29.2
3	R2	64	0	67	0.0	0.059	3.9	LOS A	0.2	1.4	0.18	0.49	0.18	27.7
Approach		66	0	69	0.0	0.059	3.9	LOS A	0.2	1.4	0.18	0.49	0.18	27.7
East: Mason Avenue														
4	L2	5	0	5	0.0	0.015	3.4	LOS A	0.0	0.0	0.00	0.09	0.00	34.6
5	T1	22	0	23	0.0	0.015	0.0	LOS A	0.0	0.0	0.00	0.09	0.00	37.8
Approach		27	0	28	0.0	0.015	0.6	NA	0.0	0.0	0.00	0.09	0.00	37.2
West: Mason Avenue														
11	T1	26	1	27	3.8	0.051	0.1	LOS A	0.2	1.7	0.09	0.33	0.09	31.7
12	R2	61	0	64	0.0	0.051	3.6	LOS A	0.2	1.7	0.09	0.33	0.09	30.3
Approach		87	1	92	1.1	0.051	2.6	NA	0.2	1.7	0.09	0.33	0.09	30.7
All Vehicles		180	1	189	0.6	0.059	2.8	NA	0.2	1.7	0.11	0.35	0.11	30.4

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

MOVEMENT SUMMARY

Site: 2 [POST DEV STG 2 2035 AM Peak (Site Folder: Mason Avenue - Childcare Access)]

Mason Avenue - Childcare Access Intersection
Proposed Access Configuration
Site Category: -
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] veh/h	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Childcare Access														
1	L2	41	0	43	0.0	0.040	3.6	LOS A	0.2	1.1	0.17	0.46	0.17	29.6
3	R2	12	0	13	0.0	0.040	4.4	LOS A	0.2	1.1	0.17	0.46	0.17	28.1
Approach		53	0	56	0.0	0.040	3.8	LOS A	0.2	1.1	0.17	0.46	0.17	29.3
East: Mason Avenue														
4	L2	4	0	4	0.0	0.043	3.4	LOS A	0.0	0.0	0.00	0.02	0.00	35.9
5	T1	76	1	80	1.3	0.043	0.0	LOS A	0.0	0.0	0.00	0.02	0.00	39.4
Approach		80	1	84	1.3	0.043	0.2	NA	0.0	0.0	0.00	0.02	0.00	39.2
West: Mason Avenue														
11	T1	92	2	97	2.2	0.081	0.1	LOS A	0.3	2.0	0.13	0.17	0.13	34.5
12	R2	49	0	52	0.0	0.081	3.8	LOS A	0.3	2.0	0.13	0.17	0.13	33.0
Approach		141	2	148	1.4	0.081	1.4	NA	0.3	2.0	0.13	0.17	0.13	34.0
All Vehicles		274	3	288	1.1	0.081	1.5	NA	0.3	2.0	0.10	0.18	0.10	34.2

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

MOVEMENT SUMMARY

Site: 2 [POST DEV STG 2 2035 School PM Peak (Site Folder: Mason Avenue - Childcare Access)]

Mason Avenue - Childcare Access Intersection
Proposed Access Configuration
Site Category: -
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] veh/h	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Childcare Access														
1	L2	1	0	1	0.0	0.044	3.7	LOS A	0.1	1.0	0.27	0.52	0.27	28.5
3	R2	44	0	46	0.0	0.044	4.3	LOS A	0.1	1.0	0.27	0.52	0.27	27.1
Approach		45	0	47	0.0	0.044	4.3	LOS A	0.1	1.0	0.27	0.52	0.27	27.1
East: Mason Avenue														
4	L2	3	0	3	0.0	0.055	3.4	LOS A	0.0	0.0	0.00	0.01	0.00	36.2
5	T1	98	3	103	3.1	0.055	0.0	LOS A	0.0	0.0	0.00	0.01	0.00	39.6
Approach		101	3	106	3.0	0.055	0.1	NA	0.0	0.0	0.00	0.01	0.00	39.5
West: Mason Avenue														
11	T1	67	1	71	1.5	0.064	0.2	LOS A	0.2	1.7	0.16	0.19	0.16	33.8
12	R2	42	0	44	0.0	0.064	3.9	LOS A	0.2	1.7	0.16	0.19	0.16	32.4
Approach		109	1	115	0.9	0.064	1.6	NA	0.2	1.7	0.16	0.19	0.16	33.3
All Vehicles		255	4	268	1.6	0.064	1.5	NA	0.2	1.7	0.12	0.18	0.12	34.1

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

MOVEMENT SUMMARY

Site: 2 [POST DEV STG 2 2035 PM Peak (Site Folder: Mason Avenue - Childcare Access)]

Mason Avenue - Childcare Access Intersection
Proposed Access Configuration
Site Category: -
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] veh/h	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Childcare Access														
1	L2	2	0	2	0.0	0.059	3.5	LOS A	0.2	1.4	0.18	0.49	0.18	29.2
3	R2	64	0	67	0.0	0.059	3.9	LOS A	0.2	1.4	0.18	0.49	0.18	27.7
Approach		66	0	69	0.0	0.059	3.9	LOS A	0.2	1.4	0.18	0.49	0.18	27.7
East: Mason Avenue														
4	L2	5	0	5	0.0	0.015	3.4	LOS A	0.0	0.0	0.00	0.09	0.00	34.6
5	T1	22	0	23	0.0	0.015	0.0	LOS A	0.0	0.0	0.00	0.09	0.00	37.8
Approach		27	0	28	0.0	0.015	0.6	NA	0.0	0.0	0.00	0.09	0.00	37.2
West: Mason Avenue														
11	T1	26	1	27	3.8	0.051	0.1	LOS A	0.2	1.7	0.09	0.33	0.09	31.7
12	R2	61	0	64	0.0	0.051	3.6	LOS A	0.2	1.7	0.09	0.33	0.09	30.3
Approach		87	1	92	1.1	0.051	2.6	NA	0.2	1.7	0.09	0.33	0.09	30.7
All Vehicles		180	1	189	0.6	0.059	2.8	NA	0.2	1.7	0.11	0.35	0.11	30.4

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

Appendix Q – SIDRA Results – Yaamba Road / Mason Avenue

MOVEMENT SUMMARY

Site: 1 [RNAU PRE DEV 2022 AM Peak (Site Folder: Bruce Highway - Mason Avenue)]

Bruce Highway / Mason Avenue
RNAU Intersection Configuration
Site Category: -
Stop (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] veh/h	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Bruce Highway														
2	T1	325	29	342	8.9	0.093	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	40.0
3	R2	47	1	49	2.1	0.226	19.7	LOS B	0.7	5.2	0.82	0.93	0.90	21.8
Approach		372	30	392	8.1	0.226	2.5	NA	0.7	5.2	0.10	0.12	0.11	37.1
East: Mason Avenue														
4	L2	71	1	75	1.4	0.120	10.5	LOS A	0.4	3.0	0.53	0.97	0.53	28.9
Approach		71	1	75	1.4	0.120	10.5	LOS A	0.4	3.0	0.53	0.97	0.53	28.9
North: Bruce Highway														
7	L2	37	1	39	2.7	0.021	3.4	LOS A	0.0	0.0	0.00	0.45	0.00	36.5
8	T1	959	80	1009	8.3	0.270	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	39.9
Approach		996	81	1048	8.1	0.270	0.2	NA	0.0	0.0	0.00	0.02	0.00	39.8
All Vehicles		1439	112	1515	7.8	0.270	1.3	NA	0.7	5.2	0.05	0.09	0.06	38.5

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

MOVEMENT SUMMARY

Site: 1 [RNAU PRE DEV 2022 School PM Peak (Site Folder: Bruce Highway - Mason Avenue)]

Bruce Highway / Mason Avenue
RNAU Intersection Configuration
Site Category: -
Stop (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] veh/h	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Bruce Highway														
2	T1	595	53	626	8.9	0.169	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	39.9
3	R2	53	1	56	1.9	0.089	6.4	LOS A	0.3	2.1	0.46	0.64	0.46	31.6
Approach		648	54	682	8.3	0.169	0.5	NA	0.3	2.1	0.04	0.05	0.04	39.3
East: Mason Avenue														
4	L2	86	2	91	2.3	0.095	7.9	LOS A	0.4	2.5	0.32	0.89	0.32	31.0
Approach		86	2	91	2.3	0.095	7.9	LOS A	0.4	2.5	0.32	0.89	0.32	31.0
North: Bruce Highway														
7	L2	6	0	6	0.0	0.003	3.4	LOS A	0.0	0.0	0.00	0.45	0.00	36.5
8	T1	371	31	391	8.4	0.104	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	40.0
Approach		377	31	397	8.2	0.104	0.1	NA	0.0	0.0	0.00	0.01	0.00	39.9
All Vehicles		1111	87	1169	7.8	0.169	0.9	NA	0.4	2.5	0.05	0.10	0.05	38.9

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

MOVEMENT SUMMARY

Site: 1 [RNAU PRE DEV 2022 PM Peak (Site Folder: Bruce Highway - Mason Avenue)]

Bruce Highway / Mason Avenue
RNAU Intersection Configuration
Site Category: -
Stop (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] veh/h	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Bruce Highway														
2	T1	775	68	816	8.8	0.220	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	69.9
3	R2	24	1	25	4.2	0.041	9.2	LOS A	0.1	1.0	0.45	0.70	0.45	35.7
Approach		799	69	841	8.6	0.220	0.3	NA	0.1	1.0	0.01	0.02	0.01	68.4
East: Mason Avenue														
4	L2	18	0	19	0.0	0.020	8.4	LOS A	0.1	0.5	0.30	0.86	0.30	34.2
Approach		18	0	19	0.0	0.020	8.4	LOS A	0.1	0.5	0.30	0.86	0.30	34.2
North: Bruce Highway														
7	L2	2	0	2	0.0	0.001	6.4	LOS A	0.0	0.0	0.00	0.61	0.00	45.8
8	T1	378	31	398	8.2	0.106	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	69.9
Approach		380	31	400	8.2	0.106	0.0	NA	0.0	0.0	0.00	0.00	0.00	69.8
All Vehicles		1197	100	1260	8.4	0.220	0.3	NA	0.1	1.0	0.01	0.03	0.01	68.1

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

MOVEMENT SUMMARY

Site: 1 [RNAU PRE DEV 2025 AM Peak (Site Folder: Bruce Highway - Mason Avenue)]

Bruce Highway / Mason Avenue
RNAU Intersection Configuration
Site Category: -
Stop (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] veh/h	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Bruce Highway														
2	T1	348	31	366	8.9	0.099	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	40.0
3	R2	47	1	49	2.1	0.261	23.2	LOS B	0.8	6.0	0.86	0.96	0.96	20.2
Approach		395	32	416	8.1	0.261	2.8	NA	0.8	6.0	0.10	0.11	0.11	36.8
East: Mason Avenue														
4	L2	76	1	80	1.3	0.135	10.9	LOS A	0.5	3.4	0.55	0.99	0.55	28.6
Approach		76	1	80	1.3	0.135	10.9	LOS A	0.5	3.4	0.55	0.99	0.55	28.6
North: Bruce Highway														
7	L2	45	1	47	2.2	0.026	3.4	LOS A	0.0	0.0	0.00	0.45	0.00	36.5
8	T1	1023	86	1077	8.4	0.288	0.1	LOS A	0.0	0.0	0.00	0.00	0.00	39.9
Approach		1068	87	1124	8.1	0.288	0.2	NA	0.0	0.0	0.00	0.02	0.00	39.7
All Vehicles		1539	120	1620	7.8	0.288	1.4	NA	0.8	6.0	0.05	0.09	0.06	38.4

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

MOVEMENT SUMMARY

Site: 1 [RNAU PRE DEV 2025 School PM Peak (Site Folder: Bruce Highway - Mason Avenue)]

Bruce Highway / Mason Avenue
RNAU Intersection Configuration
Site Category: -
Stop (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] veh/h	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Bruce Highway														
2	T1	634	57	667	9.0	0.181	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	39.9
3	R2	58	1	61	1.7	0.101	6.7	LOS A	0.3	2.4	0.48	0.67	0.48	31.2
Approach		692	58	728	8.4	0.181	0.6	NA	0.3	2.4	0.04	0.06	0.04	39.3
East: Mason Avenue														
4	L2	86	2	91	2.3	0.096	7.9	LOS A	0.4	2.5	0.33	0.89	0.33	31.0
Approach		86	2	91	2.3	0.096	7.9	LOS A	0.4	2.5	0.33	0.89	0.33	31.0
North: Bruce Highway														
7	L2	9	0	9	0.0	0.005	3.4	LOS A	0.0	0.0	0.00	0.45	0.00	36.5
8	T1	397	33	418	8.3	0.112	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	40.0
Approach		406	33	427	8.1	0.112	0.1	NA	0.0	0.0	0.00	0.01	0.00	39.9
All Vehicles		1184	93	1246	7.9	0.181	0.9	NA	0.4	2.5	0.05	0.10	0.05	38.9

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

MOVEMENT SUMMARY

Site: 1 [RNAU PRE DEV 2025 PM Peak (Site Folder: Bruce Highway - Mason Avenue)]

Bruce Highway / Mason Avenue
RNAU Intersection Configuration
Site Category: -
Stop (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] veh/h	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Bruce Highway														
2	T1	830	73	874	8.8	0.236	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	69.9
3	R2	24	1	25	4.2	0.043	9.5	LOS A	0.1	1.0	0.46	0.71	0.46	35.3
Approach		854	74	899	8.7	0.236	0.3	NA	0.1	1.0	0.01	0.02	0.01	68.5
East: Mason Avenue														
4	L2	18	0	19	0.0	0.020	8.5	LOS A	0.1	0.5	0.32	0.86	0.32	34.2
Approach		18	0	19	0.0	0.020	8.5	LOS A	0.1	0.5	0.32	0.86	0.32	34.2
North: Bruce Highway														
7	L2	2	0	2	0.0	0.001	6.4	LOS A	0.0	0.0	0.00	0.61	0.00	45.8
8	T1	404	33	425	8.2	0.114	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	69.9
Approach		406	33	427	8.1	0.114	0.0	NA	0.0	0.0	0.00	0.00	0.00	69.8
All Vehicles		1278	107	1345	8.4	0.236	0.3	NA	0.1	1.0	0.01	0.03	0.01	68.2

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

MOVEMENT SUMMARY

Site: 1 [RNAU POST DEV STG 1 2022 AM Peak (Site Folder: Bruce Highway - Mason Avenue)]

Bruce Highway / Mason Avenue
RNAU Intersection Configuration
Site Category: -
Stop (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] veh/h	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Bruce Highway														
2	T1	325	29	342	8.9	0.093	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	40.0
3	R2	48	1	51	2.1	0.231	19.7	LOS B	0.8	5.3	0.83	0.93	0.90	21.8
Approach		373	30	393	8.0	0.231	2.5	NA	0.8	5.3	0.11	0.12	0.12	37.0
East: Mason Avenue														
4	L2	100	1	105	1.0	0.164	10.4	LOS A	0.6	4.2	0.54	0.98	0.54	29.0
Approach		100	1	105	1.0	0.164	10.4	LOS A	0.6	4.2	0.54	0.98	0.54	29.0
North: Bruce Highway														
7	L2	71	1	75	1.4	0.040	3.4	LOS A	0.0	0.0	0.00	0.45	0.00	36.5
8	T1	931	80	980	8.6	0.263	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	39.9
Approach		1002	81	1055	8.1	0.263	0.3	NA	0.0	0.0	0.00	0.03	0.00	39.7
All Vehicles		1475	112	1553	7.6	0.263	1.5	NA	0.8	5.3	0.06	0.12	0.07	38.3

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

MOVEMENT SUMMARY

Site: 1 [RNAU POST DEV STG 1 2022 School PM Peak (Site Folder: Bruce Highway - Mason Avenue)]

Bruce Highway / Mason Avenue
RNAU Intersection Configuration
Site Category: -
Stop (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] veh/h	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Bruce Highway														
2	T1	571	53	601	9.3	0.163	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	40.0
3	R2	78	1	82	1.3	0.131	6.6	LOS A	0.5	3.2	0.47	0.67	0.47	31.4
Approach		649	54	683	8.3	0.163	0.8	NA	0.5	3.2	0.06	0.08	0.06	39.0
East: Mason Avenue														
4	L2	87	2	92	2.3	0.096	7.9	LOS A	0.4	2.5	0.32	0.89	0.32	31.0
Approach		87	2	92	2.3	0.096	7.9	LOS A	0.4	2.5	0.32	0.89	0.32	31.0
North: Bruce Highway														
7	L2	11	0	12	0.0	0.006	3.4	LOS A	0.0	0.0	0.00	0.45	0.00	36.5
8	T1	371	31	391	8.4	0.104	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	40.0
Approach		382	31	402	8.1	0.104	0.1	NA	0.0	0.0	0.00	0.01	0.00	39.9
All Vehicles		1118	87	1177	7.8	0.163	1.1	NA	0.5	3.2	0.06	0.12	0.06	38.7

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

MOVEMENT SUMMARY

Site: 1 [RNAU POST DEV STG 1 2022 PM Peak (Site Folder: Bruce Highway - Mason Avenue)]

Bruce Highway / Mason Avenue
RNAU Intersection Configuration
Site Category: -
Stop (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] veh/h	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Bruce Highway														
2	T1	740	68	779	9.2	0.211	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	69.9
3	R2	78	1	82	1.3	0.132	9.5	LOS A	0.5	3.2	0.47	0.75	0.47	35.6
Approach		818	69	861	8.4	0.211	0.9	NA	0.5	3.2	0.05	0.07	0.05	65.4
East: Mason Avenue														
4	L2	19	0	20	0.0	0.021	8.4	LOS A	0.1	0.5	0.30	0.86	0.30	34.2
Approach		19	0	20	0.0	0.021	8.4	LOS A	0.1	0.5	0.30	0.86	0.30	34.2
North: Bruce Highway														
7	L2	9	0	9	0.0	0.005	6.4	LOS A	0.0	0.0	0.00	0.61	0.00	45.8
8	T1	378	31	398	8.2	0.106	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	69.9
Approach		387	31	407	8.0	0.106	0.2	NA	0.0	0.0	0.00	0.01	0.00	69.1
All Vehicles		1224	100	1288	8.2	0.211	0.8	NA	0.5	3.2	0.03	0.07	0.03	65.9

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

MOVEMENT SUMMARY

Site: 1 [RNAU POST DEV STG 2 2025 AM Peak (Site Folder: Bruce Highway - Mason Avenue)]

Bruce Highway / Mason Avenue
RNAU Intersection Configuration
Site Category: -
Stop (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] veh/h	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Bruce Highway														
2	T1	348	31	366	8.9	0.099	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	40.0
3	R2	48	1	51	2.1	0.266	23.2	LOS B	0.9	6.2	0.86	0.96	0.97	20.1
Approach		396	32	417	8.1	0.266	2.8	NA	0.9	6.2	0.10	0.12	0.12	36.7
East: Mason Avenue														
4	L2	117	1	123	0.9	0.201	10.8	LOS A	0.7	5.2	0.56	1.00	0.56	28.6
Approach		117	1	123	0.9	0.201	10.8	LOS A	0.7	5.2	0.56	1.00	0.56	28.6
North: Bruce Highway														
7	L2	92	1	97	1.1	0.052	3.4	LOS A	0.0	0.0	0.00	0.45	0.00	36.5
8	T1	984	86	1036	8.7	0.278	0.1	LOS A	0.0	0.0	0.00	0.00	0.00	39.9
Approach		1076	87	1133	8.1	0.278	0.3	NA	0.0	0.0	0.00	0.04	0.00	39.6
All Vehicles		1589	120	1673	7.6	0.278	1.7	NA	0.9	6.2	0.07	0.13	0.07	38.1

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

MOVEMENT SUMMARY

Site: 1 [RNAU POST DEV STG 2 2025 School PM Peak (Site Folder: Bruce Highway - Mason Avenue)]

Bruce Highway / Mason Avenue
RNAU Intersection Configuration
Site Category: -
Stop (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] veh/h	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Bruce Highway														
2	T1	600	57	632	9.5	0.171	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	39.9
3	R2	93	1	98	1.1	0.163	7.0	LOS A	0.6	4.0	0.50	0.70	0.50	31.0
Approach		693	58	729	8.4	0.171	0.9	NA	0.6	4.0	0.07	0.09	0.07	38.8
East: Mason Avenue														
4	L2	87	2	92	2.3	0.098	7.9	LOS A	0.4	2.6	0.33	0.89	0.33	31.0
Approach		87	2	92	2.3	0.098	7.9	LOS A	0.4	2.6	0.33	0.89	0.33	31.0
North: Bruce Highway														
7	L2	16	0	17	0.0	0.009	3.4	LOS A	0.0	0.0	0.00	0.45	0.00	36.5
8	T1	397	33	418	8.3	0.112	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	40.0
Approach		413	33	435	8.0	0.112	0.1	NA	0.0	0.0	0.00	0.02	0.00	39.8
All Vehicles		1193	93	1256	7.8	0.171	1.2	NA	0.6	4.0	0.06	0.13	0.06	38.6

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

MOVEMENT SUMMARY

Site: 1 [RNAU POST DEV STG 2 2025 PM Peak (Site Folder: Bruce Highway - Mason Avenue)]

Bruce Highway / Mason Avenue
RNAU Intersection Configuration
Site Category: -
Stop (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] veh/h	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Bruce Highway														
2	T1	781	73	822	9.3	0.223	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	69.9
3	R2	75	1	79	1.3	0.132	9.8	LOS A	0.5	3.2	0.49	0.76	0.49	35.2
Approach		856	74	901	8.6	0.223	0.9	NA	0.5	3.2	0.04	0.07	0.04	65.7
East: Mason Avenue														
4	L2	20	0	21	0.0	0.022	8.5	LOS A	0.1	0.5	0.32	0.86	0.32	34.2
Approach		20	0	21	0.0	0.022	8.5	LOS A	0.1	0.5	0.32	0.86	0.32	34.2
North: Bruce Highway														
7	L2	12	0	13	0.0	0.007	6.4	LOS A	0.0	0.0	0.00	0.61	0.00	45.8
8	T1	404	33	425	8.2	0.114	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	69.9
Approach		416	33	438	7.9	0.114	0.2	NA	0.0	0.0	0.00	0.02	0.00	68.9
All Vehicles		1292	107	1360	8.3	0.223	0.8	NA	0.5	3.2	0.03	0.06	0.03	66.0

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

Appendix R – TIA RPEQ Certification and Authorisation

Certification of Traffic Impact Assessment Report

Registered Professional Engineer Queensland

for

Project Title:	Childcare Centre, 906-910 Yaamba Road, Parkhurst

As a professional engineer registered by the Board of Professional Engineers of Queensland pursuant to the Professional Engineers Act 2002 as competent in my areas of nominated expertise, I understand and recognise:

- the significant role of engineering as a profession, and that
- the community has a legitimate expectation that my certification affixed to this engineering work can be trusted, and that
- I am responsible for ensuring its preparation has satisfied all necessary standards, conduct and contemporary practice.

As the responsible RPEQ, I certify:

i) I am satisfied that all submitted components comprising this traffic impact assessment, listed in the following table, have been completed in accordance with the Guide to Traffic Impact Assessment published by the Queensland Department of Transport and Main Roads and using sound engineering principles, and

ii) where specialised areas of work have not been under my direct supervision, I have reviewed the outcomes of the work and consider the work and its outcomes as suitable for the purposes of this traffic impact assessment, and that

iii) the outcomes of this traffic impact assessment are a true reflection of results of assessment, and that

iv) I believe the strategies recommended for mitigating impacts by this traffic impact assessment,

v) embrace contemporary practice initiatives and will deliver the desired outcomes.

Name:	Andrew Barrie	**RPEQ No:**	12801
RPEQ Competencies:	Civil	**Date:**	10 December 2020
Signature:			
Postal Address:	PO Box 9864, Frenchville QLD 4701		
Email:	andrew.barrie@accesstraffic.com.au		

Traffic impact assessment components to which this certification applies	✓
1. Introduction	
Background	✓
Scope and study area	✓
Pre-lodgement meeting notes	N/A
2. Existing Conditions	
Land use and zoning	✓
Adjacent land uses / approvals	✓
Surrounding road network details	✓
Traffic volumes	✓
Intersection and network performance	✓
Road safety issues	✓
Site access	✓
Public transport (if applicable)	✓
Active transport (if applicable)	✓
Parking (if applicable)	✓
Pavement (if applicable)	N/A
Transport infrastructure (if applicable)	N/A
3. Proposed Development Details	
Development site plan	✓
Operational details (including year of opening of each stage and any relevant catchment / market analysis)	✓
Proposed access and parking	✓
4. Development Traffic	
Traffic generation (by development stage if relevant and considering light and heavy vehicle trips)	✓
Trip distribution	✓
Development traffic volumes on the network	✓
5. Impact Assessment and Mitigation	
With and without development traffic volumes	✓
Construction traffic impact assessment and mitigation (if applicable)	N/A
Road safety impact assessment and mitigation	✓
Access and frontage impact assessment and mitigation	✓
Intersection delay impact assessment and mitigation	✓
Road link capacity assessment and mitigation	✓
Pavement impact assessment and mitigation	N/A
Transport infrastructure impact assessment and mitigation	✓
Other impacts assessment relevant to the specific development type / location (if applicable)	N/A
6. Conclusions and Recommendations	
Summary of impacts and mitigation measures proposed	✓
Certification statement and authorisation	✓

ROCKHAMPTON REGIONAL COUNCIL

AMENDED PLANS APPROVED

28 April 2021

DATE

These plans are approved subject to the current conditions of approval associated with

Development Permit No.: D/118-2020

Dated: 9 February 2021

ACCESS TRAFFIC CONSULTING

PO Box 9864
Frenchville QLD 4701
m 0402 180 902

26 March 2021

Natural Wonders Berserker Pty Ltd
c/- Zone Planning Group
Gladstone QLD 4680

Attention: Mr. Scott Morrison

Project: **Proposed Childcare Centre, 906-910 Yaamba Road, Parkhurst QLD**

Subject: **Traffic Review of Proposed Revised Development Configuration and Parking Requirements**

1.0 Introduction & Project Context

Access Traffic Consulting (ATC) was commissioned by Natural Wonders Berserker Pty Ltd (the proponent) to undertake a Traffic Impact Assessment (TIA) for a proposed childcare centre development located at 906-910 Yaamba Road, Parkhurst (Lot 900 SP247151). The resultant report (dated 10 December 2020) formed part of the development application for the Project which subsequently gained approval from Rockhampton Regional Council (RRC) on the 12 January 2021 (RRC Ref. No: D/118-2020).

Under the approval, the childcare centre development is proposed to be constructed in two stages, with Stage 1 proposed to open in 2022 and cater for 108 children with 18 full time equivalent (FTE) staff, while Stage 2 to open in 2025, with an increased capacity of 152 children with 22 FTE staff.

In response to requests for increased after school care placements at the centre (noting the close proximity of the Parkhurst State School opposite the site on Mason Avenue), the proponent is now proposing to amend the room configuration within the childcare centre building. These revisions include changing one section of the centre from 2 rooms with 22 child places and 2 staff members each, to 1 room with 33 child places and 3 staff members and 1 room with 15 child places and 3 staff members. This change would see the overall staff and child numbers increased slightly from the approved 152 children and 22 staff to a revised 156 children and 24 staff members.

Based on this proposed amendment to the configuration and development yield of the childcare centre development, a revised assessment of the key elements of the site (namely parking provision) and traffic impacts on the adjacent road network were undertaken, with further details of this review provided in the following sections.

2.0 Traffic Review

2.1 Parking Provision

Currently the approved site layout includes the provision of 48 parking spaces on-site, including 22 dedicated staff parking bays and 26 parking bays for visitors/children. This level of parking provision is noted to be in accordance with the requirements of Table 9.3.1.3.2 of Council's Access Parking and Transport Code, which specifies parking rates of 1 space per FTE staff member and 1 space per 6 children for childcare centres.

Notwithstanding this, it is understood that as part of the amendments to the centre the proponent does not propose to provide any additional parking facilities on site. Based on the slight increase in staff and child place numbers for the development, the proposed parking provision rates were established, as shown in **Table 1** below:

Table 1 Approved and Proposed Parking Provision Rates

Scenario	No. FTE Staff	No. Staff Parking Bays	Staff Parking Rate	No. Child Places	No. Visitor / Children Parking Bays	Visitor / Children Parking Rate
Current Approval	22	22	1:1	152	26	1:5.85
Proposed Amendment	24	24	1:1	156	24	**1:6.5**

As identified in **Table 1** above, the proponent is proposing to increase the number of dedicated staff bays from 22 to 24 to match the increase in FTE staff numbers for the development, which is recommended as staff parking spaces are generally utilised for longer periods than visitor bays at the centres.

Further to this, **Table 1** also identified that the number of designated visitor / children parking bays on site is proposed to reduce from 26 to 24 bays as part of the proposed site amendments. This combined with the minor increase in child places at the centre equates to a revised visitor / child parking rate of approximately 1 space per 6.5 children for the development. While this rate is marginally lower than the recommended parking rate for childcare centres in Council's Access Parking and Transport Code (1 space per 6 children), it is considered acceptable for the following reasons:

- Other Natural Wonders Childcare Centre sites in Rockhampton (High Street and Frenchville Road) provide a much lower rate of parking visitor / child parking (typically 1 space per 10 child spaces). While it is noted that these parking rates aligned with the recommended rates from Council's previous planning scheme (which has subsequently been revised), the parking provision at these centres has historically been considered adequate. Therefore, the proposed visitor / child parking provision of 1:6.5 is anticipated to be suitable to cater for the expected demand generated by the new cetnre.
- As previously noted, it is understood that the reconfigured rooms within the centre will be utilised to provide additional after school care placements. Based on the close proximity of the Parkhurst School, a large number of the students using these facilities are expected walk to the site, reducing the vehicle movements and parking demand associated with this portion of the overall centre.

2.1 Traffic Generation and Impact

As identified above, the proposed reconfiguration of the site is expected to lead to an increase in capacity of the centre from 152 to 156 child places. Adopting a conservative peak hour traffic generation rate of 0.86 tips per child place (previously identified by RRC), this equates to an overall increase of 3-4 vehicle trips in the peak hour, which when distributed between inbound and outbound movements, "drop in" trips and the multiple travel routes to the site via Mason Avenue and Norman Road, is expected that to lead to a negligible increase (approx. 1 vph) to any one movement on the surrounding road network.

Further to this, as the previous assessment for the development identified suitable spare capacity at both the main site access and the adjacent Bruce Highway / Mason Avenue intersection, the impact of the minor increase in traffic volumes as a result of the proposed reconfiguration of the childcare centre are also expected to be negligible.

3.0 Conclusion / Recommendations

Based on the traffic review of the proposed reconfiguration of the childcare centre development at 906-910 Yaamba Road detailed above, it can be seen that:

- While slightly lower than the RRC recommended parking provision rate (1:6), the proposed provision of 24 parking visitor/child parking spaces (at 1:6.5) is considered acceptable and adequate to cater for the expected parking demand from the centre.
- The proposed centre amendments are expected to lead to minor increase in traffic volumes (3-4vph), which in turn is anticipated to have a negligible impact on the operation of the surrounding road network.

In light of the information provided above, it is concluded that the proposed amendments to the childcare centre development will not significantly impact the operation of the site, in addition to only leading to a negligible impact to the adjacent road network. As such it is recommended that the proposed reconfiguration of the Parkhurst Natural Wonders Childcare Centre be approved from a traffic engineering perspective.

I trust this is of assistance and if you have any further queries regarding the information provided above please don't hesitate to contact me on 0402 180 902.

Regards,



Andrew Barrie
Director | Principal Traffic Engineer
Access Traffic Consulting Pty Ltd
BE (Civil) | CPEng | RPEQ 12801

PINNACLE ENGINEERING GROUP

SITE BASED STORMWATER MANAGEMENT PLAN

PROPOSED CHILDCARE CENTRE DEVELOPMENT

906-910 Yaamba Road, Parkhurst QLD

NATURAL WONDERS EARLY LEARNING PTY LTD

ROCKHAMPTON REGIONAL COUNCIL

APPROVED PLANS

These plans are approved subject to the current conditions of approval associated with

Development Permit No.: D/118-2020

Dated: 12 January 2021

OCTOBER 2020

REVISION 04

Pinnacle Engineering Group
ABN: 80 608 431 625
P.O. Box 517 Paradise Point QLD 4216

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In accordance with the requirements of the *Queensland Professional Engineers Act 2002*, this document was prepared under the supervision of, reviewed and approved by the following experienced Registered Professional Engineer of Queensland (RPEQ).



Bogdan Popa (RPEQ No. 12349)

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1 Introduction

Pinnacle Engineering Group (Pinnacle) was engaged by Natural Wonders Early Learning Pty Ltd to prepare a site based stormwater management plan (SBSMP) and undertake the associated investigations to provide supporting documentation for the proposed development application for a childcare centre development located at 906-910 Yaamba Road, Parkhurst QLD within the local authority of the Rockhampton Regional Council (RRC).

1.1 Scope of Investigation

This report addresses the proposed stormwater management strategy for the aforementioned development, including but not limited to the following elements:

- Pre and post development flows for various Annual Exceedance Probability (AEP) / Average Recurrence Interval (ARI) design storm events;
- Nomination of the Lawful Point of Discharge for the subject site;
- Details of the stormwater quantity management strategy;
- Details of the stormwater quality treatment measures to be implemented for the site; and
- Sediment and erosion control plan;

1.2 Site Description

1.2.1 Site Location and Location

Street Address	-	906-910 Yaamba Road, Parkhurst QLD 4702
RP Description	-	Lot 2 on RP864537
Site Area	-	0.4342 Hectares
Current Zoning	-	Low Density Residential
Proposed Use	-	Childcare Centre
Local Authority	-	RRC

Refer to Figure 1.1 for the site location.

1.2.2 Existing Site Conditions and Topography

A review of the topographic survey has revealed that the subject site generally falls from the western property boundary to the eastern property boundary. The subject site is observed to predominantly be vacant land with minimal significant vegetation. An existing concrete pad is located adjacent to the northern property boundary, while an existing electrical power pole is located centrally within the site. Additionally, existing billboards are located along the western property boundary.

Currently, the highest elevation of approximately RL33.87m AHD is reached along the western property boundary of the subject site while the lowest elevation of approximately RL32.77m AHD reached along the eastern property boundary of the subject site.

The topographic mapping of the subject site is included in Appendix B. Refer to Figure 1.2 for the existing aerial view of the subject site.

1.2.3 Proposed Development

The proposed development will deliver a 152-place childcare centre over the subject site. The proposed childcare centre will provide on-grade car parking and be accessed from Mason Avenue to the north of the subject site via a new vehicle cross-over.

The proposed development layout is included within Appendix A.

1.2.4 Existing Drainage Network

Currently, two on grade inlet pits are located within the Hotham Close road reserve to the east of the subject site. The pits are connected by a 375mm diameter reinforced concrete pipe (RCP). This existing stormwater network discharges into the existing concrete lined swale drain located within the vacant residential allotment to the east.

1.2.5 External Catchments

A review of the site topography and Council's interactive online mapping indicate that no significant external catchments discharge through the subject site.

1.2.6 Flood Assessment

A review of Council's Interactive Online Mapping system has revealed that the subject site is not located within the mapped flood affected area.

The relevant RRC Planning Scheme maps are included within Appendix G.

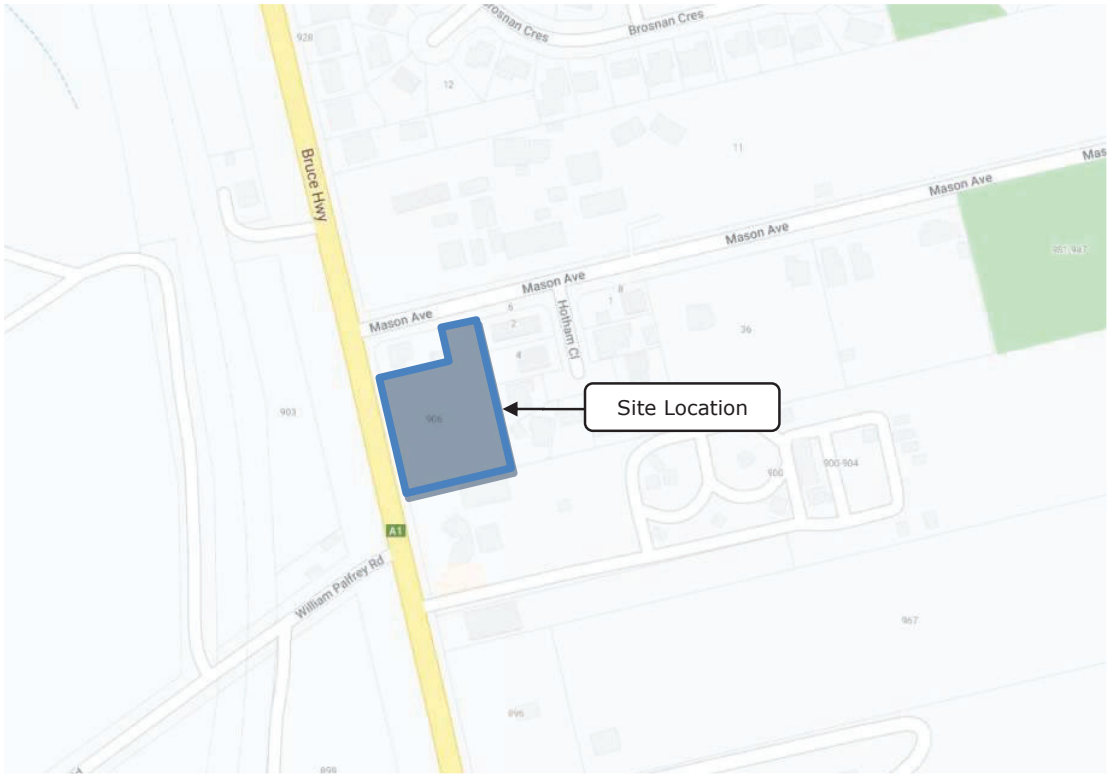


Figure 1.1: Map View (Source: Google Maps)



Figure 1.2: Aerial View (Source: Nearmap)

2 Stormwater Quantity Assessment

2.1 Hydrologic Objectives

The hydrologic objectives for the site were established in accordance with the RRC Planning Scheme and QUDM. These objectives include but are not limited to:

- The proposed development shall ensure that all stormwater drainage is directed to the Lawful Point of Discharge in accordance with QUDM;
- Minor Drainage System Design for 10% AEP (Q_{10}) storm event;
- Major Drainage System Design for 1% AEP (Q_{100}) storm event;
- No adverse impact on adjoining upstream or downstream properties; and
- No increase in post-development flows, up to and including the 1% AEP (Q_{100}) storm event.

2.2 Lawful Point of Discharge

The Lawful Point of Discharge for the subject site is taken as the existing stormwater infrastructure within the Hotham Close road reserve to the east of the subject site.

2.3 Stormwater Quantity Analysis

The analysis of the surface water runoff from the site was performed using the non-linear program XP-Rafts.

2.3.1 Temporal Patterns

The design rainfall Intensity Frequency Duration (IFD) data for the storm events up to and including the 1% AEP storm event was derived based on the RRC Planning Scheme and the AR&R.

The design IFD data for the catchment is summarised Figure 2.1 below.

The temporal patterns utilised by the XP-Rafts analysis were derived in accordance with Australian Rainfall and Runoff (AR&R), 2016 edition.

	Annual Exceedance Probability (AEP)						
Duration	**63.2%**	**50%#**	**20%***	**10%**	**5%**	**2%**	**1%**
1 min	160	178	237	278	320	377	423
2 min	133	148	197	232	265	311	347
3 min	126	140	186	219	251	295	329
4 min	121	134	179	211	241	284	317
5 min	116	129	172	203	233	274	306
10 min	97.1	108	144	169	195	229	257
15 min	83.0	92.4	123	144	166	196	220
20 min	72.5	80.8	107	126	146	172	193
25 min	64.5	71.8	95.6	112	130	153	172
30 min	58.2	64.8	86.4	102	117	138	155
45 min	45.4	50.6	67.6	79.7	91.9	109	122
1 hour	37.6	41.9	56.2	66.4	76.6	90.7	102
1.5 hour	28.4	31.8	42.9	50.8	58.8	69.8	78.7
2 hour	23.2	26.0	35.3	41.9	48.6	58.0	65.5
3 hour	17.3	19.5	26.8	32.1	37.4	44.9	50.9
4.5 hour	13.0	14.7	20.6	24.8	29.1	35.2	40.1
6 hour	10.6	12.1	17.1	20.7	24.5	29.9	34.2
9 hour	8.02	9.24	13.3	16.3	19.5	24.0	27.7
12 hour	6.60	7.64	11.2	13.8	16.7	20.8	24.1
18 hour	5.02	5.86	8.79	11.0	13.5	17.0	19.9
24 hour	4.14	4.86	7.40	9.41	11.6	14.8	17.4
30 hour	3.56	4.19	6.46	8.29	10.3	13.2	15.6
36 hour	3.14	3.70	5.77	7.46	9.34	12.0	14.3
48 hour	2.56	3.03	4.79	6.26	7.90	10.2	12.2
72 hour	1.90	2.26	3.61	4.76	6.08	7.95	9.56
96 hour	1.52	1.81	2.90	3.83	4.91	6.45	7.78
120 hour	1.27	1.51	2.41	3.17	4.09	5.37	6.49
144 hour	1.09	1.30	2.05	2.68	3.46	4.55	5.50
168 hour	0.958	1.13	1.78	2.30	2.98	3.90	4.72

Note:
The 50% AEP IFD **does not** correspond to the 2 year Average Recurrence Interval (ARI) IFD. Rather it corresponds to the 1.44 ARI.
* The 20% AEP IFD **does not** correspond to the 5 year Average Recurrence Interval (ARI) IFD. Rather it corresponds to the 4.48 ARI.

Figure 2.1: IFD Data for Parkhurst, QLD (mm/hr) (Source: BOM)

2.3.2 XP-Rafts Modelling Inputs

Rainfall loss parameters for each sub-catchment were applied using an initial and continuing rainfall loss model. The design loss parameters input into the XP-Rafts model are based on the characteristic values recommended by AR&R and other reputable industry standards.

The loss parameters adopted for this XP-Rafts model are tabulated below.

Table 2.1: Adopted XP-Rafts Initial and Continuing Loss Parameters

Storm Event	Pervious Areas		Impervious Areas	
ARI (years)	Initial Loss (mm)	Continuing Loss (mm)	Initial Loss (mm)	Continuing Loss (mm)
2-5	15	2.5	1	0
10-20	10	2.5	1	0
50-100	2.5	2.5	0	0

2.3.3 XP-Rafts Model Validation

The validation of the XP-Rafts model was undertaken through a comparison of the XP-Rafts flow rates to the Rational Method calculations included in Appendix D.

The Rational Method adopted a C_{10} coefficient of runoff of 0.70 for the pre-development catchment, in accordance with Table 4.5.4 from QUDM. As detailed in Table 2.2 the flow calculated using the Rational Method is generally comparable to the results obtained from the XP-Rafts model. We can therefore reasonably adopt the flows generated from the XP-Rafts model.

2.3.4 Critical Duration Analysis

Storm durations ranging from 10-minutes to 360-minutes were simulated within the XP-Rafts model to determine the design flows.

2.3.5 Existing Discharge Points

As outlined in the previous sections of this report the subject site currently discharges over the eastern property boundary before entering the existing stormwater network within the Hotham Close road reserve to the east of the subject site. It is proposed to discharge directly into the existing stormwater network within the Hotham Close road reserve.

2.4 Hydrologic Analysis

2.4.1 Pre-development Case

The results generated from the XP-Rafts model generally indicate that the critical storm duration for the catchment for all AEP flood events varies from the 45-minute storm to the 30-minute storm.

A percentage impervious area of 7% was calculated for the pre-development catchment internal to the site from the satellite imagery sourced from Nearmap. The pre-development catchment discharges for the 10% (Q_{10}), 5% (Q_{20}), 2% (Q_{50}) and 1% (Q_{100}) AEP events are detailed in Table 2.2 below.

Table 2.2: Pre-development Catchment Details and Discharges

Catchment	Area (ha)	Impervious Area (ha)	Average Slope (%)	XP-Rafts Results (m^3/s)				Rational Method (C_{10} = 0.70)
				10% AEP (Q_{10})	5% AEP (Q_{20})	2% AEP (Q_{50})	1% AEP (Q_{100})	1% AEP (Q_{100})
A	**0.4342**	**0.0295**	**1.50%**	**0.123**	**0.145**	**0.196**	**0.224**	**0.260**

2.4.2 Post-development Case – Unmitigated

The proposal is to construct a childcare centre and associated on-grade car park and infrastructure over the existing allotment.

A fraction impervious of 0.71 was calculated for the post-development case from the proposed site layouts provided by Jardine Architects. For the purposes of this analysis the post-development catchment was further split into sub-catchments, being the respective roof, ground and road areas.

A copy of the proposed development layouts is included in Appendix A with a post-development catchment plan included in Appendix C.

The impervious areas were modelled using the second sub-catchment feature within XP-Rafts. The total impervious area for each catchment is tabulated below. The results of the XP-Rafts post-development analysis indicate that the critical storm duration throughout the catchment is generally the 15-minute storm event.

Table 2.3 summarises the post-developed peak flow rates for the post-development catchment.

Table 2.3: Post-development Catchment Details and Discharges (Unmitigated)

Catchment	Total Area (ha)	Average Slope (%)	Impervious Area (ha)	XP-Rafts Results (m^3/s)			
				10% AEP (Q_{10})	5% AEP (Q_{20})	2% AEP (Q_{50})	1% AEP (Q_{100})
A1 – Roof	0.1439	2.0	0.1439	0.091	0.105	0.122	0.138
A2 – Car Park	0.1118	3.0	0.1118	0.072	0.083	0.100	0.113
A3 – Ground	0.1785	1.0	0.0531	0.044	0.053	0.078	0.102
Site Total	**0.4342**	**-**	**0.3088**	**0.207**	**0.241**	**0.300**	**0.353**

A comparison of the XP-Rafts results in Tables 2.2 and 2.3 generally shows a decrease in the site total discharge of $0.084m^3/s$, $0.096m^3/s$, $0.104m^3/s$ and $0.129m^3/s$ for the 10% (Q_{10}), 5% (Q_{20}), 2% (Q_{50}) and 1% (Q_{100}) AEP storm events. This increase in flows is attributed to the increase in impervious areas across the site during the post-development scenario.

It is proposed to mitigate the increases in discharge through the use of a detention basin which will accept stormwater discharge form the roof, carpark and ground catchments.

2.5 Post Development Stormwater Mitigation Strategy

The following strategy is proposed to mitigate the post-development stormwater discharge to the site's pre-development discharge rates.

- Attenuation of post-development storm discharge from the site through the use of a detention basin located adjacent to the eastern property boundary and proposed carpark;
- Discharge the minor 10% AEP (Q_{10}) stormwater runoff to the Lawful Point of Discharge via a piped stormwater network;
- Discharge the major 1% AEP (up to Q_{100}) stormwater runoff to the Lawful Point of Discharge via a piped stormwater network and overland flow;
- Direct all stormwater runoff from the roof, carpark and ground catchments to the proposed detention basin via an internal stormwater reticulation networks and overland sheet flow prior to discharge to the Lawful Point of Discharge; and
- Generally, maintain the existing drainage regimes and drainage discharge locations.

2.5.1 Detention Basin Design

Table 2.4 details the proposed detention basin characteristics with Table 2.5 detailing the basin storage/height relationship adopted for the XP-rafts analysis.

Table 2.4: Detention Basin Characteristics

Design Parameter	Details
Basin Outlets	Low-flow Outlet = 1 x 0.3m diameter orifice outlet Low-flow Outlet Level = at extended detention High-flow Weir = 2.4m wide x 0.15m high High-flow Outlet Level = 0.85m above extended detention
Geometry	Detention Base Area = 125m^2
	Volume of 125m^3 at 1.0m deep above extended detention
Modelling Summary	10% AEP (Q_{10}) Peak Outflow = 0.114m^3/s 10% AEP (Q_{10}) Peak Stage = 0.540m 1% AEP (Q_{100}) Peak Outflow = 0.219m^3/s 1% AEP (Q_{100}) Peak Stage = 0.932m

Table 2.5: Basin/Height/Storage Relationship

Basin Height (m)	Basin Storage (m^3)	Basin Height (m)	Basin Storage (m^3)
0	0	0.6	75.0
0.1	12.5	0.7	87.5
0.2	25.0	0.8	100.0
0.3	37.5	0.9	112.5
0.4	50.0	1.0	125.0
0.5	62.5	-	-

2.5.2 **Post-development Case - Mitigated**

Table 2.6 details the attenuation of the site total peak discharge via the proposed detention basin located adjacent to the eastern property boundary and proposed carpark within the subject site.

Table 2.6: Post-development Scenario

Storm Event	Site Total (Discharge to Hotham Close existing stormwater network)		Difference (%)
	Pre (m^3/s)	Post (m^3/s)	
10% AEP (Q_{10}) Peak	0.123	0.114	-7.32%
5% AEP (Q_{20}) Peak	0.145	0.126	-13.10%
2% AEP (Q_{50}) Peak	0.196	0.144	-26.53%
1% AEP (Q_{100}) Peak	0.224	0.219	-2.23%

The results presented demonstrate that the proposed detention basin successfully attenuates the post-development site discharge to the pre-developed rates.

3 Stormwater Quality Assessment

3.1 Water Quality Objectives

This water quality analysis for the subject site was undertaken in accordance with the requirements of the RRC Planning Scheme, Healthy Waterways WSUD Technical Design Guidelines for South East Queensland – Version 1 and the Queensland State Planning Policy, July 2017.

The pollutant types and the associated Load Reduction Objectives (LRO) that will be evaluated are as follows:

Table 3.1: LRO Summary

Pollutant Types	Site Water Quality Objective
Total Suspended Solids (TSS)	85% reduction
Total Phosphorous (TP)	60% reduction
Total Nitrogen (TN)	40% reduction
Gross Pollutants (GP)	90% reduction

3.2 Proposed Treatment Strategy

In order to meet the above LRO during the post-development scenario we propose to utilise a bio-retention basin to treat the stormwater discharge from the site. The proposed bio-retention basin will be located within the landscaped area adjacent to the eastern property boundary and proposed carpark.

3.3 Proposed Treatment Measures

The following water quality treatment measures are proposed for this development.

3.3.1 Bio-retention Basin

The bio-retention basins will be located within the subject site's landscaped areas where it will accept the 3-month ARI discharge from the development site.

The basin will retain this runoff within an extended detention depth of 0.3m and percolate this water through the filter media (sandy loam topsoil). Filtered stormwater is then recovered at the base of the filter media via a drainage layer containing perforated pipes. The surface of the bio-retention device is to be densely planted with locally occurring native ground cover species and shrubs. The vegetation will be selected in consultation with a landscape architect and the approved landscaping plans for the site. A typical section of a bio-retention basin is presented in Figure 3.1.

The treatment of the stormwater occurs both on the surface of the bio-retention basin and within the underlying filter media. When large storm inflows cause temporary ponding on the surface of the basin, pollutants are removed from the stormwater through sedimentation and particulate adhesion onto the stems and leaves of the vegetation. The agitation of the surface layer of the soil caused by movement of the vegetation and the growth of root systems prevents the accreted sediments clogging the filter media. As stormwater percolates through the filter media, fine particulates and some soluble pollutants are removed through processes such as adhesion to the surface of the filter media particles, biological transformation of pollutants by bio-films growing on the surface of the filter media particles, and biomass uptake of nutrients and metals through the root systems of the vegetation growing in the basin.

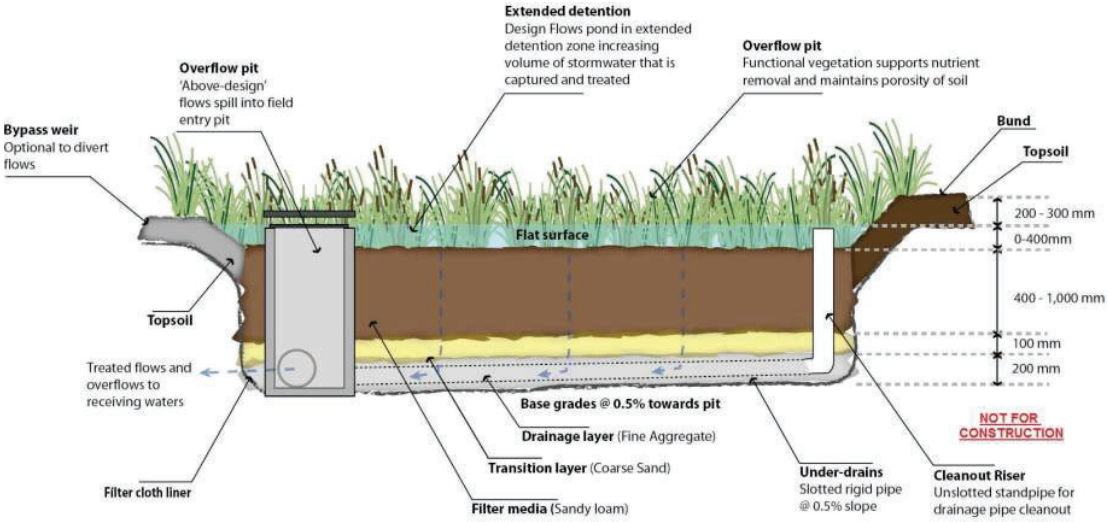


Figure 3.1: Bio-retention Basin – Typical Section (Source: Healthy Waterways WSUD Technical Design Guidelines)

3.4 Model for Urban Stormwater Improvement Conceptualisation (MUSIC) Analysis

The proposed stormwater quality treatment train is detailed within Appendix F with additional details of the MUSIC modelling procedure described in the following sections.

3.4.1 Meteorological Data

The meteorological data inputs utilised by MUSIC to simulate catchment hydrology processes includes rainfall data based on different climactic regions (at intervals relevant to the time step being modelled) and average areal potential evapotranspiration (measured in millimetres per day).

The meteorological data adopted for this model was the Rockhampton Aero station 039083 (6-minute time step 1980-1990).

3.4.2 MUSIC Source Nodes

The MUSIC source node properties for a split catchment were obtained from the Healthy Waterways MUSIC Modelling Guidelines for Southeast Queensland and are as follows.

Table 3.2: Pollutant Export Parameter for Split Catchment (Log^{10} Values)

Land Use		Mean EMC (mg/L)					
		TSS		TP		TN	
Commercial		Storm Flow	Base Flow	Storm Flow	Base Flow	Storm Flow	Base Flow
Roof	Mean	1.30	0.00	-0.89	0.00	0.37	0.00
	Std. Deviation	0.38	0.00	0.34	0.00	0.34	0.00
Roads	Mean	2.43	0.78	-0.30	-0.60	0.37	0.32
	Std. Deviation	0.38	0.39	0.34	0.50	0.34	0.30
Ground	Mean	2.16	0.78	-0.39	-0.60	0.37	0.32
	Std. Deviation	0.38	0.39	0.34	0.50	0.34	0.30

3.5 Performance Assessment

The site was modelled as a number of urban residential source nodes. The MUSIC model parameters were adopted in accordance with the RRC Planning Scheme and are outlined within Table 3.3 below.

Table 3.3: Adopted MUSIC Model Source Node Parameters

Parameter	Value
Source Data	
Rainfall data and modelling period	Rockhampton Aero 039083
Modelling period	1980 - 1990
Model time step	6 Minute
Soil properties (Rainfall runoff parameter)	Commercial
Site Data	
Catchment A – Commercial	A1 – 0.1439 Ha – Roof (100% Impervious) A2 – 0.1118 Ha – Road/Driveway (100% Impervious) A3 – 0.1785 Ha – Landscaping/Ground (30% Impervious)

Table 3.4: Adopted MUSIC Model Treatment Node Parameters

Parameter	Value
Treatment Devices	
Bio-retention Basin	Extended detention depth = 0.3m Storage surface area = 52.0m^2 (Min.) Filter media surface area = 52.0m^2 (Min.) Seepage Loss = 0.00mm/hr Median particle diameter = 0.45mm Saturated hydraulic conductivity = 200mm/hr Filter media – sandy loam Filter media depth = 0.40m Orthophosphate Content = 55.00mg/kg TN Content of Filter Media = 400mg/kg

3.6 MUSIC Analysis Results

Table 3.5 summarises the load analysis and reduction achieved by MUSIC using the WSUD strategy outlined above.

Table 3.5: MUSIC Pollutant Load Assessment – Lawful Point of Discharge

System	Parameter	Sources	Residual Load	Reduction (%)
Receiving Node	Total Suspended Solids (kg/yr)	479	71.2	85.1
	Total Phosphorous (kg/yr)	1.10	0.424	61.6
	Total Nitrogen (kg/yr)	7.81	3.21	58.9
	Gross Pollutants (kg/yr)	61.4	0	100.0

As detailed within Table 3.5 above, the LRO of 85% for TSS, 60% for TP, 40% for TN and 90% for GP as described in Section 3.1 were achieved for the post-development scenario.

4 Monitoring and Maintenance Strategy

4.1 Monitoring of Stormwater Quality Treatment Devices

A monitoring program will be established for the stormwater quality treatment devices as outlined below and summarised within in Table 4.1. It is envisaged that all monitoring activities associated with the ongoing operation of the proposed vegetated treatment devices, including weed inundation, erosion, vegetation density and inappropriate access shall be included in the general monitoring of the landscaped areas.

Table 4.1: Proposed Monitoring Program for Vegetated Bio-retention Basin

Timeframe (Post Construction)	Monitoring Activity Description	Monitoring Frequency
0-6 months	Erosion and/or scour of basin base and batters	After major storm events> 25mm
	Weed inundation and/or litter accumulation within basin	Three monthly
	Excessive wear and damage of basin base and/or batters	Three monthly
	Build-up of silts and/or sediments within basin	Three monthly
	Check of vegetation condition within swale drain	Monthly
>6 months	Erosion and/or scour of basin base and batters	Six monthly
	Weed inundation and/or litter accumulation within base	Six monthly
	Excessive wear and damage of basin base and/or batters	Six monthly
	Build-up of sits and/or sediments within basin	Six monthly
	Check vegetation condition within swale drain	Six monthly

The centre operator will be responsible for all of the monitoring activities associated with the ongoing operation of the private vegetated bio-retention basins during the life of the development.

4.2 Maintenance of Stormwater Quality Treatment Devices

The ongoing performance of the proposed stormwater quality treatment devices is highly dependent on the ongoing maintenance conducted following the completion of construction. The proposed maintenance program as outlined below and detailed within Table 4.2 shall be implemented to ensure the ongoing performance of the proposed stormwater treatment devices.

Table 4.2: Proposed Maintenance Program for Vegetated Bio-retention Basin

Timeframe (Post Construction)	Maintenance Activity	Frequency
0-6 months	Repairs to basin profile	As required by monitoring
	Watering and/or revegetating	As required by monitoring
	Removal of litter, debris, weeds and excessive silt and/or sediment build up	Monthly or as required
> 6 months	Repairs to basin profile	As required by monitoring
	Removal of litter, debris, weeds and excessive silt and/or sediment build up	As required by monitoring

The centre operator shall be responsible for all of the maintenance activities associated with the ongoing operation of the private vegetated bio-retention basins during the life of the development.

5 Erosion and Sediment Control Strategy

The objective of erosion and sediment management on construction sites is to minimise soil erosion and control silt and/or sediment discharge from the sites through the use of suitable control devices during the four primary phases of the project lifecycle being:

1. Pre-construction/Establishment Phase;
2. Change to Ground Level Phase;
3. Construction Phase; and
4. Post-development/Operational Phase.

Sections 5.2 and 5.3 below outline the typical and industry best practice erosion and sediment control measures that will be implemented throughout the life cycle of this project.

5.1 Development Lifecycle Erosion and Sediment Management

5.1.1 Pre-construction/Establishment Phase

Prior to the commencement of construction, during the site establishment phase of the works, the following sediment and erosion control measures will be implemented in order to minimise site disturbance and ensure that water quality is maintained.

- Silt/Sediment fences will be installed around the proposed bulk earthworks site (along the toe of the batter alignment) and any environmentally sensitive areas; and
- A construction vehicle entry/exit shakedown area will be installed and will comprise of a vibratory cattle grid or gravel/rock pad in accordance with the IEAust Guidelines.

5.1.2 Bulk Earthworks/Change to Ground Level Phase

Excavation during the bulk earthworks/change to ground level phase of the project will be staged in a manner that runoff will generally be directed towards sediment and erosion controls established during the pre-construction phase.

As applicable, sediment basins will be constructed within proposed park/open space areas generally in the location of the proposed bio-retention basins to ensure that all sediment runoff is intercepted and treated prior to discharging from site.

5.1.3 Construction Phase

During the construction phase of the project, the following erosion and sediment controls will be implemented to ensure water quality is maintained.

- Sediment fences will be erected at the base of all batters and stockpiles to prevent sediment transportation offsite;
- All sediment and erosion control structures will be maintained and inspected regularly as well as after each storm event to ensure the ongoing integrity is maintained. No structure is to accumulate sediment above 40% of its capacity; and
- Regular monitoring of water quality will be undertaken to determine the effectiveness of the sediment and erosion control measures. Testing may be required and shall be provided to the Local Authority on request.

5.1.4 Post-development/Operational Phase

Following the completion of the construction phase of the project and the development reaching 'Practical Completion' and/or 'On-maintenance', a monitoring program will be established for the stormwater treatment devices outlined previously within this report, where applicable. The monitoring program will ensure the ongoing integrity and effectiveness of these stormwater treatment devices following the completion of the construction phase of the project.

5.2 Dust Suppression and Erosion Control Measures

The time of disturbance onsite will be kept to a minimum by ensuring that the civil works are undertaken directly following the earthworks phase. Consideration to staging of the works shall be given in order to minimise the area of exposed earthworks at any given time.

Erosion control and dust suppression measures shall be applied to the exposed areas of the site as deemed necessary by the site supervisor in order to prevent the emission of dust from the site.

A number of erosion control measures are available inclusive of but not limited to the following:

- Water spraying (by water truck);
- Dust suppressants;
- Surface stabilisation; and
- Covering of exposed areas.

5.3 Sediment Control Measures

With reference to the IEAust Guidelines and Current Industry Best Practice, there are three (3) fundamental sediment control principles that have been identified for use during construction:

- Construction Vehicle Shakedown and/or Entry/Exit;
- Sediment Fences; and
- Sediment Barriers.

5.3.1 Construction Vehicle Shakedown and/or Entry/Exit

A dedicated construction vehicle shakedown will be installed at the site's entry/exit point for road and construction vehicles. This construction vehicle shakedown area will be established to facilitate the removal of soil, mud, dust and debris from the tyres of vehicles prior to leaving the construction site. The construction shakedown will comprise of a gravel/rock pad designed or a vibratory grid system constructed and maintained in accordance with the IEAust Guidelines.

The advantages of the vibratory grid system include ease of movement and ability to reuse for several years at different construction sites.

5.3.2 Sediment Fences

Sediment fencing will be established at the bottom of slopes on any exposed earthworks batters where there is an established risk of contaminated water discharging from the site during construction. Sediment fencing may be required at regular spacing down the disturbed slope to limit scour and rutting caused by channelising of stormwater discharge. Sediment fences will be used to protect any temporary stockpile sites as required. Sediment collected from sediment barriers will be regularly removed and either taken offsite as part of the earthworks phase or stockpiled for use during revegetation works.

5.3.3 Sediment Barriers

Sediment barriers will be constructed around all stormwater drainage gully pits and field inlets where contaminated water may enter the existing and proposed stormwater network. The provision of these sediment barriers will facilitate the settlement of sediments prior to entering the downstream stormwater drainage network. Sediment barriers will generally comprise of gravel wrapped in geotextile 'sausage', sediment fences around field inlets or similar approved products.

5.4 Monitoring and Maintenance

The site supervisor will be responsible for the following regular monitoring and maintenance activities during the various phases of the development:

1. Inspection of downstream stormwater network as well as sediment and erosion controls will be conducted at the end of each construction day and after each rainfall event greater than 25mm.
2. If any established complaints by neighbouring property owners and/or local authority or evidence of water quality deterioration is reported downstream of the works site the following actions are to be taken immediately:
   a. locate source of stormwater quality deterioration.
   b. construct temporary erosion and sediment controls to prevent the continuing short term stormwater quality deterioration.
   c. repair existing erosion and sediment controls, modify construction procedures or construct additional controls to prevent further deterioration.

6 Conclusions and Recommendations

This report outlines the stormwater management strategy developed to manage potential impacts due to the proposed childcare centre development located at 906-910 Yaamba Road, Parkhurst.

Following the investigation, the following stormwater design strategy has been adopted for the site:

- Attenuation of post-development storm discharge from the site through the use of a detention basin located adjacent to the eastern property boundary and proposed car park;
- Discharge the minor 10% AEP (Q_{10}) stormwater runoff to the Lawful Point of Discharge via a piped stormwater network;
- Discharge the major 1% AEP (up to Q_{100}) stormwater runoff to the Lawful Point of Discharge via a piped stormwater network and overland flow;
- Best practice stormwater quality management techniques will be implemented to achieve water quality objectives by directing stormwater runoff from the development to the bio-retention basin for treatment prior to discharging from the site; and
- Implementation of typical erosion and sediment control devices during the four (4) primary phases of the proposed development.

Following the completion of this investigation we can conclude that the development site, with the implementation of the stormwater management strategy outlined in this report, will result in a 'no worsening' effect of the current stormwater discharge conditions upstream or downstream of the site.

7 Reference Documentation

Rockhampton Region Planning Scheme Version 2.1 (RRC, 2020)

Capricorn Municipal Development Guidelines (CMDG, 2017)

Institution of Engineers, Australia (2016) "Australian Rainfall and Runoff – A Guide to Flood Estimation"

Institute of Public Works Engineers Australia (Queensland Division) (2016) “Queensland Urban Drainage Design Manual (QUDM)”, Fourth Edition

The State of Queensland: Department of State Development, Infrastructure and Planning, July 2017. State Planning Policy

Water by Design (2018) “MUSIC Modelling Guidelines Version 3.0”- Consultation Draft, November 2018

PINNACLE ENGINEERING GROUP

Appendix A

Proposed Development Plans



FLOOR PLAN
STAGE 01
SCALE: 1 : 100

LEGEND

XX.XX ----- EXISTING CONTOUR LINE & LEVELS
— – — SITE BOUNDARY

A	AISLE	6200 WIDE
D1	DISABLED BAY	5400 x 2400
DS	SHARED BAY	5400 x 2400
S1	STAFF PARKING	5400 x 2400
TA	TURNING AREA	1000 DEEP
TB	TURNING BAY	5400 x 2400
V1	VISITOR PARKING	5400 x 2600

ECS DATA

TOTAL CHILDREN		108 CH
GROSS FLOOR AREA		718.1 SM
UNENCUMBERED INDOOR SPACE	REQUIRED	PROVIDED
INDOOR SPACE 01 12 CHILDREN 00-24 MONTHS	39.0 SM	42.0 SM
INDOOR SPACE 02 12 CHILDREN 00-24 MONTHS	39.0 SM	41.9 SM
INDOOR SPACE 03 20 CHILDREN 24-35 MONTHS	65.0 SM	68.1 SM
INDOOR SPACE 04 20 CHILDREN 24-35 MONTHS	65.0 SM	69.4 SM
INDOOR SPACE 05 22 CHILDREN 26 MONTHS-SCHOOL AGE	71.5 SM	73.6 SM
INDOOR SPACE 06 22 CHILDREN 26 MONTHS-SCHOOL AGE	71.5 SM	73.7 SM
TOTAL INDOOR SPACE TOTAL CHILDREN @ 3.25 sm per child	351.0 SM 108 CH	368.7 SM
UNENCUMBERED OUTDOOR SPACE	REQUIRED	PROVIDED
OUTDOOR SPACE 01 OUTDOOR SPACE 02		1702.5 SM 38.4 SM
TOTAL OUTDOOR SPACE TOTAL CHILDREN @ 7.0 sm per child	756.0 SM 108 CH	1740.9 SM

DATE	ISSUE	AMMENDMENT
21.09.2020	A	DA ISSUE
12.10.2020	B	CARPARK LAYOUT/FENCES

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F 07 3229 2611
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www.jardinearchitects.com.au

JARDINE ARCHITECTS PTY LTD

PROJECT
NEW EDUCATION & CARE SERVICE AT YAAMBA ROAD PARKHURST

CLIENT
NATURAL WONDERS EARLY LEARNING

DRAWING TITLE
FLOOR PLAN- STAGE 01

SCALE
1:100 @ A1
Use figured dimensions in preference to scaling. Check and verify all dimensions on site.

DRAWN
MG, ET

DATE
JULY 2020

PROJECT No.	DWG No.	ISSUE
20685	DD03	B

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FLOOR PLAN
STAGE 02
SCALE 1 : 100

LEGEND

XX.XX ----- EXISTING CONTOUR LINE & LEVELS
— — — SITE BOUNDARY

A	AISLE	6200 WIDE
D1	DISABLED BAY	5400 x 2400
DS	SHARED BAY	5400 x 2400
S1	STAFF PARKING	5400 x 2400
TA	TURNING AREA	1000 DEEP
TB	TURNING BAY	5400 x 2400
V1	VISITOR PARKING	5400 x 2600

ECS DATA

TOTAL CHILDREN		44 CH
GROSS FLOOR AREA		187.0 SM
UNENCUMBERED INDOOR SPACE	REQUIRED	PROVIDED
36 MONTHS-SCHOOL AGE INDOOR SPACE 07 *22 CHILDREN*	71.5 SM	73.6 SM
36 MONTHS-SCHOOL AGE INDOOR SPACE 08 *22 CHILDREN* *36 MONTHS-SCHOOL AGE*	71.5 SM	73.7 SM
TOTAL INDOOR SPACE TOTAL CHILDREN *@ 3.25 sm per child*	143.0 SM 44 CH	147.3 SM
UNENCUMBERED OUTDOOR SPACE	REQUIRED	PROVIDED
OUTDOOR SPACE		125.8 SM
TOTAL OUTDOOR SPACE TOTAL CHILDREN *@ 7.0 sm per child*	308.0 SM 44 CH	125.8 SM

DATE	ISSUE	AMMENDMENT
21.09.2020	A	DA ISSUE
12.10.2020	B	CARPARK LAYOUT/FENCES

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AT
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DRAWING TITLE
FLOOR PLAN - STAGE 02
DESIGN DEVELOPMENT

SCALE
1:100 @ A1
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MG, ET

DATE
JULY 2020

PROJECT No.	DWG No.	ISSUE
20685	DD09	B

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NOTE:
CARPARKING LAYOUT SHOWS LAYOUT FOR STAGE 01 AND STAGE 02 COMBINED.
CARPARKING FOR INDIVIDUAL STAGES IS INDICATED ON DRAWINGS 20685DD08 AND 20685DD14

SITE PLAN
STAGE 01 & STAGE 02
SCALE: 1 : 200

RPD
LOT2 ON 605103

DATE	ISSUE	AMMENDMENT
21.09.2020	A	DA ISSUE
12.10.2020	B	CARPARK LAYOUT/FENCES

LEGEND

XX.XX ------ EXISTING CONTOUR LINE & LEVELS

— — — SITE BOUNDARY

LEGEND

A	AISLE	6200 WIDE
D	DRIVEWAY	6200 WIDE
D1	DISABLED BAY	5400 x 2400
DS	DISABLED SHARED BAY	5400 x 2400
S1	STAFF PARKING	5400 x 2400
TA	TURNING AREA	1000 DEEP
TB	TURNING BAY	5400 x 2400
V1	VISITOR PARKING	5400 x 2600

DEVELOPMENT DATA

SITE AREA LOT02 ON RP605103	4342.0 SM
STAGE 01	
SITE COVER	1048.1 SM
IMPERVIOUS AREA	2305.3 SM
GROSS FLOOR AREA	726.5 SM
CHILDREN	108 CH
PARKING BAYS	18 VISITORS 18 STAFF
STAGE 02	
SITE COVER	317.3 SM
IMPERVIOUS AREA	635.5 SM
GROSS FLOOR AREA	187 SM
CHILDREN	44 CH
PARKING BAYS	08 VISITORS 04 STAFF
SITE COVER TOTAL	1365.4 SM (31.4%)
IMPERVIOUS AREA TOTAL	2940.8 SM (67.7%)
GROSS FLOOR AREA TOTAL	905.6 SM (20.9%)
CHILDREN TOTAL	152 CH

PARKING BAYS TOTAL	REQUIRED	PROVIDED
@ 1 CAR PER PERMANENT	26 VISITOR	26 VISITOR
STAFF & 1 CAR PER 6	22 STAFF	22 STAFF
CHILDREN	48 TOTAL	48 TOTAL

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AT
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PARKHURST

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DRAWING TITLE
SITE PLAN - STAGE 01 & 02
DESIGN DEVELOPMENT

SCALE
1:200 @ A1
Use figured dimensions in preference to scaling.
Check and verify all dimensions on site.

DRAWN
MG, ET

DATE
JULY 2020

PROJECT No.	DWG No.	ISSUE
20685	DD02	B

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0 2 4 6 8 10 20M

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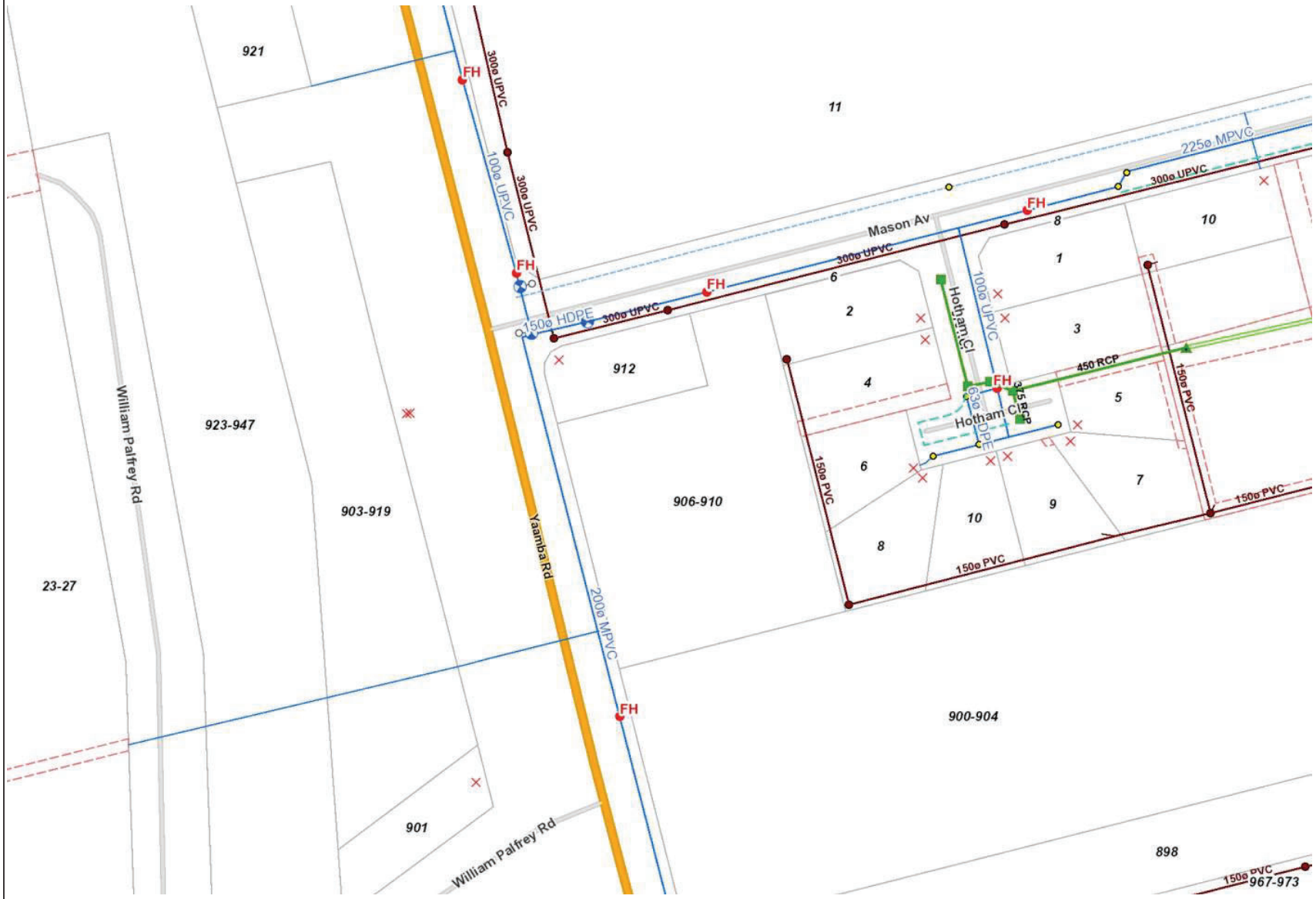
Appendix B

Topographic Data

DBYD Number: 20219484

Sequence Number: 101636840

906-910 Yaamba Road, Parkhurst QLD 4702



DBYD - Rockhampton Regional Council Infrastructure

CBD Parking sensor zones

Water
- Gate, Sluice, Butterfly
- Air Valve
- Ball Cock, Stop Cock
- Ball Valve
- Motor Sluice Valve
- Non Return Valve
- Pressure Reducing Valve
- RPZ Valve
- Reflux Valve
- Scour Valve
- Sluice Bypass Valve
- Tap
- Other Valve Type
- Open - Dialysis
- Closed - Zone
- Valve Normally Open
- Valve Normally Closed
- Trunk Main
- Reticulation Main
- Raw Water Main
- Scour Line
- Other Main Type
- Water Service
- Hydrants
- Reservoirs
- Intake
- Pump Station
- Treatment Plant
- Unknown
- Abandoned Mains

Private Water
- Private Water Hydrants
- Private Water Valves
- Private Water Mains
- Private Water Abandoned Mains

Stormwater
- Flood Mitigation Devices
- Culverts
- Headwalls
- Stormwater Junctions
- Pollution Trap
- Subsoil Clean-Out pit
- Stormwater Jump ups
- Connector; Reticulation Main
- Culvert Pipe; LinkSlab
- Inter-Allotment
- Low Flow Pipe
- Other
- Stormwater Drop Structures
- Batter Chute; Open Channel
- Bio-Retention Swale
- Subsoil Drain
- Weirs
- Bio-Retention Detention/Retention
- Abandoned Mains
- Abandoned Headwalls
- Abandoned Culverts
- Abandoned Junctions

Private Stormwater
- Culverts Private
- Headwalls Private
- Stormwater Junctions Private
- Pollution Trap Private
- Subsoil Clean-Out pit Private
- Stormwater Jump Up Private
- Stormwater Main Private
- Open Channel Private
- Subsoil Drain Private
- Retention Basins Private

Effluent
- Effluent Structures
- Effluent Valves
- Effluent Mains

Sewer
- Pump Station
- Treatment Plant
- Combined Main
- Reticulation Main
- Trunk Main
- Overflow Main
- Sewer Rising Mains
- Roll Over
- Lamp Hole | Inspection Opening
- Overflow Chamber
- Access Chambers
- Sewer Valves
- Sewer Jump Ups
- Sewer Access Chambers Abandoned
- Sewer Mains Abandoned

Private Sewer
- Pump Station
- Treatment Plant
- Sewer Access Chambers Private
- Sewer Joints Private
- Sewer Valves Private
- Sewer Gravity Mains Private
- Sewer Rising Mains Private
- Sewer Jump Ups Private
- Sewer Mains Abandoned Private
- Sewer Access Chambers Abandoned Private

Administrative
- Easements
- Property Parcels

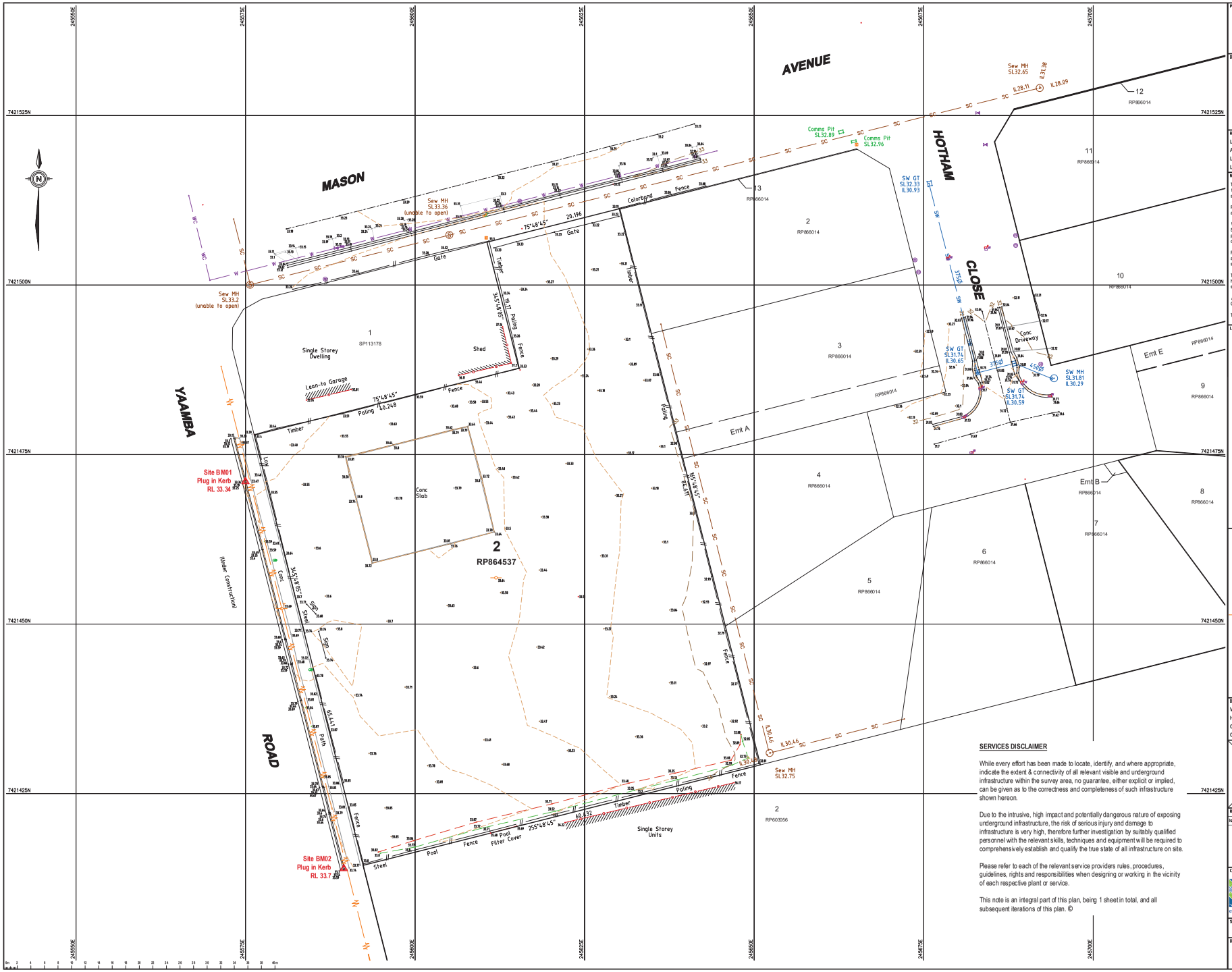
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GDA2020

A3 Page scale at 1:1,000.00

Printed from GeoCortex on 10/09/2020

Rockhampton Regional Council



PRINCIPAL

MORRISON PROPERTY GROUP

DESCRIPTION

DETAIL SURVEY OF LOT 2 ON RP864537

906-910 YAAMBA ROAD, PARKHURST

REAL PROPERTY DESCRIPTION

Lot/Plan :	Lot 2 on RP864537
Area :	4342m2
Locality :	Parkhurst
Local Authority :	Rockhampton Regional Council

NOTES

This plan was prepared for MORRISON PROPERTY GROUP from field survey for the purpose of designing new constructions on the subject land and should not be used by any other persons for any other purpose.

Property boundaries have not been reinstated or marked at the time of survey and are approximate only, based on appropriate boundary connections.

Where possible underground services have been located by field survey. Some services shown hereon are compiled from local authority and service provider plans and/or plans provided by the client and are noted accordingly on the plan.

Prior to any design, excavation or construction on site, the relevant authorities, and a qualified service locator should be engaged to ensure all services that may be affected by any future works have been located.

These plans have been prepared as verification plots only. Some text RL's have been omitted for clarity. Please refer to the relevant 3D data files for any spatial interrogation requirements.

Any discrepancies should be verified in writing with Capricorn Survey Group (CQ) Pty Ltd.

This note is an integral part of this plan.

LEGEND

LINETYPE LEGEND

G	UG Sewerage Line
SC	UG Sewerage Line (Compiled)
SW	UG Stormwater Line
SWC	UG Stormwater Line (Compiled)
	Overland Flow Direction
E	UG Electrical Line
EC	UG Electrical Line (Compiled)
	OH Electrical Line
T	UG Communication Line
TC	UG Communication Line (Compiled)
W	UG Water Line
WC	UG Water Line (Compiled)
W	AG Water Line
G	UG Gas Line
GC	UG Gas Line (Compiled)
	Top of Bank
	Toe of Bank
	C/L of Bitumen
	Edge of Bitumen
	Retaining Wall
	Line Marking
	Fence Line
A	Roof / Guttering
o	Eaves

CONTOUR LEGEND

	0.25m Interval
5	1.00m Interval

GENERAL SYMBOL LEGEND

Comms Conduit Marker	Stormwater MH
Comms Pit	Stormwater Pit
Elec Conduit Marker	Stormwater Kerb Outlet
Elec Turret	Water Fire Hydrant
Elec Pit	Water Meter
Elec Light Bollard	Water Valve
Elec Light Pole	Water Tap
Elec Power Pole	Water Control Tap
Elec Power Pole + Light	Water Tee
Elec Power Pole + Transformer	Water Conduit Marker
Elec Stay Point	Water Tapping Band
Traffic Lights	Post
Gas Marker	Bollard
Gas Valve	Guide Sign
Gas Hot Water System	Flag Pole
Sewerage MH	Australia Post Box
Sewerage Vent	Shrub
Sewerage IO	

DATUM

Vertical Datum :	AHD Vide Smartnet Aus
Horizontal Datum :	MGA Vide Smartnet Aus
Contour Interval :	0.25m, 1.0m Index
Co-ord System :	MGA Vide Smartnet Aus

SERVICES DISCLAIMER

While every effort has been made to locate, identify, and where appropriate, indicate the extent & connectivity of all relevant visible and underground infrastructure within the survey area, no guarantee, either explicit or implied, can be given as to the correctness and completeness of such infrastructure shown hereon.

Due to the intrusive, high impact and potentially dangerous nature of exposing underground infrastructure, the risk of serious injury and damage to infrastructure is very high, therefore further investigation by suitably qualified personnel with the relevant skills, techniques and equipment will be required to comprehensively establish and qualify the true state of all infrastructure on site.

Please refer to each of the relevant service providers rules, procedures, guidelines, rights and responsibilities when designing or working in the vicinity of each respective plant or service.

This note is an integral part of this plan, being 1 sheet in total, and all subsequent iterations of this plan. ©

WARNING

LOCATION AND CONNECTIVITY OF U/G SERVICES SHOWN HEREON HAVE BEEN DETERMINED BY DIRECT ACCESS OR COMPILED FROM LOCAL AUTHORITY AND SERVICE PROVIDER PLANS ONLY. FURTHER INVESTIGATION MAY BE REQUIRED TO DETERMINE LOCATIONS OF ALL INACCESSIBLE SERVICES.

REVISION

Issue	Date	Details	Authorised
A	26-08-2020	Initial Issue	RJKF
-	-	-	-

CREATED

capricomsurveygroupcq
SURVEYING & PLANNING SOLUTIONS
07 4927 5199 | reception@sgcq.com.au | 132 Victoria Parade, Rockhampton QLD 4700

SCALE

1:250 @ A1

DRAWING NUMBER	ISSUE
7817-01-DTL (1/1)	A

PINNACLE ENGINEERING GROUP

Appendix C

Stormwater Catchment Plans

LEGEND

- EXISTING TELSTRA CABLE
- EXISTING SEWERAGE RETICULATION
- EXISTING WATER RETICULATION
- EXISTING OVERHEAD ELECTRICAL
- EXISTING UNDER GROUND ELECTRICAL
- SEWER RETICULATION FLOW DIRECTION
- EXISTING BOUNDARY
- EXISTING NOMINAL KERB LINE
- INDICATIVE WORKS AREA
- EXISTING SURFACE CONTOURS (0.25m)
- ROOF / BUILDING HARDSTAND AREA
- CONCRETE DRIVEWAY / PAVED AREA
- PERVIOUS AREA
- OVERLAND FLOW DIRECTION
- CATCHMENT BOUNDARY
- A2 CATCHMENT LABEL

CATCHMENT TABLE (PRE)

CATCHMENT AREA - A	0.4342 ha

CATCHMENT DATA

	A
BUILDING / ROOF AREA	0.0000 ha
HARDSTAND / DRIVEWAY	0.0295 ha
GARDEN / PERVIOUS AREA	0.4047 ha
TOTAL IMPERVIOUS AREA	0.0295 ha
TOTAL PERVIOUS AREA	0.4047 ha

NOTES

1. THE LOCATION OF THE EXISTING SERVICES HAS BEEN PLOTTED FROM SURVEY AND RECORDS AND IS TO BE CONFIRMED PRIOR TO CONSTRUCTION.
2. HISTORICAL AERIAL PHOTOGRAPHY HAS BEEN USED TO VALIDATE SURVEY DATA AND ESTABLISH PRE-DEVELOPMENT CATCHMENTS.

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UNDERGROUND PUBLIC UTILITY PLANT EXISTS IN THIS VICINITY. THE CONTRACTOR IS ADVISED TO CONTACT THE RELEVANT AUTHORITIES TO CONFIRM THE EXACT LOCATION OF PUBLIC UTILITY PLANT ON SITE PRIOR TO THE COMMENCEMENT OF ANY EXCAVATION OR CONSTRUCTION WORKS.



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(PO BOX 517, PARADISE POINT QLD 4216)
WWW.PINNACLEENG.COM.AU

REV	DESCRIPTION	DRAWN	DATE
A	ORIGINAL ISSUE FOR COMMENT	J.H.	21.09.2020
"	"	"	"
"	"	"	"
"	"	"	"
"	"	"	"
"	"	"	"
"	"	"	"

TASK	BY	INITIAL	DATE
REVIEW	B. POPA		21.09.2020
DESIGN	J. HARDMAN		21.09.2020
DRAWN	J. HARDMAN		21.09.2020

SCALE 2 1 0 2 4 6 8 10 1:200

(SCALE ABOVE DENOTES ORIGINAL SHEET SIZE - A1)

CLIENT: NATURAL WONDERS EARLY LEARNING PTY LTD

PROJECT: PROPOSED CHILDCARE CENTRE DEVELOPMENT, 906-910 YAAMBA ROAD, PARKHURST QLD 4702 (LOT 2 ON RP864537)

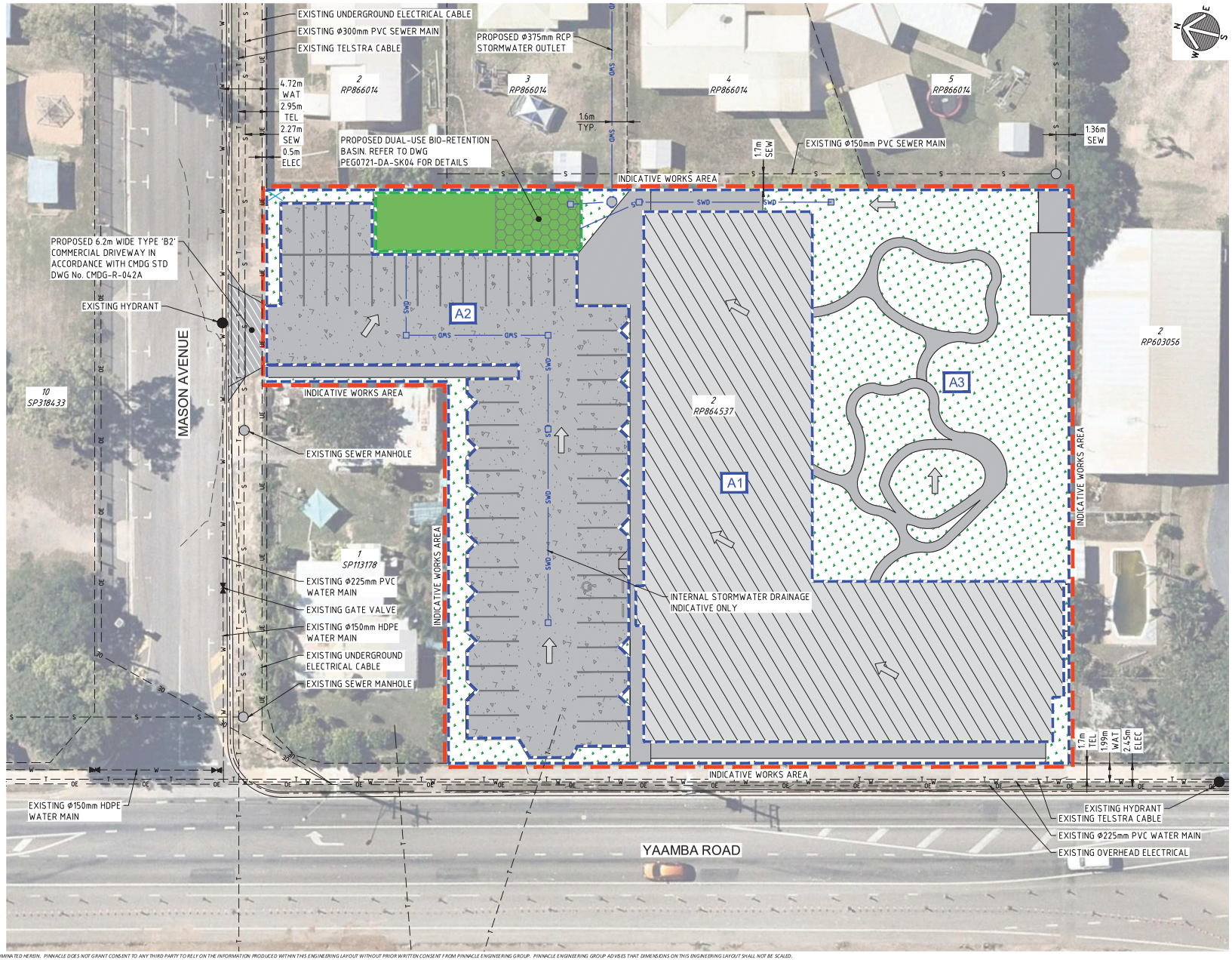
DRAWING TITLE: PRE DEVELOPMENT CATCHMENT LAYOUT

STATUS: PRELIMINARY (NOT TO BE USED FOR CONSTRUCTION)

APPROVED: RPEQ No:

DRAWING NUMBER: PEG0721-DA-SK01

REVISION: A



LEGEND

- EXISTING TELSTRA CABLE
- EXISTING SEWERAGE RETICULATION
- EXISTING WATER RETICULATION
- EXISTING STORMWATER PIPE
- EXISTING OVERHEAD ELECTRICAL
- EXISTING UNDER GROUND ELECTRICAL
- EXISTING BOUNDARY
- EXISTING NOMINAL KERB LINE
- PROPOSED STORMWATER
- INDICATIVE WORKS AREA
- ROOF / BUILDING HARDSTAND AREA
- CONCRETE DRIVEWAY / PAVED AREA
- PERVIOUS AREA
- DUAL-USE BIO-RETENTION BASIN
- OVERLAND FLOW DIRECTION
- CATCHMENT BOUNDARY
- A1 CATCHMENT LABEL

NOTES

1. THE LOCATION OF THE EXISTING SERVICES HAS BEEN PLOTTED FROM SURVEY AND RECORDS AND IS TO BE CONFIRMED PRIOR TO CONSTRUCTION.
2. THE DETAILED DESIGN OF THE DISCHARGE PIPE WORK IS THE SUBJECT OF THE SEPARATE PLUMBING AND DRAINAGE APPLICATION.

CATCHMENT TABLE (POST)

CATCHMENT AREA – A1 (ROOF/BUILDING)	0.1439 ha
CATCHMENT AREA – A2 (DRIVEWAY/SLAB)	0.1118 ha
CATCHMENT AREA – A3 (GROUND/LANDSCAPING)	0.1785 ha

CATCHMENT DATA	A1	A2	A3
ROOF / BUILDING AREA	0.1439 ha	N/A	N/A
DRIVEWAY / ROAD	N/A	0.1118 ha	N/A
GROUND / GARDEN	N/A	N/A	0.1785 ha
TOTAL IMPERVIOUS AREA	0.1439 ha	0.1118 ha	0.0531 ha
TOTAL PERVIOUS AREA	N/A	N/A	0.1254 ha

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WWW.PINNACLEENG.COM.AU

REV	DESCRIPTION	DRAWN	DATE
A	ORIGINAL ISSUE FOR COMMENT	J.H.	21.09.2020
B	ISSUE FOR APPROVAL	J.H.	01.10.2020
"	"	"	"
"	"	"	"
"	"	"	"
"	"	"	"
"	"	"	"

TASK	BY	INITIAL	DATE
REVIEW	B. POPA		21.09.2020
DESIGN	J. HARDMAN		21.09.2020
DRAWN	J. HARDMAN		21.09.2020

SCALE 2 1 0 2 4 6 8 10 1:200

(SCALE ABOVE DENOTES ORIGINAL SHEET SIZE - A1)

CLIENT: NATURAL WONDERS EARLY LEARNING PTY LTD

PROJECT: PROPOSED CHILDCARE CENTRE DEVELOPMENT, 906-910 YAAMBA ROAD, PARKHURST QLD 4702 (LOT 2 ON RP864537)

DRAWING TITLE: POST DEVELOPMENT CATCHMENT LAYOUT

STATUS: PRELIMINARY (NOT TO BE USED FOR CONSTRUCTION)

APPROVED

RPEQ No

DRAWING NUMBER: PEG0721-DA-SK02

REVISION: A

PINNACLE ENGINEERING GROUP

Appendix D

Rational Method Calculations

RATIONAL METHOD CALCULATIONS

Project:	PEG0721_906-910 Yaamba Road, Parkhurst
Date:	17-Sep-20
Designed:	J. Hardman
Comments:	Catchment A - Pre-development

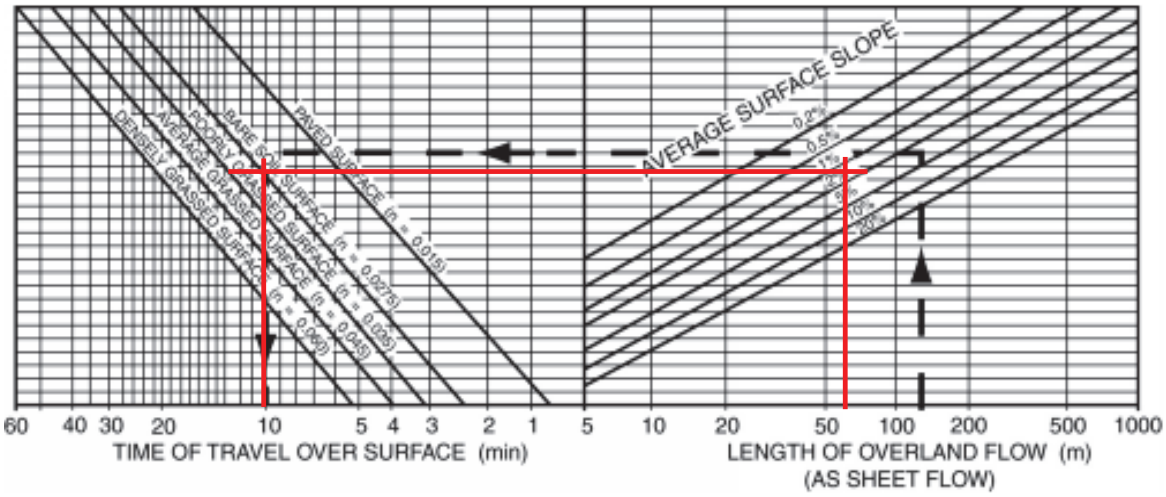
PARAMETERS	VALUE	
Catchment Name	A	
Catchment Size	0.4342 ha	
C10 Coefficient of Runoff	0.70	(QUDM T4.5.4 (f_i = 0, $^1I_{10}$ =66.4))

Total Time of Concentration — QUDM Figure 4.4

Total time of Conentration **(tc)** **10.0 mins**

Rational Method for Peak Catchment flow — Q = 0.00278 x C x I x A

ARI	Rainfall Intensity (mm/h)	Rainfall Depth (mm)	Fy	Coefficient of Runoff	Discharge (m^3/s)
3 month					0.033
1	97.10	16.18	0.80	0.56	0.066
2	108.00	18.00	0.85	0.60	0.078
5	144.00	24.00	0.95	0.67	0.115
10	169.00	28.17	1.00	0.70	0.143
20	195.00	32.50	1.05	0.74	0.173
50	229.00	38.17	1.15	0.81	0.222
100	257.00	42.83	1.20	0.84	0.260



Overland Sheet Flow Times – Shallow Sheet Flow Only
(source: ARR-1977)

Figure 4.07

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Appendix E

Stormwater Management Layout

LEGEND

- EXISTING TELSTRA CABLE
- EXISTING SEWERAGE RETICULATION
- EXISTING WATER RETICULATION
- EXISTING OVERHEAD ELECTRICAL
- EXISTING UNDER GROUND ELECTRICAL
- EXISTING BOUNDARY
- EXISTING NOMINAL KERB LINE
- PROPOSED STORMWATER
- INDICATIVE WORKS AREA
- ROOF / BUILDING HARDSTAND AREA
- CONCRETE DRIVEWAY / PAVED AREA
- PERVIOUS AREA
- DUAL-USE BIO-RETENTION BASIN
- OVERLAND FLOW DIRECTION
- CATCHMENT BOUNDARY
- A1 CATCHMENT LABEL

DIAL BEFORE YOU DIG www.1100.com.au

The Essential First Step.

UNDERGROUND PUBLIC UTILITY PLANT EXISTS IN THIS VICINITY. THE CONTRACTOR IS ADVISED TO CONTACT THE RELEVANT AUTHORITIES TO CONFIRM THE EXACT LOCATION OF PUBLIC UTILITY PLANT ON SITE PRIOR TO THE COMMENCEMENT OF ANY EXCAVATION OR CONSTRUCTION WORKS.

NOTES

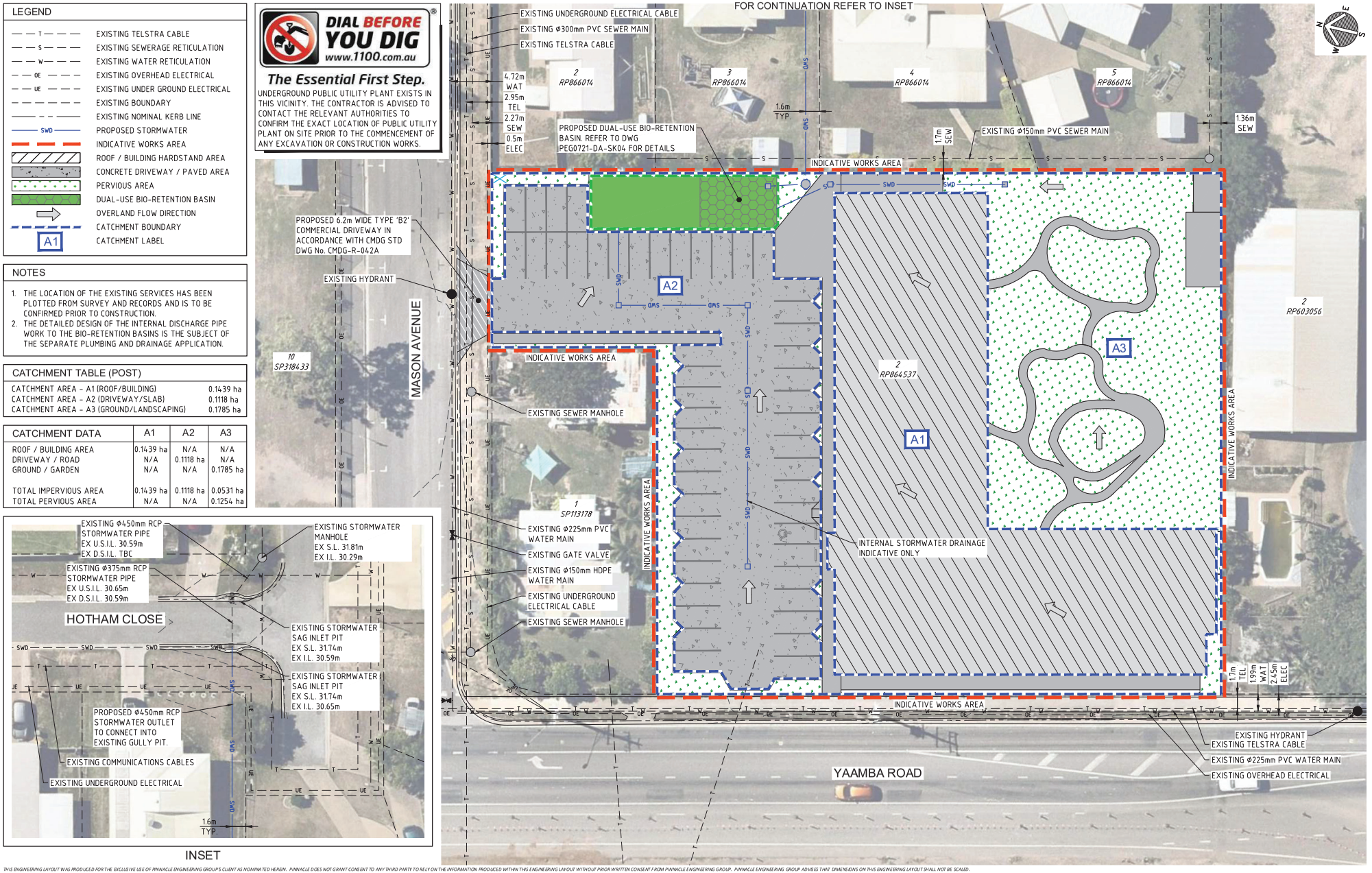
1. THE LOCATION OF THE EXISTING SERVICES HAS BEEN PLOTTED FROM SURVEY AND RECORDS AND IS TO BE CONFIRMED PRIOR TO CONSTRUCTION.
2. THE DETAILED DESIGN OF THE INTERNAL DISCHARGE PIPE WORK TO THE BIO-RETENTION BASINS IS THE SUBJECT OF THE SEPARATE PLUMBING AND DRAINAGE APPLICATION.

CATCHMENT TABLE (POST)

CATCHMENT AREA – A1 (ROOF/BUILDING)	0.1439 ha
CATCHMENT AREA – A2 (DRIVEWAY/SLAB)	0.1118 ha
CATCHMENT AREA – A3 (GROUND/LANDSCAPING)	0.1785 ha

CATCHMENT DATA	A1	A2	A3
ROOF / BUILDING AREA	0.1439 ha	N/A	N/A
DRIVEWAY / ROAD	N/A	0.1118 ha	N/A
GROUND / GARDEN	N/A	N/A	0.1785 ha
TOTAL IMPERVIOUS AREA	0.1439 ha	0.1118 ha	0.0531 ha
TOTAL PERVIOUS AREA	N/A	N/A	0.1254 ha

INSET



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REV	DESCRIPTION	DRAWN	DATE
A	ORIGINAL ISSUE FOR COMMENT	J.H.	21.09.2020
B	ISSUE FOR APPROVAL	J.H.	01.10.2020
"	"	"	"
"	"	"	"
"	"	"	"
"	"	"	"
"	"	"	"

TASK	BY	INITIAL	DATE
REVIEW	B. POPA		21.09.2020
DESIGN	J. HARDMAN		21.09.2020
DRAWN	J. HARDMAN		21.09.2020

SCALE 2 1 0 2 4 6 8 10 1:200

(SCALE ABOVE DENOTES ORIGINAL SHEET SIZE - A1)

CLIENT: NATURAL WONDERS EARLY LEARNING PTY LTD

PROJECT: PROPOSED CHILDCARE CENTRE DEVELOPMENT, 906-910 YAAMBA ROAD, PARKHURST QLD 4702 (LOT 2 ON RP864537)

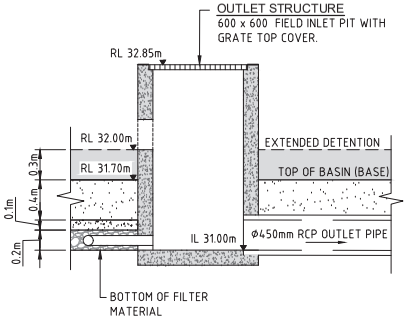
DRAWING TITLE: STORMWATER MANAGEMENT LAYOUT

STATUS: PRELIMINARY (NOT TO BE USED FOR CONSTRUCTION)

APPROVED: RPEQ No:

DRAWING NUMBER: PEG0721-DA-SK03

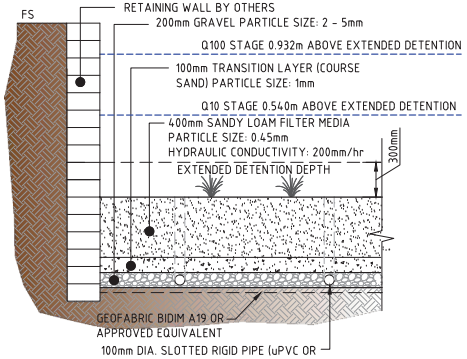
REVISION: B



TYPICAL INLET DETAIL

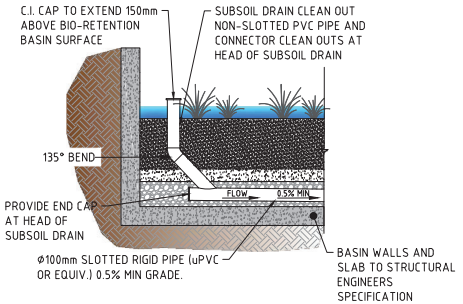
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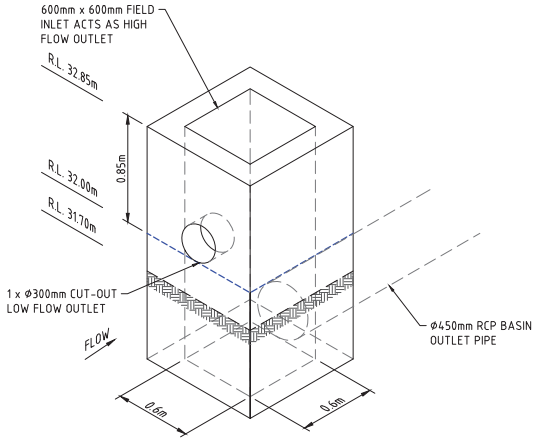
BIO-RETENTION BASIN

SCALE N.T.S



SUBSOIL DRAIN CLEAN OUT DETAIL

SCALE N.T.S.



DETENTION BASIN OUTLET STRUCTURE DETAIL (TWO STRUCTURES)

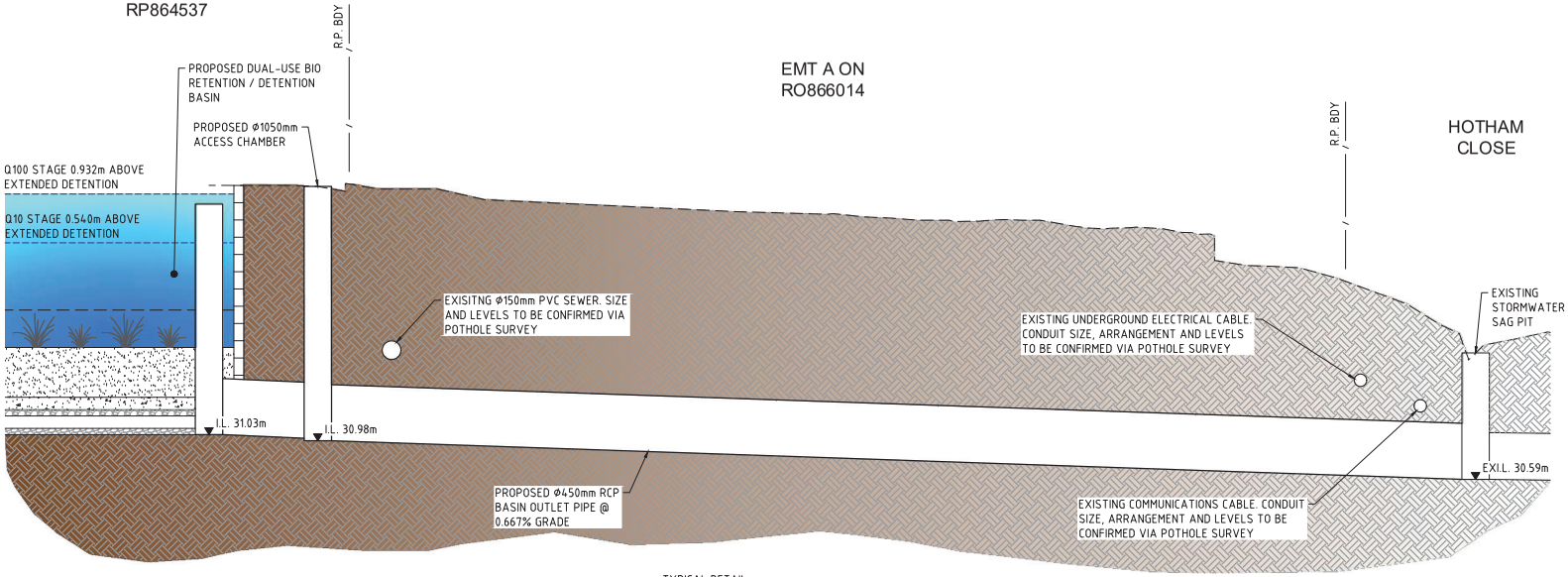
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BIO-RETENTION BASIN DETAILS

PARAMETERS	BIO-BASIN (SITE TOTAL)
EXTENDED DETENTION DEPTH	= 0.3m
STORAGE SURFACE AREA	= 52m² (MIN.)
FILTER MEDIA SURFACE AREA	= 52m² (MIN.)
SEEPAGE LOSS	= 0.00mm/hr
MEDIAN PARTICLE DIAMETER	= 0.45mm
SATURATED HYDRAULIC CONDUCTIVITY	= 200mm/hr
FILTER MEDIA	= SANDY LOAM
FILTER MEDIA DEPTH	= 0.4m
ORTHOPHOSPHATE CONTENT	= 40mg/kg
TN CONTENT OF FILTER MEDIA	= 400mg/kg

DETENTION DETAILS

PARAMETERS	BASIN
BASIN OUTLETS	
LOW FLOW OUTLET	= 1 x Ø300mm ORIFICE (DISCHARGE TO HOTHAM CLOSE STORMWATER NETWORK)
LOW FLOW OUTLET LEVEL	= AT EXTENDED DETENTION HEIGHT
HIGH FLOW OUTLET	= 2.4m WIDE WEIR x 0.15m HIGH (DISCHARGE TO HOTHAM CLOSE STORMWATER NETWORK)
HIGH FLOW OUTLET LEVEL	= 0.85m ABOVE EXTENDED DETENTION
BASIN GEOMETRY	
STORAGE AREA	= 125m² MIN.
STORAGE HEIGHT	= 1.0m
STORAGE VOLUME	= 125m³
BASIN MODELLING SUMMARY	
Q10 PEAK OUTFLOW	= 0.114m³/s
Q10 PEAK STAGE	= 0.540m ABOVE BASE OF TANK
Q100 PEAK OUTFLOW	= 0.219m³/s
Q100 PEAK STAGE	= 0.932m ABOVE BASE OF TANK



TYPICAL DETAIL

BIO-RETENTION BASIN OUTLET

SCALE N.T.S.

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"	"	"	"

TASK	BY	INITIAL	DATE
REVIEW	B. POPA		21.09.2020
DESIGN	J. HARDMAN		21.09.2020
DRAWN	J. HARDMAN		21.09.2020

SCALE

AS SHOWN

(SCALE ABOVE DENOTES ORIGINAL SHEET SIZE - A1)

CLIENT

NATURAL WONDERS EARLY LEARNING PTY LTD

PROJECT

PROPOSED CHILDCARE CENTRE DEVELOPMENT, 906-910 YAAMBA ROAD, PARKHURST QLD 4702 (LOT 2 ON RP864537)

DRAWING TITLE

STORMWATER MANAGEMENT DETAILS

STATUS

PRELIMINARY

(NOT TO BE USED FOR CONSTRUCTION)

APPROVED

RPEQ No

DRAWING NUMBER

PEG0721-DA-SK04

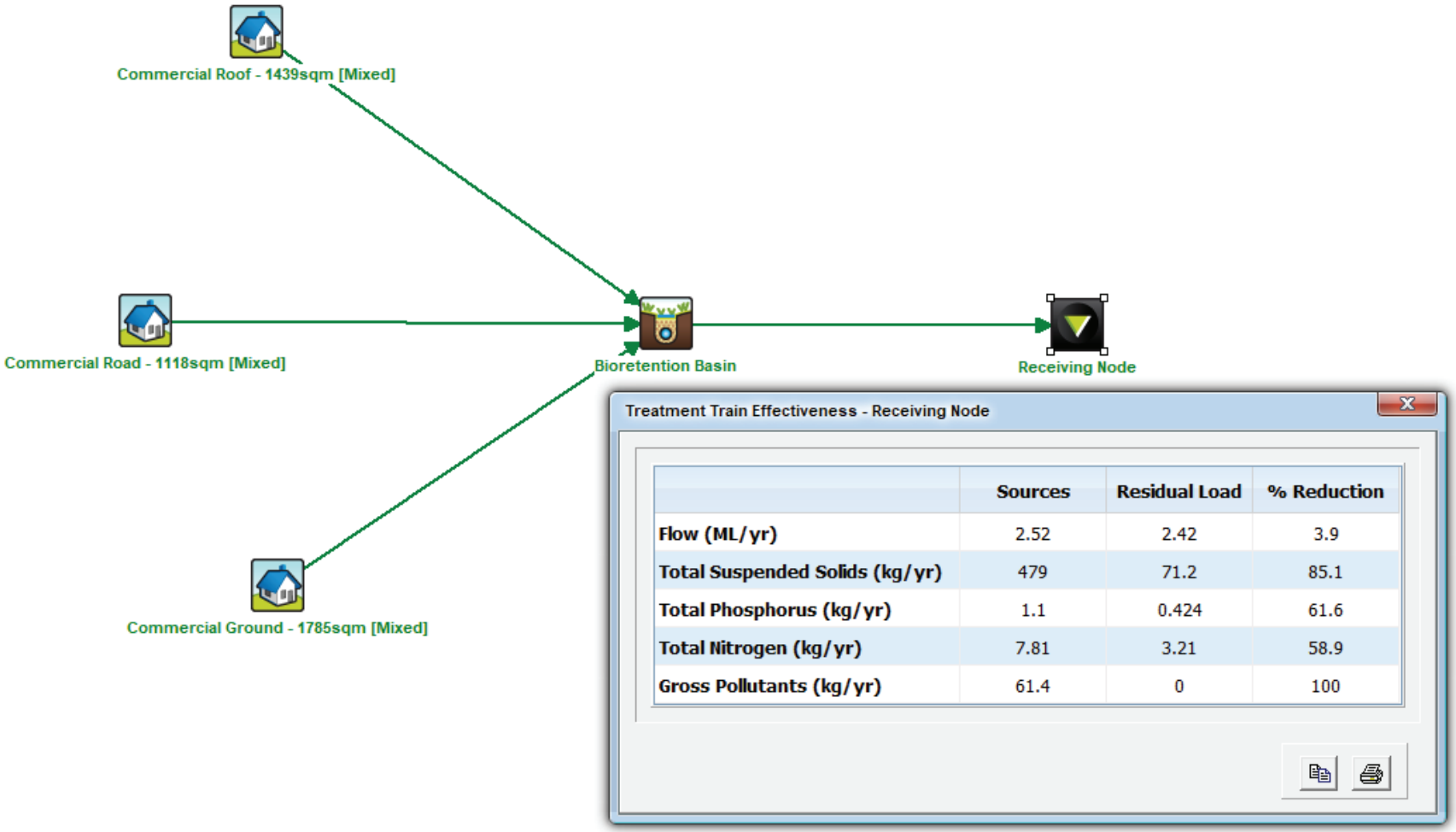
REVISION

B

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Appendix F

MUSIC Model Results



Treatment Train Effectiveness - Receiving Node

	Sources	Residual Load	% Reduction
Flow (ML/yr)	2.52	2.42	3.9
Total Suspended Solids (kg/yr)	479	71.2	85.1
Total Phosphorus (kg/yr)	1.1	0.424	61.6
Total Nitrogen (kg/yr)	7.81	3.21	58.9
Gross Pollutants (kg/yr)	61.4	0	100

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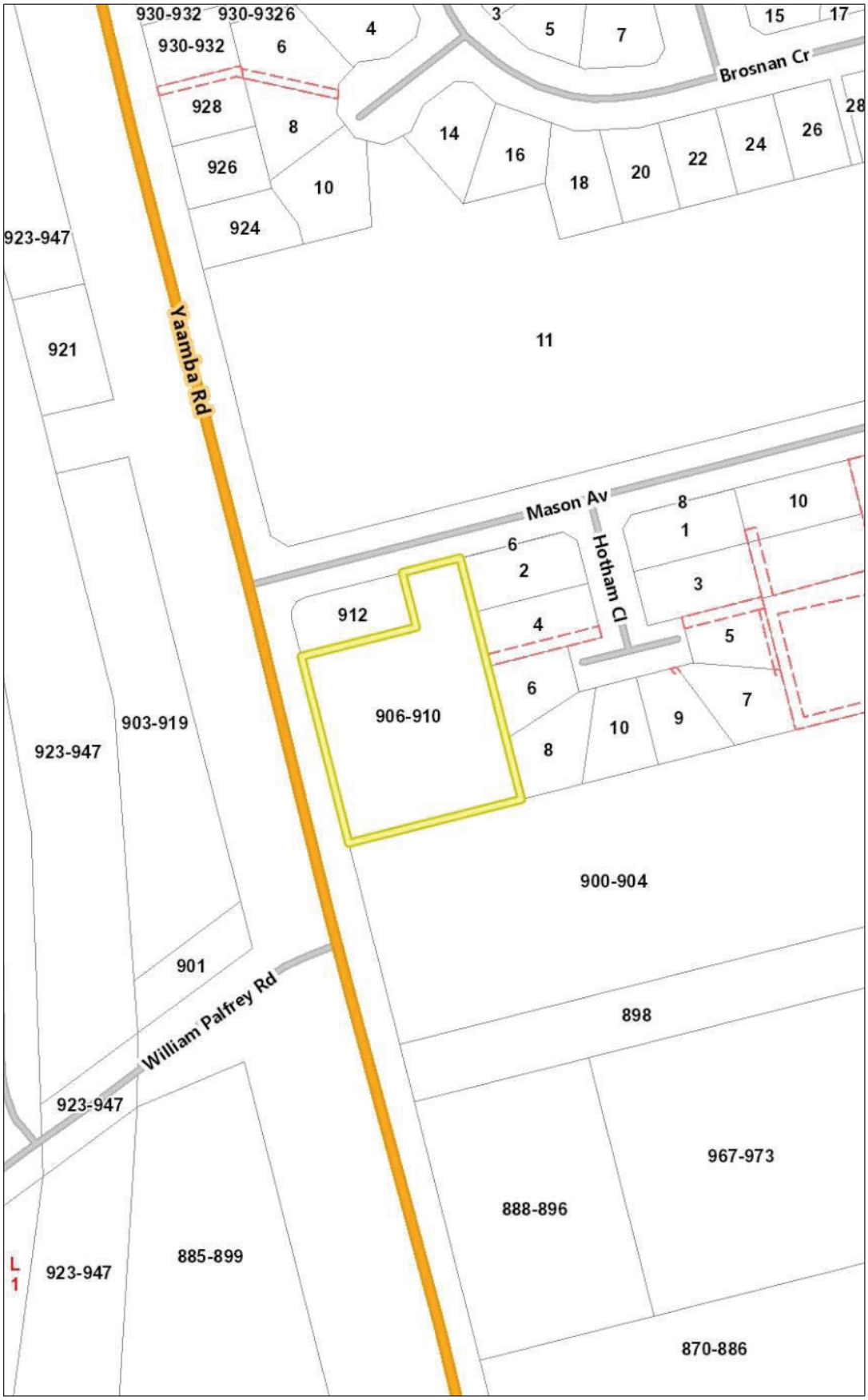
Appendix G

RRC Maps and Codes

RichTextBox1

A4 scale at 1: 1,934.34

Printed from RRPS on: 09/09/20



Legend

- Development Information
- RRC Mask
- RRC Mask
- Fitzroy River Flood
  - H1 (Low)
  - H2 (Medium)
  - H3 (High)
  - H4 (High)
  - H5 (Extreme)
  - H6 (Extreme)
- Floodplain Investigation Area
- Fitzroy River Defined Flood Event
- Planning Area 1
- Planning Area 2
- North Rockhampton Flood Management Area
- Roads1
  - Main roads
  - Major council roads
  - Standard council roads
  - Access roads
  - Private roads
- Easements
- Property Parcels
- Ocean
- Rivers
- DCDB Parks
- CQ LGA Boundaries

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GDA 2020

Rockhampton Regional Council

9.3.6 Stormwater management code

9.3.6.1 Application

This code applies to development where the code is identified as applicable in the tables of assessment.

When using this code, reference should be made to section 5.3.2 and where applicable, section 5.3.3 located in Part 5.

9.3.6.2 Purpose

(1) The purpose of the stormwater management code is to provide for sustainable stormwater infrastructure which protects water quality, environmental values and maintains or enhances community health, safety and amenity.

(1) The purpose of the code will be achieved through the following overall outcomes:
- (a) acceptable levels of stormwater run-off quality and quantity are achieved by applying water sensitive urban design principles;
- (b) public health and safety are protected and development avoids damage or nuisance caused by stormwater flows;
- (c) development includes a stormwater management system which minimises impacts on natural catchment hydrological processes;
- (d) development ensures that the environmental values of waterways are protected or enhanced;
- (e) development maintains or enhances the efficiency and integrity of the stormwater infrastructure network;
- (f) the whole of life-cycle cost of stormwater infrastructure is minimised; and
- (g) new development infrastructure is designed to support and complement existing and planned stormwater infrastructure.

9.3.6.3 Specific benchmarks for assessment

Table 9.3.6.3.1 — Development outcomes for assessable development

Performance outcomes	Acceptable outcomes	Assessment
Stormwater management — General		
PO1 Development provides a stormwater management system which achieves the integrated management of stormwater to: (a) ensure that flooding impacts do not increase, including upstream or downstream of the development site;	**AO1.1** Development provides a stormwater management system which is designed in compliance with SC6.18 — Stormwater management planning scheme policy, SC6.10 — Flood hazard planning scheme policy, Queensland Urban Drainage Manual,	Complies

Performance outcomes	Acceptable outcomes	Assessment
(b) avoid net worsening of stormwater peak discharges and runoff volumes; (c) utilises the use of water sensitive urban design principles; and (d) ensure the site maximises opportunities for capture and reuse. Editor's note—A stormwater management plan may be required to demonstrate compliance with the performance outcome.	Capricorn Municipal Development Guidelines and Australian Rainfall and Runoff. **AND** **AO1.2** Stormwater is conveyed to a lawful point of discharge in accordance with the Queensland Urban Drainage Manual.	
PO2 Development provides a stormwater management system which: (a) has sufficient capacity to safely convey run-off taking into account increased run-off from impervious surfaces and flooding in local catchments; (b) maximises the use of natural waterway corridors and natural channel design principles; and (c) efficiently integrates with existing stormwater treatments upstream and downstream.	**AO2.1** Development provides a stormwater management system which is designed in compliance with SC6.18 — Stormwater management planning scheme policy, Queensland Urban Drainage Manual, Capricorn Municipal Development Guidelines and Australian Rainfall and Runoff	Complies
PO3 Development ensures that the location and design of stormwater detention and water quality treatment facilities: (a) minimise risk to people and property; (b) provide for safe access and maintenance; and (c) provide for the safe recreational use of stormwater management features.	**AO3.1** Development provides for stormwater detention and water quality treatment facilities which are located outside of a waterway. **AND** **AO3.2** Development provides for stormwater detention in accordance with SC6.18 — Stormwater management planning scheme policy, Queensland Urban Drainage Manual,	Complies

Performance outcomes	Acceptable outcomes	Assessment
	Capricorn Municipal Development Guidelines and Australian Rainfall and Runoff. **AND** **AO3.3** Development provides a stormwater quality treatment system which is designed in accordance with State Planning Policy – Guideline – Water Quality.	
Environmental values		
PO4 Development and drainage works including stormwater channels, creek modification works, bridges, culverts and major drains, protect and enhance the environmental values of the waterway corridors and drainage paths and permit terrestrial and aquatic fauna movement. Editor's note—Compliance with the performance outcomes and acceptable outcomes should be demonstrated by the submission of a site-based stormwater management plan for development.	**AO4.1** Development ensures natural waterway corridors and drainage paths are retained. **AND** **AO4.2** Development incorporates the use of natural channel design principles in constructed components to maximise environmental benefits and waterway stability in accordance with the Queensland Urban Drainage Manual, Capricorn Municipal Development Guidelines and Australian Rainfall and Runoff **AND** **AO4.3** Development provides stormwater outlets into waterways, creeks, wetlands and overland flow paths with energy dissipation to minimise scour in accordance with the Queensland Urban Drainage Manual, Capricorn Municipal	N/A

Performance outcomes	Acceptable outcomes	Assessment
	Development Guidelines and Australian Rainfall and Runoff.	
PO5 Development protects and enhances the environmental and water quality values of waterways, creeks and estuaries within or external to the site. Editor's note—The State Planning Policy – Guideline – Water Quality and Section 9 of the *Environmental Protection Act 1994* define environmental values as 'a quality or physical characteristic of the environment that is conducive to ecological health or public amenity or safety.'	No acceptable outcome is nominated.	N/A
Overland flow path tenure		
PO6 All overland flow paths are maintained under tenure arrangements that facilitate efficient infrastructure and enhance environmental sustainability. Editor's note—As a guide, Council prefers that the location of Council owned assets are contained within a road reserve, drainage system is contained within a road reserve, drainage easement, drainage reserve, public reserve, public pathway, park or waterway corridor.	No acceptable outcome is nominated.	N/A
Detention Systems		
PO7 Detention basins are designed, located and constructed on land solely dedicated for stormwater management.	**AO7.1** Detention basins are designed in accordance with SC6.18 Stormwater management planning scheme policy.	Complies
PO8 Development ensures that location and design of stormwater detention and water quality treatment: (a) minimises risk to people and property; (b) provides for safe access and maintenance;	**AO8.1** Development provides a stormwater management system designed in accordance with SC6.10 Flood hazard planning scheme policy and SC6.18 Stormwater management planning scheme policy.	Complies

Performance outcomes	Acceptable outcomes	Assessment
(c) minimises ecological impacts to creeks and waterways.		
PO9 Flood plain storage and function, and detention system functions are maintained. This shall include ensuring that: (a) detention system design does not remove flood plain storage; (b) detention systems continue to operate effectively during a major storm event.	No acceptable outcome is nominated.	N/A
PO10 Detention basins shall not be provided in locations that prevent easy access to or maintenance of the detention basin.	**AO10.1** The location of detention basins are in accordance with SC6.18 Stormwater management planning scheme policy.	Complies
Efficiency and whole of life cycle cost		
PO11 Development ensures that there is sufficient site area to accommodate an effective stormwater management system. Editor's note—Compliance with the performance outcome should be demonstrated by the submission of a site-based stormwater management plan for development.	No acceptable outcome is nominated.	Complies
PO12 Development provides for the orderly development of stormwater infrastructure within a catchment, having regard to the: (a) existing capacity of stormwater infrastructure within and external to the site, and any planned stormwater infrastructure upgrades; (b) safe management of stormwater discharge from existing and future upslope development; and	No acceptable outcome is nominated.	Complies

Performance outcomes	Acceptable outcomes	Assessment
(c) implications for adjacent and down-slope development.		
PO13 Development provides proposed stormwater infrastructure which: (a) remains fit for purpose for the life of the development and maintains full functionality in the design storm event; and (b) can be safely accessed and maintained in a cost effective way.	No acceptable outcome is nominated.	Complies
Erosion and sediment control		
PO14 Development ensures that all reasonable and practicable measures are taken to manage the impacts of erosion, turbidity and sedimentation, both within and external to the development site from construction activities, including vegetation clearing, earthworks, civil construction, installation of services, rehabilitation, revegetation and landscaping to protect: (a) the environmental values and water quality objectives of waters; (b) waterway hydrology; and (c) the maintenance and serviceability of stormwater infrastructure.	**AO14.1** Erosion and sediment control plan is to be designed and implemented in accordance with the Capricorn Municipal Development Guidelines.	Complies
Water quality within catchment areas		
PO15 For development proposals within the Fitzroy River sub-basin, relevant environmental values are recognised and enhanced, and relevant water quality objectives are addressed.	**AO15.1** Development complies with the provisions of the State Planning Policy – Guideline – Water Quality. **AND**	N/A

Performance outcomes	Acceptable outcomes	Assessment
Editor's note—Section 3.2 of Queensland Water Quality Guidelines 2009 identifies values for water quality for waters in the Central Coast Queensland region.	**AO15.2** Development adjoining the full supply height above the Fitzroy River Barrage includes the provision of an effective buffer that assists in filtering runoff, including: (a) a buffer distance of 100 metres to the water supply height of the barrage which excludes cropping or grazing of a low intensity nature; and (b) fencing and water troughs installed on the land to prevent encroachment of animals within 100 metres of the full supply height above the barrage.	
Protecting water quality		
PO16 The development is compatible with the land use constraints of the site for: (a) achieving stormwater design objectives; and (b) avoiding or minimising the entry of contaminants into, and transport of contaminants in stormwater.	**AO16.1** Development is undertaken in accordance with a stormwater management plan that: (a) incorporates stormwater quality control measures to achieve the design objectives set out in the State Planning Policy – Guideline – Water Quality; (b) provides for achievable stormwater quality treatment measures reflecting land use constraints, such as soil type, landscape features (including landform), nutrient hazardous areas, acid sulfate soil and rainfall erosion potential; and (c) accounts for development type, construction phase, local landscape, climatic conditions and design objectives.	Complies

Performance outcomes	Acceptable outcomes	Assessment
	Editor's note—A stormwater management plan includes the design, construction, operation, maintenance of the stormwater system. Editor's note—SC6.18 — Stormwater management planning scheme policy provides guidance on preparing a stormwater quality management plan.	
Protecting water quality in existing natural waterways		
PO17 The waterway is designed for stormwater flow management, stormwater quality management and the following end use purposes: (a) amenity including aesthetics, (b) landscaping and recreation; (c) flood management; (d) stormwater harvesting as part of an integrated water cycle management plan; (e) as a sustainable aquatic habitat; and (f) the protection of water environmental values.	No acceptable outcome is nominated.	Complies
PO18 The waterway is located in a way that is compatible with existing tidal waterways.	**AO18.1** Where the waterway is located adjacent to, or connected to, a tidal waterway by means of a weir, lock, pumping system or similar: (a) there is sufficient flushing or a tidal range of more than 0.3 metres; or (b) any tidal flow alteration does not adversely impact on the tidal waterway; or (c) there is no introduction of salt water into freshwater environments.	N/A
PO19 The construction phase for the waterway is compatible with protecting water	**AO19.1** Erosion and sediment control measures are incorporated during construction to achieve	Complies

Performance outcomes	Acceptable outcomes	Assessment
environmental values in existing natural waterways.	design objectives set out in State Planning Policy – Guideline – Water Quality. Editor's note—Erosion and sediment control is to be designed and implemented in accordance with the International Erosion Control Association Best Practice Erosion and Sediment Control Guidelines.	
PO20 Stormwater overflows from the waterway do not result in lower water quality objectives in existing natural waterways.	**AO20.1** Stormwater run-off entering non-tidal waterways is pre-treated prior to release in accordance with the guideline design objectives, water quality objectives of local waterways, and any relevant local area stormwater management plan.	Complies

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Pinnacle Engineering Group
ABN: 80 608 431 625
P.O. Box 517 Paradise Point Q4216

Your Ref: D/118-2020
Our Ref: PEG0721_L001

1st December 2020

ROCKHAMPTON REGIONAL COUNCIL

APPROVED PLANS

These plans are approved subject to the current conditions of approval associated with

Development Permit No.: D/118-2020

Dated: 12 January 2021

Chief Executive Officer
Rockhampton Regional Council
PO Box 1860
Rockhampton QLD 4700

Attention: Thomas Gardiner

Dear Thomas,

906-910 YAAMBA ROAD, PARKHURST (LOT 2 on RP864537) – PROPOSED CHILDCARE CENTRE DEVELOPMENT
RESPONSE TO COUNCIL INFORMATION REQUEST – D/118-2020

On behalf of our Client, Natural Wonders Berserker Pty Ltd, and in accordance with the provisions of the Planning Act 2016, please find enclosed our response to the engineering related items of Council's information request dated the 6th of November 2020 for the abovementioned site.

We provide the following response to Council's information request.

Council Request	Applicant's Response
Stormwater management requirements	
1.1 Consent is required from the owner of Lot 3 on RP866014 (4 Hotham close, Parkhurst). The easement within Lot 3 on RP866014 only allows Council access to the easement area for the purposes of completing 'Council Works'. The easement terms refer to access by Council's employees and agents for this purpose. The proposed drainage works carried out as a consequence of the proposed development on Lot 2 on RP864537 are not captured under these easement terms. Subsequently, consent from this property owner is required.	1.1 Council have agreed to postpone the requirement for consent until subsequent Operational Works applications.
1.2 Please provide hydraulic characteristics of the flow over the weir and within the easement.	1.2 The proposed 600mm x 600mm field inlet within the proposed detention basin is taken as the high-flow outlet (2.4m perimeter length). The inlet of the proposed pit is set at 0.85m above the top of the extended detention zone, leaving 0.15m to the top of the detention storage zone. The attached Weir vs Orifice flow calculation sheet shows the inlet capacity of the proposed high-flow weir outlet based

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Pinnacle Engineering Group
ABN: 80 608 431 625
P.O. Box 517 Paradise Point Q4216

	on head depth, determined using the weir and orifice flow calculations described in the Queensland Urban Drainage Manual (QUDM). The 5% AEP storm event discharges only throughout the proposed low-flow outlet at a peak discharge of 0.126m^3/s. The 1% AEP storm event sees a peak site discharge of 0.219m^3/s through both low-flow and high-flow outlets. As per the attached calculation sheet, the difference of 0.093m^3/s can be accommodated by the 0.15m of head within the basin from the top of the inlet pit to the top of storage zone.
1.3 Please provide engineering details of the works required on the easement land to discharge overland flow/gap flow from the development site to Hotham Close.	1.3 No overland flow works will be required on the existing easement land to discharge the major storm runoff from the proposed development. The proposed high-flow outlet conveys the stormwater through the proposed 450mm diameter basin outlet pipe, which connects into the existing gully pit within the Hotham Close road reserve.

If you have any queries regarding any aspect of the attached application, please do not hesitate to contact the undersigned and we look forward to receiving your approval.

Yours faithfully,



Jesse Hardman
Civil Engineer

P: 0418 784 662
E: jesse@pinnacleeng.com.au
W: www.pinnacleeng.com.au

Encl.

WEIR FLOW VS ORIFICE FLOW

Project:	PEG0721 906-910 Yaamba Road, Parkhurst
Date:	1.12.2020
Designed:	J. Hardman
Comments:	Detention Basin High Flow Outlet

Input
Output

BF	*0.5*	
Length	*0.6*	*m*
Width	*0.6*	*m*
No. inlets	*1*	
A_{grate}	*0.36*	m^2
g	*9.8*	m/s^2
Interval	*0.05*	*m*

h *m*	Q_{weir} m^3/s	$Q_{orifice}$ m^3/s	***Flow type***	***Q*** m^3/s
0	0.000	0.000		0.000
0.05	0.022	0.107	weir	0.022
0.10	0.063	0.151	weir	0.063
0.15	0.116	0.185	weir	0.116
0.20	0.178	0.214	weir	0.178
0.25	0.249	0.239	orifice	0.239
0.30	0.327	0.262	orifice	0.262
0.35	0.412	0.283	orifice	0.283
0.40	0.504	0.302	orifice	0.302
0.45	0.601	0.321	orifice	0.321
0.50	0.704	0.338	orifice	0.338
0.55	0.813	0.355	orifice	0.355
0.60	0.926	0.370	orifice	0.370
0.65	1.044	0.385	orifice	0.385
0.70	1.167	0.400	orifice	0.400
0.75	1.294	0.414	orifice	0.414
0.80	1.425	0.428	orifice	0.428
0.85	1.561	0.441	orifice	0.441
0.90	1.701	0.454	orifice	0.454
0.95	1.844	0.466	orifice	0.466
1.00	1.992	0.478	orifice	0.478