TMR DLO

From: NR @ministerial.qld.gov.au>
Sent: Friday, 21 February 2025 9:59 AM
To: TMR DLO
Subject: FW: Pedestrian refuge area, Russell Street, Cleveland near the intersection with Bloomfield Street

Categories: WAITING ON ADVICE, Chris

Hi Team,

Could you please double check who responsibility this email fall under.

Thank you.

NR

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Just want to be absolutely sure of our facts.

Many thanks
NR

NR **Electorate Officer**
The Hon Amanda Stoker MP | Assistant Minister for Finance, Trade, Employment and Training | State Member for Oodgeroo
19 Waterloo Street Cleveland 4163 | PO Box 1399 Cleveland QLD 4163
P 07 3446 9100 | F 07 3446 9109

From: NR @ministerial.qld.gov.au>
Sent: Thursday, February 20, 2025 5:15 PM
To: Oodgeroo Electorate Office <Oodgeroo@parliament.qld.gov.au>
Subject: FW: Pedestrian refuge area, Russell Street, Cleveland near the intersection with Bloomfield Street

Good afternoon NR

I have been informed that NR s email relates to a council controlled road. As such our team with refer the email on the council for review and response.

Regards

NR
Office of the Hon Brent Mickelberg MP
Minister for Transport and Main Roads
Ph: (07) 3719 7110 **E** TransportandMainRoads@ministerial.qld.gov.au
1 William Street, Brisbane QLD 4000
Queensland Government

From: Transport and Main Roads <TransportandMainRoads@ministerial.qld.gov.au>
Sent: Thursday, February 20, 2025 12:58 PM
To: TMR DLO <TMR_DLO@tmr.qld.gov.au>
Subject: FW: Pedestrian refuge area, Russell Street, Cleveland near the intersection with Bloomfield Street

Hi Team,

Please review and respond.

NR

From: Oodgeroo Electorate Office <Oodgeroo@parliament.qld.gov.au>
Sent: Thursday, February 20, 2025 11:32 AM
To: Transport and Main Roads <TransportandMainRoads@ministerial.qld.gov.au>
Subject: Pedestrian refuge area, Russell Street, Cleveland near the intersection with Bloomfield Street

Good morning

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Council has advised that this area of roadway falls under State control.

We look forward to your reply in due course.

Kind regards

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TMR DLO

From: NR @ministerial.qld.gov.au>
Sent: Monday, 31 March 2025 5:54 PM
To: TMR DLO
Subject: RE: EE21923: Pedestrian refuge area, Russell Street, Cleveland near the intersection with Bloomfield Street

Categories: WAITING ON ADVICE, Chris

Thanks Chris. Could the regional office please contact the EO to talk through this advice. Please notify me of outcomes once completed.

Thanks
NR

From: TMR DLO <TMR_DLO@tmr.qld.gov.au>
Sent: Monday, March 31, 2025 5:51 PM
To: NR @ministerial.qld.gov.au>
Subject: RE: EE21923: Pedestrian refuge area, Russell Street, Cleveland near the intersection with Bloomfield Street

Hi NR

Please see below advice received for enquiry from Oodgeroo EO:

The Bloomfield Street and Russell Street roundabouts, which include the pedestrian refuge, are state-controlled.

- A Department of Transport and Main Roads (TMR) investigation, which considered the recorded crash history, confirmed there had been no pedestrian related incidents at this location.
- A further review of the existing signs and sight lines at this location has also been completed.
- The canopy of the tree impacting visibility of pedestrians crossing Russell Street has been trimmed. Signage providing motorists with advance warning of the refuge will also be upgraded by the end of the 2024/25 financial year, subject to weather.
- Safety improvements to the pedestrian refuge are being actioned. TMR does not plan on relocating the refuge.
- Pedestrians also have the option of using an alternative pedestrian refuge, located 160 metres west, near Waterloo Street.
- The Queensland Road Safety Technical User Volume (QRSTUV): Guide to Speed Management (GSM) sets out the way speed limits are determined and set on Queensland roads. For the setting of speed limits, the QRSTUV: GSM considers many factors, including crash history, traffic volumes and prevailing speeds, road function, construction standard, and abutting development. The process is referred to as a Speed Limit Review (SLR) and is required to be undertaken by a Registered Professional Engineer Queensland (RPEQ). When undertaking the SLR process the RPEQ is to be fully aware of all relevant facts that may inform the outcome of a SLR, including additional information from stakeholders who can inform the technical process.
- These national guidelines provide clear requirements for any section of road when considering a low-speed setting, such as 40 km/h.
- TMR plans to undertake a SLR of the entire section of the Cleveland-Redland Bay Road (including Russell Street and Bloomfield Street) by the end of 2025.
- The enforcement of speed zones falls under the jurisdiction of the Queensland Police Service (QPS).

Kind regards

Chris Cavanagh
Departmental Liaison Officer | Cabinet, Legislation and Executive Services
Corporate Division | Governance Branch | Department of Transport and Main Roads

Level 34 | 1 William Street | Brisbane Qld 4000
GPO Box 2644 | Brisbane Qld 4001
(07) 3338 4551
TMR_DLO@tmr.qld.gov.au
www.tmr.qld.gov.au

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Profile Request

Priority:	Routine	Refering Site:	https://www.tmr.qld.gov.au/About-us/Contact-us
Department: *	Transport and Main Roads	Accountable Area: *	Unassigned
Contact Confirmation Number:	RQ20253268130186		

Document Details

Document Type:	Website Enquiry	Sub Document Type: *	For reply direct
Subject:	Service request	Category:	Service request
Notes:		Third Party Details Consent Given:	Yes
Service/Request Type:	Roads/Maintenance		

Address block details (on the outgoing letter)

Author Type:	Organisation	Organisation:	Redland City Council
Author Name:	NR	Preferred Method of Contact:	By email
Title:		Phone Number:	NR
First Name:		Email Address:	NR@redland.qld.gov.au
Last Name:			
Address:	Redland City Council Cleveland Queensland		
Postcode:	4165		

Details

Has Enquirer Previously Raised Issue with Dept?:	
Feedback:	Request from Redland City Council RDM2025-02110 - Left turning line marking on road approaching roundabout has become faded and in urgent need of repainting. Resident nearly had a crash due to the cars in the left-hand land not seeing this "left only" and continued straight . Please refresh all arrows surrounding the roundabout on Bloomfield and Russell Street Cleveland, approx 16 arrows.
Requested Outcome:	
Complaint Reviewed:	

Requested by: QTMR Agent
Date requested: 26/03/2025 08:10:44 AM

Action Taken Form

Subject: Left turning line faded on roundabout at Bloomfield Street and Russell Street, Cleveland – RCC

Document ID:	WE117889

- On 3 April 2025, an officer from the Department of Transport and Main Roads (TMR) advised Redland City Council (RCC) that the arrows in question falls within RCC's area of jurisdiction
- The customer was satisfied with this outcome.

Contact Officer Details	Approved by (if applicable)
Name: **Jamshid Zareie**	Name: Marilyn Gaka
Position: Engineer	Position: Team Leader
Phone:	Phone:
Date: 1/4/25	Date: 3/4/25

Action Taken Form

Subject: OODGEROO EO about Russell Street Crossing Cleveland

Document ID:	EE21923

- On 9 April 2025, Mr Daniel Johnson, Deputy Regional Director (Metropolitan Region), Department of Transport and Main Roads (TMR) contacted Oodgeroo Electorate Office and spoke with NR.
- NR was aware of NR and the concerns he had raised about the pedestrian/scooter refuge crossing in Russell Street.
- Mr Johnson confirmed the Bloomfield Street and Russell Street is a TMR responsibility.
- Mr Johnson advised that TMR undertook the following investigations and actions:
  - consideration of the recorded crash history and confirmed there had been no pedestrian related incidents at this location
  - a further review of the existing signs and sight lines at this location was also completed
  - the canopy of the tree impacting visibility of pedestrians crossing Russell Street was trimmed
  - signage providing motorists with advance warning of the refuge will also be upgraded by the end of the 2024/25 financial year, subject to weather and other conditions
  - safety improvements to the pedestrian refuge are being actioned. TMR has plans to relocate the refuge in the future
  - TMR plans to undertake a Speed Limit Review of the entire section of the Cleveland-Redland Bay Road (including Russell Street and Bloomfield Street) by the end of 2025
  - the enforcement of speed zones falls under the jurisdiction of the Queensland Police Service.
- NR thanked Mr Johnson for providing the update and advised he will provide this information to the constituent.

Action Officer/Approved by:	Endorsed by OGM
Melanie Dei Rossi	Fiona Lee
Regional Director (Metropolitan)	Manager
Metropolitan Region	Program Delivery and Operations
Tel: 5475 2878	Tel: 3066 9604
Date: 9 April 2025	Date: 9 April 2025

AGRSP Project Change Request Form

Section 1 – TMR Project Details

Project Name	Cleveland - Redland Bay Road, Russell Street and Bloomfield Street intersection, undertake safety improvements		
Project Identifier Number # (3PCM / OPPM)	3027393	**Tranche #**	AGRSP 2023 - 2025
Submitted by *Name / Position*	Benjamin Everly Project Manager	**Date of Request**	10/06/2025
Region / District	Metropolitan	**Number** *Logged by BHUP Administrator on the TMR AGRSP Register (Completed by BHUP after PCR lodged)*	AGRSP-274-25

Section 2 – Summary of Change Request

Project Phase	☐ Concept ☒ Development ☐ Delivery ☐ Finalisation Next Key Milestone and Date: KM 8 01/07/2025
Project Phase	Design
Project Description (original scope)	This project is proposed to improve pedestrian access around the roundabout at the intersection and accessibility for cyclists.
Variance Categories	☐ Savings identified to be returned to state-wide bulk. ☐ Additional funding required due to scope of changes. ☐ Additional funding required due to cost overruns. ☐ Time: Accelerated Delivery (project progressing faster than anticipated / budgeted). ☐ Time: Project Delays (provide details for delays for example, delays with contractors, disputed claims, wet weather). ☒ No additional funding required, scope change only. ☐ Other, provide details:
Reason for Request	The original design concept aimed to reduce vehicle speeds approaching the roundabout through the use of speed platforms. However, on review, these platforms were not approved by TMR and lacked support from the local government authority (Redland City Council). Additionally, the concept did not adequately address past safety incidents at the intersection, including three involving vulnerable users. Of these incidents, only one was determined to be potentially mitigated by reducing entry speeds to the roundabout. As a result, the project team shifted the focus to improving overall navigation of the roundabout for all road users, whilst still providing a safety outcome.

Queensland Government

Details of proposed solution (revised scope)	The project team has collaborated with internal TMR teams (E&T) and Redland City Council to develop a revised concept plan aimed at enhancing vehicle navigation through the roundabout, with a particular focus on improving the refuge crossing on the western leg. Key elements of the plan include ensuring pram ramps are DDA-compliant, upgrading intersection signage, assessing and improving lighting, enhancing sightlines, and refining linemarking to support safer and clearer navigation. These improvements still aim to deliver a positive outcome for not just vehicles but particularly for vulnerable road users. Preliminary estimates indicate that the revised scope will be comparable in cost, and potentially slightly less expensive, than the original plan.
Location	Cleveland – Redland Bay Road (Road ID109) Bloomfield St/Russell St Intersection, Cleveland
Project Budget	Identify sub program and funding split: Investment Program: Targeted Road Safety Program Investment Sub-Program: Targeted Safety Interventions Funding Arrangement: $1.454M 50:50 Fed:State.

Funding Sources	Prior Year Actuals	Year 1		Year 2		Year 3		Total Allocation	
		Current	Revised	Current	Revised	Current	Revised	Current	Revised
AG	$61,316	$665,684	$99,426	$0	$566,258			$727,000	$727,000
QG	$61,316	$665,684	$99,426		$566,258			$727,000	$727,000
Other									
Total	$122,632	$1,331,368	$198,852	$0	$1,132,516			$1,454,000	$1,454,000
				Total Budget Change				**$0.00**	

Project Budget - Comments	No change to project budget.
Savings	No savings identified at this point in time, new scope uses full contingency.
Key Milestone (Time) Implications	No impact.
Change	☒ Change is critical (must occur for project success) ☐ Change is due to significant stakeholder interest ☐ Change is not critical but required ☒ Change will impact delivery or scope commitments *Provide details including timeframes:*

District / Regional Endorsement

This project change request has been reviewed and agreed that:

- *proposed scope and output/s are correct and acceptable*
- *planning requirements are met*
- *program requirements (time / $ / benefits) are met.*

Stakeholder	Name	Signature	Date
Project Manager	Benjamin Everly	NR	12/06/2025
Regional Program Manager	Thomas Baldridge		12/6/25
Deputy Regional Director	John Ryan		1 Aug 2025.
Regional Director	~~Melanie de Rossi~~ Stephen Mallows		4/8/2025

AG RSP Clearance

Comments	This project change request has been assessed for availability of funds and any impact to the overall program delivery. Endorsed - Project team have engaged with AGRSP Team to discuss options and involved E&T SRI in developing this alternative option aimed at the crash types. Endorsed / Not Endorsed		
Stakeholder	**Name**	**Signature**	**Date**
Program Director (BH & AGRSP)	Stephen Price	NR	05/08/2025
Comments	a. ~~Required funds are (**available / not available**)~~ N/A b. Project Change Request (~~**creates / not create**~~) any negative impact to the overall program delivery c. This Project Change request (***will be*** ~~**/ will not be**~~) progressed to Safer Roads Infrastructure for ~~transmission to DITRDCA for~~ approval If not, what is the reason..... Noting meetings and email discussions re scope changes - NW.		
Stakeholder	**Name**	**Signature**	**Date**
Director (Road Safety Programs)	Nicky Woodman		26/08/25

Note: Please follow the AGRSP PCR Approval Process outlined in the AGRSP PCR Guidelines.

Once endorsed by Regional Director please send to BHUP@tmr.qld.gov.au for processing.

The Administrator will provide a signed copy of this form to relevant Principal Advisor Program Performance, Principal Advisor Governance, Regional Program Manager and Program Director BHUP.

Safety in Design Report

Intersection of Bloomfield Street and Russell Street Safety Improvement

Date: 09 Jully 2025

Queensland Government

Creative Commons information

Document control options

Departmental approvals

Refer to the appropriate Risk Assessment Tool for relevant reviewer and approver

Date	Name	Position	Action required *(Review/endorse/approve)*	Due

Risk level

☐ GACC major ☐ GACC minor ☐ High risk (but not GACC) ☐ Medium risk

Prepared by	Billy Chang
Title	Designer (Civil)
District & Region	Metropolitan Region
Branch & Division	Program Delivery and Operations
Project/program	Safer Road Sooners
Project number	256-109-3027393
Project location	Bloomfield Street and Russell Street Roundabout – Safety Improvement Works
Status	Detail Design
DMS ref. no.	TAB

Contact for enquiries and proposed changes

If you have any questions regarding this document or if you have a suggestion for improvements, please contact

Project manager	Benjamin Thomson
Title	Engineer (Program Delivery and Operations)
District & Region	Metropolitan Region
Branch & Division	Program Delivery and Operations
Phone number	(07) 3066 9033

Contents

1 Introduction

1.1 Project Summary

The Engineering and Design team of the Metropolitan Region has been commissioned by the Delivery Team of the Metropolitan Region (that is, clients) to undertake a detail design for the safety improvement works at the roundabout intersection between Bloomfield Street (south) and Russell Street (west) conducting safety improvement works around the roundabout including footpath widening and installation of speed platforms. This intersection is controlled by the Department of Transport and Main Roads (TMR). Both the Bloomfield and Russell Streets are part of the Cleveland – Redland Bay Road (109) with a posted speed of 60km/h.

1.2 Project Background

Cleveland-Redland Bay Road (109) between chainage 0.62 to 0.80km consists of a roundabout with Bloomfield Street Running north-south direction, Russell Street on the western approach and two driveway assesses on the eastern approach. This roundabout also consists of pedestrian footpath, crossing, pedestrian underpass (SID: 270414) and major drainage structure (SID: 19963) located underneath the traffic lanes on the southern approach with fences and guardrails.

There have been five (5) crashes in the last five (10) years and three (3) of them were related to bicycle accidents. Due to the number of crashes related to cyclists, the Department of Transport and Main Roads (TMR) identified the need to;

- Linemarking improvements to increase roundabout navigation including removal of vegetation to increase sightlines
- Improvements to the western refuge crossing including TGSI's and DDA compliant ramps
- Lighting checked at the intersection and the existing is compliant
- Signs updated
- No update to intersection drainage
- Refuge island retained in light of change to signalised pedestrian crossing or wombat crossing due to traffic volume and effect on intersection to the west.

The scope of works is based on the project scope identification document (Scope Change)

1.3 Purpose of Document

This Safety in Design Report was prepared for the design for the upgrade of intersection between Bloomfield and Russell Street. This document outlines the identified risks for the Safety in Design Review (SiDR), and the mitigations designed to offset the risks.

The focus of this review was to consider the impacts of the proposed design compared to the existing issues between the above sections of road and identify potential hazards or risks that may require mitigation strategies to be documented. Safety in Design (SiD) aims to identify potential risks to persons, during construction, future operation and maintenance and eventual demolition of a facility. Where possible, these risks should be eliminated or limited during the design phase. The risks associated with identified hazards will be ranked before and after control measures are in place to identify whether sufficient risk reduction has been achieved through design, and if not, highlight that these risks need to be managed in downstream phases of the life of the facility.

The safety objectives relevant to the design phase are:

- To identify and document unusual hazards and risks that might be realised in the construction, operation, maintenance and/or demolition phases of the project life cycle and record associated mitigation measures incorporated into the design process.
- To demonstrate the elimination or reduction as far as is reasonably practical of potential design hazards such that those who properly construct, commission, maintain, repair, operate or use the facilities which are the subject of the design services are not unduly exposed to hazards.

- To communicate to the client unusual risks that have not been eliminated in the design and need to be managed during the construction, operation, maintenance and/or demolition phases.

In this context "unusual" refers to hazards which are not common within the construction industry and subject to longstanding and well proven risk reduction measures as would be practised by reputable and competent construction contractors.

This report fulfills the requirement of "the report" as stated in Section 295 of the Queensland Work Health and Safety Regulations 2011. It also provides a record of those hazards identified by Technical Services which are not related specifically to construction, but which have either bene mitigated as part of the design process or need to be managed by the client or organisations to which such management has been delegated by the client.

The objective of the report is to provide the clients the information on the risks identified during the SiDR and allow clients to communicate to their contractors, stakeholders and owners of mitigation actions.

2 Legal obligations

In Queensland, legislation and regulations exist which specify duties for designers, clients and main contractors within the construction industry (refer to the Queensland Work Health and Safety Act 2011 and Sections 295 and 296 of the Queensland Work Health and Safety Regulations 2011).

To meet these requirements, the designer (or each designer if there is more than one) must provide a specific written report to the client (defined as the person for whose direct benefit all the work done at a construction site exists, upon its completion). This report must set out:

- The hazards identified by the designer which are associated with the construction work required to build the design (e.g. hazardous structural features, hazardous construction materials or hazardous procedures or practices).
- The designer's assessment of the risk of injury or harm to a person resulting from those hazards.
- What actions the designer has taken to reduce those risks, (e.g. changes to the design or changes to construction methods or construction materials).
- Any parts of the design where hazards have been identified but not resolved.

Designers have further obligations under the Act to prevent or minimise risks in the design of the works so that the design does not adversely affect the workplace health and safety of persons

- During construction of the works
- When the work has been constructed and is being used for the purpose for which it was designed
- During routine maintenance

Client's obligations under these regulations are as follows:

- To consult with the designer for the purpose of ensuring, as far as practicable, that persons doing the construction work may do so without risk to their health and safety
- To ensure that, as far as practicable, any information they receive about identified hazards and related risk control measures, is passed on to the main contractor (if the client is not the main contractor) and to anyone who obtains the end product.

During the construction phase, clients should also bring information from the main contractor to the attention of the designer, should it become apparent that a change to the design could either eliminate or better control a risk to safety and health at the construction site.

The clients must communicate this report including the Safety in Design Matrix and the Risk Register to the key stakeholders, contractors and owners of mitigation actions and advise Technical Services in a timely fashion of any issues or changes to the basis of design which might prompt reassessment of the design in order to reduce risks to health and safety during construction or at other times over the facility lifecycle.

3 Assumptions

The following assumptions were made during the SiD process:

- Scope is limited to hazards reasonably foreseeable at the time of the review and resulting from design aspects of the infrastructure for which Technical Services is responsible. Hazards arising due to normal site construction, installation, maintenance or operation as covered by WorkSafe Queensland, safe installation methods, Australian codes and standards, local codes and guidelines and so on, are not part of this review.
- The SiD process was completed based on current industry good practice and knowledge, and to the standard of skill, care and diligence as is reasonably expected of Technical Services performing the same or similar services.
- Any construction, operation, maintenance or demolition of the facilities will be carried out by organisations and/or personnel with appropriate knowledge, competence and skills to undertake such tasks
- Any organisation or person responsible for any of construction, operation, maintenance or demolition of the facilities will review and update/incorporate any new risks into the Risk Register as and when required

4 Methodology

Technical Services has held an internal SiDR review and the review is only restricted to those areas of the design for which Engineering and Design is responsible, and hence did not address any other design issues.

The SiDR were identified by the project team involved with the delivery of the project;

- Manoj – Project RPEQ
- Lachlan Weeks – Principal Civil Designer
- Billy Chang – Senior Civil Designer

The outcomes of the assessment are identified in Appendix A. Each identified risk was analysed through an assessment of the likelihood of the risk occurring together with the consideration of the effects or consequences of those risks if they do not eventuate.

5 Recommendations

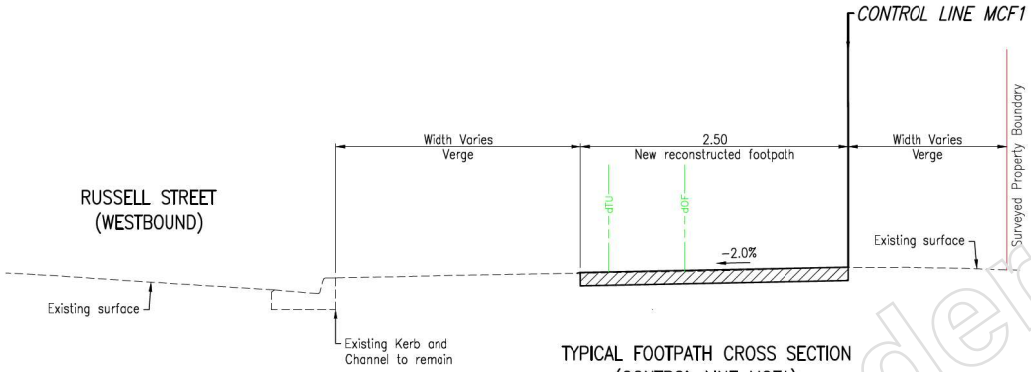
It is recommended that results and findings of the SiDR process are to be continually developed and communicated to the relevant stakeholders during subsequent project phases. The findings from this report are to be included in the Risk Register for construction, maintenance and operational activities. All parties (including Technical Services and the clients) will fulfill their obligations under the legislation.

Appendix A – Safety in Design Register

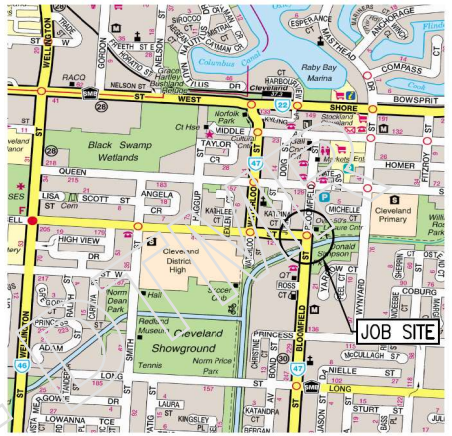
ITEM			RISK IDENTIFICATION				RISK MITIGATION/CONTROL		RESIDUAL RISK			
Workshop & ID. No.	Phase	Discipline	POTENTIAL RISK	UNMITIGATED RISK SCORE			POTENTIAL ELIMINATION MEASURE, DESIGN INITIATIVE or CONTROL (Identify any Standard or Code of practice used)	HOW THE ISSUE IS ADDRESED IN DESIGN AND/OR CONSTRUCTION OF THE WORKS	If not eliminated RESIDUAL RISK SCORE			RESIDUAL RISK OWNER
			Hazard	Likelihood (0-5)	Consequence (0-5)	Rating			Likelihood (0-5)	Consequence (0-5)	Rating	
1	Construction	General	Impact on emergency services and delays getting to accidents and emergencies	3	5	High	Traffic management and consultation with emergency vehicles to ensure that alternate routes are planned and organised and access is maintained	Contractor and client to consult with emergency vehicles	2	5	Medium	Client and Contractor
2	Construction	General	Accidents involving vulnerable road users (e.g. pedestrians and cyclists)	3	5	High	Client to stipulate construction traffic management to adequately accommodate for vulnerable users in the document prototype as client is responsible for developing the contract prototype	Contractor and client to ensure that appropriate measures are in place for vulnerable users	3	4	Medium	Client and Contractor
3	Construction	General	Risks associated with works next to live traffic	3	5	High	Client to communicate the requirements for management of works as client is responsible for developing the contract prototype	Client to ensure that appropriate requirements for management of work are communicated to Contractor and the Contractor implements appropriate measures	2	5	Medium	Client
4	Construction	General	Restricted access for construction plant resulting in constrained working area creating risk to workers	3	4	Medium	Client to stipuate the requirement of construction plants to the Contractor.	Client to ensure that the Contractor adops appropriate construction plants to reduce risks to workers	2	3	Low	Client
5	Construction	General	Risk of traffic accidents due to drivers being distracted by construction works	3	4	Medium	Contractor to provide appropriate anti-gawk screens where required.	Client and Contractor to assess the need for temporary anti-gawking screens and install them as required	2	3	Low	Client and Contractor
6	Construction	Civil and Electrical	Risks associated with damage to existing or new PUP infrastructure resulting in injury to people in close proximity to incident.	4	5	Extreme	Undertake site investigation of all PUP and document in drawings and reports	Documentation of PUP in drawings and reports	3	4	Medium	Client and Contractor
7	Construction	General	Lack of security of the site during construction causing equipment to be damaged	3	4	Medium	Client to stipuate the requirement of secuirty of the site to the Contractor.	Contractor to provide appropriate fencing or other site access treatments	2	3	Low	Contractor
8	Design	Civil	Existing signage insufficient and sign faces out dated and this may confuse or mislead road users	2	2	Low	Site audits of signage to be completed during design. Replace them as required.	Existing signage to be updated and installed Contractor to install as per the drawings	2	1	Low	Contractor
9	Construction	General	Drivers not expecting change in condition during construction resulting in traffic accidents	4	4	High	Construction traffic management to include compliant traffic guidance schemes, VMS	Construction traffic management to include compliant traffic guidance schemes, VMS	3	4	Medium	Client and Contractor
10	Construction	General	Nighworks - worker fatigue results in accidents	4	4	High	Contractor to be made aware of faiture management and working hours in order to resource properly	Contractor to have separate day and night crews and fatigue management	2	4	Medium	Contractor
11	Operations and Maintenance	Civil	Pavement failure (cracks/potholes) results in traffic accident	2	4	Medium	Pavement design to be reviewed by client and comments to be incorporated Contractor to construct in accordance with drawings and standards Client to ensure regular maintenance on pavement	Documentation of pavement design in drawings and reports Contractor to follow drawings and standards during constructions	1	4	Low	Client and Contractor
12	Construction	Civil	Rain and pavement boxes not drained resulting in unstable slopes - falls, vehicles rolls and so on	3	4	Medium	Client to include requirements of exclusion zones, barriers and wet weather management in the contract prototype	Exclusion zones and barriers to established by contractor. Wet weather management by contractor	2	4	Medium	Contractor

13	Construction and Maintenance	Civil	Construction and maintance of signs - potential clashes with overhead power resulting in electroction of workers	3	5	High	Engineering controls; Position signs and ensure sufficient clearance from OH power Contractor's controls: Implement appropriate safe work statements	Design to position signs away from OH power were practicable. Construction and maintenance contractors to have safe work statements including work adjacent to OH power	2	4	Medium	Client and Contractor
14	Construction	General	Pedestrian access (e.g. children, students, aged and infirm) is limited requiring peds to take risks crossing traffic leading to accident and injuries	3	5	High	Specification/annexure prepared by client to stipulate specific requirements during construction	Construction traffic management to include provision for safe pedestrian access.	2	4	Medium	Client and Contractor
15	Construction	Electrical	Lighting during construction for traffic and peds. Lack of lighting or glare results in accidents	3	5	High	Client to ensure that appropriate lighting requirements are included in the contract prototype as the client is responsible for preparing the contract prototype	Contractor to use "'Moonballs" for temporary lighting and install temporary lighting in accordance with relevant standards	2	4	Medium	Client and Contractor
16	Construction and Maintenance	Civil and Electrical	Services - unknown impacts and unidentified services - high pressure water, gas; electrical services may result in injury to workers if impacted	3	5	High	Engineering controls: Locate services and information to be included in drawings and reports Contractor's controls: Understand the PUP information in the drawings and complete PUP investigation Client's controls: Ensure that contractors and maintenance workers are aware of the PUP risks	Services to be located to extent possible and drawings to provide contractor with adequate information of existing services while still obliging them to be responsible for duty of care.	2	4	Medium	Client and Contractor
17	Construction and Maintenance	Civil and Electrical	Working near gas, HV - danger to workers and general public	3	5	High	Contractor to implement appropriate safe work methods statements and PUP investigation Client to inform contractors and maintenance workers of the risks	Safe work practice and managemnt to include working adjacent to gas and power.	2	4	Medium	Client and Contractor
18	Operations and Maintenance	Electrical	Power poles close to traffic lanes - vehicle impact	3	5	High	There are no accidents related to motorists hitting the poles. Insufficient room and budget to move poles. Barrier protection is not practical. Poles need to remain.	Client is made aware of the risks and agree to monitor	2	4	Medium	Client
19	Construction	Civil and Electrical	Asbestos in UG services being removed with workers or public being exposed resulting in health issues	2	4	Medium	Consider leaving in place if possible. Client to communicate risks and stipulates appropriate management requirements in the contract prototype as the client is responsible for development of contract prototype	Appropriate management plan by Contractor in place for any asbestos materials to be removed.	1	4	Low	Client and Contractor
20	Construction and Maintenance	Civil and Electrical	Depth of services in relation to the construction loads and vibration. May result in breakages - gas, water - resulting in injury to workers and public	3	4	Medium	Engineering controls: Locate services and information to be included in drawings and reports Contractor's controls: Understand the PUP information in the drawings and complete PUP investigation Client's controls: Ensure that contractors and maintenance workers are aware of the PUP risks	Services to be located to extent possible and drawings to provide contractor with adequate information of existing services while still obliging them to be responsible for duty of care.	2	4	Medium	Client and Contractor
21	Construction and Maintenance	General	Working under overhead powerlines - potential for workers to be electrocuted/burned	3	4	Medium	Engineering controls: Locate services and information to be included in drawings and reports Contractor's controls: Implement appropriate measures Client's controls: Ensure that contractors and maintenance workers are aware of the PUP risks and stipulate requirements in contract prototype as client is responsible for preparing the contract prototype	Contract drawings to have OH power clearly noted with warnings. Contractor to have an implement OH elec safety management for works in proximity	2	4	Medium	Client and Contractor

REDLAND CITY COUNCIL
CLEVELAND REDLAND BAY ROAD (109)
CH 0.55km - 0.85km
SAFETY IMPROVEMENTS



TYPICAL FOOTPATH CROSS SECTION
(CONTROL LINE MCF1)
Scale A

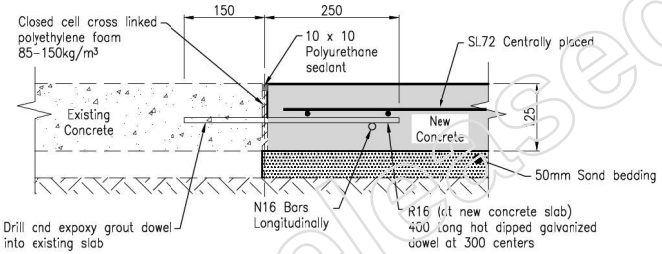


LOCALITY PLAN
NTS

DRAWING INDEX

Drawing Number	Revision	Date	Series Number	Drawing Description
959971	A	22/10/2025	1	LOCALITY PLAN, DRAWING INDEX AND TYPICAL CROSS SECTION
959972	A	22/10/2025	2	EXISTING FEATURES AND SERVICES
959973	A	22/10/2025	3	CONTROL LINES AND SETOUT DETAILS SHEET 1 OF 2
959974	A	22/10/2025	4	CONTROL LINES AND SETOUT DETAILS SHEET 2 OF 2
959975	A	22/10/2025	5	GENERAL ARRANGEMENT AND LINEMARKING
959976	A	22/10/2025	6	SIGNS LAYOUT
959977	A	22/10/2025	7	LONGITUDINAL SECTION CONTROL LINE MC01 (PEDESTRIAN CROSSING)

TOTAL NUMBER OF DRAWINGS = 7



CONSTRUCTION DETAIL – DOWEL JOINT TO EXISTING CONCRETE SLAB
Scale B

NOTES – FIXING DOWELS

1. Drilled dowels must be fixed using a suitable two-component epoxy or polyester setting system (resin) which is thoroughly mixed within the injection delivery system.
2. Cleanliness is critica to achieving good pull-out strength. Drilling dust and other debris must be cleaned out of the holes using an industrial vacuum cleaner or oil-free compressed air. In both cases, a nozzle must be used which reaches the end of the hole to ensure that no dust remains in the hole.
3. A nozzle must be used which reaches the end of the hole to ensure the resin completely fills the hole when the dowel is inserted.

SCHEME SUBMITTED: *(External Consultants or Internal Business Unit):*

This design meets the requirements of all relevant Australian Standards, Austroads Guidelines and Transport and Main Roads – Policies, References, Standards, Planning and Design Instructions, Guidelines and the requirements of the project brief/functional specifications.

FULL NAME: Manoj D Mudiyanselage DATE: 23/10/2025

POSITION TITLE: Principle Engineer ORGANISATION: Dept. of Transport and Main Roads

SIGNED (F WET INK):

SCHEME SCOPE AND FINANCIAL APPROVAL: *(Regional Director or Delegate):*

I hereby certify that this scheme complies with the intent of the scope and financial limits of the relevant project on QTRIP and the scheme is approved for release in accordance with that program.

FULL NAME: Victor Jayawardana DATE: 23/10/2025

POSITION TITLE: Principle Engineer

SIGNED (F WET INK):

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A	Issued For Construction		
	Revisions/Descriptions	Signatory: – RPEQ Full Name, Eng. Area and RPEQ No. or – Full Name and Position Title	Date

CAD FILES G:\WHRF-Projects\256-RCC\256-109-3027393 Bloomfield St R_About\3_Development_Revised Scope_2025\Design\WM\02_Drawings\959971_A.dwg

Associatec Job Nos

Auxiliary Drg Nos 959971 – 959977

Survey Data	
Horiz. Datum	GDA2020
Horiz. Grid	GDA2020 MGA ZONE 56
Height Datum	AHDD
Survey Books	MR104691

Scales
Scale A 0 0.5 1.0m
Scale B 0 50 100 150 200mm
Dimensions shown in metres except where shown otherwise

REDLAND CITY COUNCIL
CLEVELAND – REDLAND BAY ROAD (109)
CTL CHGE 0.55 TO 0.85

Reference Points

Preceding RP	Dist. to start of job (km)	From start to end of job	From end to Following RP	Following RP
8Z	0.58	0.20	2.04	11Z

Through Chainage from

LOCALITY PLAN, DRAWING INDEX AND TYPICAL CROSS SECTION

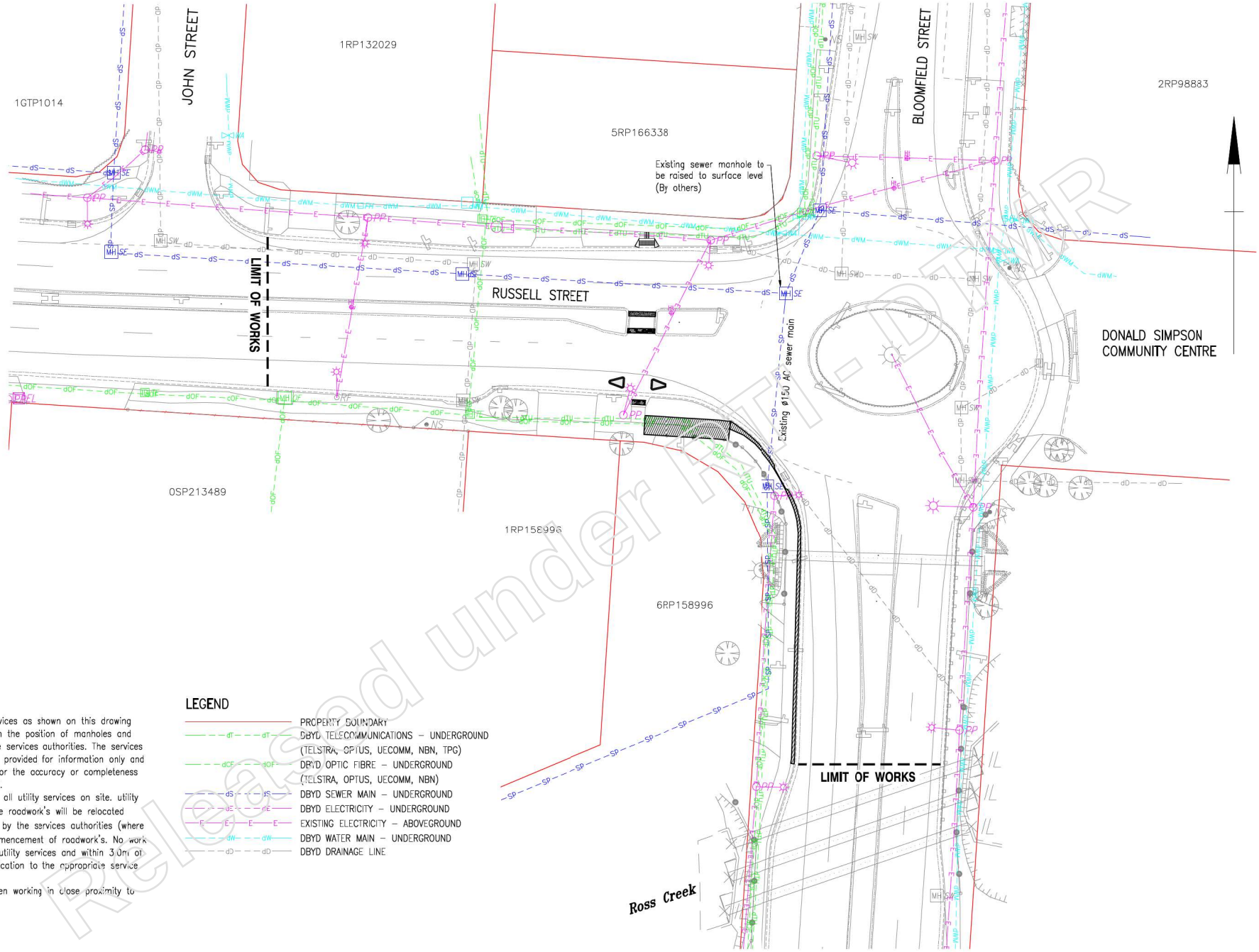
ENGINEERING CERTIFICATION (RPEQ)

ENG. AREA	SIGNATORY FULL NAME	No.	DATE
Civil	Manoj.D.Mudiyanselage	09454	23/10/2025

Queensland Government

Job No. 256/109/3027393
Contract No. CN24221
Drawing No. 959971 A
Series Number 1 of 7

Last Modified :- Oct 23, 2025 - 8:58am XREFS :-



GENERAL NOTES

1. The locations of utility services as shown on this drawing have been determined from the position of manholes and information supplied by the services authorities. The services shown on this drawing are provided for information only and no responsibility is taken for the accuracy or completeness of the information supplied.
2. The contractor shall check all utility services on site. utility services in conflict with the roadwork's will be relocated and/or concrete protected by the services authorities (where possible) prior to the commencement of roadwork's. No work is to be carried out over utility services and within 3.0m of services without prior notification to the appropriate service authorities.
3. Caution is to be taken when working in close proximity to utility services.

LEGEND

- PROPERTY BOUNDARY
- DBYD TELECOMMUNICATIONS – UNDERGROUND (TELSTRA, OPTUS, UECOMM, NBN, TPG)
- DBYD OPTIC FIBRE – UNDERGROUND (TELSTRA, OPTUS, UECOMM, NBN)
- DBYD SEWER MAIN – UNDERGROUND
- DBYD ELECTRICITY – UNDERGROUND
- EXISTING ELECTRICITY – ABOVEGROUND
- DBYD WATER MAIN – UNDERGROUND
- DBYD DRAINAGE LINE

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A	Issued For Construction		
	Revisions/Descriptions	Signatory: – RPEQ Full Name, Eng. Area and RPEQ No. or – Full Name and Position Title	Date

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Associatec Job Nos	
Auxiliary Drg Nos	959971 – 959977

Survey Data	
Horiz. Datum	GDA2020
Horiz. Grid	GDA2020 MGA ZONE 56
Height Datum	AHDD
Survey Books	MR104691

Scales: 0 2 4 6 8 10m

Dimensions shown in metres except where shown otherwise

REDLAND CITY COUNCIL

CLEVELAND – REDLAND BAY ROAD (109)

CTL CHGE 0.55 TO 0.85

Reference Points

Preceding RP	Dist. to start of job (km)	From start to end of job	From end to Following RP	Following RP
8Z	0.58	0.20	2.04	11Z

Through Chainage from

EXISTING FEATURES AND SERVICES

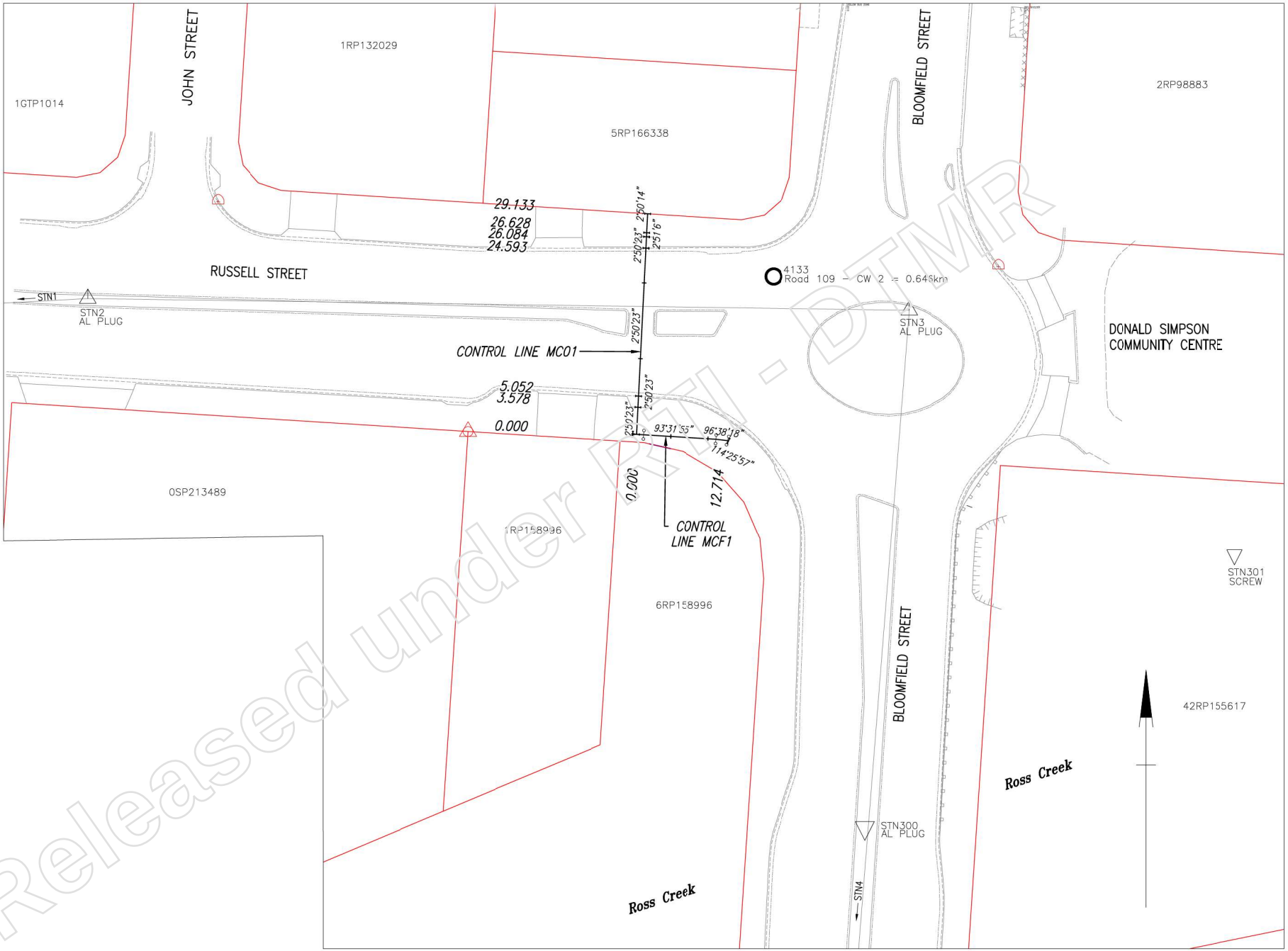
ENGINEERING CERTIFICATION (RPEQ)

ENG. AREA	SIGNATORY FULL NAME	No.	DATE
Civil	Manoj.D.Mudiyanselage	09454	23/10/2025

Queensland Government

Job No.	256/109/3027393
Contract No.	CN24221
Drawing No.	959972 A
Series Number	2 of 7

Last Modified :- Oct 23, 2025 – 8:58am XREFS :- xr_Survey104691.dwg ; xr_DBYD 12_4_2024.dwg ; xr_DROA_Revised Design.dwg



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A	Issued For Construction		
	Revisions/Descriptions	Signatory: – RPEQ Full Name, Eng. Area and RPEQ No. or – Full Name and Position Title	Date

CAD FILES | G:\WHRF-Projects\256-RCC\256-109-3027393 Bloomfield St R_About\3_Development_Revised Scope_2025\Design\WM\02_Drawings\959973-974_A.dwg

Associatec Job Nos

Auxiliary Drg Nos
959971
– 959977

Survey Data	
Horiz. Datum	GDA2020
Horiz. Grid	GDA2020 MGA ZONE 56
Height Datum	AHDD
Survey Books	MR104691

Scales
0 2 4 6 8 10m

Dimensions shown in metres except where shown otherwise

REDLAND CITY COUNCIL

CLEVELAND – REDLAND BAY ROAD (109)

CTL CHGE 0.55 TO 0.85

Reference Points

Preceding RP	Dist. to start of job (km)	From start to end of job	From end to Following RP	Following RP
8Z	0.58	0.20	2.04	11Z

Through Chainage from

CONTROL LINE AND SETOUT DETAILS
SHEET 1 OF 2

ENGINEERING CERTIFICATION (RPEQ)

ENG. AREA	SIGNATORY FULL NAME	No.	DATE
Civil	Manoj.D.Mudiyanselage	09454	23/10/2025

Queensland Government

Job No.	256/109/3027393
Contract No.	CN24221
Drawing No.	959973 A
Series Number	3 of 7

Last Modified :- Oct 23, 2025 – 8:59am XREFS :- xr_Control Lines.dwg ; xr_Survey104691.dwg

Primary Instrument Stations : PISP

Name	Easting	Northing	Height	Combined Scale Factor	Commen:
STN7	526016.962	6954860.599	12.826	0.99959982	AL PLUG
STN1	526150.137	6954827.214	9.727	0.99960039	AL PLUG
STN2	526244.285	6954832.332	8.130	0.99960071	AL PLUG
STN3	526352.630	6954830.786	6.714	0.99960100	AL PLUG
STN4	526342.275	6954699.410	6.629	0.99960101	AL PLUG
STN8	526378.308	6954649.754	6.183	0.99960110	AL PLUG
STN9	526429.634	6954636.049	6.339	0.99960111	AL PLUG
STN10	526489.659	6954673.941	6.028	0.99960120	AL PLUG

Permanent Reference Points : PRFP

Name	Easting	Northing	Height	Combined Scale Factor	Comment
4133	526334.791	6954835.243	6.298	0.99960105	Road 109 – CW 2 = 0.646km

Other Instrument Stations : PISO

Name	Easting	Northing	Height	Combined Scale Factor	Comment
STN300	526346.812	6954762.373	6.661	0.99960100	AL PLUG
STN301	526395.663	6954798.378	5.611	0.99960120	SCREW
STN302	526363.107	6954882.439	7.050	0.99960095	SCREW

Fixed Survey Control : PFSC

Name	Easting	Northing	Height	Combined Scale Factor	Comment
PM92444	526027.361	6954996.481	Null		BRASS PLAQUE Vide SCDB QLD ANJ 23.10
PM44335	526557.380	6954653.352	5.842	0.99960127	BRASS PLAQUE Vide SCDB QLD ANJ 23.10 (Height Datum) Cass D/4th Order

Permanent Marks : PPMK

Name	Easting	Northing	Height	Combined Scale Factor	Comment
PM44334	526353.554	6954647.880	6.328	0.99960106	BRASS PLAQUE
PM92444	526027.361	6954996.481	13.454	0.99959973	BRASS PLAQUE Vide SCDB QLD ANJ 23.10
PM44335	526557.380	6954653.352	5.842	0.99960127	BRASS PLAQUE Vide SCDB QLD ANJ 23.10 (Height Datum) Class D/4th Order

CONTROL LINE MCF1 VERTICAL

PT	CHAINAGE	HEIGHT
IP 1	0.000	6.493
IP 2	2.000	6.448
IP 3	3.000	6.425
IP 4	7.000	6.327
IP 5	8.000	6.305
IP 6	11.041	6.245
IP 7	12.591	6.204
IP 8	12.714	6.200

CONTROL LINE MCF1 HORIZONTAL

PT	CHAINAGE	EASTING	NORTHING	HEIGHT	BEARING
IP 1	0.000	526316.188	6954814.452	6.493	93°31'55.06"
IP 2	1.431	526317.617	6954814.364	6.461	
IP 3	11.041	526327.208	6954813.772	6.245	
IP 4	12.591	526328.748	6954813.593	6.204	
IP 5	12.714	526328.860	6954813.542	6.200	114°25'56.59"

CONTROL LINE MC01 HORIZONTAL

PT	CHAINAGE	EASTING	NORTHING	HEIGHT	BEARING
IP 1	0.000	526316.697	6954814.421	6.482	2°50'23.08"
IP 2	3.578	526316.874	6954817.995	6.362	
IP 3	5.052	526316.947	6954819.466	6.176	
IP 4	24.593	526317.915	6954838.984	6.235	
IP 5	25.084	526317.989	6954840.473	6.421	
IP 6	25.628	526318.016	6954841.015	6.461	
IP 7	29.133	526318.140	6954843.518	6.490	2°50'13.69"

CONTROL LINE MC01 VERTICAL

PT	CHAINAGE	HEIGHT
IP 1	0.000	6.482
IP 2	2.000	6.415
IP 3	3.578	6.362
IP 4	5.052	6.176
IP 5	6.000	6.262
IP 6	8.000	6.392
IP 7	10.000	6.498
IP 8	12.000	6.561
IP 9	14.000	6.617
IP 10	16.000	6.594
IP 11	18.000	6.530
IP 12	20.000	6.490
IP 13	22.000	6.399
IP 14	24.000	6.266
IP 15	24.593	6.235
IP 16	26.221	6.438
IP 17	26.628	6.461
IP 18	28.000	6.477
IP 19	29.133	6.490

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A	Issued For Construction		
	Revisions/Descriptions	Signatory: – RPEQ Full Name, Eng. Area and RPEQ No. or – Full Name and Position Title	Date

Associatec Job Nos

Auxiliary Drg Nos 959971 – 959977

Survey Data	
Horiz. Datum	GDA2020
Horiz. Grid	GDA2020 MGA ZONE 56
Height Datum	AHDD
Survey Books	MR104691

Scales

Dimensions shown in metres except where shown otherwise

REDLAND CITY COUNCIL

CLEVELAND – REDLAND BAY ROAD (109)

CTL CHGE 0.55 TO 0.85

Reference Points

Preceding RP	Dist. to start of job (km)	From start to end of job	From end to Following RP	Following RP
8Z	0.58	0.20	2.04	11Z

Through Chainage from

CONTROL LINES AND SETOUT DETAILS SHEET 2 OF 2

ENGINEERING CERTIFICATION (RPEQ)

ENG. AREA	SIGNATORY FULL NAME	No.	DATE
Civil	Manoj.D.Mudiyanselage	09454	23/10/2025

Queensland Government

Job No. 256/109/3027393

Contract No. CN24221

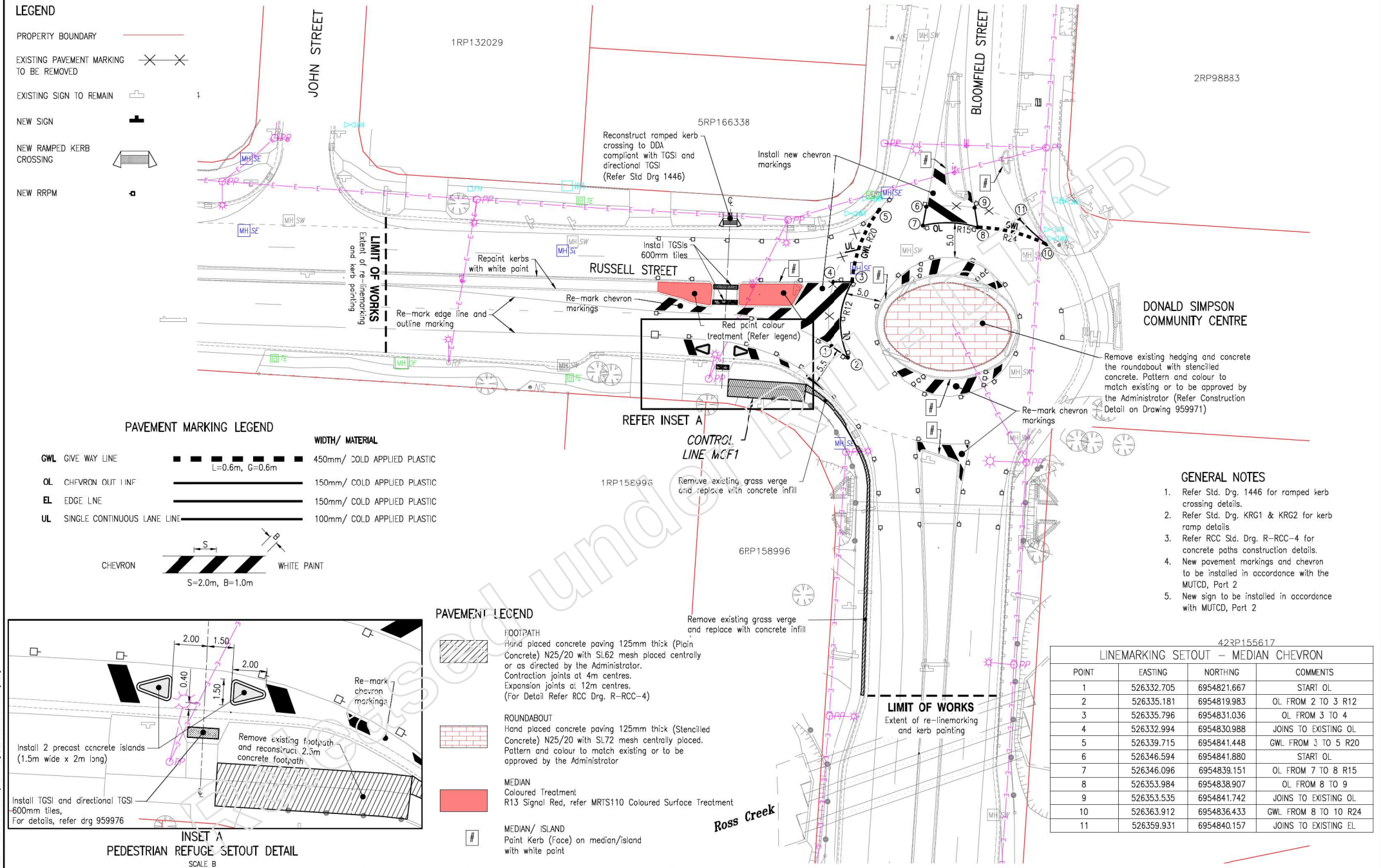
Drawing No. 959974 A

Series Number 4 of 7

CAD FILES G:\WHRF-Projects\256-RCC\256-109-3027393 Bloomfield St R_About\3_Development_Revised Scope_2025\Design\WM\02_Drawings\959973-974_A.dwg

XREFS :- xr_Control Lines.dwg ; xr_Survey104691.dwg

Last Modified :- Oct 23, 2025 - 9:00am



GENERAL NOTES

1. Refer Std. Drg. 1446 for ramped kerb crossing details.
2. Refer Std. Drg. KRG1 & KRG2 for kerb ramp details.
3. Refer RCC Std. Drg. R-RCC-4 for concrete paths construction details.
4. New pavement markings and chevron to be installed in accordance with the MUTCD, Part 2
5. New sign to be installed in accordance with MUTCD, Part 2

LINEMARKING SETOUT – MEDIAN CHEVRON

POINT	EASTING	NORTHING	COMMENTS
1	526332.705	6954821.667	START OL
2	526335.181	6954819.983	OL FROM 2 TO 3 R12
3	526335.796	6954831.036	OL FROM 3 TO 4
4	526332.994	6954830.988	JOINS TO EXISTING OL
5	526339.715	6954841.448	GWL FROM 3 TO 5 R20
6	526346.594	6954841.880	START OL
7	526346.096	6954839.151	OL FROM 7 TO 8 R15
8	526353.984	6954838.907	OL FROM 8 TO 9
9	526353.535	6954841.742	JOINS TO EXISTING OL
10	526363.912	6954836.433	GWL FROM 8 TO 10 R24
11	526359.931	6954840.157	JOINS TO EXISTING EL

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A	Issued For Construction	

Revisions/Descriptions | Signatory: – RPEQ Full Name, Eng. Area and RPEQ No. or – Full Name and Position Title | Date

CAD FILES | G:\WHRF-Projects\256-RCC\256-109-3027393 Bloomfield St R_About\3_Development_Revised Scope_2025\Design\WM\02_Drawings\959975_A.dwg

Associatec Job Nos	
Auxiliary Drg Nos	959971 – 959977

Survey Data	
Horiz. Datum	GDA2020
Horiz. Grid	GDA2020 MGA ZONE 56
Height Datum	AHDD
Survey Books	MR104691

Scales
SCALE A 0 2 4 6 8 10m
SCALE B 0 1 2 3 4m
Dimensions shown in metres except where shown otherwise

REDLAND CITY COUNCIL
CLEVELAND – REDLAND BAY ROAD (109)
CTL CHGE 0.55 TO 0.85

Reference Points

Preceding RP	Dist. to start of job (km)	From start to end of job	From end to Following RP	Following RP
8Z	0.58	0.20	2.04	11Z

Through Chainage from

GENERAL ARRANGEMENTS AND LINEMARKING

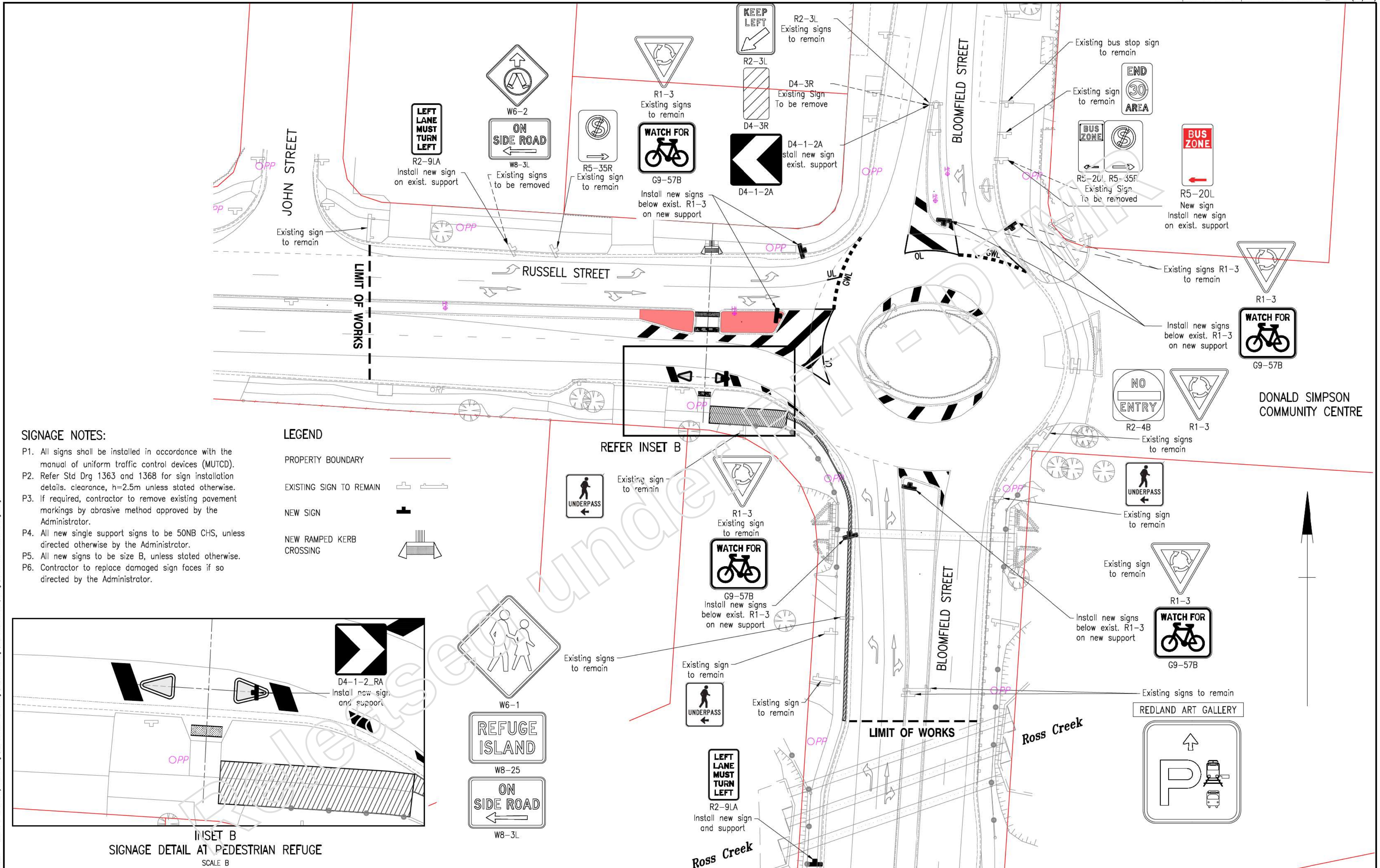
ENGINEERING CERTIFICATION (RPEQ)

ENG. AREA	SIGNATORY FULL NAME	No.	DATE
Civil	Manoj.D.Mudiyanselage	09454	23/10/2025

Queensland Government

Job No.	256/109/3027393
Contract No.	CN24221
Drawing No.	959975 A
Series Number	5 of 7

Last Modified :- Oct 23, 2025 – 9:03am
XREFS :- xr_Survey104691.dwg ; xr_DROA_Revised Design.dwg



SIGNAGE NOTES:

- P1. All signs shall be installed in accordance with the manual of uniform traffic control devices (MUTCD).
- P2. Refer Std Drg 1363 and 1368 for sign installation details. clearance, h=2.5m unless stated otherwise.
- P3. If required, contractor to remove existing pavement markings by abrasive method approved by the Administrator.
- P4. All new single support signs to be 50NB CHS, unless directed otherwise by the Administrator.
- P5. All new signs to be size B, unless stated otherwise.
- P6. Contractor to replace damaged sign faces if so directed by the Administrator.

LEGEND

- PROPERTY BOUNDARY
- EXISTING SIGN TO REMAIN
- NEW SIGN
- NEW RAMPED KERB CROSSING

Rev	Revisions/Descriptions	Signatory	Date
F			
E			
D			
C			
B			
A	Issued For Construction		
	Revisions/Descriptions	Signatory: – RPEQ Full Name, Eng. Area and RPEQ No. or – Full Name and Position Title	Date

Associated Job Nos	Survey Data		Scales
	Horiz. Datum	GDA2020	SCALE A 0 2 4 6 8 10m
Auxiliary Drg Nos 959971 – 959977	Horiz. Grid	GDA2020 MGA ZONE 56	SCALE B 0 1 2 3 4m
	Height Datum	AHDD	
	Survey Books	MR104691	Dimensions shown in metres except where shown otherwise

REDLAND CITY COUNCIL

CLEVELAND – REDLAND BAY ROAD (109)

CTL CHGE 0.55 TO 0.85

Preceding RP	Dist. to start of job (km)	From start to end of job	From end to Following RP	Following RP
8Z	0.58	0.20	2.04	11Z

Through Chainage from

SIGNS LAYOUT

ENGINEERING CERTIFICATION (RPEQ)

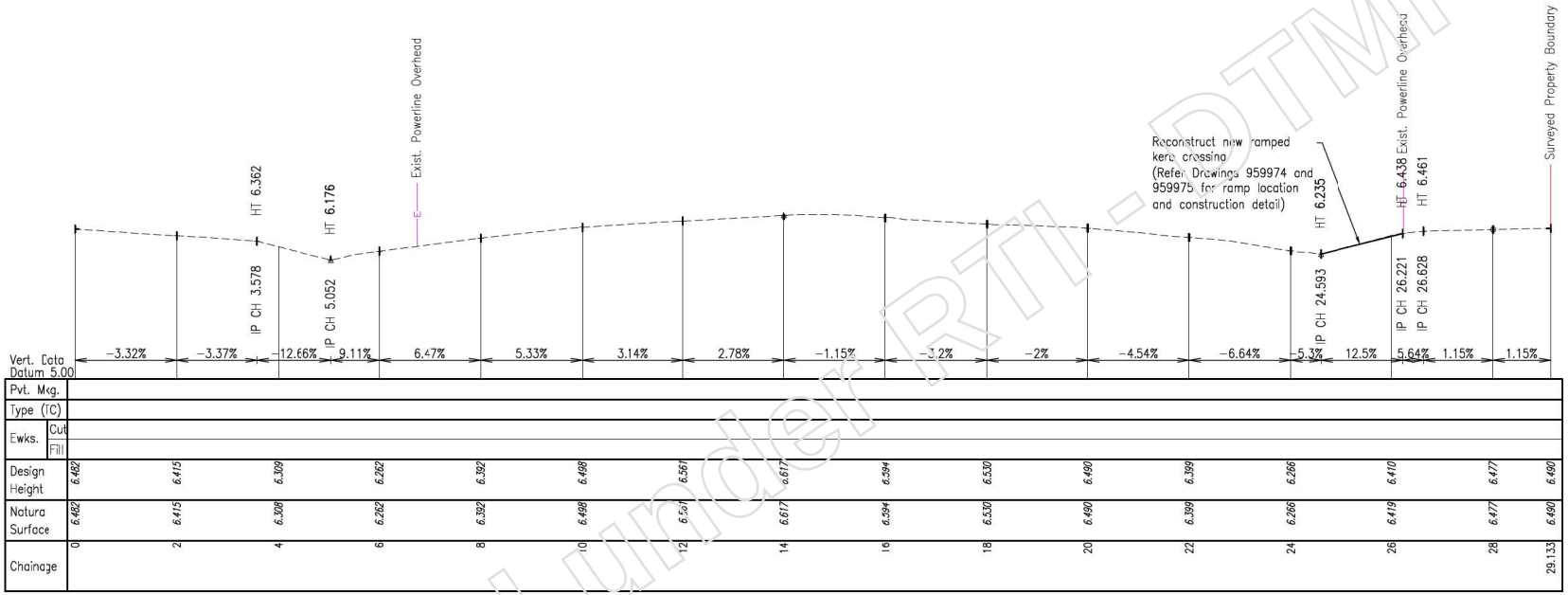
ENG. AREA	SIGNATORY FULL NAME	No.	DATE
Civil	Manoj.D.Mudiyanselage	09454	23/10/2025

Queensland Government

Job No.	256/109/3027393
Contract No.	CN24221
Drawing No.	959976 A
Series Number	6 of 7

CAD FILES G:\WHRF-Projects\256-RCC\256-109-3027393 Bloomfield St R_About\3_Development_Revised Scope_2025\Design\WM\02_Drawings\959976_A.dwg

Last Modified :- Oct 23, 2025 – 9:03am XREFS :- xr_Survey104691.dwg ; xr_Control Lines.dwg ; xr_DRQA.dwg ; xr_DRQA_Concept.dwg ; xr_DRQA_Revised Design.dwg



LONGITUDINAL SECTION – MC01 CONTROL

F			
E			
D			
C			
B			
A	Issued For Construction		
	Revisions/Descriptions	Signatory: – RPEQ Full Name, Eng. Area and RPEQ No. or – Full Name and Position Title	Date

CAD FILES: G:\WHRF-Projects\256-RCC\256-109-3027393 Bloomfield St R_About\3_Development_Revised Scope_2025\Design\WM\02_Drawings\959977_A.dwg

Associatec Job Nos:

Auxiliary Drg Nos: 959971 – 959977

Survey Data	
Horiz. Datum	GDA2020
Horiz. Grid	GDA2020 MGA ZONE 56
Height Datum	AHDD
Survey Books	MR104691

Scales
HORIZONTAL 0 1.0 2.0m
VERTICAL 0 0.5 1.0m
Dimensions shown in metres except where shown otherwise

REDLAND CITY COUNCIL
CLEVELAND – REDLAND BAY ROAD (109)
CTL CHGE 0.55 TO 0.85

Reference Points

Preceding RP	Dist. to start of job (km)	From start to end of job	From end to Following RP	Following RP
8Z	0.58	0.20	2.04	11Z

Through Chainage from

LONGITUDINAL SECTION
CONTROL LINE MC01
(PEDESTRIAN CROSSING)

ENGINEERING CERTIFICATION (RPEQ)			
ENG. AREA	SIGNATORY FULL NAME	No.	DATE
Civil	Manoj.D.Mudiyanselage	09454	23/10/2025

Queensland Government

Job No.	256/109/3027393
Contract No.	CN24221
Drawing No.	959977 A
Series Number	7 of 7

Last Modified :- Oct 23, 2025 - 9:04am XREFS :-

Project Scope Identification

for an Infrastructure Type 3 project

Source of funds: *(Program, line item in RIP)*	**2022 Safer Roads Sooner Nomination METD-2210**
Region/District:	**Metropolitan**
Local Government:	**Redland City Council**
Road Name (Section):	**Cleveland Redland Bay Road (109) {Russell St} and Bloomfield St Cleveland**

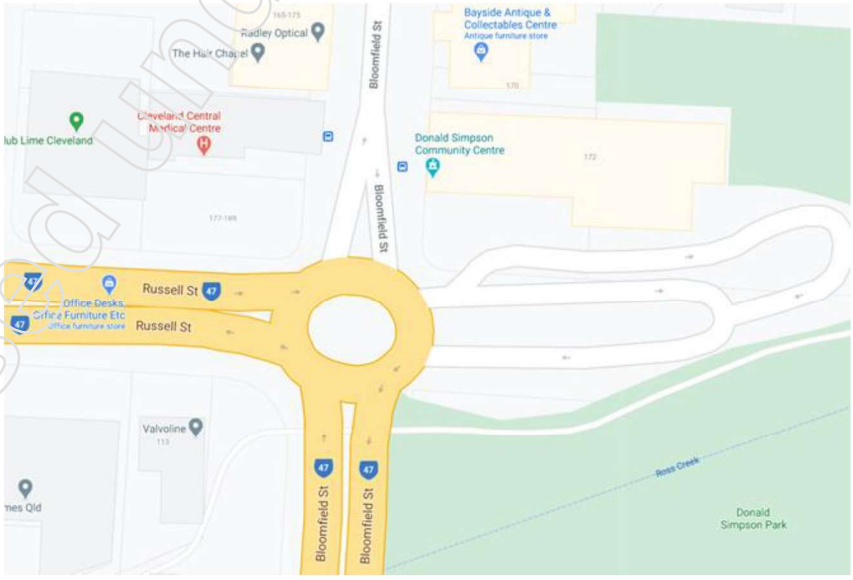
Project Location:

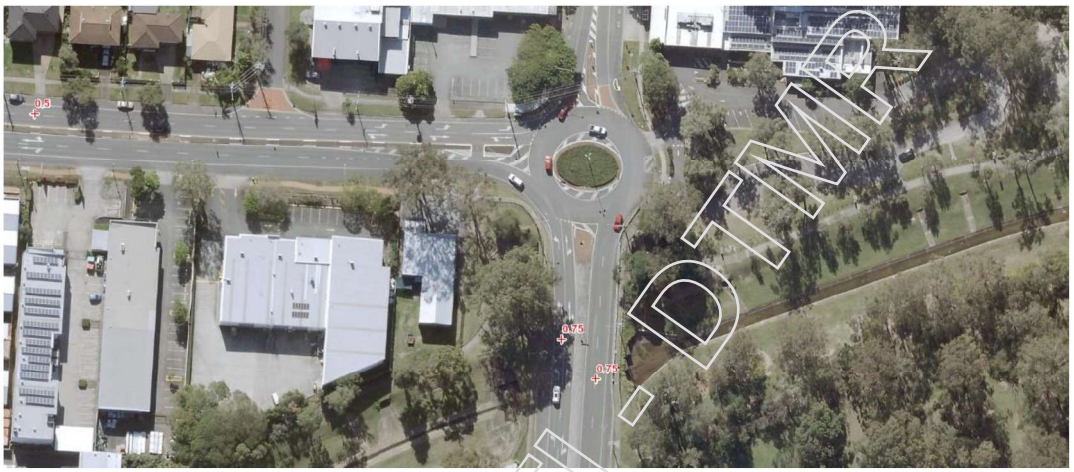
Start Ch/TDist/Co-ord	Finish Ch/TDist/Co-ord	Site No	Distance
0.6km -27.5300007 153.266228	0.8km -27.530681 153.266895	1	200m

Project Number: TBC

Existing conditions:

Cleveland Redland Bay Road (109) is approximately 15 km in length and joins the suburbs of Cleveland and Redland Bay. Metropolitan Region's Road Operations team commissioned Metropolitan's Technical Services to undertake a concept design for the Bloomfield Street and Russell Street roundabout. The works include minor geometry improvements and provision of off-road bicycle treatments. The Bloomfield Street and Russell Street roundabout is at chainage 0.62km to 0.80km of Cleveland – Redland Bay Road (109), which is a state-controlled road with a posted speed of 60km/hr.



	The existing intersection roundabout connects Bloomfield Street and Russell Street with posted speed of 60km/hr. The centre island is in ellipse shape with chevron markings on both the elongate sides. The existing circulation lane around the roundabout is a one lane with exit being a single lane on all roads, except for the southern exit leg which has 2 lanes.  Russell Street is on the western approach with two 3.2m wide lanes on the entry leg and one 3.8m wide lane on the exit leg. Bloomfield Street runs north-south direction. Bloomfield Street on the southern approach has two 3.2m wide lanes on the entry leg and two 2.9m wide lanes on the exit leg. The existing substandard guardrail is located at the southern exit leg and acts as a barrier between the vehicles and existing footpath, underpass and drainage structure. Bloomfield Street on the northern approach is a minor road with posted speed of 30km/h and zebra pedestrian crossing at approximately 40m from the roundabout. It has one 3.8m wide lane on the approach and one 3.6m wide lanes on the exit leg. The eastbound approach is dual accesses to the community centre and the Donald Simpson Park that's located right next to the roundabout. There are no dedicated cycle facilities at the intersection and the cyclists are riding on the road without much protection. The existing pedestrian footpath on the eastern and south western sides are narrow and can only accommodate pedestrians. There are several Public Utility Plants (PUP) within the project area and there are sewer main, water main, stormwater drainage pipes, optical fibre, telecommunications, electricity and gas mains. The south west corner is designated as an urban koala habitat.
Need for Project:	The roundabout of Russell Street (Redland Bay Road) and Bloomfield Street (shown below) is between chainage 0.62km to 0.80km of Cleveland -Redland Bay Road (109). Cleveland – Redland Bay Road is an arterial road known as Russell Street on the western approach and then as Bloomfield Street as the road travels south. Bloomfield Street (which runs north-south direction) intersect with Russell Street on the western approach and 2 accesses on the eastern approach at the roundabout intersection. A pedestrian underpass (SID: 27041) and a major cross drainage structure (SID: 19963) are located on the southern approach of the intersection. There were no cycle lanes provision on all the approaching legs due to constraint corridor. There have been four (4) crashes in the last five (5) years and three (3) of them were related to bicycle accidents. Therefore, it's a need to improve the safety of the cyclists by providing off-road cycle facilities at the intersection.

Date of any damage:	Not applicable.
•Crash history: *(over last 5 years)*	

DCA Group	Description	Fatal	Hospitalisation	Medical treatment	Minor Injury	Total Crashes
1	Intersection approach		2	1	0	3
4	Rear End			0	0	0
5	Lane Change		1			1
15	Off carriageway on Straight		0	0	0	0
16	Off Carriageway on straight, hit object		0	1	0	1
19	Off Carriageway on curve Hit object		0	0	0	0
Total			3	2	0	

Note 4 of 5 crashes involved vulnerable road users, ie bicycles.

Therefore, there is a need to improve the safety of the cyclists by providing off-road cycle facilities at the intersection.

•AADT (% of heavy vehicles) (date):	16,456 (4.94%)

Appendix has copies of these intersection counts provided

Queensland Government

20-Apr-2021 10:17

Traffic Analysis and Reporting System

Intersection Analysis Report

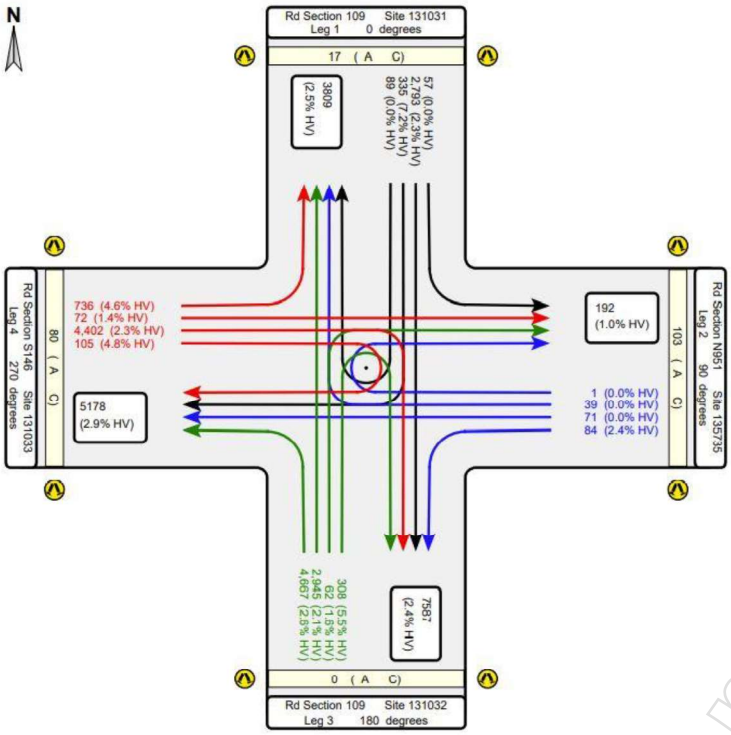
Region 406 - Metropolitan District Road Section 109 - Cleveland - Redland Bay Road

Intersection 14187 - Cleve-RedlandBayRd/RussellSt/SimParkN951

Tuesday 27-Oct-2020 06:15 - 18:15

TARS

Summary



Leg	Angle	Road Section	Site	TDist	Site Description
1	0	109	131031	0.730	N'side Bloomfield/Russell/Simpson Park
2	90	N951	135735	0.000	E'side Bloomfield/Russell/Simpson Park
3	180	109	131032	0.730	S'side Bloomfield/Russell/Simpson Park
4	270	S146	131033	0.000	W'side Bloomfield/Russell/Simpson Park

Leg	Period	Left Turn	Through	Right Turn	U Turn	Pedestrians
1	Total	57 0.0% HV	2793 2.3% HV	335 7.2% HV	89 0.0% HV	17
	AM Peak	10 0.0% HV	207 1.9% HV	48 4.2% HV	5 0.0% HV	1
	PM Peak	3 0.0% HV	335 2.1% HV	30 16.7% HV	15 0.0% HV	1
2	Total	84 2.4% HV	71 0.0% HV	39 0.0% HV	1 0.0% HV	103
	AM Peak	8 0.0% HV	9 0.0% HV	5 0.0% HV	0 0% HV	21
	PM Peak	11 0.0% HV	3 0.0% HV	3 0.0% HV	0 0% HV	6
3	Total	4667 2.6% HV	2945 2.1% HV	62 1.6% HV	308 0.2% HV	0
	AM Peak	773 2.3% HV	343 1.2% HV	19 0.0% HV	34 8.8% HV	0
	PM Peak	465 2.7% HV	274 1.1% HV	2 0.0% HV	54 1.9% HV	0
4	Total	736 4.6% HV	72 1.4% HV	4402 2.3% HV	105 0.1% HV	80
	AM Peak	95 4.2% HV	14 0.0% HV	374 2.9% HV	10 10.0% HV	5
	PM Peak	103 2.9% HV	8 0.0% HV	648 1.2% HV	8 0.0% HV	7

Queensland Government

20-Apr-2021 10:17

Traffic Analysis and Reporting System

Intersection Analysis Report

Region 406 - Metropolitan District Road Section 109 - Cleveland - Redland Bay Road

Intersection 14187 - Cleve-RedlandBayRd/RussellSt/SimParkN951

Tuesday 27-Oct-2020 06:15 - 18:15

TARS

	Leg 1					Leg 2					Leg 3					Leg 4					
Time	Left	Through	Right	U-Turn	Pedestrians	Left	Through	Right	U-Turn	Pedestrians	Left	Through	Right	U-Turn	Pedestrians	Left	Through	Right	U-Turn	Pedestrians	Total Traffic 1/4 hr
06:15-0630	0	13	3	0	0	0	0	0	0	2	73	29	0	1	0	3	0	28	2	2	156
06:30-0645	0	10	4	0	0	0	0	0	0	2	72	15	0	1	0	1	0	23	2	1	131
06:45-0700	2	17	1	0	0	0	0	0	0	3	77	23	2	3	0	1	1	38	1	2	171
07:00-0715	2	17	3	1	1	1	0	0	0	2	114	45	5	0	0	8	4	34	2	4	243
07:15-0730	0	22	1	0	0	0	0	0	0	2	110	47	0	0	0	3	0	38	3	2	228
07:30-0745	2	39	5	2	1	0	1	1	0	3	138	56	2	2	0	9	1	57	4	0	323
07:45-0800	1	26	6	0	0	2	0	1	0	5	159	66	3	4	0	9	0	65	1	4	352
08:00-0815	0	47	12	3	0	0	1	0	0	1	221	69	4	5	0	16	2	72	3	2	456
08:15-0830	3	41	14	1	0	2	2	2	0	6	206	83	4	8	0	27	3	84	4	0	490
08:30-0845	4	52	13	1	0	5	4	2	0	4	198	99	7	14	0	25	8	115	1	1	553
08:45-0900	3	67	8	3	0	1	2	1	0	10	148	92	4	7	0	27	1	103	2	2	482
09:00-0915	1	62	10	2	0	0	0	0	0	4	124	97	2	6	0	19	6	97	7	4	445
09:15-0930	3	73	6	2	0	0	0	2	0	5	100	80	1	7	0	22	0	92	2	5	406
09:30-0945	2	60	7	1	3	4	1	0	0	3	93	84	1	5	0	16	0	69	6	4	360
09:45-1000	0	51	8	3	0	0	0	0	0	4	85	87	1	12	0	17	1	73	1	1	342
10:00-1015	0	59	5	5	0	2	0	0	0	3	77	74	1	5	0	14	2	80	1	1	330
10:15-1030	0	67	7	3	0	1	0	1	0	1	75	76	0	5	0	24	0	83	3	1	344
10:30-1045	3	75	11	2	0	1	1	0	0	2	85	63	0	6	0	21	0	98	1	2	364
10:45-1100	0	75	14	3	0	0	1	1	0	5	79	75	1	6	0	16	0	73	3	1	353
11:00-1115	2	57	11	4	0	4	1	0	0	3	87	78	0	3	0	18	1	78	5	1	348
11:15-1130	4	56	12	2	0	5	5	1	0	0	93	71	0	5	0	18	3	86	2	3	360
11:30-1145	0	76	2	2	1	3	2	4	0	1	89	94	4	5	0	13	4	100	0	3	403
11:45-1200	0	63	7	1	2	1	1	3	0	0	92	52	1	3	0	12	0	89	3	1	331
12:00-1215	1	85	12	4	1	6	1	0	1	1	65	77	4	6	0	11	2	77	4	2	340
12:15-1230	2	78	7	1	1	4	3	0	0	0	79	59	1	4	0	22	5	104	1	4	378
12:30-1245	1	64	9	1	0	1	4	2	0	4	60	67	2	4	0	21	2	108	3	4	357
12:45-1300	3	60	5	5	1	1	2	0	0	1	73	71	4	9	0	15	6	84	2	4	346
13:00-1315	2	58	2	1	0	3	0	0	0	3	65	63	2	6	0	12	5	80	2	2	306
13:15-1330	2	58	3	0	2	1	2	0	0	0	73	62	1	8	0	14	0	83	1	3	313
13:30-1345	1	62	11	3	1	2	0	1	0	2	75	60	0	3	0	15	0	77	4	2	317
13:45-1400	0	61	5	0	0	0	0	2	0	3	79	62	0	5	0	11	0	68	2	2	300
14:00-1415	2	63	10	4	0	2	1	0	0	2	84	54	0	2	0	16	0	83	2	0	325
14:15-1430	0	69	13	0	1	1	2	0	0	3	86	69	0	8	0	17	0	88	2	1	360
14:30-1445	0	78	10	2	0	5	5	1	0	5	99	72	0	5	0	18	1	124	0	1	426
14:45-1500	3	66	8	1	0	0	1	1	0	1	148	50	0	3	0	19	0	91	0	0	392
15:00-1515	2	68	8	2	0	1	3	2	0	2	141	63	1	11	0	41	2	163	3	1	514
15:15-1530	1	105	9	3	0	4	6	0	0	3	104	70	1	12	0	25	3	163	1	6	516
15:30-1545	0	80	7	7	1	3	1	0	0	1	103	83	0	15	0	17	2	151	4	0	475
15:45-1600	0	82	6	3	0	4	1	1	0	0	117	58	0	16	0	20	1	171	0	0	480
16:00-1615	3	76	7	4	0	8	11	3	0	0	87	91	1	17	0	19	0	127	3	1	418
16:15-1630	1	74	9	2	0	2	3	0	0	1	96	59	1	15	0	10	2	118	1	0	394
16:30-1645	0	68	6	1	0	2	2	0	0	0	81	33	0	13	0	14	1	114	4	0	339
16:45-1700	0	77	4	2	0	2	0	0	0	0	76	48	0	10	0	5	0	129	1	0	354
17:00-1715	0	60	6	0	0	0	0	0	0	0	75	39	0	7	0	15	0	126	2	0	330
17:15-1730	0	62	2	0	0	0	0	0	0	0	46	30	0	6	0	14	2	130	0	0	292
17:30-1745	0	52	9	2	0	0	1	0	0	0	52	29	1	3	0	8	1	89	3	0	246
17:45-1800	0	41	5	0	0	0	0	1	0	0	65	34	0	4	0	11	0	108	1	0	270
18:00-1815	0	44	3	0	0	0	0	0	0	0	47	27	0	4	0	7	0	75	0	0	207
Total	57	2793	335	89	17	84	71	39	1	103	4667	2945	62	308	0	736	72	4402	105	80	
%Heavy Vehicles	.0	2.3	7.2	.0		2.4	.0	.0	.0		2.6	2.1	1.6	5.5		4.6	1.4	2.3	4.8		
AM Peak	10	207	48	5	1	8	9	5	0	21	773	343	19	34	0	95	14	374	10	5	
PM Peak	3	335	30	15	1	12	11	3	0	6	465	274	2	54	0	103	8	648	8	7	

Blank cells indicate the non-collection of corresponding counts.

• **Deficiencies:**	Bloomfield Street runs north-south direction. Bloomfield Street on the southern approach has two 3.2m wide lanes on the entry leg and two 2.9m wide lanes on the exit leg. The existing substandard guardrail is located at the southern exit leg and acts as a barrier between the vehicles and existing footpath, underpass and drainage structure. Bloomfield Street on the northern approach is a minor road with posted speed of 30km/h and zebra pedestrian crossing at approximately 40m from the roundabout. It has one 3.8m wide lane on the approach and one 3.6m wide lanes on the exit leg. The eastbound approach is dual accesses to the community centre and the Donald Simpson Park that's located right next to the roundabout. There are no dedicated cycle facilities at the intersection and the cyclists are riding on the road without much protection. The existing pedestrian footpath on the eastern and south western sides are narrow and can only accommodate pedestrians.
• **Political and community issues:**	Currently, TMR are working collectively with Redland City Council on providing safety improvements on the TMR network that connect to local government roads for vulnerable road users.
• **Any associated works/projects:**	Nil.
• **Other:** *(provide photos where applicable)*	Refer to Appendix for Site Photos and Concept Drawings
Program Benefits/ outcomes of proposed works:	This project will improve safety to the road users and minimise potential hazards to ultimately lowering the risk of FSI crashes. The centre roundabout island will be modified to become circular to improve vehicles circulating at the roundabout since changes in curvature of the circulating carriageway result in differential speeds and increase driver workload, as per AGRD Part 4B . The existing traffic island at the western approach will be widened to provide additional protection for the pedestrian crossing as per AGRD Part 4A. The kerb and channel realignment at the northern entry leg and southern exit leg will allow provision for off-road cycle facilities and widening of the existing footpath to a minimum 2.5m wide shared path or 3.0m where possible. The kerb ramps are installed at the shared adopting bicycle awareness zone with associated pavement markings. Furthermore, the substandard guardrail on the southern exit leg will be removed and a new guardrail will be installed to protect the road users.

Scope of proposed project:	

• **In Scope:**	The existing lanes at the southern exit leg on Bloomfield Street will be reduced from 2 lanes to 1 lane with 4.8m wide and then narrowed down to 3.5m with 1m shoulder and transition back to 2 lanes further south of the guardrail. The existing kerb and channel at the northern entry leg on Bloomfield Street will be built out by approximately 1.4m. The existing island will be removed. This treatment has no impact to the existing traffic lanes configuration. The existing kerb and channel at the western exit leg on Russell Street will be built out by approximately 0.5m from the existing gully pit. This treatment allows one 4.5m wide exit lane on Russell Street. The existing median island at the westbound leg on Russell Street will be modified to provide additional protection to the pedestrian crossing. This new island is designed based on Vpath analysis. The existing roundabout centre island will be modified to circular shape with 10m radius. This does not impact the existing circulation lane width.
• **Out of Scope:**	• Land resumptions • Capacity improvement works
Options considered:	• Do nothing – By doing nothing, potential for continued trend and likelihood of FSI crashes aligned to crash history especially given 4 crashes involving bicycles.
Constraints:	• Budget • Constructability • PUP impact and avoidance • Impacts to property access during and after construction (no land resumptions or alteration to existing accesses allowed)
Delivery method:	The delivery of the project will be managed by the project delivery team in Metropolitan Region.
Safety assessment	Does the proposed work make any aspect of the road less safe? (e.g. *traffic moved closer to hazards, or approach speed to a tight curve increased)* ***No, × proceed with the design*** *Yes, ☐- do further mitigation work to achieve the appropriate level of safety.*
Future operational performance:	*(if considerations other than safety apply):* • Nil
Significant risks identified:	*(e.g Public consultation, geotechnical, flooding, traffic management, PUP, safety, materials + constraints above)* • Nil identified in Design Development Report
Native Title/Environmental/ Cultural Heritage concerns:	Not known at this stage. The Cultural Heritage and Environmental Management Plan will be prepared and monitored by the project delivery team in Metropolitan Region in the project development or the design & construction phase.
Project Estimate: *(note contingency allowance)*	The project costs are detailed in Appendix: 1. Project construction costs $640,000 2. Principal costs $320,000 Project $1,454,500 (including $494,355 in contingency). **Please see Appendix for a detailed concept cost estimate.**

Source Fund $'000	Proposed expenditure flows				
	Prior Expenditure $'000	2023/24 $'000	2024/25 $'000	20__-__ $'000	Total $'000
Targetted Road Safety Program	-	300	1,154		1,454

Submitted (Project Manager)

	Date:

Recommended (Network Management and Road Safety)

Name: Andrew Wachtel Signature: NR	Position: Principal Engineer (Civil) Date: 25 / 07 / 2021

Endorsed (Regional Manager)

Name: Manu Hingorani Signature:	Position: A/Regional Manager (Delivery) Date: / 7 / 2022

Approved (Sponsor – Deputy Regional Director)

Name: Cameron Messer Signature:	Position: A/Deputy Regional Director (Metropolitan) Date: / 7 / 2022

Comments:

Approved (Customer – Regional Director)

Name : John Ryan Signature:	Position: A/Regional Director (Metropolitan) Date: / 7 / 2022

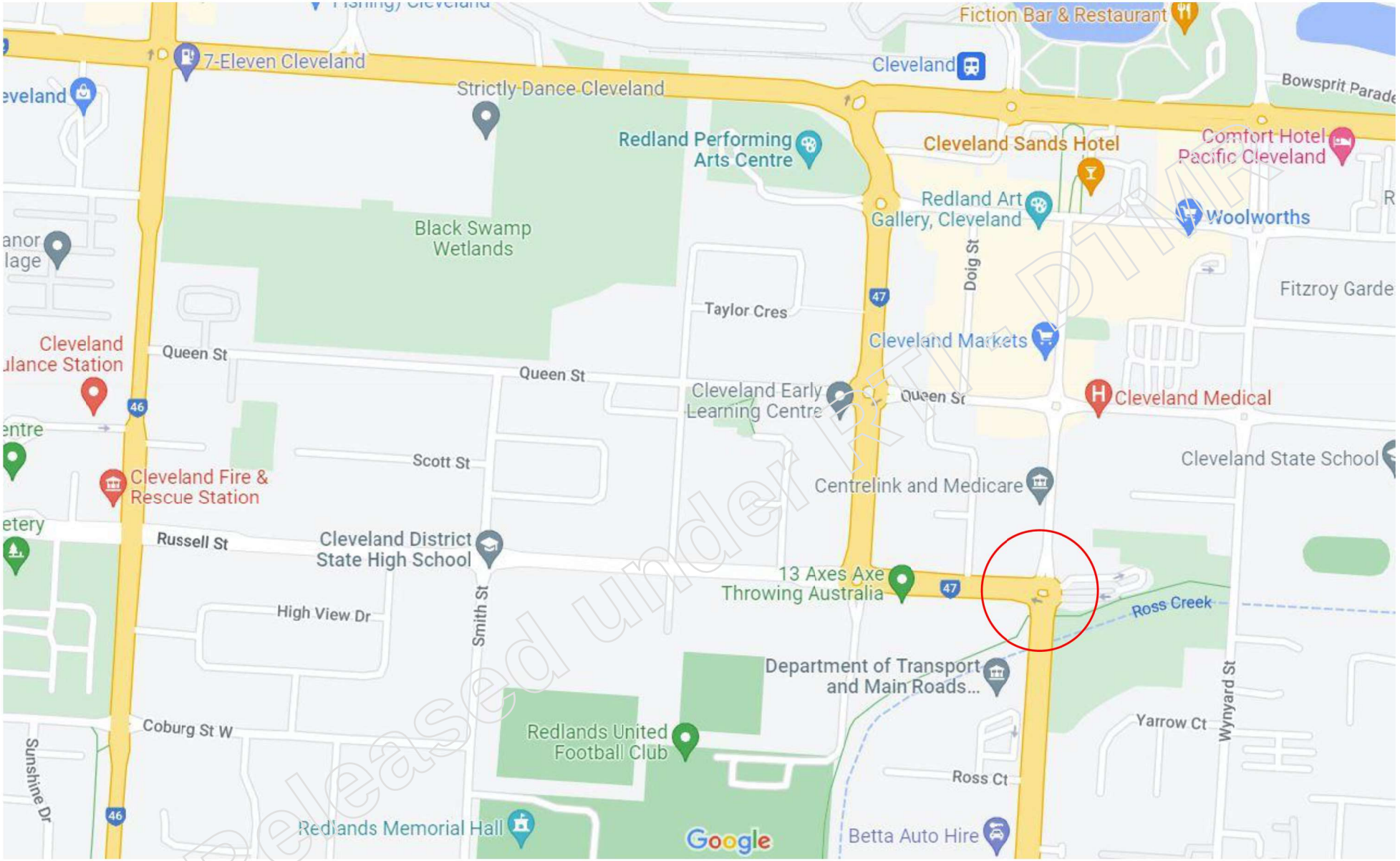
Comments:

Attachments:

A. Project overview with aerial maps and site photos
B. Reported Crash History
C. Traffic Data with intersection counts
D. Concept Design Drawings
E. Design Development report completed by Technical Services Team
F. RPEQ Endorsement Form

Creative Commons information

TMR OnQ Template Version 3.0 (06/09/2017)



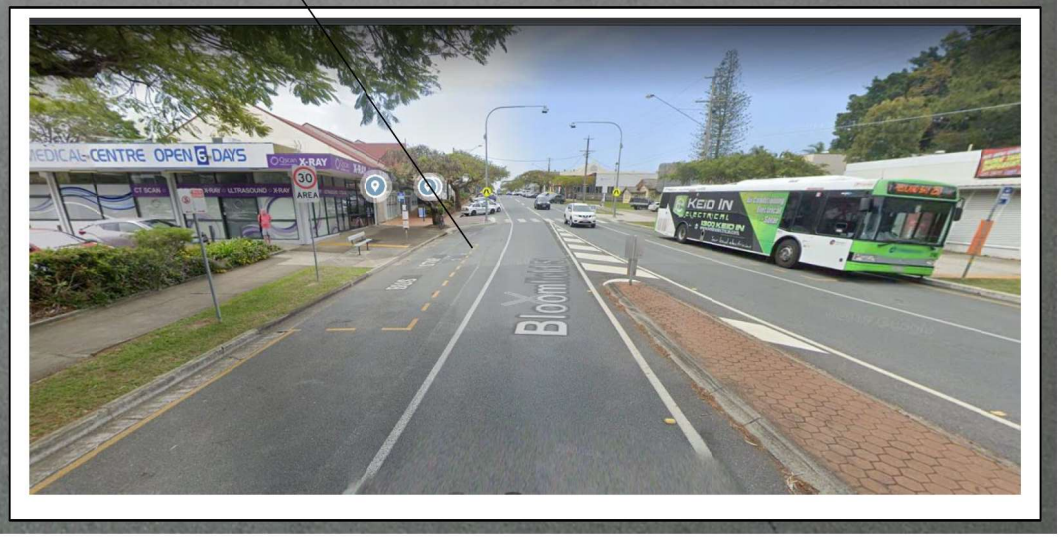

Gazettel direction approach
AllPro
The DSC
KEEP LEFT
Released under RTI - DTMR

GD travel through roundabout with access to Donald Simpson Centre

GD travel through roundabout with access (entry / exit) to Donald Simpson Centre


AGD travel towards roundabout with multiple directional signs
Rationalise signs, remove signs from centre median
BLOOMFIELD ST
Business Centre
Cleveland Pt
RUSSELL ST
47
Capalaba
Brisbane
AMBULANCE
REDLAND ART GALLERY
Released under RTI - DTMR

Rear view towards LGA section of Bloomfield Road that is sign posted at 30km/hr



Queensland Government

Road Crash 2
CRASH DETAIL REPORT

Crash Types

Crash Dates: 10-OCT-2015 _ 09-OCT-2020
Owner: MR DEPARTMENT OF MAIN ROADS
DCA Code:
Group:
Fatalities: =
Severity:
Nature:

Alignment: Vertical:
Horizontal:
Feature:
Traffic Ctrl:
Speed Limit:
Contrib Circ.:
Unit Type:
Risk Factor:

Area
LGA:
SLA:
Police Division:

Road Sections
All Road Sections: N Include Crashes on: Y Thru road Mid-block Y Thru roads at Intersections Y Intersecting roads at Intersections

Intersections
All Intersections: S

Intersection	Number of Crashes: Fatal	Hosp.	Medical	Minor	PDO	Total
14187 Cleve-RedlandBayRd/RussellSt/SimParkN951	0	3	1	0	0	4

Andrew Wachtel
Updated to included crash on 30/06/2019, refer to last Page

Queensland Government

Road Crash 2
CRASH DETAIL REPORT

#1 on crash map

Crash No.	Date	Day	Hour	DCA	No. Units	Street/s
20151712261	21-NOV-2015	Sat	07	600 VEH'S ON F	1	Bloomfield St

RSect: 109 Cleveland - Redland Bay Road
Cway: 2 Direction: N
Inter.: 14187 Cleve-RedlandBayRd/RussellSt/SimParkN
Road Surface: Sealed - dry

RPC: 1A
Dist from RPC: 0.680
Tdist: 0.680

Nature: 06 Hit fixed obstruction or tempora
Severity: NR
Alignment: Vertical: 1 Level
Horizontal: 1 Straight
Feature: 15 Roundabout
Traffic Control: 09 Give Way

Units	Age	Gender	Unit Type	Dirn.	Intended Action	BAC
1	NR	pers	09 Bicycle	N	01 Go Straight Ahead	NR

Description

NR

The crash occurred along Bloomfield Street/ Russell Street Roundabout at Cleveland. The weather at the time was clear and dry and happened in the early hours of the morning.

NR

NR

Contributing Circumstances

1 ROAD CONDITIONS - MISCELLANEOUS

Queensland Government

Road Crash 2
CRASH DETAIL REPORT

#2 on crash map

Crash No.	Date	Day	Hour	DCA	No. Units	Street/s
20191257508	30-JUN-2019	Sun	09	104 VEH'S ADJA	2	Bloomfield St

RSect 109 Cleveland - Redland Bay Road
Cway 2 Direction N
Inter. 14187 Cleve-RedlandBayRd/RussellSt/SimParkN
Road Surface Sealed - dry

RPC 1A
Dist from RPC 0.680
Tdist 0.680

Nature 02 Angle
Severity NR
Alignment: Vertical 1 Level
Horizontal 3 Curved-View open
Feature 15 Roundabout
Traffic Control 09 Give Way

Units	Age	Gender	Unit Type	Dirn.	Intended Action	BAC
1	NR	per	01 Car, Station Wagon	E	03 Make Right Turn	NR
2			09 Bicycle	N	01 Go Straight Ahead	

Description

Involved parties Unit 1 XXX Unit 2 XXX Involved Vehicles Unit 1 Toyota Kluger 2006 XXX Unit 2 Road bicycle BMC Involved address Roundabout Bloomfield/Russell St Cleveland Injuries

NR

Contributing Circumstances

NR

Queensland Government

Road Crash 2
CRASH DETAIL REPORT

#3 on crash diagram

Crash No.	Date	Day	Hour	DCA	No. Units	Street/s
20162077561	06-NOV-2016	Sun	09	101 VEH'S ADJA	2	Bloomfield St

RSect 109 Cleveland - Redland Bay Road
Cway 2 Direction E
Inter. 14187 Cleve-RedlandBayRd/RussellSt/SimParkN
Road Surface Sealed - dry

RPC 1A
Dist from RPC 0.680
Tdist 0.680

Nature 02 Angle
Severity NR
Alignment: Vertical 1 Level
Horizontal 1 Straight
Feature 15 Roundabout
Traffic Control 09 Give Way

Units	Age	Gender	Unit Type	Dirn.	Intended Action	BAC
1	NR	per	01 Car, Station Wagon	E	01 Go Straight Ahead	
2			01 Car, Station Wagon	N	01 Go Straight Ahead	

Description

Police have attended the scene and taken details from the parties involved. QFRS and QAS were on scene.

NR

NR

Contributing Circumstances

NR

Queensland Government

Road Crash 2
CRASH DETAIL REPORT

#4 on crash diagram

Crash No.	Date	Day	Hour	DCA	No. Units	Street/s
20192521811	19-DEC-2019	Thu	06	408 VEH'S MAN	2	Bloomfield St

RSect: 109 Cleveland - Redland Bay Road
Cway: 3 Direction: N
Inter.: 14187 Cleve-RedlandBayRd/RussellSt/SimParkN
Road Surface: Sealed - dry

RPC: 1A
Dist from RPC: 0.680
Tdist: 0.680

Nature: 02 Angle
Severity: NR
Alignment: Vertical: 1 Level
Horizontal: 1 Straight
Feature: 15 Roundabout
Traffic Control: 09 Give Way

Units	Age	Gender	Unit Type	Dirn.	Intended Action	BAC
1	NR	person	09 Bicycle	N	01 Go Straight Ahead	NR
2			02 Utility, Panel Van	N	04 Make Left Turn	

Description

The crash occurred on the 19 December 2019 at approximately 6:45am. The crash location is the intersection of Bloomfield st and Russel St, Cleveland. The northbound lanes before the intersection are controlled by painted arrows. UNIT 1 - CYCLIST- xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx UNIT 2 - QLD xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx At the time of the crash both vehicles were travelling northbound on Bloomfield St. NR

NR

Contributing Circumstances

NR

Queensland Government

Road Crash 2
CRASH INCIDENT REPORT

#5 on crash diagram

Crash No.	Date	Day	Hour	No. of Units
20191257508	30-JUN-2019	Sun	09	2

Street/s: Bloomfield St / Donald Simpson Park Accs
Landmark: of
Road Section: 109 Cleveland - Redland Bay Road

Cway	RPC	Dist	Tdist
2	1A	0.680	0.680

Intersection: 14187 Cleve-RedlandBayRd/RussellSt/Si

Description: Involved parties Unit 1 XXX Unit 2 XXX Involved Vehicles Unit 1 Toyota Kluger 2006 XXX Unit 2 Road bicycle BMC Involved address Roundabout Bloomfield/Russell St Cleveland

NR

Severity: NR
SLA: 6262 CLEVELAND
DCA: 104 VEH'S ADJACENT APPROACH
Nature: 02 Angle
Feature: 15 Roundabout
On/Off Cway: 1
Divided Road:
Lighting: Daylight

Police Division: 00055 CLEVELAND DIVISION
Reporting Station:
Alignment: Vertical: 1 Level
Horizontal: 3 Curved-View open
Traffic Control: 09 Give Way
Direction: N
Speed Limit: 50
Atmos Cond: Clear
Road Surface: Sealed - Dry

Unit Details

Unit No.	Unit Type
1	01 Car, Station Wagon

Licence Type: 01 Open
BAC: NR
Danger. Goods: U
Gender: F
Crash Heading: E on Invalid Street From Police
No. of Occupants: 1
Intended Action: 03 Make Right Turn

Damage Point: 98 Not Known
Overall Damage: 02 Minor
Contrib Circ: NR

Unit No.	Unit Type
2	09 Bicycle

Licence Type: 99 Not Applicable
BAC: NR
Danger. Goods: N
Gender: M
Crash Heading: N on Invalid Street From Police
No. of Occupants: 1
Intended Action: 01 Go Straight Ahead

Damage Point: 99 Not Applicable
Overall Damage: 99 Not Applicable
Contrib Circ: 099 Not Applicable

Casualty Details

Intersection Analysis Report

Displays traffic and pedestrian flows in both diagram and tabular formats at an intersection on a particular day.

Content includes:

- Actual day counts.
- Traffic volume in, volume out and total volume for each leg.
- Pedestrian flows when available.

Please Note: This data is not averaged.

Important Information

It is important to note that data in this report are the actual traffic counts for the associated time interval on the date indicated. This report does not display an Annual Average Daily Traffic (AADT).

Angle

Specifies in degrees how far off north the northern most leg points.

Intersection

The unique code and description of the Intersection.

Pedestrians

Pedestrian counts are collected where required and can be classed into Adult (A) and Children (C).

Percentage Heavy Vehicles

%HV are displayed for each turning movement when collected.

Traffic Classes

Are the categories for which data can be captured at an intersection:

Volume

00 All vehicles.

2-Bin

0A Light vehicles
0B Heavy vehicles

4-Bin

1A Short vehicles
1B Truck or bus
1C Articulated vehicles
1D Road train

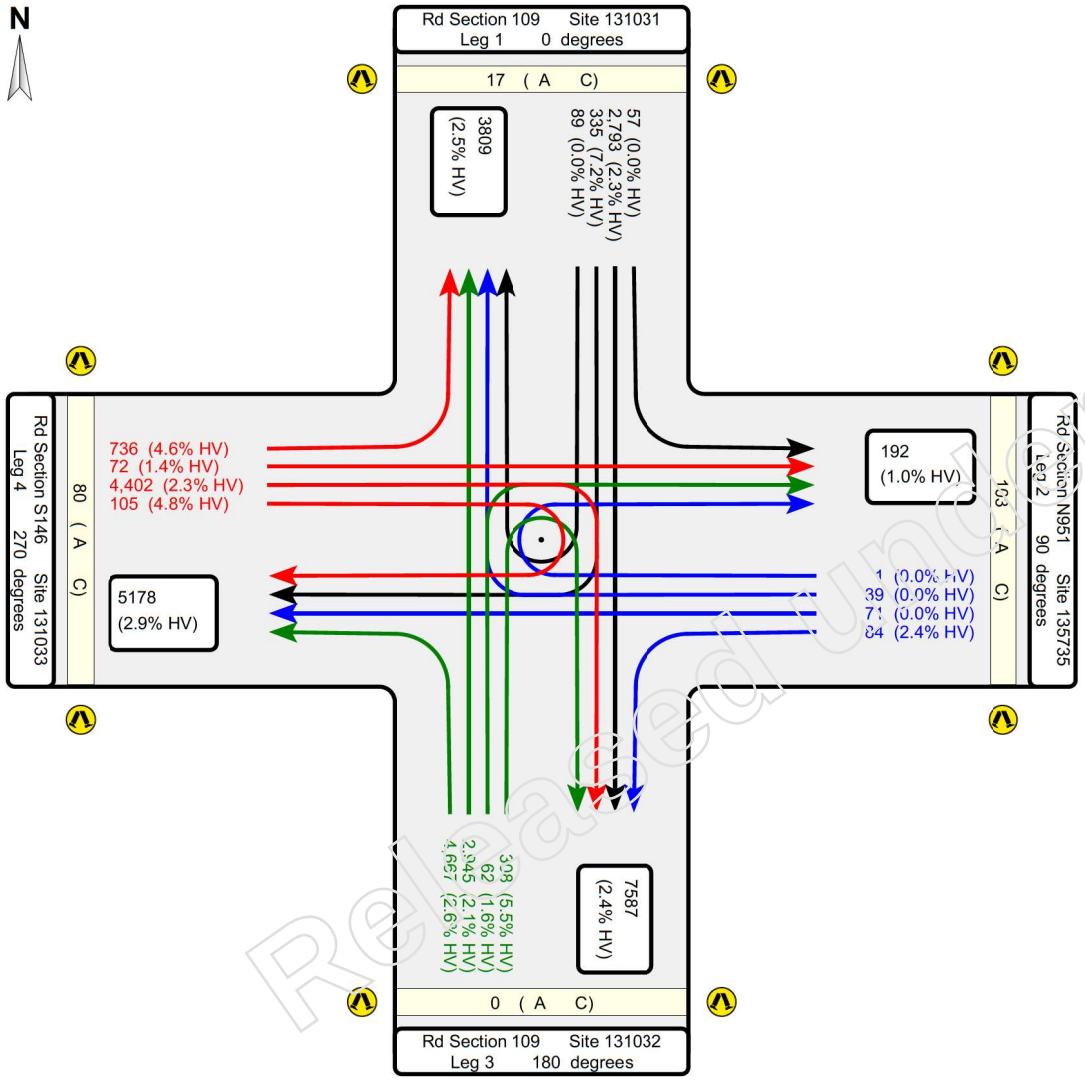
Vehicle Turning Movements

Turning movements describe the action of a vehicle at the intersection.

L Left hand turn
T Through traffic
R Right hand turn
U U-turn

Traffic Analysis and Reporting System
Intersection Analysis Report
Region 406 - Metropolitan District Road Section 109 - Cleveland - Redland Bay Road
Intersection 14187 - Cleve-RedlandBayRd/RussellSt/SimParkN951
Tuesday 27-Oct-2020 06:15 - 18:15

Summary



Leg	Angle	Road Section	Site	TDist	Site Description
1	0	109	131031	0.730	N'side Bloomfield/Russell/Simpson Park
2	90	N951	135735	0.000	E'side Bloomfield/Russell/Simpson Park
3	180	109	131032	0.730	S'side Bloomfield/Russell/Simpson Park
4	270	S146	131033	0.000	W'side Bloomfield/Russell/Simpson Park

Leg	Period	Left Turn	Through	Right Turn	U Turn	Pedestrians
1	Total	57 0.0% HV	2793 2.3% HV	335 7.2% HV	89 0.0% HV	17
	AM Peak	10 0.0% HV	207 1.9% HV	48 4.2% HV	5 0.0% HV	1
	PM Peak	3 0.0% HV	335 2.1% HV	30 16.7% HV	15 0.0% HV	1
2	Total	84 2.4% HV	71 0.0% HV	39 0.0% HV	1 0.0% HV	103
	AM Peak	8 0.0% HV	9 0.0% HV	5 0.0% HV	0 0% HV	21
	PM Peak	12 0.0% HV	11 0.0% HV	3 0.0% HV	0 0% HV	6
3	Total	4667 2.6% HV	2945 2.1% HV	62 1.6% HV	308 0.2% HV	0
	AM Peak	773 2.3% HV	343 1.2% HV	19 0.0% HV	34 8.8% HV	0
	PM Peak	465 1.7% HV	274 1.1% HV	2 0.0% HV	54 1.9% HV	0
4	Total	736 4.6% HV	72 1.4% HV	4402 2.3% HV	105 0.1% HV	80
	AM Peak	95 4.2% HV	14 0.0% HV	374 2.9% HV	10 10.0% HV	5
	PM Peak	103 2.9% HV	8 0.0% HV	648 1.2% HV	8 0.0% HV	7

Traffic Analysis and Reporting System
Intersection Analysis Report
Region 406 - Metropolitan District Road Section 109 - Cleveland - Redland Bay Road
Intersection 14187 - Cleve-RedlandBayRd/RussellSt/SimParkN951
Tuesday 27-Oct-2020 06:15 - 18:15

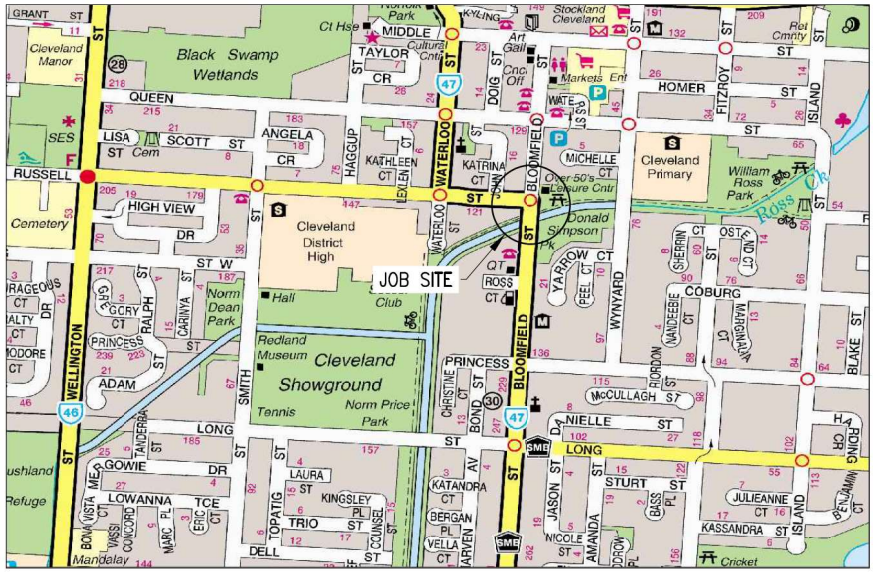
	Leg 1					Leg 2					Leg 3					Leg 4					
Time	Left	Through	Right	U-Turn	Pedestrians	Left	Through	Right	U-Turn	Pedestrians	Left	Through	Right	U-Turn	Pedestrians	Left	Through	Right	U-Turn	Pedestrians	Total Traffic 1/4 hr
06:15-0630	0	13	3	0	0	0	0	0	0	2	73	29	0	1	0	3	0	28	2	2	156
06:30-0645	0	10	4	0	0	0	0	0	0	2	72	15	0	1	0	1	0	23	2	1	131
06:45-0700	2	17	1	0	0	0	0	0	0	3	77	23	2	3	0	1	1	38	1	2	171
07:00-0715	2	17	3	1	1	1	0	0	0	2	114	45	5	0	0	8	4	34	2	4	243
07:15-0730	0	22	1	0	0	0	0	0	0	2	110	47	0	0	0	3	0	38	3	2	228
07:30-0745	2	39	5	2	1	0	1	1	0	3	138	55	2	2	0	9	1	57	4	0	323
07:45-0800	1	26	6	0	0	2	0	1	0	5	159	63	3	4	0	9	0	65	1	4	352
08:00-0815	0	47	12	0	1	0	1	0	0	1	221	69	4	5	0	16	2	72	3	2	456
08:15-0830	3	41	14	1	0	2	2	2	0	6	206	83	4	8	0	27	3	84	4	0	490
08:30-0845	4	52	13	1	0	5	4	2	0	4	198	99	7	14	0	25	8	115	1	1	553
08:45-0900	3	67	9	3	0	1	2	1	0	10	148	92	4	7	0	27	1	103	2	2	482
09:00-0915	1	62	10	6	0	0	0	0	0	4	124	97	2	6	0	19	6	97	7	4	445
09:15-0930	3	73	12	2	0	0	0	2	0	5	100	80	1	7	0	22	0	92	2	5	406
09:30-0945	2	60	6	2	3	4	1	0	0	3	93	84	1	6	0	16	0	69	6	4	360
09:45-1000	0	51	5	4	0	0	0	0	0	4	85	87	1	12	0	17	1	73	1	1	342
10:00-1015	0	59	6	5	0	2	0	0	0	3	77	73	1	5	0	14	2	80	1	1	330
10:15-1030	0	67	7	0	0	1	0	1	0	1	75	73	0	5	0	24	0	83	3	1	344
10:30-1045	3	76	3	2	0	1	1	0	0	2	85	63	0	6	0	21	0	98	1	2	364
10:45-1100	0	75	14	3	0	0	1	1	0	5	79	75	1	6	0	16	0	73	3	1	353
11:00-1115	2	59	4	4	0	4	1	0	0	3	87	73	0	3	0	18	1	78	5	1	348
11:15-1130	4	50	12	2	0	5	5	1	0	0	93	71	0	5	0	18	3	86	2	3	360
11:30-1145	0	76	2	2	1	3	2	4	0	1	59	94	4	5	0	13	4	100	0	3	403
11:45-1200	0	63	7	1	2	1	1	3	0	0	92	52	1	3	0	12	0	89	3	1	331
12:00-1215	1	65	12	4	1	6	1	0	1	1	65	77	4	6	0	11	2	77	4	2	340
12:15-1230	3	78	7	1	1	4	3	6	0	0	75	59	1	4	0	22	5	104	1	4	378
12:30-1245	1	64	9	1	0	1	4	2	0	4	60	67	2	4	0	21	2	108	3	4	357
12:45-1300	3	60	5	5	1	1	2	0	0	1	73	71	4	9	0	15	6	84	2	4	346
13:00-1315	2	58	2	1	0	3	0	0	0	3	65	63	2	6	0	12	5	80	2	2	306
13:15-1330	2	58	3	0	2	1	2	0	0	0	73	62	1	8	0	14	0	83	1	3	313
13:30-1345	1	62	11	3	1	2	0	1	0	2	75	60	0	1	0	15	0	77	4	2	317
13:45-1400	0	61	5	0	0	0	0	2	0	3	79	62	0	5	0	11	0	68	2	2	300
14:00-1415	2	63	10	4	0	2	1	0	0	2	84	54	0	2	0	16	0	83	2	0	325
14:15-1430	0	69	13	0	1	1	2	0	0	3	86	69	0	8	0	17	0	88	2	1	360
14:30-1445	0	78	10	2	0	5	5	1	0	5	99	72	0	5	0	18	1	124	0	1	426
14:45-1500	3	66	8	1	0	0	1	1	0	1	148	50	0	3	0	19	0	91	0	0	392
15:00-1515	2	68	8	2	0	1	3	2	0	2	141	63	1	11	0	41	2	163	3	1	514
15:15-1530	1	105	9	3	0	4	6	0	0	3	104	70	1	12	0	25	3	163	1	6	516
15:30-1545	0	80	7	7	1	3	1	0	0	1	103	83	0	15	0	17	2	151	4	0	475
15:45-1600	0	82	5	3	0	4	1	1	0	0	117	53	0	16	0	20	1	171	0	0	480
16:00-1615	3	76	7	4	0	8	11	3	0	0	87	51	1	17	0	19	0	127	3	1	418
16:15-1630	1	74	9	2	0	2	3	0	0	1	96	59	1	15	0	10	2	118	1	0	394
16:30-1645	0	69	6	1	0	2	2	0	0	0	81	33	0	13	0	14	1	114	4	0	339
16:45-1700	0	77	4	2	0	2	0	0	0	0	76	43	0	10	0	5	0	129	1	0	354
17:00-1715	0	60	6	0	0	0	0	0	0	0	75	39	0	7	0	15	0	126	2	0	330
17:15-1730	0	62	2	0	0	0	0	0	0	0	46	30	0	6	0	14	2	130	0	0	292
17:30-1745	0	52	9	2	0	0	1	0	0	0	52	29	1	3	0	8	1	85	3	0	246
17:45-1800	0	41	5	0	0	0	0	1	0	0	65	34	0	4	0	11	0	108	1	0	270
18:00-1815	0	44	3	0	0	0	0	0	0	0	47	27	0	4	0	7	0	75	0	0	207
Total	57	2793	335	89	17	84	71	39	1	103	4667	2945	62	308	0	736	72	4402	105	80	
%Heavy Vehicles	.0	2.3	7.2	.0		2.4	.0	.0	.0		2.6	2.1	1.6	5.5		4.6	1.4	2.3	4.8		
AM Peak	10	207	48	5	1	8	9	5	0	21	773	343	19	34	0	95	14	374	10	5	
PM Peak	3	335	30	15	1	12	11	3	0	6	465	274	2	54	0	103	8	648	8	7	

Blank cells indicate the non-collection of corresponding counts.

Bloomfiled Street (TMR) Cleveland Redland Bay Road (109)

CLEVELAND - REDLAND BAY ROAD (109)
BLOOMFIELD STREET & RUSSELL STREET INTERSECTION
SAFETY IMPROVEMENTS

CONCEPT PLAN
15 January 2021



LOCALITY PLAN

GENERAL NOTES

1. For details of Dial Before You Dig Utility services, refer this drawing.
2. The contractor shall check for all possible service conflicts on site prior to the commencement of work.
3. No work is to be carried out over utility services and within 3.0m of services without prior notification to the appropriate service authorities.
4. All signs and pavement marking shall be installed in accordance with the Manual of Uniform Traffic Control Devices (MUTCD).
5. Refer STD DRG 1363 AND 1368 for sign installation details. clearance, H=2.5m unless stated otherwise.
6. All new single support signs to be 50NB CHS non-slip base, unless directed otherwise by the Administrator.
7. Retroreflective raised pavement markers (RRPM's) to be installed in accordance with the MUTCD and the traffic and road use management manual (TRUM) Note 1.40.
8. Contractor to remove existing pavement markings by machine planing wherever new pavement marking shown.
9. It is the contractors responsibility to ensure that all affected service covers and surrounds are raised to be flush with the finished surface height, and are free draining.
10. Refer TMR Std Drg 1033 for details of TMR kerb/ kerb and channel.
11. Refer TMR Std Drgs 1446 & 1447 for Ramped Kerb Crossing and Ramped Kerb Treatment.
12. Refer TMR Std Drgs 1474 for guardrail installation details.
13. Road cushions to be installed in accordance with the Manufacturer's Specifications.

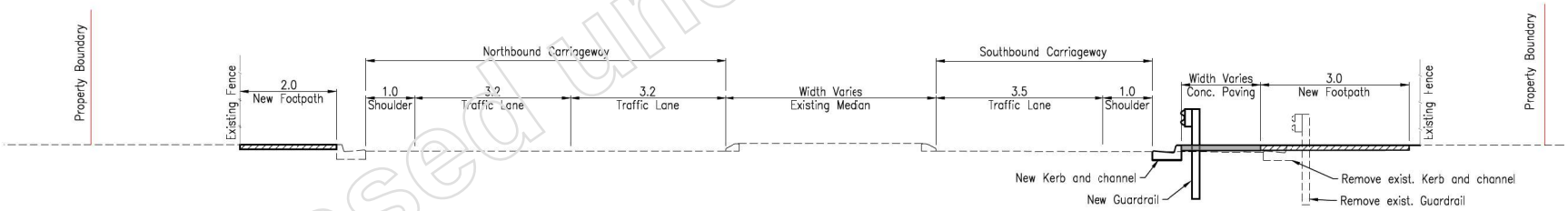
THESE DRAWINGS ARE SUBJECT TO THE FOLLOWING CONDITIONS:
These drawings are for official use only by TMR planning staff and are to be used only in the following situations.

- To provide property requirement and planning advice to TMR Development Control
- To provide property requirement and planning advice to property developers.
- To provide general planning and/or land requirement advice to members of the public.
- To provide advice to utility service providers when new or relocated locations of their services are required to be within the planned road reserve.
- May be used as a basis for a Project Proposal or Concept Planning phase of a project.
- To provide advice to other TMR units and Local Government agencies as appropriate.

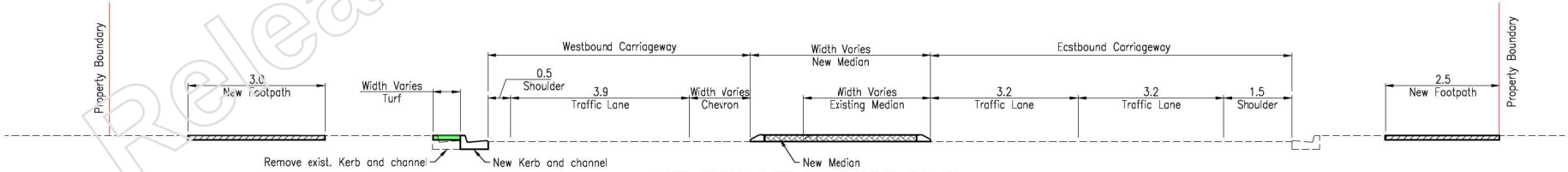
DRAWING INDEX

DRAWING NUMBER	REVISION	DATE	SERIES NUMBER	DRAWING DESCRIPTION
ABCQ	1	12/2020	1	LOCALITY PLAN, DRAWING INDEX AND TYPE CROSS SECTIONS
ABCR	1	12/2020	2	GENERAL ARRANGEMENT AND SERVICES
ABCU	1	12/2020	3	SIGNS AND PAVEMENT MARKINGS

TOTAL NUMBER OF DRAWINGS = 3



TYPE CROSS SECTION – BLOOMFIELD STREET



TYPE CROSS SECTION – RUSSELL STREET

7						
6						
5						
4						
3						
2						
1	Issued for Discussion Only					
	Revisions/Descriptions	Name or RPEQ No.	Signature	Date		

CAD FILES | G:\WHRF-Projects\SRS Program_2020-2021\1_SRS Projects\13_Cleveland Redland Bay Road_Russell St and Bloomfield St\2_Concept\Design\WM\02_Drawings\LO_01.dwg

Last Modified :- Jan 15, 2021 - 7:07pm XREFS :-

Associated Job Nos | Survey Data: Horiz. Datum, Horiz. Grid, Height Datum, Survey Books
Auxiliary Drg Nos

Scales: NTS

Dimensions shown in metres except where shown otherwise

REDLAND CITY COUNCIL
CLEVELAND – REDLAND BAY ROAD (109)
BLOOMFIELD ST AND RUSSELL ST INTERSECTION

Reference Points

Preceding RP	Dist. to start of job (km)	From strt to end of job	From end to Following RP	Following RP

Through Chainage from

CONCEPT DESIGN
LOCALITY PLAN AND INDEX
AND TYPE CROSS SECTIONS

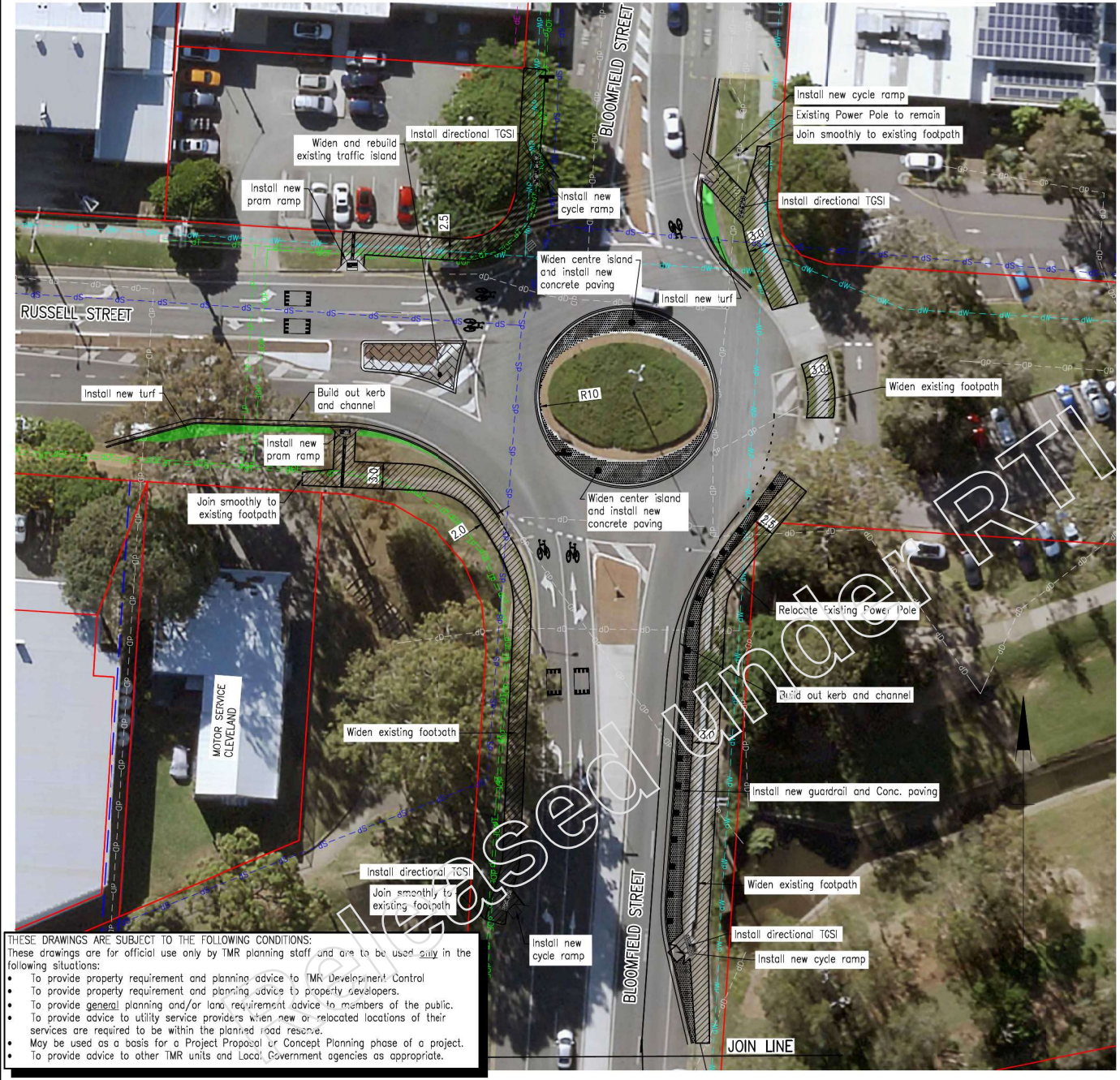
Drawn: A.Dürr-Galvin
Designed: S.KANG

ENGINEERING CERTIFICATION (RPEQ)				
ENG. AREA	NAME	SIGNATURE	No.	DATE
Civil	Ho-Yee Lam		12183	

Queensland Government

Job No.
Contract No.
Drawing No. ABCQ 1
Series Number 1 of 3

CONCEPT PLAN
15 January 2021

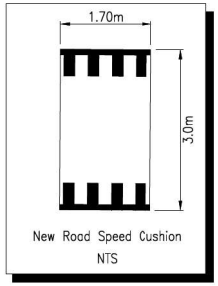


LEGEND

- PROPERTY BOUNDARY NOT SURVEYED (DCDB)
- DBYD TELECOMMUNICATIONS – UNDERGROUND (TELSTRA, OPTUS, UECOMM, NBN)
- DBYD OPTIC FIBRE – UNDERGROUND (TELSTRA, OPTUS, UECOMM)
- DBYD ELECTRICITY – UNDERGROUND
- DBYD WATER MAIN – UNDERGROUND
- DBYD SEWWE MAIN – UNDERGROUND
- DBYD DRAINAGE LINE – UNDERGROUND
- PROPOSED GUARDRAIL
- WARNING TGSI'S

LEGEND

- Median widening
- Concrete Paving
- Concrete Footpath
- Turfing



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- To provide advice to other TMR units and Local Government agencies as appropriate.

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1	Issued for Discussion Only		
	Revisions/Descriptions	Name or RPEQ No.	Signature / Date

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Associated Job Nos
Auxiliary Drg Nos

Survey Data: Horiz. Datum; Horiz. Grid; Height Datum; Survey Books

Scales: 1:250 0 2 4 6 8 10m
Dimensions shown in metres except where shown otherwise

REDLAND CITY COUNCIL
CLEVELAND – REDLAND BAY ROAD (109)
RUSSELL ST AND BLOOMFIELD ST INTERS. UPGRADE

Reference Points

Preceding RP	Dist. to start of job (km)	From strt to end of job	From end to Following RP	Following RP

Through Chainage from

CONCEPT DESIGN
GENERAL ARRANGEMENT AND SERVICES

Drawn: S.KANG, A.Dürr-Galvin
Designed: S.KANG

ENGINEERING CERTIFICATION (RPEQ)

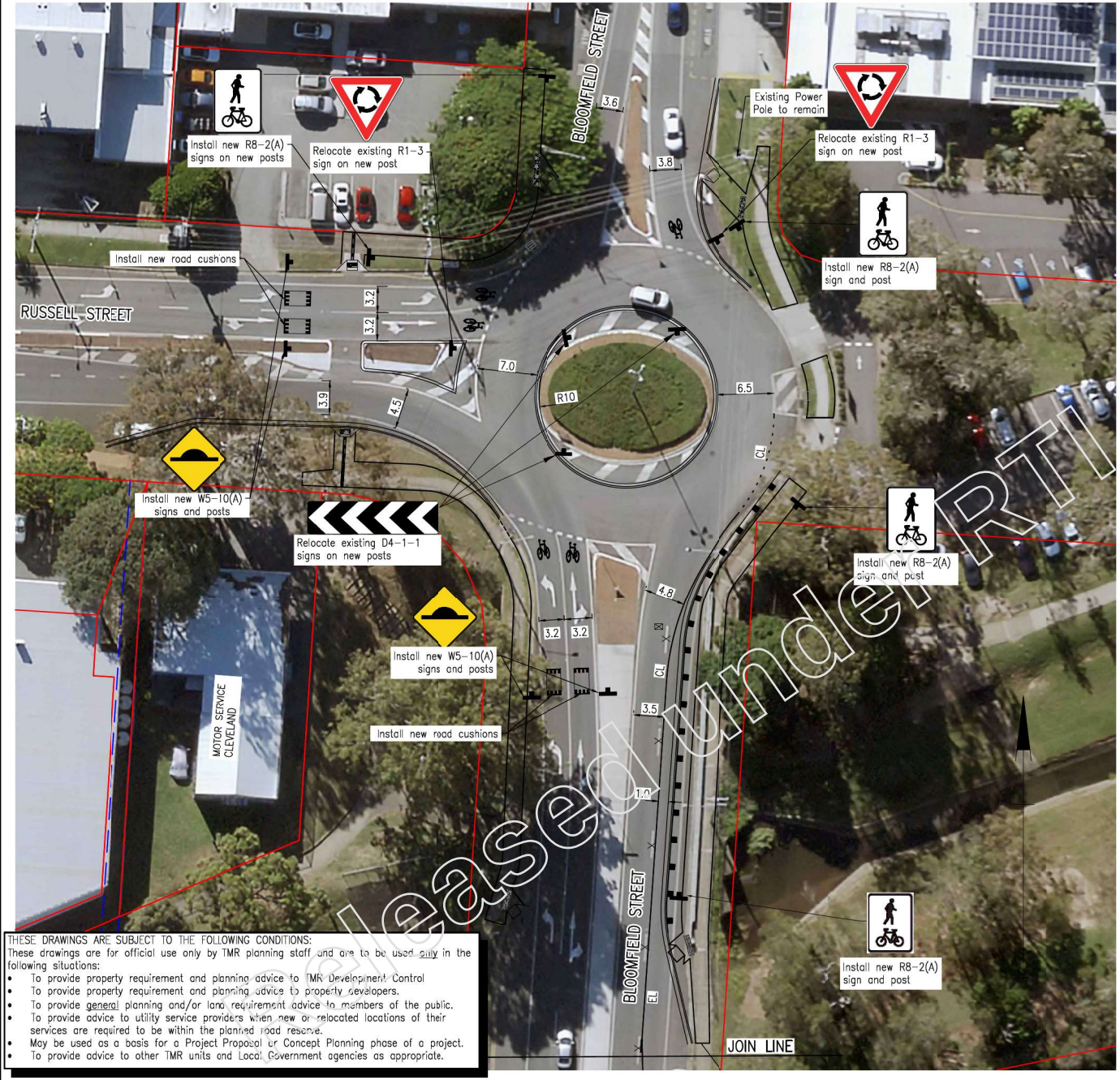
ENG. AREA	NAME	SIGNATURE	No.	DATE
Civil	Ho-Yee Lam		12183	

Queensland Government

Job No.
Contract No.
Drawing No. ABCR 1
Series Number 2 of 3

Last Modified :- Jan 15, 2021 - 7:07pm
XREFS :- X_acad.dwg ; xr_aerial photo 2019.dwg ; X_SPUP.dwg ; X_DROA_OPTION1.dwg

CONCEPT PLAN
15 January 2021



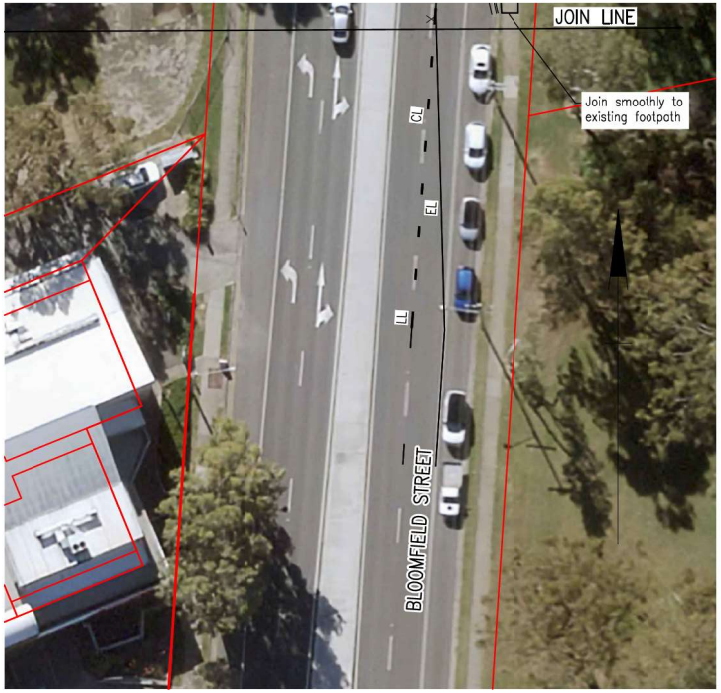
PAVEMENT MARKING LEGEND

		WIDTH/ MATERIAL
CL	CONTINUITY LINE L=1m, G=3m	200mm/ COLD APPLIED PLASTIC
GWL	GIVE WAY LINE L=0.6m, G=0.6m	300mm/ COLD APPLIED PLASTIC
EL	EDGE LINE	150mm/ COLD APPLIED PLASTIC
LL	LANE LINE L=3m, G=9m	100mm/ COLD APPLIED PLASTIC
OL	OUTLINE MARKING	150mm/ COLD APPLIED PLASTIC

EXISITNG LINEMARKING TO BE REMOVED

Bicycle Symbol (Refer to TRUM Volume 3 Part 2 for details)

New Sign



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Associated Job Nos | Survey Data: Horiz. Datum, Horiz. Grid, Height Datum, Survey Books
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SIGNS AND PAVEMENT MARKINGS

Drawn: S.KANG, A.Dürr-Galvin
Designed: S.KANG

ENGINEERING CERTIFICATION (RPEQ)				
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Series Number 3 of 3

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Design Development Report

Options Analysis	**Business Case**	Preliminary Design	Detailed Design	Scheme Prototype

Project name Safety Improvement at the roundabout of Bloomfield Street and Russell Street			
District / Region	Metropolitan	**Local government**	Redland City Council
Road name	Cleveland – Redland Bay Road (109)		
Location	Bloomfield Street and Russell Street Roundabout, Ch 0.62km to 0.80km		
Project number	0R06R001906.C.7.7		
Project / DMS No	505/00250 [1]		
Program	SRS Nominations		
Work description	Minor geometry improvements and provide off-road bicycle treatments at the roundabout		
Document control sheet – contact for enquiries and proposed changes			
If you have any questions regarding this document or if you have a suggestion for improvements, please contact:			
Project Manager	Sam Atabak		
Phone number	(07) 3066 5614		

Version history			
Version	**Date**	**Changed by**	**Nature of amendment**
1.0	13/11/2020	S. Kang	Initial Draft
1.1	15/12/2020	B. Chang	Revision 1
1.2	6/1/2021	H. Lam	Revision 2

Contents

1 Introduction

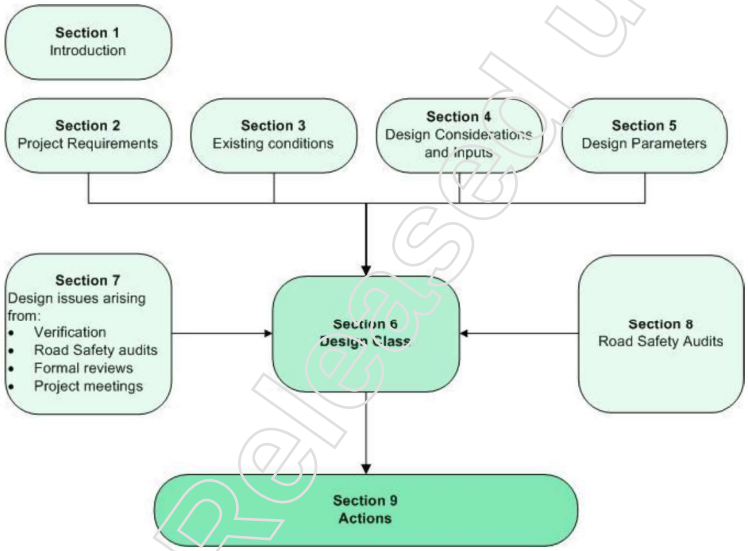
Metropolitan Region's Road Operations team have commissioned Metropolitan Region's Technical Services to undertake a concept design for the Bloomfield Street and Russell Street roundabout (refer to Figure 1.1). The works include minor geometry improvements and provision of off-road bicycle treatments. The Bloomfield Street and Russell Street roundabout is at chainage 0.62km to 0.80km of Cleveland – Redland Bay Road (109), which is a state-controlled road with a posted speed of 60km/hr.

Figure 1.1: Location of the Bloomfield Street and Russell Street roundabout (Source: Google Maps)

1.1 Purpose

The purpose of this document is to progressively document design inputs and details. The structure of the report is provided in Figure 1.2.

Figure 1.2: Design development report structure



1.2 References

Below is list of reference documents for this project;

- Road Planning and Design Manual (RPDM) – Edition 2 Volume 3: Guide to Road Design

  - Part 4: Intersections and Crossing General
  - Part 4B: Roundabouts
  - Part 6: Roadside Design, Safety and Barriers
  - Part 6A: Paths for Walking and Cycling
- Australian Standard (AS)
  - AS1428.4.1_2009
  - AS1742.9_2018
  - AS1742.10_2009
- Austroads Guide to Road Design (AGRD)
  - Part 4: Intersections and Crossing General
  - Part 4B: Roundabouts
  - Part 6: Roadside Design Safety and Barriers
  - Part 6A: Paths for Walking and Cycling
- Austroads Guide to Traffic Management (AGTM)
  - Part 8: Local Street Management
- Manual of Uniform Traffic Control Devices (MUTCD): Part 2
- Technical Note 136: Providing for Cyclists at Roundabouts
- Standard Drawings
  - SD1033: Kerb and Channel Profiles
  - SD1474: Steel Beam Guardrail Installation and Setout
- Queensland Government Crash Detail Report
- Queensland Government Traffic Analysis and Reporting System Report
- Utilised Software
  - Vehicle Path (Vpath)
  - Roadside Impact Severity Calculator (RISC)

1.3 Definitions

A list of definitions used in the report is provided below in Table 1.1.

Table 1.1 Definitions

Terms, abbreviations and acronyms	Meaning
AGRD	Austroads – Guide to Road Design
AGTM	Austroads – Guide to Traffic Management
Constructability	Ensuring the infrastructure can be constructed using the available level of technology (knowledge, skills, materials and equipment) at the site concerned and within specified constraints, e.g. maintaining specified traffic requirements during the construction period.
DE	Design Exception
Deliverable	A deliverable is the physical outcome of a task resulting from applying defined processes to a set of inputs. A deliverable is a measurable, tangible, verifiable item produced as part of a project.
Context Sensitive Design	Context Sensitive Design is described in the *Road Planning and Design Manual Volume 1 – Legislation and Design Philosophy* and the *Austroads Guide to Road Design – Part 2.*
Corporate objectives (strategic fit)	The corporate strategy adopted to maintain / upgrade the link concerned.

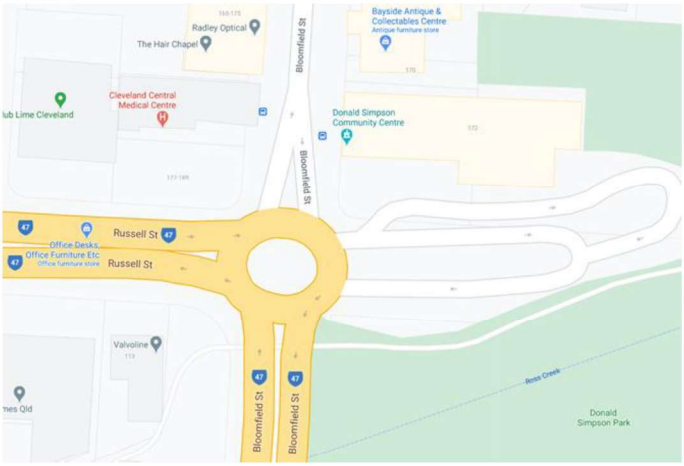
Terms, abbreviations and acronyms	Meaning
Design review	An activity undertaken to ensure that each phase step of the design is aligned to the specified project outcomes so that overall fitness for purpose is achieved. The review should focus on those issues that are necessary to achieve project objectives, e.g.: • Corporate objectives (strategic) • Required functionality (integration with other activities within and adjacent to the road reserve) • Traffic operations (functionality and traffic operational efficiency) Technical standards (safety, economical solution, environmental sustainability)
EDD	Extended Design Domain
MUTCD	Manual of Uniform Traffic Control Devices
N/A	Not applicable
NDD	Normal Design Domain
Notional pavement design	An initial pavement design based on appropriate investigations and testing of available materials for the purpose of developing a reliable pavement cost estimate for the concept estimate.
Project	A project is defined as "a temporary endeavour undertaken to create a unique product, service or result".
Project management	The planning, organising, monitoring and controlling of all aspects of a project in a continuous process to achieve its objectives, both internal and external. It is a discipline requiring the application of skills, tools and techniques and the balancing of competing demands of product or service specification, time and cost, within prescribed constraints.
PUP	Public Utility Plants
RISC	Roadside Impact Severity Calculator
RPDM	Road Planning and Design Manual
SD	Standard Drawings
TN	Technical Note
Work activities	Work components of a project that are necessary to deliver a unique product, service or result.
Work management	The management of project deliverables in order to meet stakeholder needs and expectations from a project.
Work package	A clearly identifiable individual element of work identified in a project Work Breakdown Structure (WBS), e.g. geotechnical investigation.

2 Project requirements

2.1 The need for the project

The roundabout of Russell Street and Bloomfield Street (refer to Figure 2.1) is between chainage 0.62km to 0.80km of Cleveland -Redland Bay Road (109). Cleveland – Redland Bay Road is an arterial road known as Russell Street on the western approach and then as Bloomfield Street as the road travels south. Bloomfield Street (which runs north-south direction) intersect with Russell Street on the western approach and 2 accesses on the eastern approach at the roundabout intersection. A pedestrian underpass (SID: 27041) and a major cross drainage structure (SID: 19963) are located on the southern approach of the intersection. There were no cycle lanes provision on all the approaching legs due to constraint corridor. There have been four (4) crashes in the last five (5) years and three (3) of them were related to bicycle accidents. Therefore, it's a need to improve the safety of the cyclists by providing off-road cycle facilities at the intersection.

Figure 2.1; Roundabout of Bloomfield Street and Russell Street



2.2 The corporate objective (strategic fit)

The **Safer Roads Sooner** (SRS) program is a key component of the Queensland Government's commitment to improving the safety of the state-controlled road through implementing high-benefit, cost-effective, engineering countermeasures and safety treatments that target known and potential high severity (fatalities and serious injuries) crush sites at specific locations. Due to the high crash history and potential risks at this site, the project directly addresses the needs outlined by the SRS program objectives.

2.3 The required functional (operational) outcomes

The project aims to deliver a road with fewer hazards, crashes and a lower severity of crash while maintaining its current level of functionality and capacity.

2.4 Design intent (objectives)

The intent is to provide a fit-for-purpose design solution, within given constraints, to provide improved safety for the transport network at this location.

2.5 Project description

This project will improve safety to the road users and minimise potential hazards to ultimately lower the risk of crashes.

The centre roundabout island will be modified to become circular to improve vehicles circulating at the roundabout since changes in curvature of the circulating carriageway result in differential speeds and increase driver workload, as per AGRM Part 4B (2015). The existing traffic island at the western approach will be widened to provide additional protection for the pedestrian crossing as per AGRM Part 4A. The kerb and channel realignment at the northern entry leg and southern exit leg will allow provision for off-road cycle facilities and widening of the existing footpath to a minimum 2.5m wide shared path or 3.0m where possible. The kerb ramps are installed at the shared adopting bicycle awareness zone with associated pavement markings. Furthermore, the substandard guardrail on the southern exit leg will be removed and a new guardrail will be installed to protect the road users.

3 Existing conditions

3.1 General details

The existing intersection roundabout connects Bloomfield Street and Russell Street with posted speed of 60km/hr. The centre island (refer Figure 3.1) is in ellipse shape with chevron markings on both the elongate sides. The existing

circulation lane around the roundabout is a one lane with exit being a single lane on all roads, except for the southern exit leg which has 2 lanes.

Figure 3.1 Existing centre island

Russell Street is on the western approach with two 3.2m wide lanes on the entry leg and one 3.8m wide lane on the exit leg.

Bloomfield Street runs north-south direction. Bloomfield Street on the southern approach has two 3.2m wide lanes on the entry leg and two 2.9m wide lanes on the exit leg. The existing substandard guardrail is located at the southern exit leg and acts as a barrier between the vehicles and existing footpath, underpass and drainage structure. Bloomfield Street on the northern approach is a minor road with posted speed of 30km/h and zebra pedestrian crossing at approximately 40m from the roundabout. It has one 3.8m wide lane on the approach and one 3.6m wide lanes on the exit leg.

The eastbound approach is dual accesses to the community centre and the Donald Simpson Park that's located right next to the roundabout.

There were no dedicated cycle facilities at the intersection and the cyclists are riding on the road without much protection. The existing pedestrian footpath on the eastern and south western sides are narrow and can only accommodate pedestrians.

There are several Public Utility Plants (PUP) within the project area and there are sewer main, water main, stormwater drainage pipes, optical fibre, telecommunications, electricity and gas mains.

The south west corner is designated as an urban koala habitat.

3.2 Traffic details

Appendix A provides the details of 2019 traffic counts and the summary is as follows;

AADT (current)	*15,762*			
Traffic type/mix (%)	Cars	95.02 %	Trucks-SU	4.98 %
	Semi-trailers	0.19 %	B-Doubles	0.01 %
	and others	0.00 %		
Growth (%)	Growth last year: 2.84% Growth last 5 years: -0.15% Growth last 10 years: -0.03%			
Commercial vehicles (%)	4.98%			

3.3 Flooding details

The project site falls within the Ross Creek catchment where the creek runs under south of Bloomfield Street with a culvert drainage structure. No hydraulic investigation is required for this concept design.

Based on Redland City Council's Flood and Storm Tide Hazard Overlay Map, section of the road can be subject to flooding (refer to Figure 3.2 – shaded in light purple).

Figure 3.2: Flood and Storm Tide Hazard Overlay Map (Source: Redland City Council)

3.4 Accidents history

Four crashes have been recorded between 10 October 2015 to 9 October 2020 which includes three requiring hospitalisation and one requiring medical treatment. Three of them involved cyclists.

Appendix B provides the crash history reports.

3.5 Road Safety Audit Report (existing road)

No road safety audit report was conducted on the existing road.

4 Developing scope and identifying design considerations

4.1 Preliminary studies (work packages)

No preliminary studies were used or prepared to assist with the preparation of this report.

4.2 Design considerations

Other design development considerations requirements for development of preferred option are included in the following tables:

4.2.1 Site familiarisation

No.	Project / design considerations	Design requirements	Details included in section 6.x
A	Desktop Study	Review site-specific reports and information	
B	Site visit	On-site inspection to familiar the project site and surrounding environment	

4.2.2 Additional survey information (over the footprint area of the preferred option)

No.	Project / design considerations	Design requirements	Details included in section 6.x
A	ALS Survey	As no survey was available, ALS survey was used as the basis of the design. Detailed survey will be required for subsequent design stage.	

4.2.3 Geotechnical

No.	Project / design considerations	Design requirements	Details included in section 6.x
A	Not applicable because the proposed works remain within existing formation		

4.2.4 Community consultation

No.	Project / design considerations	Design requirements	Details included in section 6.x
A	Property access may be affected by works	Consultation with property owners will be required during subsequent design stage	
B	Community affected by construction of works	All stakeholders to be consulted during design to ensure that appropriate measures can be implemented during design and construction to minimise impacts to the motorists, residents and community.	

4.2.5 Environmental

No.	Project / design considerations	Design requirements	Details included in section 6.x
A	Koala habitat on the southwest corner of the roundabout	Further environmental and cultural heritage assessment will be required during subsequent design stage.	
B	Ross Creek	Further environmental and cultural heritage assessment will be required during subsequent design stage.	

4.2.6 Public utility plants (PUP)

No.	Project / design considerations	Design requirements	Details included in section 6.x
A	Sewer Main	Multiple PUPs are present within the extent of works. The concept design will be based on desktop review of Dial Before You Dig (DBYD) information. PUP investigation and consultation with PUP authorities are required during subsequent design stages to confirm the location and depth of the PUPs and the scope of protection/relocation works.	
B	Water Main		
C	Drainage		
D	Optical Fibre underground		
E	Telecommunications underground		
F	Electricity underground		
G	Gas Main		

4.2.7 Land acquisition (including native title suppression)

No.	Project / design considerations	Design requirements	Details included in section 6.x
A	Not applicable because the proposed works remain within existing formation		

4.2.8 Special requirements

No.	Project / design considerations	Design requirements	Details included in section 6.x
A	Pedestrian underpass and Ross Creek	They are identified as constraints to the project	
B	Number of cyclists involved in accidents	High number of bicycle accidents were recorded. Safety measures will need to be investigated to improve safety (for example, additional signage and linemarking to alert motorists about presence of cyclists and installation of road cushions on major approach lanes to reduce the impact of severity if accident occurs).	
C	Existing footpath	Existing footpath is not wide enough to accommodate both pedestrians and cyclists	

4.2.9 Traffic management during construction

No.	Project / design considerations	Design requirements	Details included in section 6.x
A	Construction works affecting motorists and other stakeholders	Consultation with stakeholders during subsequent design stages Ensure works can be constructed under traffic	

4.2.10 Others

No.	Project / design considerations	Design requirements	Details included in section 6.x
A	Not applicable because the proposed works remain within existing formation		

5 Design parameters and issues

5.1 Target design speed for link

As the posted speed is 60km/h, the target design speed is 70km/h.

5.2 Design approach

The project will adopt normal design domain (NDD) and extended design domain (EDD) that are in accordance with TMR's standard documentation where possible. Should any design exceptions (DE) be required due to site constraints or project requirements, they will be highlighted in the report.

5.3 Any constraints to project/design constraints

Design constraints or restrictions that limit the way the objective is to be achieved

No.	Project / design considerations	Design requirements	Details included in section 6.x
A	Existing formation footprint	The design is to be confined to the existing formation footprint	N/A
B	Geometrics of adjoining sections	The design needs to be consistent with and join smoothly to adjoining sections.	N/A
C	Adjoining properties	The design is not to impact on adjoining properties	N/A
D	Public Utility Plant (PUP)	The design is to avoid relocation of existing PUP assets	N/A
E	Budget and project intent	The design needs to be context sensitive and consistent with the intent of the project. The design needs to be within the agreed budget.	N/A

5.4 Exclusions

What the project will not be doing.

No.	Description of exclusions
A	Any major work such as realignment, widening, earthworks and pavement rehabilitation
B	Consultation with the Redland City Council and community in the concept design
C	Lighting review

5.5 Assumptions

Articulate the key assumptions adopted during the design process

No.	Description of assumptions
A	Design vehicle up to 19m Semi is adopted for all turning movements

5.6 Connectivity to related projects

No other projects may pose significant risks to the overall project.

5.7 Potential impacts

Due to budget constraints, the existing corridor formation remain unchanged.

5.8 Risks

A risk management approach has been used to manage risk in developing the design deliverables which includes the development of a safety in design report (Attachment F) and risk register (Attachment G).

5.9 *Existing road alignment, restrictions*

No.	Project / design considerations	Design requirements	Details included in section 6.x
A	Lane configuration at southern exit leg	The existing lanes will be reduced from 2 lanes to 1 lane and then transition back to 2 lanes further south of the guardrail.	6
B	Kerb and Channel build-out at western exit leg	The existing kerb and channel will be built out.	6
C	Kerb and Channel build-out at northern entry leg	The existing kerb and channel will be built out and the existing island will be removed.	6
D	Widening roundabout centre island	The existing roundabout centre island will be modified to circular shape with 10m radius.	6
E	Widening median island at westbound leg	The existing median island will be modified to provide additional protection to the pedestrian crossing.	6

5.10 *Major controls on alignment, grade and layouts*

No.	Project / design considerations	Design requirements	Details included in section 6.x
A	Constrained corridor	The concept design to be developed within the existing road corridor	N/A

5.11 *Road use permits and leases*

Report on any other issues that affect right-of-way and proposed closure/acquisition requirements.

No.	Project / design considerations	Design requirements	Details included in section 6.x
A	N/A		

5.12 *Anything else that will put a boundary around the project*

Detail anything else that will put a boundary around the project that may impact on the project team to achieve the project objective.

No.	Project / design considerations	Design requirements	Details included in section 6.x
A	N/A		

6 Design details

Based on the design considerations in Section 5, the proposed layout of the roundabout is in Figure 6.1 and further details are provided in concept drawings (refer Appendix I).

The existing lanes at the southern exit leg on Bloomfield Street will be reduced from 2 lanes to 1 lane with 4.8m wide and then narrowed down to 3.5m with 1m shoulder and transition back to 2 lanes further south of the guardrail.

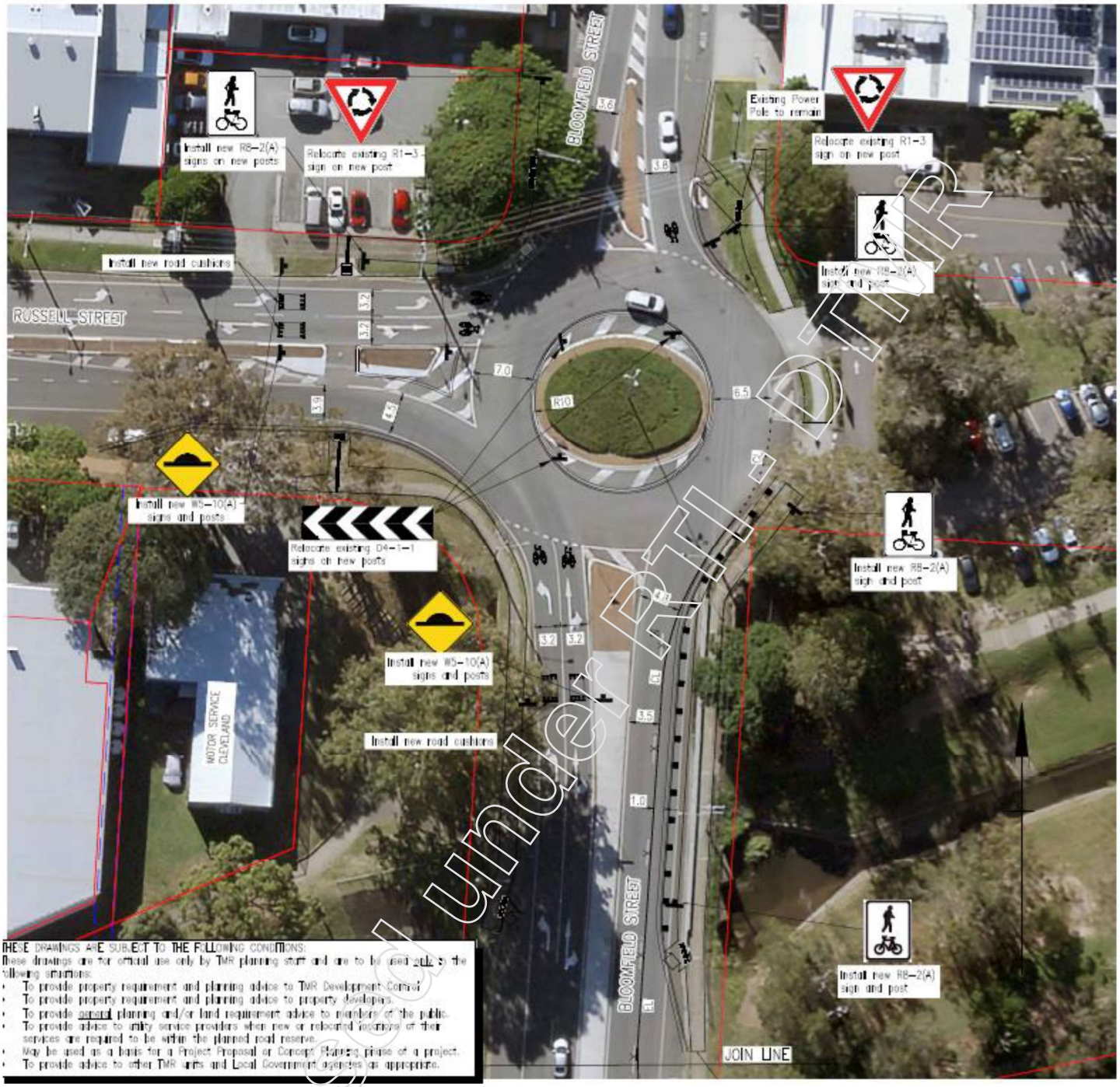
The existing kerb and channel at the northern entry leg on Bloomfield Street will be built out by approximately 1.4m. The existing island will be removed. This treatment has no impact to the existing traffic lanes configuration.

The existing kerb and channel at the western exit leg on Russell Street will be built out by approximately 0.5m from the existing gully pit. This treatment allows one 4.5m wide exit lane on Russell Street.

The existing median island at the westbound leg on Russell Street will be modified to provide additional protection to the pedestrian crossing. This new island is designed based on Vpath analysis.

The existing roundabout centre island will be modified to circular shape with 10m radius. This does not impact the existing circulation lane width.

Figure 6.1: Concept design proposed layout



6.1 Type cross sections

The type cross sections are provided in Figure 6.2 and further details are provided in concept drawings (refer Appendix I).

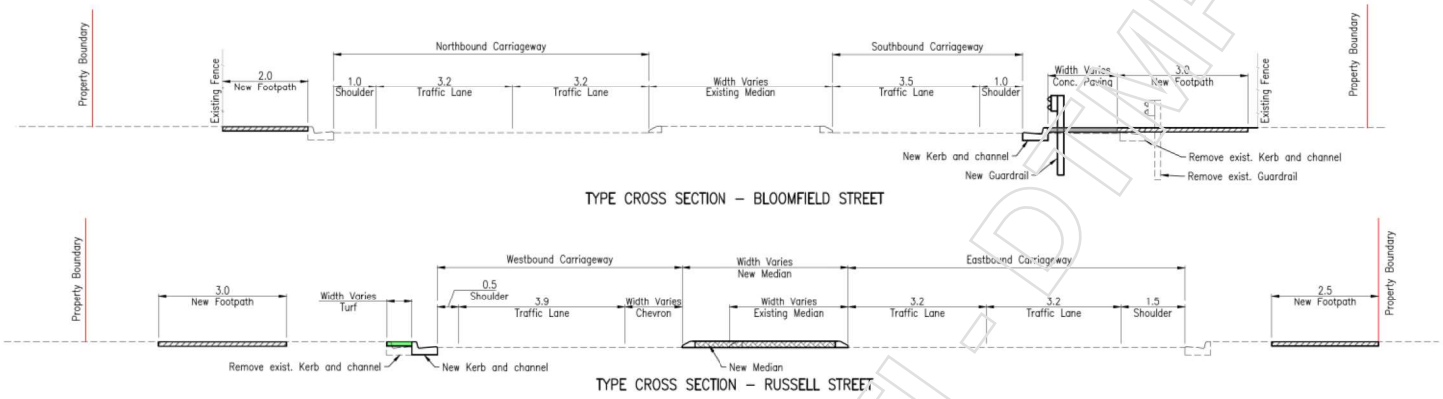
Key features of Bloomfield Street southbound are;

- Kerb and channel at roundabout location and adjacent to footpaths
- 1.0m shoulder in each direction
- Two 3.2m wide traffic lanes on the northbound carriageway and one 4.8m-3.5m wide traffic lane on the southbound carriageway
- Existing median remains unchanged
- 2.0m footpath on the northbound carriageway and 3.0m footpath on the southbound carriageway

Key features of Russell Street western approach are;

- Kerb and channel at roundabout location and adjacent to footpaths
- 0.5m wide shoulder on the westbound carriageway and 1.5m wide shoulder on the eastbound carriageway
- Existing median will be widened to protect pedestrians
- One 4.5m-3.9m wide traffic lane on the westbound carriageway and two 3.2m wide traffic lanes on the eastbound carriage

Figure 6.2 Type cross sections



6.2 Earthworks

No major earthworks will be required for the realignment of kerb and channel at the northern approach, southern exit leg and western exit leg. .

6.3 Constructability

Constructability review is out of scope and it will be reviewed during subsequent design stage.

6.4 Intersection details

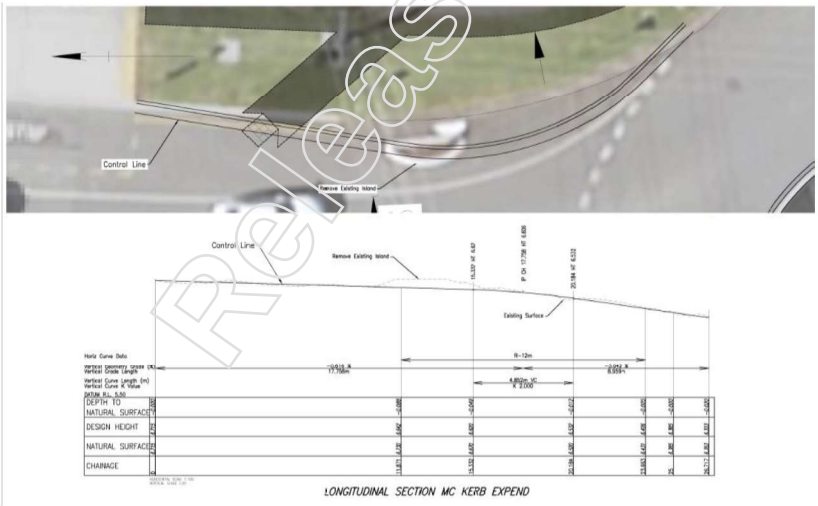
The roundabout centre island is proposed to be modified to circular shape from its current shape of ellipses to improve driver judgements and manoeuvre at the roundabout.

Additional continuity line will be marked at the eastern approach to alert motorists to stop before entering into the roundabout.

6.5 Drainage (existing and proposed)

Drainage checks were conducted for the northbound kerb extension and no major drainage issues were identified (refer to Figure 6.3). Generally, the major contour runs from north of the roundabout down to south while directing the water flow down to gully pits located around the roundabout.

Figure 6.3 Longitudinal section of new kerb and channel on the northbound kerb extension



6.6 Pavement details (existing and proposed)

No pavement works are proposed for this proposed layout. The median will be 100mm N32/20 with SL81 placed centrally.

6.7 Public utility plant (PUP) works

Based on desktop study of DBYD information, relocation of an existing power pole on the southeast corner of the roundabout will be required. As the power pole has a light attached to it, it is important that lighting review and design will be completed during subsequent design stages.

The exact scope of PUP relocation or protection works will need to be confirmed based on PUP investigation results and consultation with PUP authorities during subsequent design stages.

6.8 Other features

Tactile Ground Surface Indicators (TGSI) are installed on the pedestrian ramps.

To encourage cyclists to use the off-road cycle facilities at the roundabout, the footpath is widened to be shared paths with 2.5m width where possible. The path on the southwest corner does not have the room to be widened to 2.5m due to existing pedestrian underpass and PUP and therefore the path is widened to be 2.0m. Bicycle Awareness Zone (BAZ) markings will be introduced to provide additional warnings to drivers for the cyclists using the road.

6.9 Other design features

Approach Sight Distance checks with relation to Criterion 1 & 2 has been performed and no major issues were identified (refer to Appendix C).

Vehicle turning template (Vpath) for each leg has been developed to analyse their movements around the roundabout and no major issues were identified (refer to Appendix D).

Roadside Impact Severity Calculator was used to analyse cost benefit ratio for the installation of guardrails on the southern exit leg and the BCR is above 1 (refer to Appendix E). Therefore, the existing substandard guardrail is removed, and a new guardrail is proposed to be installed.

7 Record of design issues arising from process activities

7.1 Design verification

Reviews of the design development report and associated documentation to verify compliance with the project's scope and specification have been completed throughout the project using TMR's Design Services Operation System (DSOS). A summary of these reviews is provided below

No.	Reviewer	Review Type
A	Billy Chang	Reviewer
B	Ho-Yee Lam	RPEQ review
C		

7.2 Project meeting minutes

Design issues arising from project meetings are documented in meeting minutes provided in the Appendix H.

7.3 Safety in design

The Safety in Design (SID) process is a risk mitigation concept used to identify and mitigate safety issues inherent in the design relating to the construction, operation maintenance and demolition. Mitigation of the safety issues in the design helps to reduce or eliminate risks to contractors, maintenance personnel and asset owners. Risks that cannot be eliminated throughout the design phase should be reduced as much as possible and the residual risk communicated to contractors, operators and maintenance personnel.

SID register identifies significant construction, operation, maintenance, demolition and design risks inherent in the design of the project which could serve as hazards during the lifecycle of the project. The outcomes of the risk identification and assessment process have been incorporated into the design wherever possible. However, if the risks cannot be eliminated in the Option Analysis phase, they are to be revisited in subsequent design stages so that risks can be mitigated as much as possible.

Most of the risks are expected to be resolved during subsequent design phases throughout development of the design.

SID register is provided in Appendix F

7.4 Road safety audits

No road safety audits have been conducted on this road. It is recommended that road safety audit will be conducted when the design is further developed during preliminary or detailed design stage.

8 Concept Estimate

The cost estimate report is provided in Appendix J.

Table 8.1 provides the summary of the P90 estimate.

Table 8.1 – Summary of P90 cost estimate

Work Package	P90 Estimated Cost (excluding GST)
A – Road Construction	$ 614,510.00
B – Principal's Obligations (for example, survey, PUP investigation and Principal's costs)	$ 320,000.00
C – Principal's Contingency	$ 494,355.75
Total	$ 1,453,865.75

The following key assumptions have bene made in developing the costs for the project;

- the project will proceed through the preliminary and detailed design stages
- the construction works will be completed in the year 2022/2023, subject to funding availability
- a 40% overall contingency have been adopted which is in line with an acceptable range for Option Analysis contingencies for TMR

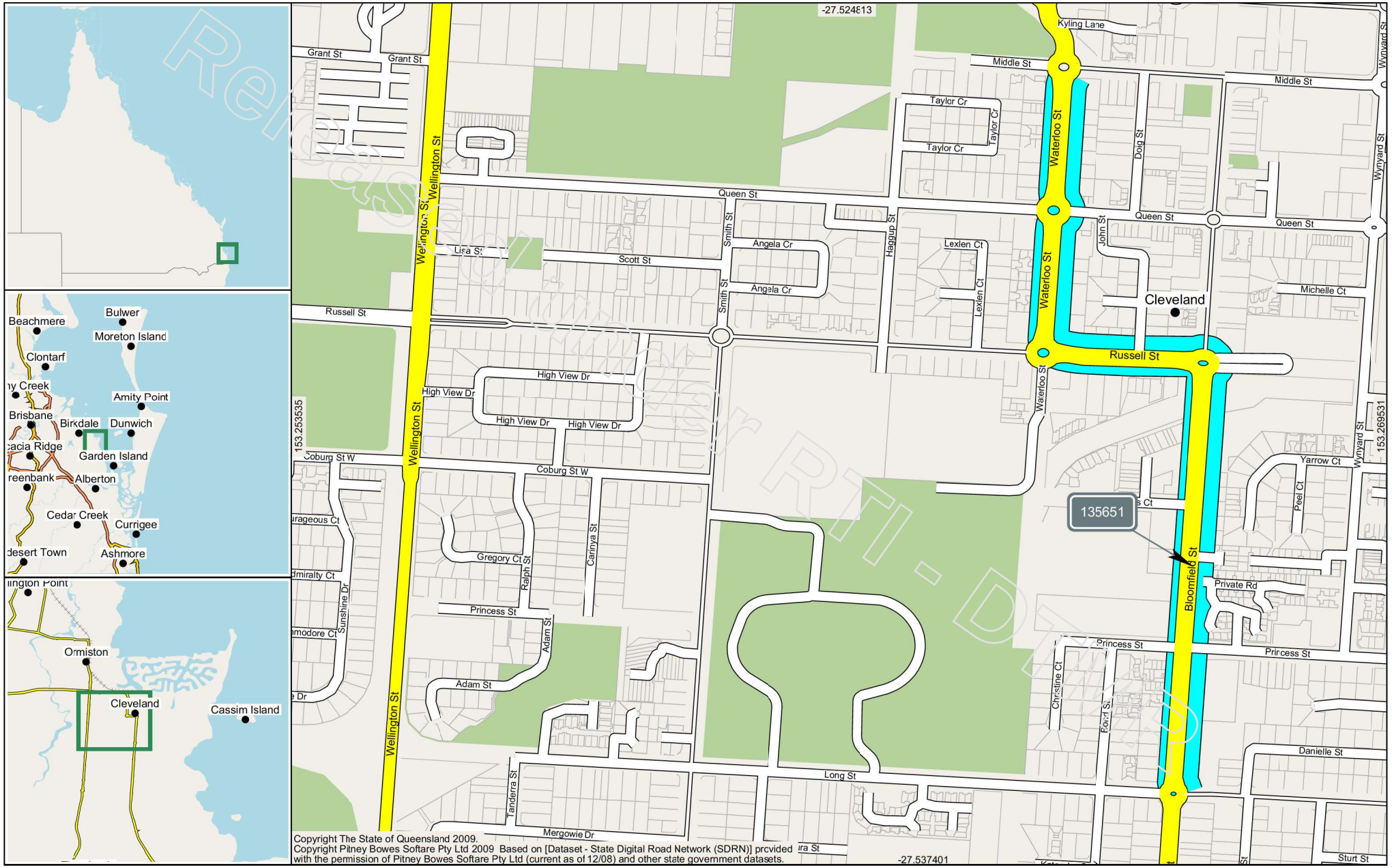
9 Actions

In subsequent design phases of this project, the following recommendations are made;

- **Survey**: detailed survey of the intersection to be organised before proceeding to detailed design
- **Road lighting**: review and develop lighting design on proposed layout
- **Constructability**: constructability reviews of the design to be completed
- **Drainage**: assess existing drainage system, flow widths, contours and flow paths after obtaining detailed survey of the intersection
- **Provision of cyclists and pedestrians**: review pedestrian and cyclist provisions in consultation with local government and stakeholders
- **Earthworks and pavement**: confirm that there is no significant earthworks or pavement works required during subsequent design stages
- **Environmental and cultural heritage requirement**: confirm any environmental and cultural heritage requirements in subsequent design stages
- **Road signage and linemarking**: review existing road signage and linemarking and develop road signage and linemarking design
- **Safety in Design**: ongoing Safety in Design reviews and design amendment as required
- **Stakeholder consultation**: stakeholder consultation to be completed
- **Road Safety Audit**: complete a new RSA on the proposed layout
- **Public Utility Plants (PUP)**:
    - Complete PUP survey and investigations
    - Re-assess PUP impacts against updated survey information and as the design is refined in future project phases to confirm PUP relocation and protection works

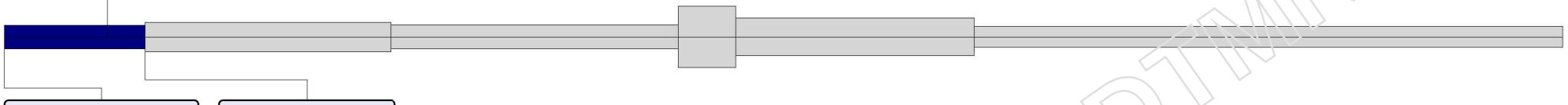
- Ongoing liaison and co-ordination with PUP authorities in future design phases

10 Appendix A – 2019 AADT



Site 135651. Point 330019123.
North of Princess Street.
1.01 km

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



0.00 km
Start Point 330008667.
S'side Middle St/Waterloo St.

1.38 km
End Point 330007202.
S'side Bloomfield/Long St.

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	7,451	100%
A	8,311	100%
B	15,762	100%

Light Vehicles (0A)

G	7,068	94.86%
A	7,909	95.16%
B	14,977	95.02%

Heavy Vehicles (0B)

G	382	5.13%
A	402	4.84%
B	784	4.97%

Short Vehicles (1A)

G	7,068	94.86%
A	7,909	95.16%
B	14,977	95.02%

Trucks and Buses (1B)

G	369	4.95%
A	384	4.62%
B	753	4.78%

Articulated Vehicles (1C)

G	13	0.17%
A	17	0.20%
B	30	0.19%

Road Trains (1D)

G	0	0.00%
A	1	0.01%
B	1	0.01%

Short 2-Axle Vehicles (2A)

G	6,999	93.93%
A	7,830	94.21%
B	14,829	94.08%

Short Vehicles Towing (2B)

G	69	0.93%
A	79	0.95%
B	148	0.94%

2-Axle Trucks and Buses (2C)

G	346	4.64%
A	355	4.27%
B	701	4.45%

3-Axle Trucks and Buses (2D)

G	18	0.24%
A	23	0.28%
B	41	0.26%

4-Axle Trucks (2E)

G	5	0.07%
A	6	0.07%
B	11	0.07%

3-Axle Articulated (2F)

G	7	0.09%
A	7	0.08%
B	14	0.09%

4-Axle Articulated (2G)

G	4	0.05%
A	7	0.08%
B	11	0.07%

5-Axle Articulated (2H)

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

6-Axle Articulated (2I)

G	2	0.03%
A	3	0.04%
B	5	0.03%

B Double (2J)

G	0	0.00%
A	1	0.01%
B	1	0.01%

Double Road Trains (2K)

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

Triple Road Trains (2L)

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

AADT Segment Annual Volume Report
Provides summary data for the selected AADT Segment of a Road Section. Summary data is presented as both directional information and a combined bi-directional figure. The data is then broken down by Traffic Class, when available. The report also includes maps displaying the location of both the AADT Segment and the traffic count site.

Annual Average Daily Traffic (AADT)
Annual Average Daily Traffic (AADT) is the number of vehicles passing a point on a road in a 24 hour period, averaged over a calendar year.

AADT Segments
The State declared road network is broken into Road Sections and then further broken down into AADT Segments. An AADT Segment is a sub-section of the declared road network where traffic volume is similar along the entire AADT Segment.

Area
For administration purposes the Department of Transport and Main Roads has divided Queensland into 12 Districts. The Area field in TSDM reports displays the District Name and Number.

District Name	District
Central West District	401
Darling Downs District	402
Far North District	403
Fitzroy District	404
Mackay/Whitsunday District	405
Metropolitian District	406
North Coast District	407
North West District	409
Northern District	408
South Coast District	410
South West District	411
Wide Bay/Burnett District	412

AADT Values
AADT values are displayed by direction of travel as:

- G Traffic flow in gazettal direction
- A Traffic flow against gazettal direction
- B Traffic flow in both directions

Data Collection Year
Is the most recent year that data was collected at the data collection site.

Please Note:
Due to location and/or departmental policy, some sites are not counted every year.

Gazettal Direction
Is the direction of the traffic flow. It can be easily recognised by referring to the name of the road eg. Road Section: 10A Brisbane - Gympie denotes that the gazettal direction is from Brisbane to Gympie.

Maps
Display the selected location from a range of viewing levels, the start and end position details for the AADT Segment and the location of the traffic count site.

Road Section
Is the Gazetted road from which the traffic data is collected. Each Road Section is given a code, allocated sequentially in Gazettal Direction. Larger roads are broken down into sections and identified by an ID code with a suffix for easier data collection and reporting (eg. 10A, 10B, 10C). Road Sections are then broken into AADT Segments which are determined by traffic volume.

Segment Site
Is the unique identifier for the traffic count site representing the traffic flow within the AADT Segment.

Site
The physical location of a traffic counting device. Sites are located at a specified Through Distance along a Road Section.

Site Description
The description of the physical location of the traffic counting device.

Start and End Point
The unique identifier for the Through Distance along a Road Section.

Vehicle Class
Traffic is categorised as per the Austroads Vehicle Classification scheme. Traffic classes are in the following hierarchical format:

Volume or All Vehicles
00 = 0A + 0B

Light Vehicles
0A = 1A
1A = 2A + 2B

Heavy Vehicles
0B = 1B + 1C + 1D
1B = 2C + 2D + 2E
1C = 2F + 2G + 2H + 2I
1D = 2J + 2K + 2L

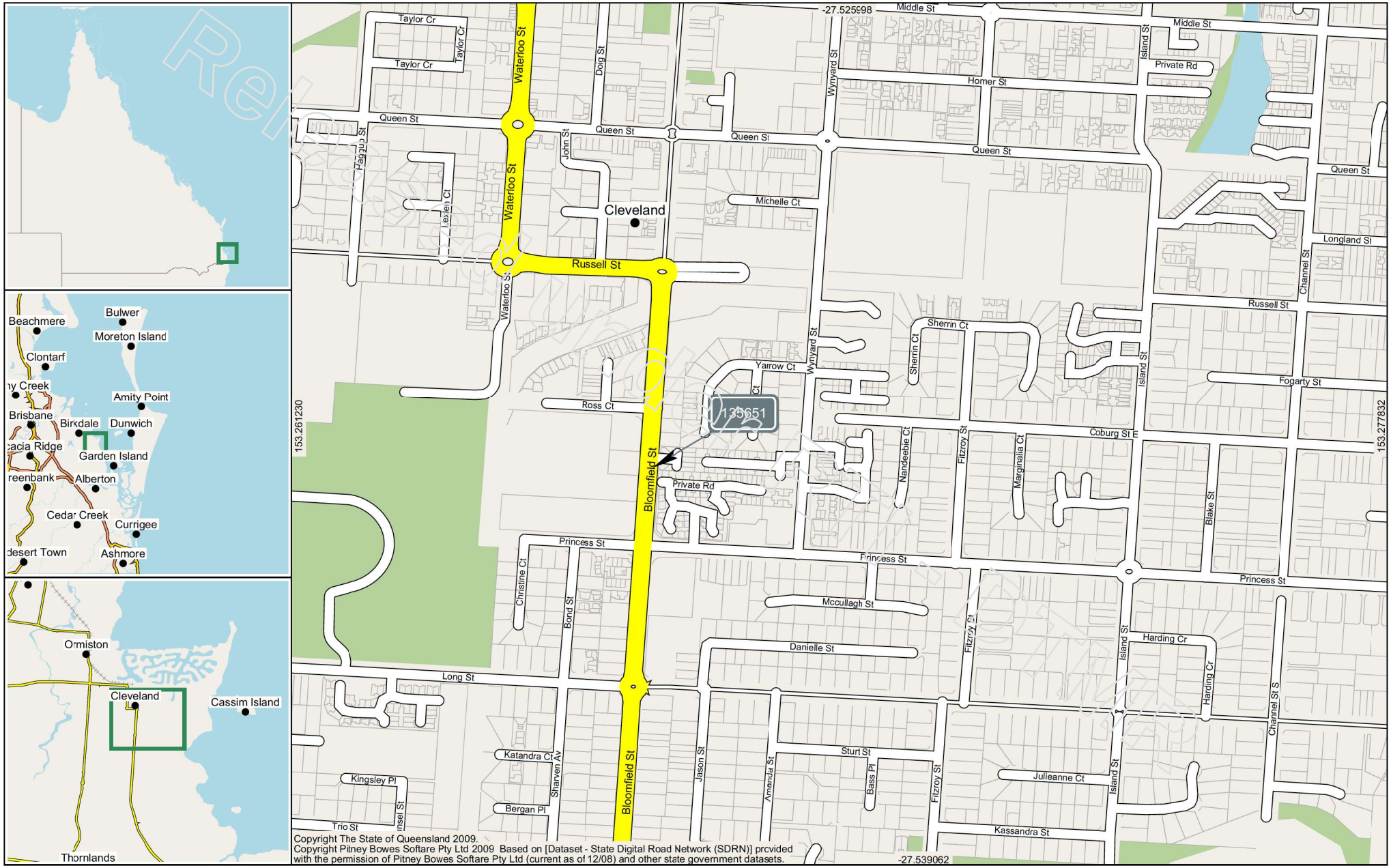
The following classes are the categories for which data can be captured:

Volume
00 All vehicles

2-Bin
0A Light vehicles
0B Heavy vehicles

4-Bin
1A Short vehicles
1B Truck or bus
1C Articulated vehicles
1D Road train

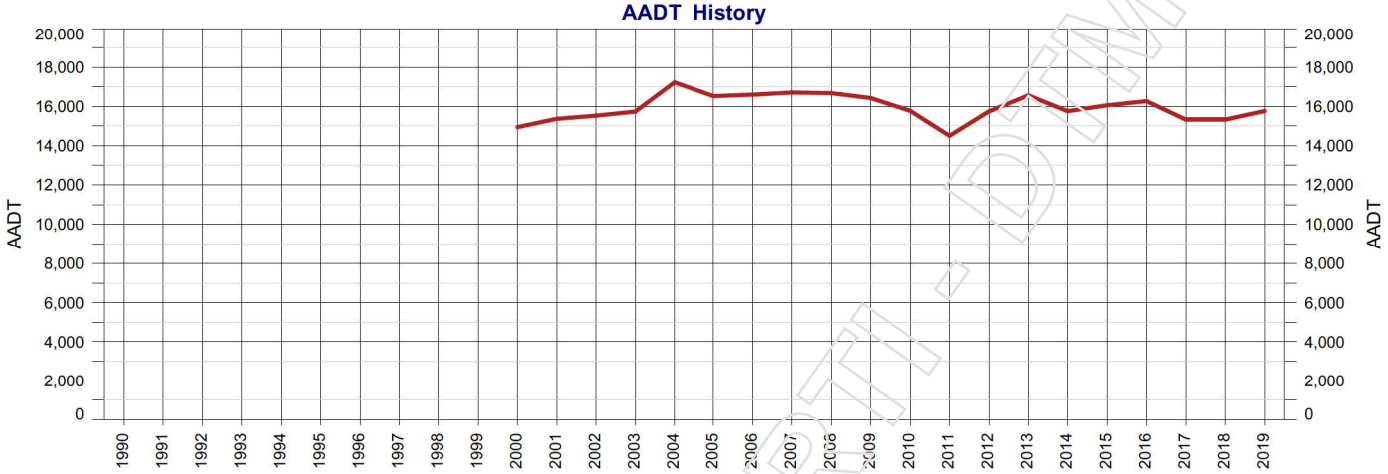
12-Bin
2A Short 2 axle vehicles
2B Short vehicles towing
2C 2 axle truck or bus
2D 3 axle truck or bus
2E 4 axle truck
2F 3 axle articulated vehicle
2G 4 axle articulated vehicle
2H 5 axle articulated vehicle
2I 6 axle articulated vehicle
2J B double
2K Double road train
2L Triple road train



Area	406 - Metropolitan District
Road Section	109 - CLEVELAND - REDLAND BAY ROAD
Site	135651 - South of Ross Court
Thru Dist	1.015
Type	C - Coverage
Stream	TB - Bi-directional traffic flow

Year	2019	Growth last Year	2.84%
AADT	15,762	Growth last 5 Yrs	-0.15%
Avg Week Day	17,968	Growth last 10 Yrs	-0.03%
Avg Weekend Day	11,033		

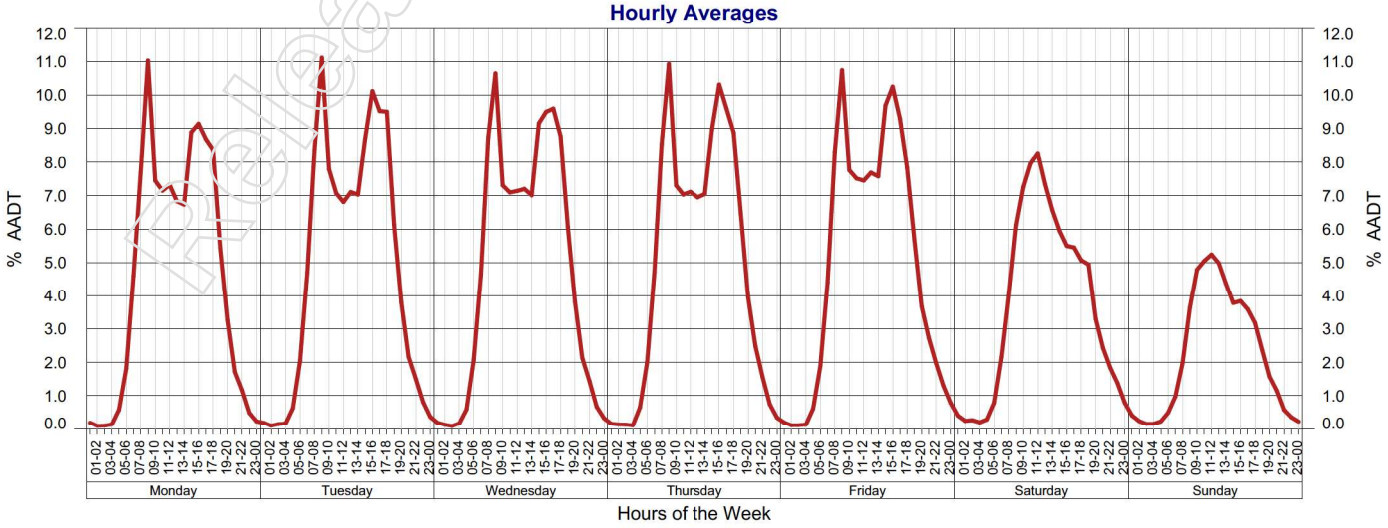
AADT History



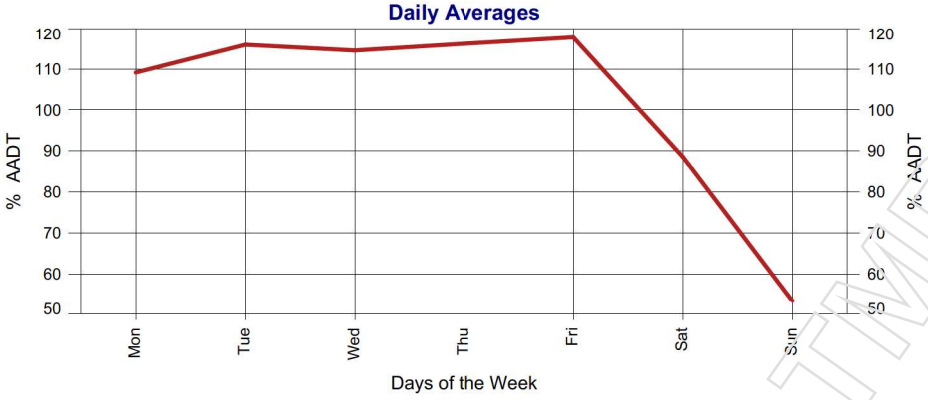
Year	AADT	1-Year Growth	5-Year Growth	10-Year Growth
2019	15,762	2.84%	-0.15%	-0.03%
2018	15,326	0.00%	-1.37%	-0.58%
2017	15,326	-5.79%	-1.23%	-0.70%
2016	16,268	1.33%	1.34%	0.06%
2015	16,054	1.90%	0.93%	-0.21%
2014	15,755	-4.86%	-0.02%	-0.65%
2013	16,560	5.20%	0.84%	0.15%
2012	15,741	8.54%	-1.04%	-0.47%
2011	14,503	-8.06%	-3.55%	-1.50%
2010	15,774	-3.95%	-1.37%	-0.10%
2009	16,423	-1.50%	-0.62%	
2008	16,673	-0.20%	0.35%	
2007	16,706	0.66%	0.99%	
2006	16,596	0.44%	1.36%	
2005	16,523	-4.07%	1.90%	

Year	AADT	1-Year Growth	5-Year Growth	10-Year Growth
2004	17,224	9.46%		
2003	15,735	1.34%		
2002	15,527	1.04%		
2001	15,367	2.84%		
2000	14,943			
1999				
1998				
1997				
1996				
1995				
1994				
1993				
1992				
1991				
1990				

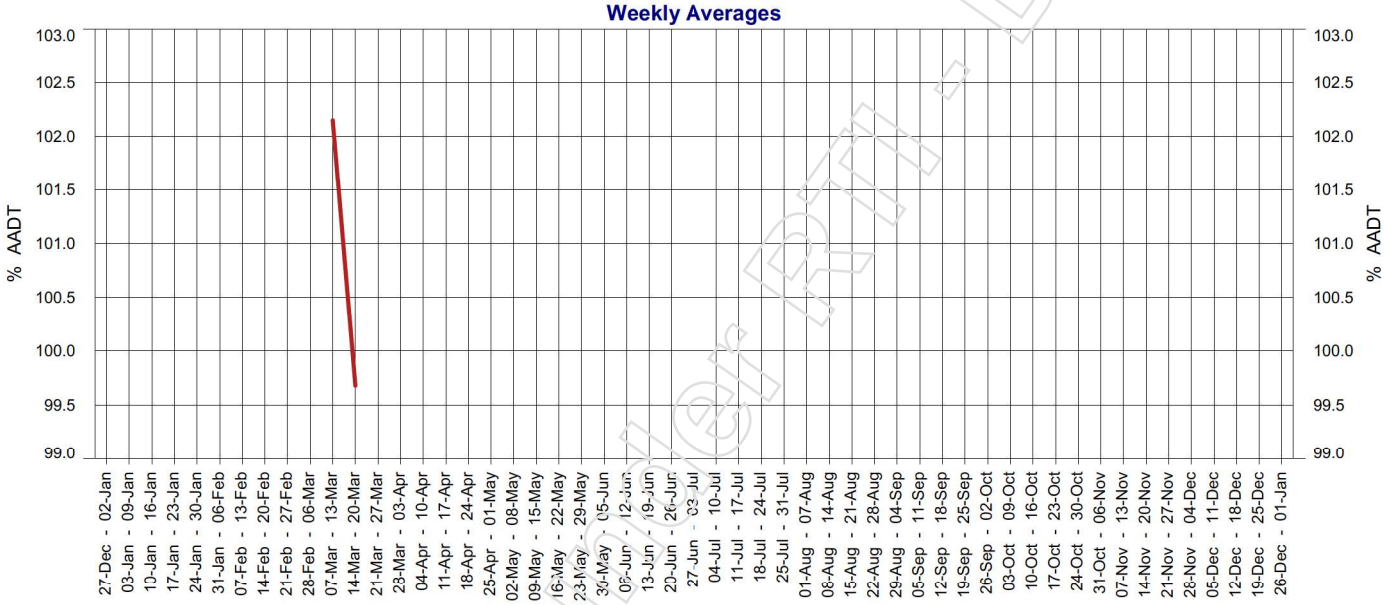
Hourly Averages



Daily Averages



Weekly Averages



2019 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
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					

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
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				

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
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

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
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

Days on which traffic data was collected.

Annual Volume Report
Displays AADT history with hourly, daily and weekly patterns by Stream in addition to annual data for AADT figures with 1 year, 5 year and 10 year growth rates.

Annual Average Daily Traffic (AADT)
Annual Average Daily Traffic (AADT) is the number of vehicles passing a point on a road in a 24 hour period, averaged over a calendar year.

AADT History
Displays the years when traffic data was collected at this count site.

Area
For administration purposes the Department of Transport and Main Roads has divided Queensland into 12 Districts. The Area field in TSDM reports displays the District Name and Number.

District Name	District
Central West District	401
Darling Downs District	402
Far North District	403
Fitzroy District	404
Mackay/Whitsunday District	405
Metropolitian District	406
North Coast District	407
North West District	409
Northern District	408
South Coast District	410
South West District	411
Wide Bay/Burnett District	412

Avg Week Day
Average daily traffic volume during the week days, Monday to Friday.

Avg Weekend Day
Average daily traffic volume during the weekend, Saturday and Sunday.

Calendar
Days on which traffic data was collected are highlighted in green.

Gazettal Direction
The Gazettal Direction is the direction of the traffic flow. It can be easily recognised by referring to the name of the road eg. Road Section: 10A Brisbane - Gympie denotes that the gazettal direction is from Brisbane to Gympie.

- G Traffic flowing in Gazettal Direction
- A Traffic flowing against Gazettal Direction
- B The combined traffic flow in both Directions

Growth Percentage
Represents the increase or decrease in AADT, using a exponential fit over the previous 1, 5 or 10 year period.

Hour, Day & Week Averages
The amount of traffic on the road network will vary depending on the time of day, the day of the week and the week of the year. The ebb and flow of traffic travelling through a site over a period of time forms a pattern. The Hour, Day and Week Averages are then used in the calculation of AADT.

Road Section
Is the Gazetted road from which the traffic data is collected. Each Road Section is given a code, allocated sequentially in Gazettal Direction. Larger roads are broken down into sections and identified by an ID code with a suffix for easier data collection and reporting (eg. 10A, 10B, 10C). Road Sections are then broken into AADT Segments which are determined by traffic volume.

Site
The unique identifier and description of the physical location of a traffic counting device. Sites are located at a Through Distance along a Road Section.

Stream
The lane in which the traffic is travelling in. This report provides data for the combined flow of traffic in both directions.

Thru Dist or TDist
The distance from the beginning of the Road Section, in kilometres.

Type
There are two types of traffic counting sites, Permanent and Coverage. Permanent means the traffic counting device is in place 24/7. Coverage means the traffic counting device is in place for a specified period of time.

Year
is the current year for the report. Where an AADT Year record is missing a traffic count has not been conducted, for that year.

11 Appendix B – Crash Report

Queensland Government

Road Crash 2
CRASH DETAIL REPORT

Crash Types

Crash Dates	10-OCT-2015 - 09-OCT-2020	Alignment: Vertical	
Owner	MR DEPARTMENT OF MAIN ROADS	Horizontal	
DCA Code		Feature	
Group		Traffic Ctrl	
		Speed Limit	
Fatalities	=	Contrib Circ.	
Severity		Unit Type	
Nature		Risk Factor	

Area LGA | SLA | Police Division

Road Sections

All Road Sections N Include Crashes on: Y Thru road Mid-block Y Thru roads at Intersections Y Intersecting roads at Intersections

Intersections

All Intersections S

Intersection	Number of Crashes Fatal	Hosp.	Medical	Minor	PDO	Total
14187 Cleve-RedlandBayRd/RussellSt/SimParkN951	0	3	1	0	0	4

Queensland Government

Road Crash 2
CRASH DETAIL REPORT

Crash No.	Date	Day	Hour	DCA	No. Units	Street/s
20151712261	21-NOV-2015	Sat	07	600 VEH'S ON F	1	Bloomfield St

RSect 109 Cleveland - Redland Bay Road
Cway 2 Direction N
Inter. 14187 Cleve-RedlandBayRd/RussellSt/SimParkN
Road Surface Sealed - dry

RPC 1A
Dist from RPC 0.680
Tdist 0.680

Nature 06 Hit fixed obstruction or tempora
Severity NR
Alignment: Vertical 1 Level
Horizontal 1 Straight
Feature 15 Roundabout
Traffic Control 09 Give Way

Units	Age	Gender	Unit Type	Dirn.	Intended Action	BAC
1	NR	person	09 Bicycle	N	01 Go Straight Ahead	NR

Description

NR

The crash occurred along Bloomfield Street/ Russell Street Roundabout at Cleveland. The weather at the time was clear and dry and happened in the early hours of the morning. Unit 1 was riding his pushbike NR

NR

Contributing Circumstances

1 ROAD CONDITIONS - MISCELLANEOUS

Queensland Government

Road Crash 2
CRASH DETAIL REPORT

Crash No.	Date	Day	Hour	DCA	No. Units	Street/s
20191257508	30-JUN-2019	Sun	09	104 VEH'S ADJA	2	Bloomfield St

RSect: 109 Cleveland - Redland Bay Road
Cway: 2 Direction: N
Inter.: 14187 Cleve-RedlandBayRd/RussellSt/SimParkN
Road Surface: Sealed - dry

RPC: 1A
Dist from RPC: 0.680
Tdist: 0.680

Nature: 02 Angle
Severity: NR
Alignment: Vertical: 1 Level
Horizontal: 3 Curved-View open
Feature: 15 Roundabout
Traffic Control: 09 Give Way

Units	Age	Gender	Unit Type	Dirn.	Intended Action	BAC
1	NR	pers	01 Car, Station Wagon	E	03 Make Right Turn	NR
2			09 Bicycle	N	01 Go Straight Ahead	

Description

Involved parties Unit 1 XXX Unit 2 XXX Involved Vehicles Unit 1 Toyota Kluger 2006 XXX Unit 2 Road bicycle BMC Involved address Roundabout Bloomfield/Russell St Cleveland Injuries

NR

Contributing Circumstances

NR

Queensland Government

Road Crash 2
CRASH DETAIL REPORT

Crash No.	Date	Day	Hour	DCA	No. Units	Street/s
20162077561	06-NOV-2016	Sun	09	101 VEH'S ADJA	2	Bloomfield St

RSect 109 Cleveland - Redland Bay Road
Cway 2 Direction E
Inter. 14187 Cleve-RedlandBayRd/RussellSt/SimParkN
Road Surface Sealed - dry

RPC 1A
Dist from RPC 0.680
Tdist 0.680

Nature 02 Angle
Severity NR
Alignment: Vertical 1 Level
Horizontal 1 Straight
Feature 15 Roundabout
Traffic Control 09 Give Way

Units	Age	Gender	Unit Type	Dirn.	Intended Action	BAC
1	NR	pers	01 Car, Station Wagon	E	01 Go Straight Ahead	NR
2			01 Car, Station Wagon	N	01 Go Straight Ahead	

Description
Police have attended the scene and taken details from the parties involved.
NR

Contributing Circumstances
NR

Queensland Government

Road Crash 2
CRASH DETAIL REPORT

Crash No.	Date	Day	Hour	DCA	No. Units	Street/s
20192521811	19-DEC-2019	Thu	06	408 VEH'S MAN	2	Bloomfield St

RSect: 109 Cleveland - Redland Bay Road
Cway: 3 Direction: N
Inter.: 14187 Cleve-RedlandBayRd/RussellSt/SimParkN
Road Surface: Sealed - dry

RPC: 1A
Dist from RPC: 0.680
Tdist: 0.680

Nature: 02 Angle
Severity: NR
Alignment: Vertical: 1 Level
Horizontal: 1 Straight
Feature: 15 Roundabout
Traffic Control: 09 Give Way

Units	Age	Gender	Unit Type	Dirn.	Intended Action	BAC
1	NR	perso	09 Bicycle	N	01 Go Straight Ahead	N/A
2			02 Utility, Panel Van	N	04 Make Left Turn	N/A

Description

The crash occurred on the 19 December 2019 at approximately 6:45am. The crash location is the intersection of Bloomfield st and Russel St, Cleveland. The northbound lanes before the intersection are controlled by painted arrows. UNIT 1 - CYCLIST- xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx UNIT 2 - QLD xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx At the time of the crash both vehicles were travelling northbound on Bloomfield St.

NR

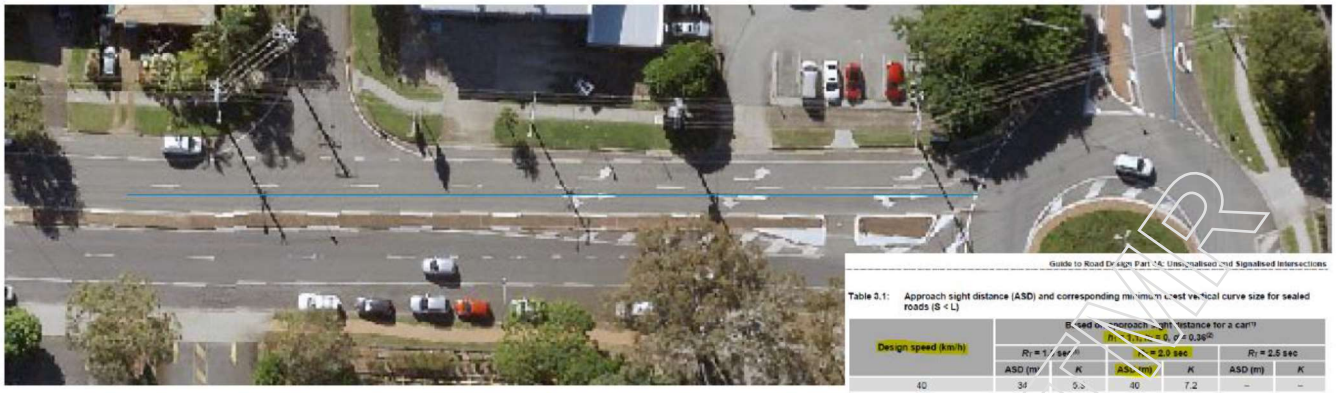
NR

Contributing Circumstances

NR

12 Appendix C – Approach Sight Distance

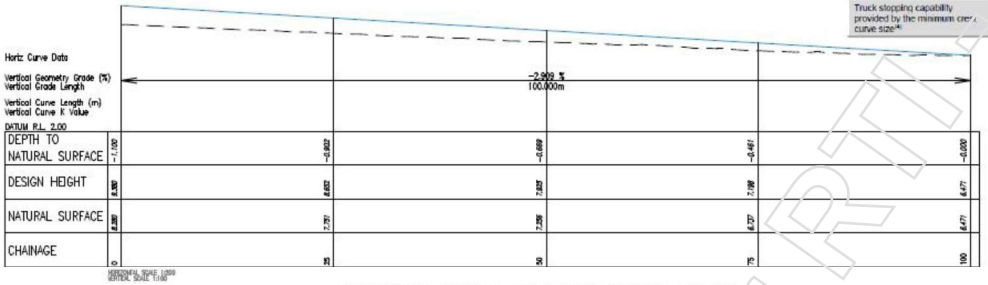
Criterion 1



Guide to Road Design Part 4A: Unsignalised and Signalised Intersections

Table 3.1: Approach sight distance (ASD) and corresponding minimum crest vertical curve size for sealed roads (S < L)

Design speed (km/h)	Based on approach sight distance for a car[1] h_1 = 1.1, h_2 = 0, d = 0.36[2]					
	R_T = 1.5 sec[3]		R_T = 2.0 sec		R_T = 2.5 sec	
	ASD (m)	K	ASD (m)	K	ASD (m)	K
40	34	5.3	40	7.2	–	–
50	48	10.5	55	13.8	–	–
60	64	18.8	73	24.0	–	–
70	83	31.1	92	38.9	–	–
80	103	48.5	114	59.5	–	–
90	126	72.3	139	87.3	151	104
100	151	104	165	124	179	146
110	–	–	193	171	209	198
120	–	–	224	229	241	264
130	–	–	257	301	275	344
Truck stopping capability provided by the minimum crest curve size[4]	h_1 = 2.4 m, h_2 = 0 m, d = 0.22					



LONGITUDINAL SECTION QUALITY ASD RUSSELL ST EB1

Guide to Road Design Part 4A: Unsignalised and Signalised Intersections

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40	34	5.3	40	7.2	–	–
50	48	10.5	55	13.8	–	–
60	64	18.8	73	24.0	–	–
70	83	31.1	92	38.9	–	–
80	103	48.5	114	59.5	–	–
90	126	72.3	139	87.3	151	104
100	151	104	165	124	179	146
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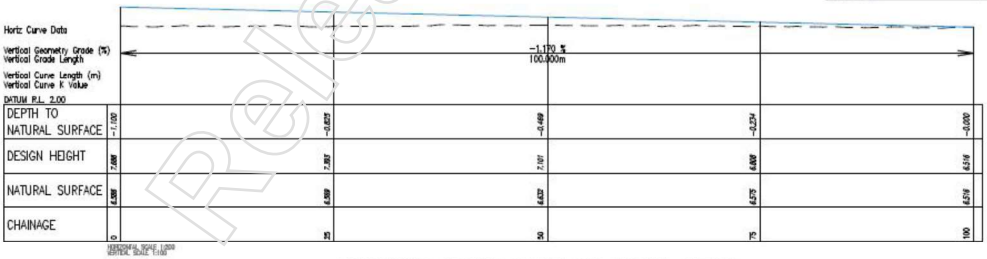
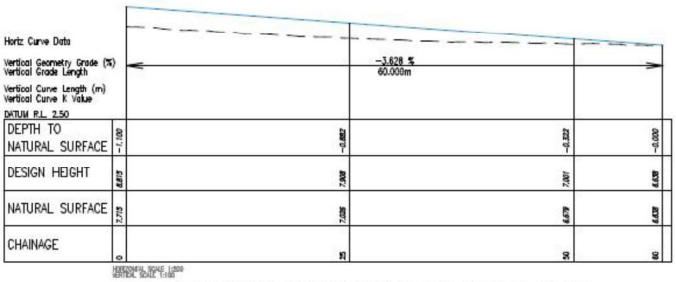
Truck stopping capability provided by the minimum crest curve size[4]	h_1 = 2.4 m, h_2 = 0 m, d = 0.22					



LONGITUDINAL SECTION QUALITY ASD RUSSELL ST NB1



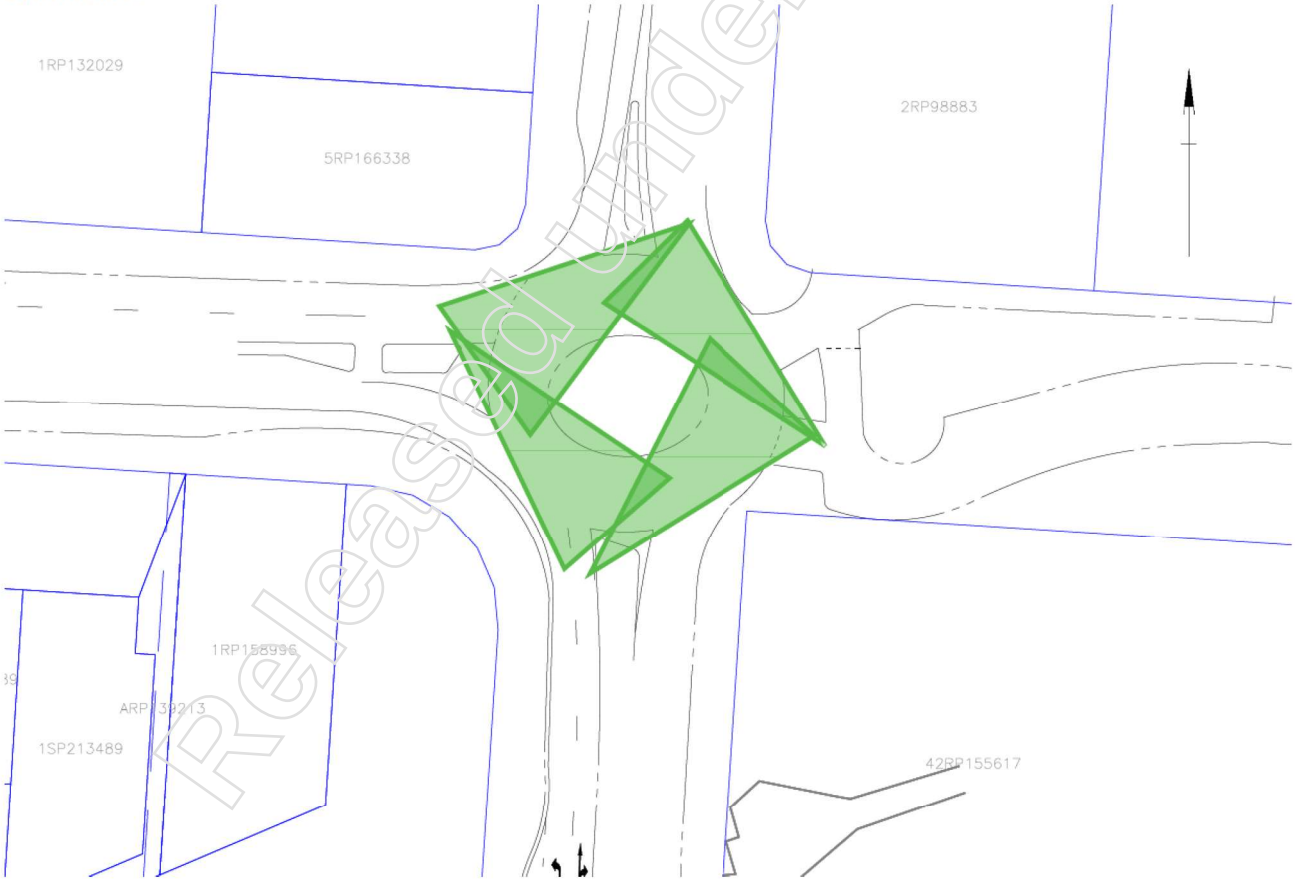
LONGITUDINAL SECTION QUALITY ASD RUSSELL ST SB1

Guide to Road Design Part 4A: Unsignalised and Signalised Intersections

Table 3.1: Approach sight distance (ASD) and corresponding minimum crest vertical curve size for sealed roads (S < L)

Design speed (km/h)	Based on approach sight distance for a car[1] h_1 = 1.1, h_2 = 0, d = 0.36[2]					
	R_T = 1.5 sec[3]		R_T = 2.0 sec		R_T = 2.5 sec	
	ASD (m)	K	ASD (m)	K	ASD (m)	K
40	34	5.3	40	7.2	–	–
[illegible]	48	10.5	55	13.8	–	–
[illegible]0	64	18.8	73	24.0	–	–
70	83	31.1	92	38.9	–	–
80	103	48.5	114	59.5	–	–
[illegible]2	126	72.3	139	87.3	151	104
[illegible]00	151	104	165	124	179	146
110	–	–	193	171	209	196
120	–	–	224	229	241	264
130	–	–	257	301	275	344
Truck stopping capability provided by the minimum crest curve size[4]	h_1 = 2.4 m, h_2 = 0 m, d = 0.22					

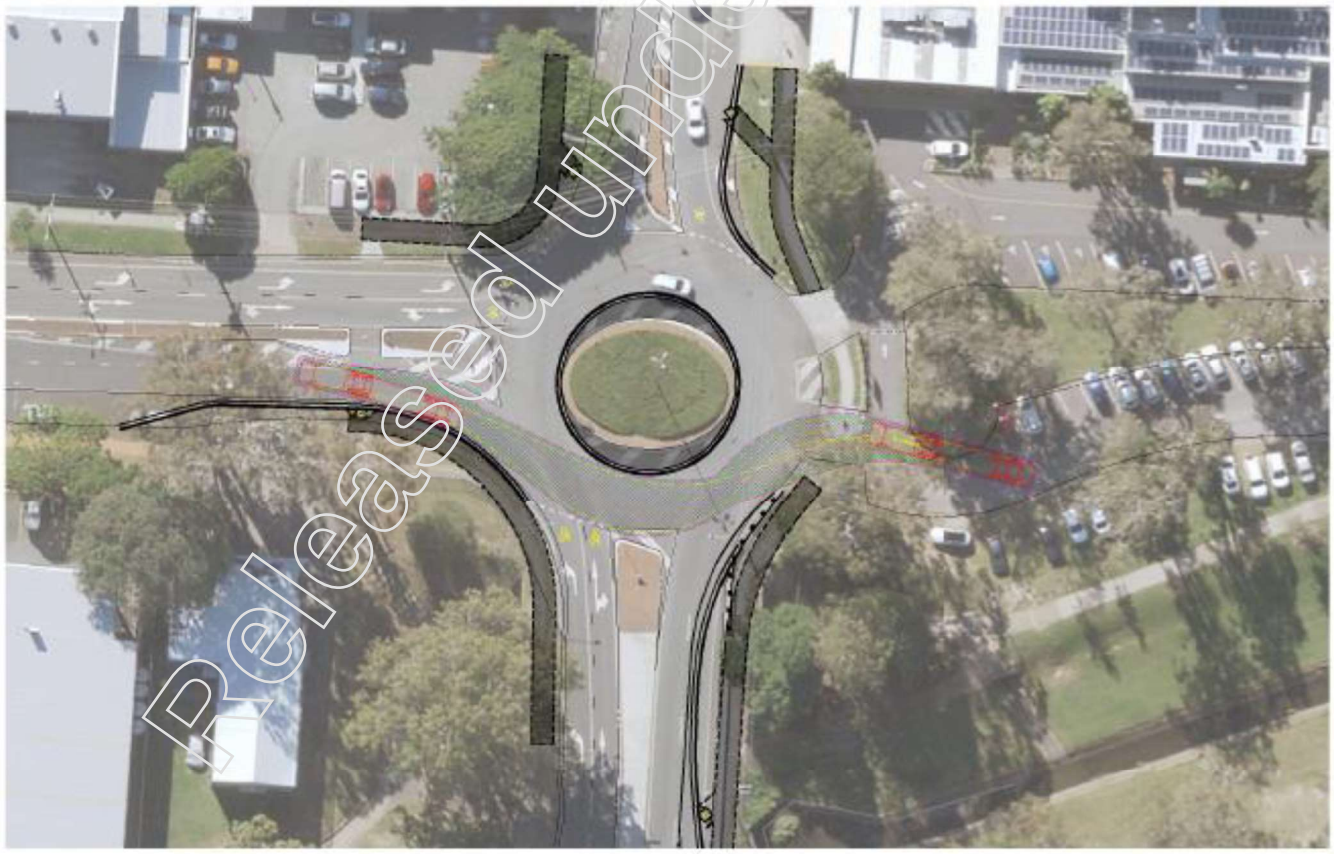
Criterion 2

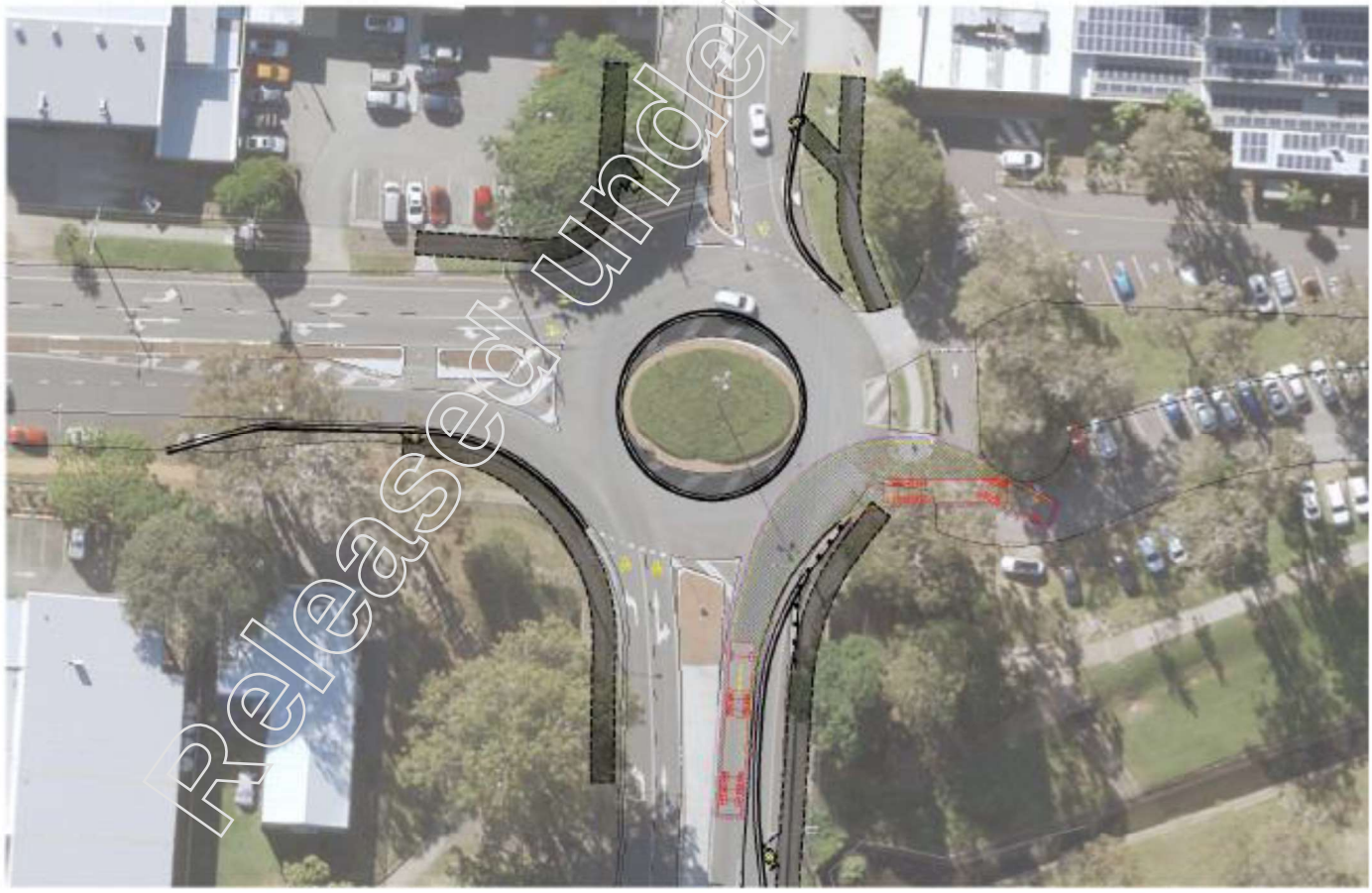


13 Appendix D – Vehicle Turning Template (Vpath)

19m semi-trailer turn path in the roundabout

19m semi-trailer turn path from eastern exit

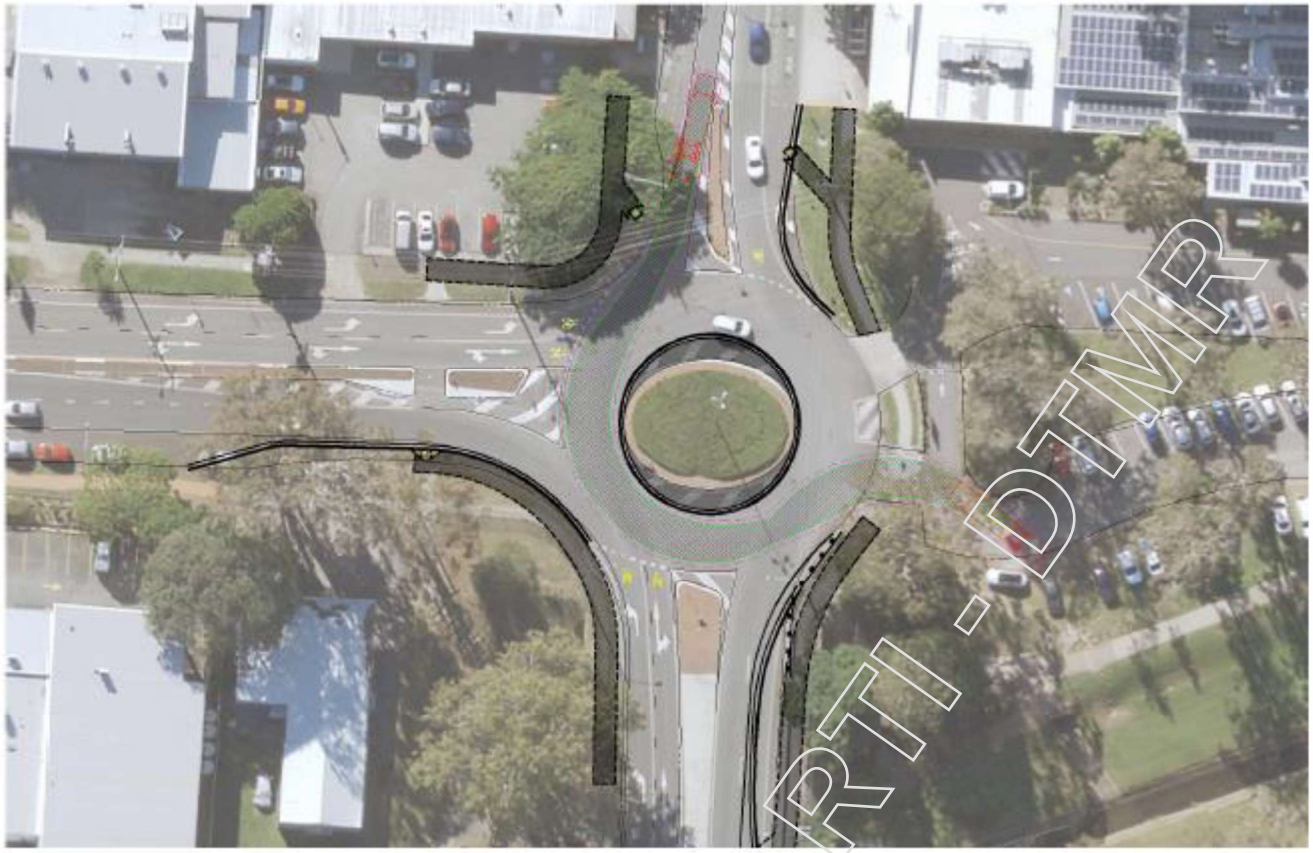




19m semi-trailer and car turn path at the roundabout

12.5m truck

12.5m truck turn path from eastern exit



14 Appendix E – Roadside Impact Severity Calculator (RISC) Assessment

Transport and Main Roads RISC Report

Project: Cleveland Russell St OPT 2

Description:

Project Parameters

General:

Vehicle Swath Width (m):	3.6
Discount Rate (%):	6
Growth Rate (%):	2
Project Life (years):	20
Coefficient of Friction:	0.4
Encroachment Rate (enc/km/year/veh/day):	0.0003

Crash Costs:

Profile Name:	2016 WTP
Property Costs:	$9,775
Minor Injury Costs:	$40,930
Moderate Injury Costs:	$125,395
Hospitalisation Costs:	$633,244
Fatal Costs:	$9,077,270

Encroachment Angle:

50 km/h:	13.0	90 km/h:	11.6
60 km/h:	12.8	100 km/h:	11.1
70 km/h:	12.4	110 km/h:	10.7
80 km/h:	12.0	120 km/h:	10.3

Capacity:

50 km/h:	0	90 km/h:	0
60 km/h:	0	100 km/h:	0
70 km/h:	7600	110 km/h:	0
80 km/h:	0	120 km/h:	0

Benefit Cost Analysis

Road: Cleveland Russell St Option 2	Install	Maint	Repair	Mult	Impacts/Y	Crash Cost	BCR
Hazard: Underpass	$1	$1	$1	1.0	0.00956	$13,402	
Treatment: Guardrail	$28,000	$1	$28,000	1.0	0.00708	$207	6.4

Item Details

Road Section	Start	End	Type	Lanes	Median	Section	Grade	Speed	AADT
Cleveland Russell St Option 2	0.000	0.115	Divided	2 x 3.5m	Imp 3.5m	Straight	Flat	70	7600

Roadside Object	Chainage	Position	Offset	Width	Length	Composition	S	C	F
Underpass	0.009	Right	6.30	3.00	39.00	Parallel Slope, Fill Slope (vertical), Height 4.0, Depth 1.0	0.00	0.00	6.10
Guardrail	0.000	Right	1.65	0.37	56.00	Guardrail transition (substandard), Substandard, Strong post W-beam, attached	0.00	0.00	2.20

15 Appendix F - Safety in Design Report

Safety in Design Report

Intersection of Bloomfield Street and Russell Street – Improve geometry and provide bicycle treatments (Project ID: 0R06R001906.C.7.7)

Date: 08 December 2020

Queensland Government

Creative Commons information

Document control options

Departmental approvals

Refer to the appropriate Risk Assessment Tool for relevant reviewer and approver

Date	Name	Position	Action required *(Review/endorse/approve)*	Due
7/1/2021	Ho-Yee Lam	Principal Engineer (Civil)	Review	7/1/2021

Risk level

☐ GACC major ☐ GACC minor ☐ High risk (but not GACC) ☐ Medium risk

Prepared by	Seunghan Kang (Kevin)
Title	Designer (Civil)
District & Region	Metropolitan Region
Branch & Division	Program Delivery and Operations
Project/program	Safer Road Sooners
Project number	0R06R001906.C.7.7
Project location	Bloomfield Street and Russell Street Roundabout – Safety Improvement Works
Status	Concept Phase
DMS ref. no.	

Contact for enquiries and proposed changes

If you have any questions regarding this document or if you have a suggestion for improvements, please contact

Project manager	Sam Atabak
Title	Principal Engineer (Traffic Engineering and Road Use)
District & Region	Metropolitan Region
Branch & Division	Program Delivery and Operations
Phone number	(07) 3066 5614

Contents

1 Introduction

1.1 Project Summary

The Technical Services team of the Metropolitan Region has been commissioned by the Road Operation Team of the Metropolitan Region (that is, clients) to undertake a Concept Design for the safety works at the roundabout of Bloomfield Street (south) and Russell Street (west). This roundabout is located at chainage 0.62 to 0.80km of Cleveland – Redland Bay Road (109) which is a state-controlled road. The works include footpath widening, kerb realignments, installation of new guardrail and road cushions to provide additional safety to the road users. Both the Bloomfield and Russell Streets are part of the Cleveland – Redland Bay Road (109) with a posted speed of 60km/h.

1.2 Project Background

Cleveland-Redland Bay Road (109) between chainage 0.62 to 0.80km consists of a roundabout with Bloomfield Street running north-south direction, Russell Street on the western approach and two driveway assesses on the eastern approach. There are footpaths and crossings at all approaches. This roundabout has a pedestrian underpass (SID: 27041) and 3/2100x3600 culverts (SID: 19963) located underneath the traffic lanes on the southern approach with fences and guardrails.

There have been four (4) crashes in the last five (5) years and three (3) of them were related to bicycle accidents. Due to the number of crashes related to cyclists, the Department of Transport and Main Roads (TMR) identified the need to;

- Upgrade existing footpath and install kerb ramps to implement shared path and provide off-road bicycle facilities
- Install new road cushions and upgrade substandard guardrails to enhance the safety for the road users
- Widen median and central island to provide comforts to the vehicles manoeuvring around the roundabout while providing extra safety to the pedestrian crossings

The scope of works is based on the project scope identification document.

1.3 Purpose of Document

This Safety in Design Report was prepared for the design for the upgrade of intersection between Bloomfield and Russell Street. This document outlines the identified risks for the Safety in Design Review (SiDR), and the mitigations designed to offset the risks.

The focus of this review was to consider the impacts of the proposed design compared to the existing issues between the above sections of road and identify potential hazards or risks that may require mitigation strategies to be documented. Safety in Design (SiD) aims to identify potential risks to persons, during construction, future operation and maintenance and eventual demolition of a facility. Where possible, these risks should be eliminated or limited during the design phase. The risks associated with identified hazards will be ranked before and after control measures are in place to identify whether sufficient risk reduction has been achieved through design, and if not, highlight that these risks need to be managed in downstream phases of the life of the facility.

The safety objectives relevant to the design phase are:

- To identify and document unusual hazards and risks that might be realised in the construction, operation, maintenance and/or demolition phases of the project life cycle and record associated mitigation measures incorporated into the design process.
- To demonstrate the elimination or reduction as far as is reasonably practical of potential design hazards such that those who properly construct, commission, maintain, repair, operate or use the facilities which are the subject of the design services are not unduly exposed to hazards.
- To communicate to the client unusual risks that have not been eliminated in the design and need to be managed during the construction, operation, maintenance and/or demolition phases.

In this context "unusual" refers to hazards which are not common within the construction industry and subject to longstanding and well proven risk reduction measures as would be practised by reputable and competent construction contractors.

This report fulfills the requirement of "the report" as stated in Section 295 of the Queensland Work Health and Safety Regulations 2011. It also provides a record of those hazards identified by Technical Services which are not related specifically to construction, but which have either bene mitigated as part of the design process or need to be managed by the client or organisations to which such management has been delegated by the client.

The objective of the report is to provide the clients the information on the risks identified during the SiDR and allow clients to communicate to their contractors, stakeholders and owners of mitigation actions.

2 Legal obligations

In Queensland, legislation and regulations exist which specify duties for designers, clients and main contractors within the construction industry (refer to the Queensland Work Health and Safety Act 2011 and Sections 295 and 296 of the Queensland Work Health and Safety Regulations 2011).

To meet these requirements, the designer (or each designer if there is more than one) must provide a specific written report to the client (defined as the person for whose direct benefit all the work done at a construction site exists, upon its completion). This report must set out:

- The hazards identified by the designer which are associated with the construction work required to build the design (e.g. hazardous structural features, hazardous construction materials or hazardous procedures or practices).
- The designer's assessment of the risk of injury or harm to a person resulting from those hazards.
- What actions the designer has taken to reduce those risks, (e.g. changes to the design or changes to construction methods or construction materials).
- Any parts of the design where hazards have been identified but not resolved.

Designers have further obligations under the Act to prevent or minimise risks in the design of the works so that the design does not adversely affect the workplace health and safety of persons

- During construction of the works
- When the work has been constructed and is being used for the purpose for which it was designed
- During routine maintenance

Client's obligations under these regulations are as follows:

- To consult with the designer for the purpose of ensuring, as far as practicable, that persons doing the construction work may do so without risk to their health and safety
- To ensure that, as far as practicable, any information they receive about identified hazards and related risk control measures, is passed on to the main contractor (if the client is not the main contractor) and to anyone who obtains the end product.

During the construction phase, clients should also bring information from the main contractor to the attention of the designer, should it become apparent that a change to the design could either eliminate or better control a risk to safety and health at the construction site.

The clients must communicate this report including the Safety in Design Matrix and the Risk Register to the key stakeholders, contractors and owners of mitigation actions and advise Technical Services in a timely fashion of any issues or changes to the basis of design which might prompt reassessment of the design in order to reduce risks to health and safety during construction or at other times over the facility lifecycle.

3 Assumptions

The following assumptions were made during the SiD process:

- Scope is limited to hazards reasonably foreseeable at the time of the review and resulting from design aspects of the infrastructure for which Technical Services is responsible. Hazards arising due to normal site construction, installation, maintenance or operation as covered by WorkSafe Queensland, safe installation methods, Australian codes and standards, local codes and guidelines and so on, are not part of this review.
- The SiD process was completed based on current industry good practice and knowledge, and to the standard of skill, care and diligence as is reasonably expected of Technical Services performing the same or similar services.
- Any construction, operation, maintenance or demolition of the facilities will be carried out by organisations and/or personnel with appropriate knowledge, competence and skills to undertake such tasks
- Any organisation or person responsible for any of construction, operation, maintenance or demolition of the facilities will review and update/incorporate any new risks into the Risk Register as and when required

4 Methodology

Technical Services has completed an internal SiDR in December 2020 and the review is only restricted to those areas of the design for which Technical Services is responsible, and hence did not address any other design issues.

The SiDR were identified by the project team involved with the delivery of the project;

- Ho-Yee Lam – Project RPEQ
- Billy Chang – Senior Civil Designer
- Seunghan Kang – Civil Designer

The outcomes of the assessment are identified in Appendix A. Each identified risk was analysed through an assessment of the likelihood of the risk occurring together with the consideration of the effects or consequences of those risks if they do not eventuate.

5 Recommendations

It is recommended that results and findings of the SiDR process are to be continually developed and communicated to the relevant stakeholders during subsequent project phases. The findings from this report are to be included in the Risk Register for construction, maintenance and operational activities. All parties will fulfill their obligations under the legislation.

Appendix A – Safety in Design Register

ITEM			RISK IDENTIFICATION				RISK MITIGATION/CONTROL		RESIDUAL RISK			
Workshop & ID. No.	Phase	Discipline	POTENTIAL RISK	UNMITIGATED RISK SCORE			POTENTIAL ELIMINATION MEASURE, DESIGN INITIATIVE or CONTROL (Identify any Standard or Code of practice used)	HOW THE ISSUE IS ADDRESED IN DESIGN AND/OR CONSTRUCTION OF THE WORKS	If not eliminated RESIDUAL RISK SCORE			RESIDUAL RISK OWNER
			Hazard	Likelihood (0-5)	Consequence (0-5)	Rating			Likelihood (0-5)	Consequence (0-5)	Rating	
1	Construction	General	Impact on emergency services and delays getting to accidents and emergencies	3	5	High	Traffic management and consultation with emergency vehicles to ensure that alternate routes are planned and organised and access is maintained	Contractor and client to consult with emergency vehicles	2	5	Medium	Client and Contractor
2	Construction	General	Accidents involving vulnerable road users (e.g. pedestrians and cyclists)	3	5	High	Client to stipulate construction traffic management to adequately accommodate for vulnerable users in the document prototype as client is responsible for developing the contract prototype	Contractor and client to ensure that appropriate measures are in place for vulnerable users	3	4	Medium	Client and Contractor
3	Construction	General	Risks associated with works next to live traffic	3	5	High	Client to communicate the requirements for management of works as client is responsible for developing the contract prototype	Client to ensure that appropriate requirements for management of work are communicated to Contractor and the Contractor implements appropriate measures	2	5	Medium	Client
4	Construction	General	Restricted access for construction plant resulting in constrained working area creating risk to workers	3	4	Medium	Client to stipuate the requirement of construction plants to the Contractor.	Client to ensure that the Contractor adops appropriate construction plants to reduce risks to workers	2	3	Low	Client
5	Construction	General	Risk of traffic accidents due to drivers being distracted by construction works	3	4	Medium	Contractor to provide appropriate anti-gawk screens where recuired.	Client and Contractor to assess the need for temporary anti-gawking screens and install them as required	2	3	Low	Client and Contractor
6	Construction	Civil and Electrical	Risks associated with damage to existing or new PUP infrastructure resulting in injury to people in close proximity to incident.	4	5	Extreme	Undertake site investigation of all PUP and document in drawings and reports	Documentation of PUP in drawings and reports	3	4	Medium	Client and Contractor
7	Construction	General	Lack of security of the site during construction causing equipment to be damaged	3	4	Medium	Client to stipuate the requirement of security of the site to the Contractor.	Contractor to provide appropriate fencing or other site access treatments	2	3	Low	Contractor
8	Design	Civil	Existing signage insufficient and sign faces out dated and this may confuse or mislead road users	2	2	Low	Site audits of signage to be completed during design. Replace them as required.	Existing signage to be updated and installed Contractor to install as per the drawings	2	1	Low	Contractor
9	Construction	General	Drivers not expecting change in condition during construction resulting in traffic accidents	4	4	High	Construction traffic management to include compliant traffic guidance schemes, VMS	Construction traffic management to include compliant traffic guidance schemes, VMS	3	4	Medium	Client and Contractor
10	Construction	General	Nighworks - worker fatigue results in accidents	4	4	High	Contractor to be made aware of failure management and working hours in order to resource properly	Contractor to have separate day and night crews and fatigue management	2	4	Medium	Contractor
11	Operations and Maintenance	Civil	Pavement failure (cracks/potholes) results in traffic accident	2	4	Medium	Pavement design to be reviewed by client and comments to be incorporated Contractor to construct in accordance with drawings and standards Client to ensure regular maintenance on pavement	Documentation of pavement design in drawings and reports Contractor to follow drawings and standards during constructions	1	4	Low	Client and Contractor
12	Construction and Maintenance	Civil	Construction and maintance of signs - potential clashes with overhead power resulting in electroction of workers	3	5	High	Engineering controls; Position signs and ensure sufficient clearance from OH power Contractor's controls: Implement appropriate safe work statements	Design to position signs away from OH power were practicable. Construction and maintenance contractors to have safe work statements including work adjacent to OH power	2	4	Medium	Client and Contractor
13	Construction	General	Pedestrian access (e.g. children, students, aged and infirm) is limited requiring peds to take risks crossing traffic leading to accident and injuries	3	5	High	Specification/annexure prepared by client to stipulate specific requirements during construction	Construction traffic management to include provision for safe pedestrian access.	2	4	Medium	Client and Contractor
14	Construction	Electrical	Lighting during construction for traffic and peds. Lack of lighting or glare results in accidents	3	5	High	Client to ensure that appropriate lighting requirements are included in the contract prototype as the client is responsible for preparing the contract prototype	Contractor to use ""Moonballs" for temporary lightirg and install temporary lighting in accordance with relevant standards	2	4	Medium	Client and Contractor
15	Construction and Maintenance	Civil and Electrical	Services - unknown impacts and unidentified services - high pressure water, gas; electrical services may result in injury to workers if impacted	3	5	High	Engineering controls: Locate services and information to be included in drawings and reports Contractor's controls: Understand the PUP information in the drawings and complete PUP investigation Client's controls: Ensure that contractors and maintenance workers are aware of the PUP risks	Services to be located to extent possible and drawings to provide contractor with adequate information of existing services while still obliging them to be responsible for duty of care.	2	4	Medium	Client and Contractor
16	Construction and Maintenance	Civil and Electrical	Working near gas, HV - danger to workers and general public	3	5	High	Contractor to implement appropriate safe work methods statements and PUP investigation Client to inform contractors and maintenance workers of the risks	Safe work practice and managemnt to include working adjacent to gas and power.	2	4	Medium	Client and Contractor
17	Operations and Maintenance	Electrical	Power poles close to traffic lanes - vehicle impact	3	5	High	There are no accidents related to motorists hitting the poles. Insufficient room and budget to move poles. Barrier protection is not practical. Poles need to remain.	Client is made aware of the risks and agree to monitor	2	4	Medium	Client

ITEM			RISK IDENTIFICATION				RISK MITIGATION/CONTROL		RESIDUAL RISK			
Workshop & ID. No.	Phase	Discipline	POTENTIAL RISK	UNMITIGATED RISK SCORE			POTENTIAL ELIMINATION MEASURE, DESIGN INITIATIVE or CONTROL (Identify any Standard or Code of practice used)	HOW THE ISSUE IS ADDRESED IN DESIGN AND/OR CONSTRUCTION OF THE WORKS	If not eliminated RESIDUAL RISK SCORE			RESIDUAL RISK OWNER
			Hazard	Likelihood (0-5)	Consequence (0-5)	Rating			Likelihood (0-5)	Consequence (0-5)	Rating	
18	Construction	Civil and Electrical	Asbestos in UG services being removed with workers or public being exposed resulting in health issues	2	4	Medium	Consider leaving in place if possible. Client to communicate risks and stipulates appropriate management requirements in the contract prototype as the client is responsible for development of contract prototype	Appropriate management plan by Contractor in place for any asbestos materials to be removed	1	4	Low	Client and Contractor
19	Construction and Maintenance	Civil and Electrical	Depth of services in relation to the construction loads and vibration. May result in breakages - gas, water - resulting in injury to workers and public	3	4	Medium	Engineering controls: Locate services and information to be included in drawings and reports Contractor's controls: Understand the PUP information in the drawings and complete PUP investigation Client's controls: Ensure that contractors and maintenance workers are aware of the PUP risks	Services to be located to extent possible and drawings to provide contractor with adequate information of existing services while still obliging them to be responsible for duty of care.	2	4	Medium	Client and Contractor
20	Construction and Maintenance	General	Working under overhead powerlines - potential for workers to be electrocuted/burned	3	4	Medium	Engineering controls: Locate services and information to be included in drawings and reports Contractor's controls: Implement appropriate measures Client's controls: Ensure that contractors and maintenance workers are aware of the PUP risks and stipulate requirements in contract prototype as client is responsible for preparing the contract prototype	Contract drawings to have OH power clearly noted with warnings. Contractor to have an implement OH elec safety management for works in proximity	2	4	Medium	Client and Contractor

16 Appendix G - Risk Register

Intersection of Bloomfield Street and Russell Street - Minor geometry Improvements and provide bicycle treatments (Project ID: 0R06R001906.C.7.7)

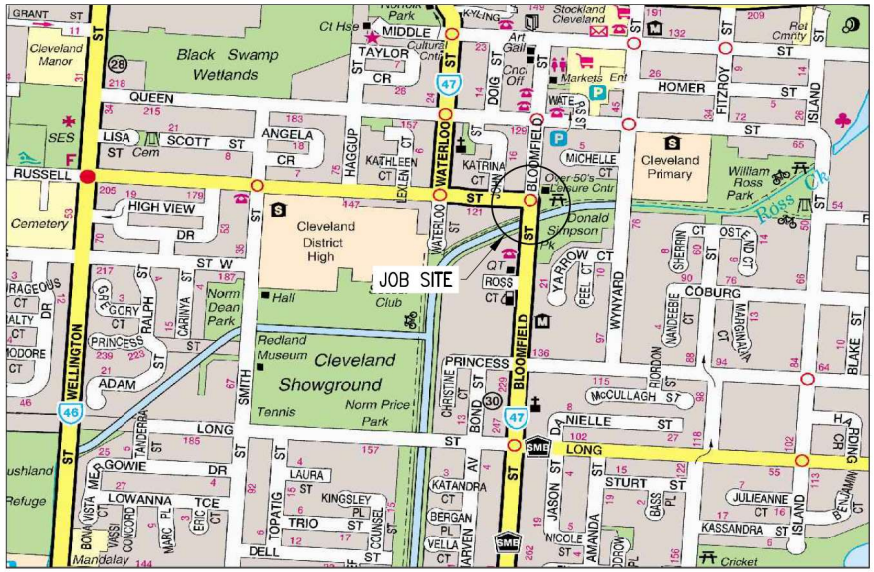
Risk Register

	Project/Program Objectives																		Current Rating			Treatment					Residual/ Retained Rating		
Reference Number	Election commitments	Financial implications	Customer at centre of all we do	Fit-for-purpose transport network	Partnering with Govt, Industry, Community	Living One TMR - enabling people	Transport system investment planning and programming	Transport infrastructure management and delivery	Transport safety, regulation and customer service	Passenger transport services	RCP Number and Category	RCP Risk Area	Risk Description	Causes/Sources	Impacts	Controls	Stakeholders	Risk Owner	Likelihood	Consequence	Rating	Treatment Option	Treatment	Treatment Owner	Treatment Due Date	Treatment Status	Likelihood	Consequence	Rating
1		X	X	X	X			X			4. Stakeholders	4.1 Local Community	Local Government/community objects to the project.	* Late consultation with local government/cmmunity during later stages results in changes to options	* Changes to design resulting in additional cost * Project delayed,	* Engage local government/community during design by client *Review option based on outcomes of consultation	* Local Community * Client - TMR Project Managers * Local Council * Business owners * Public Transport operators	Client	Likely	Major	High	Changing the likelihood	1. Client to consult community and local government early 2. Review options after consultaiton	Client Client			Likely	Major	High
2		X			X			X			7. Preconstruction	7.1 Investigations	Inadequate investigations may delay the project and increase costs.	* Inadequate investigations	* Encounter unsuitable subgrade during pavement works * Encounter unknown PUP during construction	* Take a risk-based approach to do limited investigations to complete design	* Client	Client	Likely	Major	High	Changing the likelihood	1. Take a risk-based approach to do limited investigations to complete design	Client			Likely	Moderate	High
3		X			X			X			7. Preconstruction	7.3 PUP works	Unforeseen PUP risks identified in conflict and relocation costs that exceed current high level cost estimates.	* No consultation with PUP authorities has been undertaken during concept stage	* Increase in project cost, * Delays to project * Reputation/	* PUP investigation during Design phase * Engage with PUP authorities to confirm	* Client * PUP authorities	Client	Likely	Moderate	High	Changing the likelihood & consequence	1. Consideration of traffic management during construction to be undertaken during design	Client			Possible	Moderate	Medium
4		X		X	X		X	X			4. Stakeholders	4.2 Local Government	Redland City Council endorsement of certain aspects of the project maybe difficult to obtain as no consultation has	* Redland City Council objected the design	* Design may not function as intended and not meet project objectives	* Liaison with local government and agree program of works * Consultation with key	* Client * RCC	Client	Likely	Moderate	High	Changing the likelihood	1. Consult with stakeholders during design	Client			Likely	Moderate	High
5		X		X			X	X			6. Project Management	6.1 Funding	Insufficient funding due to unclear scope	* Insufficient time and allocation to clarity scope and allocate sufficient funding for risks	* Additional funding will be required which may delay design and construction * Scope reduction may	* Identify risk of insufficient funding early and advise client * Rationalise the scope	*TMR * Local Community	TMR	Possible	Moderate	Medium	Changing the likelihood & consequence	1. Define clear and concise scope during concept design	Client			Possible	Moderate	Medium
6					X			X	X		9. Construction	9.5 Workplace Health & Safety	Workplace health and safety, non-standard/complex construction and PUP	* High risk and non-standard construction practices - E.g. Construction of bridge back spans, major trunk PUP relocations, and work in close proximity to live motorway traffic	* Possible injury * Delay to project * Reputation	* Construction safety management systems. * Safe Work Method Statements (SWMS) and specialist equipment/controls where required * Ongoing constructability and Safety in Design (SiD) reviews through design development	* TMR *Construction contractor	TMR	Possible	Major	High	Changing the likelihood	1. Ensure safety in design process is completed 2. Ensure appropriate SWMS implemented during construction	Client Client and contractor			Possible	Major	High

18 Appendix I - Concept Drawings

CLEVELAND - REDLAND BAY ROAD (109)
BLOOMFIELD STREET & RUSSELL STREET INTERSECTION
SAFETY IMPROVEMENTS

CONCEPT PLAN
15 January 2021



LOCALITY PLAN

GENERAL NOTES

1. For details of Dial Before You Dig Utility services, refer this drawing.
2. The contractor shall check for all possible service conflicts on site prior to the commencement of work.
3. No work is to be carried out over utility services and within 3.0m of services without prior notification to the appropriate service authorities.
4. All signs and pavement marking shall be installed in accordance with the Manual of Uniform Traffic Control Devices (MUTCD).
5. Refer STD DRG 1363 AND 1368 for sign installation details. clearance, H=2.5m unless stated otherwise.
6. All new single support signs to be 50NB CHS non-slip base, unless directed otherwise by the Administrator.
7. Retroreflective raised pavement markers (RRPM's) to be installed in accordance with the MUTCD and the traffic and road use management manual (TRUM) Note 1.40.
8. Contractor to remove existing pavement markings by machine planing wherever new pavement marking shown.
9. It is the contractors responsibility to ensure that all affected service covers and surrounds are raised to be flush with the finished surface height, and are free draining.
10. Refer TMR Std Drg 1033 for details of TMR kerb/ kerb and channel.
11. Refer TMR Std Drgs 1446 & 1447 for Ramped Kerb Crossing and Ramped Kerb Treatment.
12. Refer TMR Std Drgs 1474 for guardrail installation details.
13. Road cushions to be installed in accordance with the Manufacturer's Specifications.

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- To provide property requirement and planning advice to TMR Development Control
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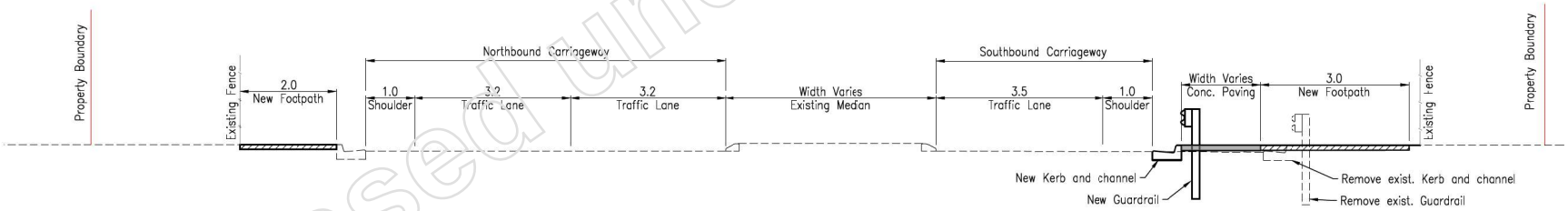
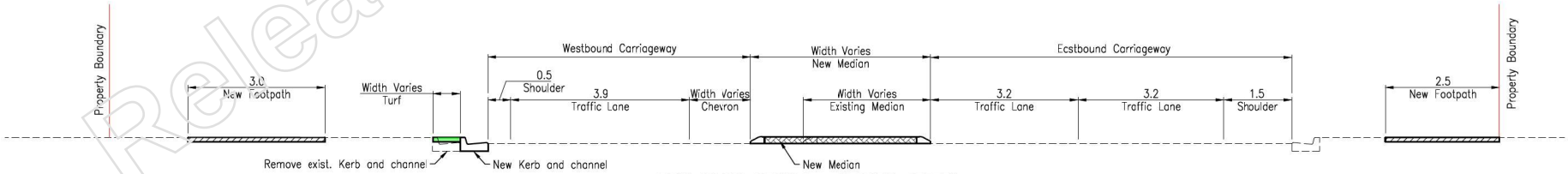
DRAWING INDEX

DRAWING NUMBER	REVISION	DATE	SERIES NUMBER	DRAWING DESCRIPTION
ABCQ	1	12/2020	1	LOCALITY PLAN, DRAWING INDEX AND TYPE CROSS SECTIONS
ABCR	1	12/2020	2	GENERAL ARRANGEMENT AND SERVICES
ABCU	1	12/2020	3	SIGNS AND PAVEMENT MARKINGS

TOTAL NUMBER OF DRAWINGS = 3



TYPE CROSS SECTION – BLOOMFIELD STREET



TYPE CROSS SECTION – RUSSELL STREET

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1	Issued for Discussion Only					
	Revisions/Descriptions	Name or RPEQ No.	Signature	Date		

CAD FILES | G:\WHRF-Projects\SRS Program_2020-2021\1_SRS Projects\13_Cleveland Redland Bay Road_Russell St and Bloomfield St\2_Concept\Design\WM\02_Drawings\LO_01.dwg

Last Modified :- Jan 15, 2021 - 7:07pm XREFS :-

Associated Job Nos | Survey Data: Horiz. Datum, Horiz. Grid, Height Datum, Survey Books
Auxiliary Drg Nos

Scales: NTS

Dimensions shown in metres except where shown otherwise

REDLAND CITY COUNCIL
CLEVELAND – REDLAND BAY ROAD (109)
BLOOMFIELD ST AND RUSSELL ST INTERSECTION

Reference Points

Preceding RP	Dist. to start of job (km)	From strt to end of job	From end to Following RP	Following RP

Through Chainage from

CONCEPT DESIGN
LOCALITY PLAN AND INDEX
AND TYPE CROSS SECTIONS

Drawn: A.Dürr-Galvin
Designed: S.KANG

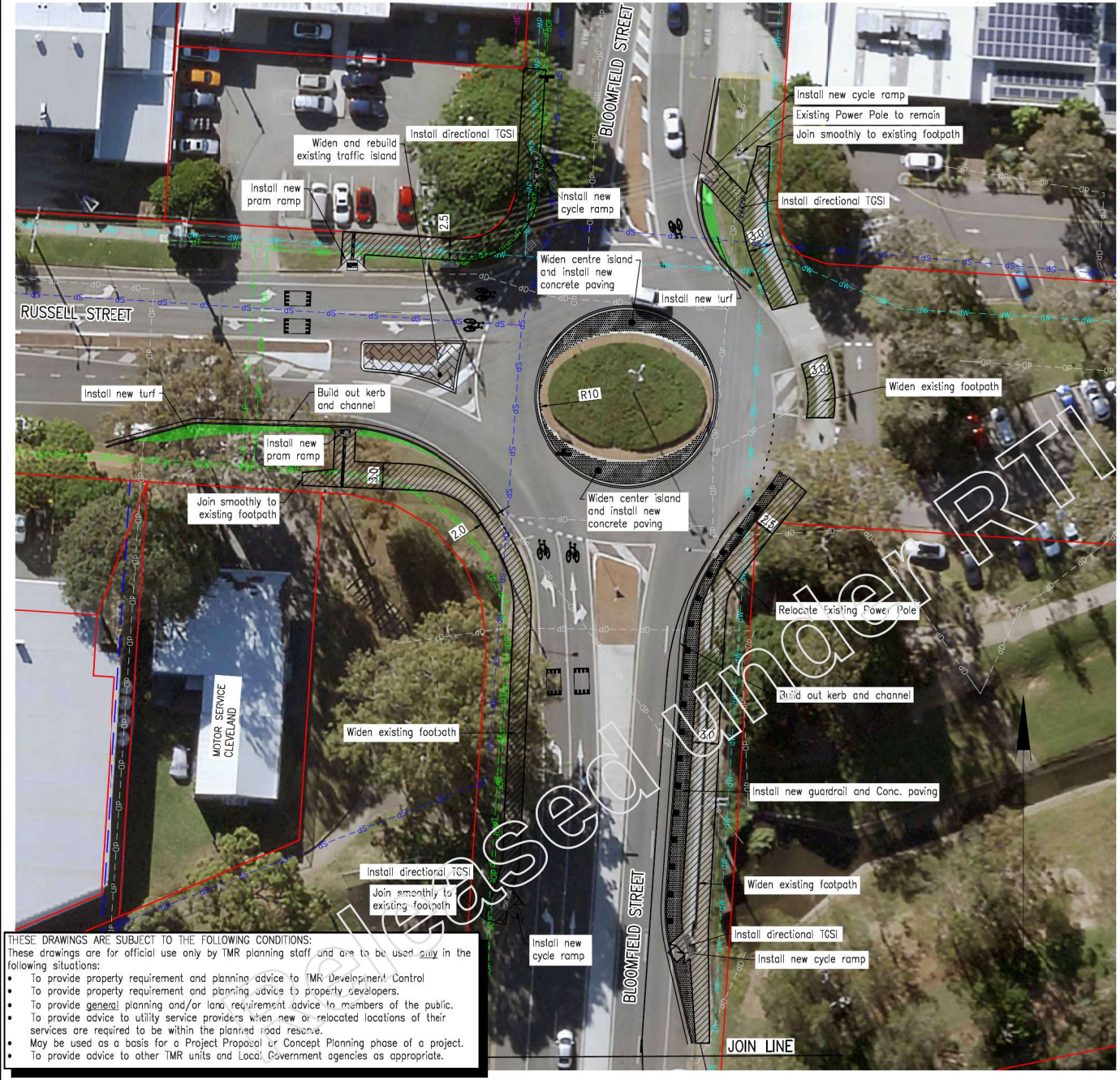
ENGINEERING CERTIFICATION (RPEQ)

ENG. AREA	NAME	SIGNATURE	No.	DATE
Civil	Ho-Yee Lam		12183	

Queensland Government

Job No.
Contract No.
Drawing No. ABCQ 1
Series Number 1 of 3

CONCEPT PLAN
15 January 2021

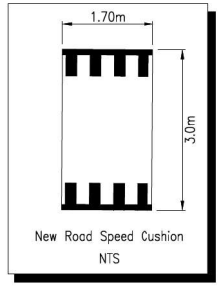


LEGEND

- PROPERTY BOUNDARY NOT SURVEYED (DCDB)
- DBYD TELECOMMUNICATIONS – UNDERGROUND (TELSTRA, OPTUS, UECOMM, NBN)
- DBYD OPTIC FIBRE – UNDERGROUND (TELSTRA, OPTUS, UECOMM)
- DBYD ELECTRICITY – UNDERGROUND
- DBYD WATER MAIN – UNDERGROUND
- DBYD SEWWE MAIN – UNDERGROUND
- DBYD DRAINAGE LINE – UNDERGROUND
- PROPOSED GUARDRAIL
- WARNING TGSI'S

LEGEND

- Median widening
- Concrete Paving
- Concrete Footpath
- Turfing



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1	Issued for Discussion Only		
	Revisions/Descriptions	Name or RPEQ No.	Signature / Date

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Associated Job Nos
Auxiliary Drg Nos

Survey Data: Horiz. Datum; Horiz. Grid; Height Datum; Survey Books

Scales: 1:250 0 2 4 6 8 10m
Dimensions shown in metres except where shown otherwise

REDLAND CITY COUNCIL
CLEVELAND – REDLAND BAY ROAD (109)
RUSSELL ST AND BLOOMFIELD ST INTERS. UPGRADE

Reference Points

Preceding RP	Dist. to start of job (km)	From strt to end of job	From end to Following RP	Following RP

Through Chainage from

CONCEPT DESIGN
GENERAL ARRANGEMENT AND SERVICES

Drawn: S.KANG; A.Dürr-Galvin
Designed: S.KANG

ENGINEERING CERTIFICATION (RPEQ)

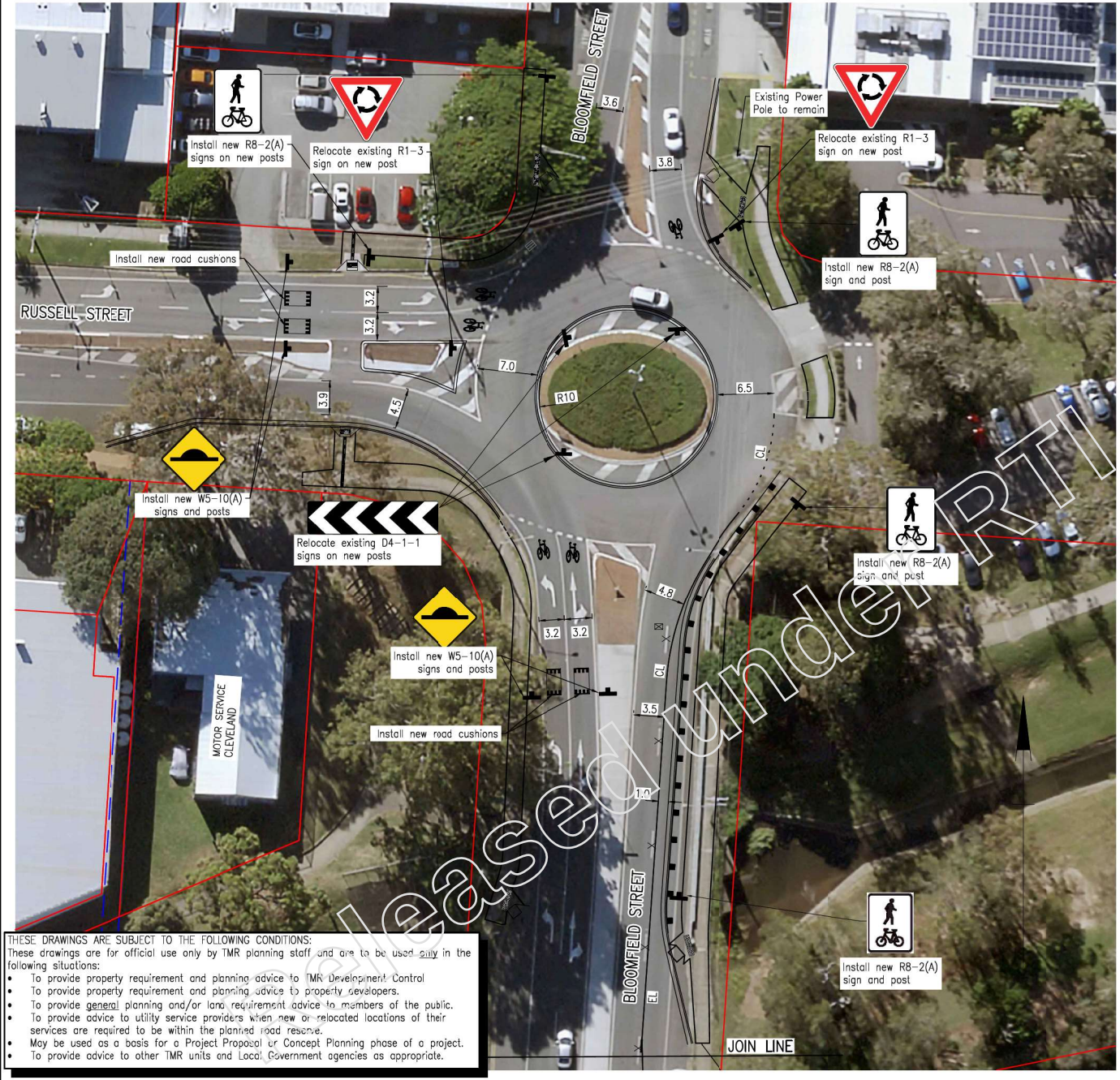
ENG. AREA	NAME	SIGNATURE	No.	DATE
Civil	Ho-Yee Lam		12183	

Queensland Government

Job No.
Contract No.
Drawing No. ABCR 1
Series Number 2 of 3

Last Modified :- Jan 15, 2021 - 7:07pm
XREFS :- X_acad.dwg ; xr_aerial photo 2019.dwg ; X_SPUP.dwg ; X_DROA_OPTION1.dwg

CONCEPT PLAN
15 January 2021



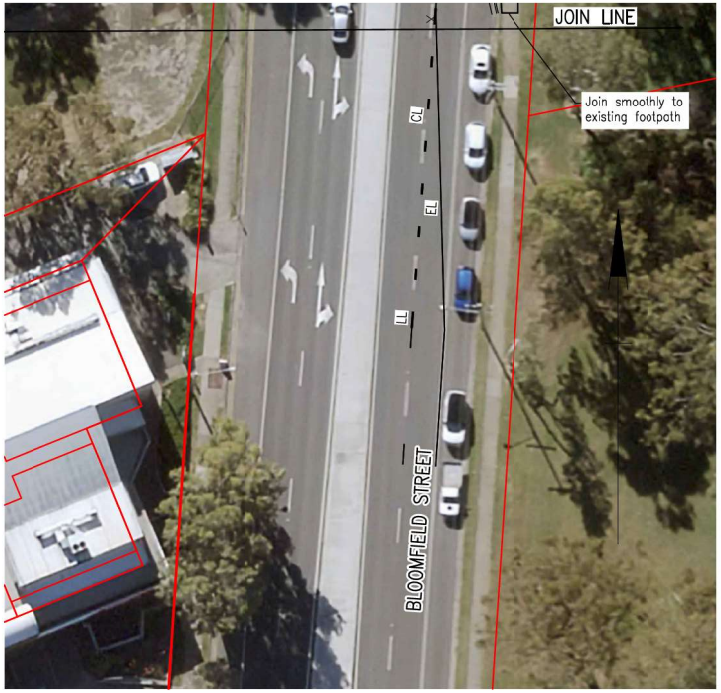
PAVEMENT MARKING LEGEND

		WIDTH/ MATERIAL
CL	CONTINUITY LINE L=1m, G=3m	200mm/ COLD APPLIED PLASTIC
GWL	GIVE WAY LINE L=0.6m, G=0.6m	300mm/ COLD APPLIED PLASTIC
EL	EDGE LINE	150mm/ COLD APPLIED PLASTIC
LL	LANE LINE L=3m, G=9m	100mm/ COLD APPLIED PLASTIC
OL	OUTLINE MARKING	150mm/ COLD APPLIED PLASTIC

EXISITNG LINEMARKING TO BE REMOVED

Bicycle Symbol (Refer to TRUM Volume 3 Part 2 for details)

New Sign



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CAD FILES | G:\WHRF-Projects\SRS Program_2020-2021\1_SRS Projects\13_Cleveland Redland Bay Road_Russell St and Bloomfield St\2_Concept\Design\WM\02_Drawings\LM_01.dwg

Associated Job Nos
Auxiliary Drg Nos

Survey Data: Horiz. Datum; Horiz. Grid; Height Datum; Survey Books

Scales: 1:250 0 2 4 6 8 10m
Dimensions shown in metres except where shown otherwise

REDLAND CITY COUNCIL
CLEVELAND – REDLAND BAY ROAD (109)
RUSSELL ST AND BLOOMFIELD ST INTERS. UPGRADE

Reference Points

Preceding RP	Dist. to start of job (km)	From strt to end of job	From end to Following RP	Following RP

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CONCEPT DESIGN
SIGNS AND PAVEMENT MARKINGS

Drawn: S.KANG, A.Dürr-Galvin
Designed: S.KANG

ENGINEERING CERTIFICATION (RPEQ)

ENG. AREA	NAME	SIGNATURE	No.	DATE
Civil	Ho-Yee Lam		12183	

Queensland Government

Job No.
Contract No.
Drawing No. ABCR 1
Series Number 3 of 3

XREFS :- x_scad.dwg ; xr_aerial photo 2019.dwg ; X_DRGA_OPTION1.dwg
Last Modified :- Jan 15, 2021 - 7:07pm

19 Appendix J – Concept Estimate

BENCHMARK REVIEW AND SIGNOFF

REDLAND CITY COUNCIL

CLEVELAND - REDLAND BAY ROAD (109) Bloomfield Road and Russell Street

Project Number/s:	**0**	**CN-**
A - CIVIL WORKS	$	639,510.00
B - PRINCIPAL'S COST	$	320,000.00
C - PRINCIPAL'S CONTINGENCY	$	494,355.75
TOTAL	**$**	**1,453,865.75**

Prepared By (Designer)	Name	Seunghan Kang	
	Title	Designer (Civil)	
	Signed		Date

Reviewed By (Designer)	Name	Billy Chang	
	Title	Senior Designer (Civil)	
	Signed		Date

Reviewed By	Name	Ho-Yee Lam	
	Title	Principal Engineer (RPEQ)	
	Signed		Date

Reviewed By	Name	Sam Atabak	
	Title	Principal Engineer (Project Manager)	
	Signed		Date

Project Number:
Contract Number: CN-
Project Boundary: REDLAND CITY COUNCIL
Asset Name: CLEVELAND - REDLAND BAY ROAD (109)
Location: Bloomfield Road and Russell Street Intersection

Queensland Government

NOTE: Estimate must be considered absolutely as the property of Transport and Main Roads until the acceptance of a tender, and must under no circumstances be divulged.

Work Package A - CIVIL WORKS

Item Number	Description	Unit of Measure	Quantity	Unit Rate ($)	Amount ($)
MRS02 Jul20					
	PROVISION FOR TRAFFIC				
20016.01	Traffic management inspections	lumpsum	1.00		
20017.01	Planning of temporary traffic management (TMP)	lumpsum	1.00		
20018.01	Design of temporary traffic management (TGS)	lumpsum	1.00		
20019.01	Implementation, maintenance and removal of temporary traffic management	lumpsum	1.00		
MRS03 Jan 19					
	DRAINAGE REMOVAL / DEMOLITION				
30004.01	Removal or demolition of concrete kerb including kerb crossings	m	83.00		
30006.01	Removal or demolition of concrete kerb and channel including kerb crossings	m	148.00		
30007.01	Removal or demolition of concrete slabs	m^2	460.00		
	PAVEMENT DRAINAGE				
30451.01	Concrete kerb, [type 9]	m	99.00		
30454.01	Concrete kerb and channel, [type 6]	m	136.00		
30455.01	Concrete kerb and channel crossings, (1.5m wide compliant ramped kerb crossing with TGSI)	m	3.00		
30455.02	Concrete kerb and channel crossings, (1.5m wide compliant bicycle ramped kerb crossing without TGSI)	m	6.00		
	SUBSURFACE DRAINAGE				
30552.01P	Subsoil drains, Type D (Provisional Quantity if ordered)	m	201.00	NR	
30553.01P	Subsoil drain outlet connection, [100] mm diameter, [Type D] (Provisional Quantity if ordered)	each	5.00		
	PROTECTIVE TREATMENTS				
30661.01	Hand placed concrete paving, [125] mm thick (Plain concrete - Footpath)	m^2	624.00		
30661.02	Hand placed concrete paving, [100] mm thick (Plain concrete - Traffic island and roundabout island with SL81)	m^2	261.00		
MRS04 Nov 20					
	EARTHWORKS, PREPARATION				
32001.01P	Clearing and grubbing (Trees Triming) (Provisional Item if ordered)	m^2	100.00		
	EARTHWORKS, EXCAVATION				
32101.01	Excavation, all materials (Footpath widening 125m nom. depth)	m^3	25.00		
	EARTHWORKS, BACKFILL				
32402.01	Backfill with select backfill material to [General fill]	m^3	28.00		
32404.01	Backfill with sand to [under traffic island and roundabout island]	m^3	14.00		
MRS14 Jul 20					
	ROAD FURNITURE				
50001.01	Demolition of road furniture, refer to the drawings	lumpsum	1.00		

50003.01	Removal and re-erection of road furniture, refer to the drawings	lumpsum	1.00	
	GUIDANCE AND INFORMATION SYSTEMS			
50052.01	Supply of regulatory, warning and hazard sign faces, refer to the drawings	lumpsum	1.00	
50056.01	Installation of regulatory, warning and hazard signs, refer to the drawings	lumpsum	1.00	
	ROADSIDE STRUCTURES			
50160.01	Steel beam guardrail, w beam	m	32.00	
50162.01	Steel beam guardrail, terminal type [X350 or TMR approved equivalent	each	2.00	
MRS16 Jul 17				
	LANDSCAPE AND REVEGETATION - IMPORTED MATERIALS			
50709.01P	Imported topsoil (Provisional Quantity, if ordered) (Provisional Quantity if ordered	m^3	1.00	
	LANDSCAPE AND REVEGETATION - GROUND PREPARATION			
50803.01	Installation of topsoil [75mm depth]	m^2	12.00	
	LANDSCAPE AND REVEGETATION WORKS - TURFING			
50901.01	Installation of turf [Footpath/Verge]	m^2	12.00	
	LANDSCAPE AND REVEGETATION - ESTABLISHMENT AND MONITORING			
51051.01	Establishment period	lumpsum	1.00	
51052.01P	Establishment period watering (Provisional Quantity) (Provisional Quantity	lumpsum	1.00	
MRS28 Nov 19				
	CONTRACTOR'S SITE FACILITIES AND CAMP			
20101.01	Contractor's site facilities	lumpsum	1.00	
MRS45 Nov 20				
	LINE MARKING			
52101.01	Spotting only for longitudinal lines	m	275.00	
52109.01	Lane line, continuous, 100 mm wide, colour [white], material [cold applied plastic	m	30.00	NR
52110.01	Edge line, 150 mm wide, colour [white], material [cold applied plastic	m	205.00	
52111.01	Continuity line, 200 mm wide, colour [white], material [cold applied plastic	m	44.00	
52116.01	Transverse lines (stop lines, holding lines, markings at Stop and Give Way signs, pedestrian crosswalk lines, arrows, shapes, symbols and numerals), colour [white], material [cold applied plastic	m^2	5.00	
52117.01	Transverse lines (diagonal and chevron markings, parking areas and kerb markings), colour [white], material [cold applied plastic	m^2	22.00	
52118.01	Removal of existing longitudinal line, 100mm wide, by [planing]	m	63.00	
	RAISED PAVEMENT MARKERS			
52201.01P	Retroreflective raised pavement markers (Provisional Quantity as Directed	lumpsum	32.00	
MRS51 Jul 20				
	ENVIRONMENTAL MANAGEMENT			
20202.01	Develop Environmental Management Plan (Construction)	lumpsum	1.00	
20203.01	Implement Environmental Management Plan (Construction)	lumpsum	1.00	
20211.01	Cultural Heritage Management	lumpsum	1.00	
20242.01P	Fauna Management (Provisional Item, if ordered) (Provisional Item if ordered	lumpsum	1.00	
MRS52 Jul 18				
	GENERAL			
20501.01	Erosion and Sediment Control Plan/s	lumpsum	1.00	
20502.01	Erosion and Sediment Control Devices (Non-Itemised)	lumpsum	1.00	
Non-Standard 90000 Series Items				
90101.01	Power pole and lighting relocation	lumpsum	1.00	
90501.01	Supply and Install Road Cushion	each	4.00	

90104.01P	Saw cut existing pavement (Provisional Quantity if ordered)	m	136.00	NR
92001.01P	Scarify existing pavemenrt (50mm nom. Depth) (Provisional Quantity	m^2	365.00	
92002.01P	Supply and installation of directional TGSI (Provisional Quantity)	m^2	9.50	
			Workpackage Total:	NR

Project Number:
Contract Number: CN-
Project Boundary: REDLAND CITY COUNCIL
Asset Name: CLEVELAND - REDLAND BAY ROAD (109)
Location: Bloomfield Road and Russell Street Intersection

Queensland Government

NOTE: Estimate must be considered absolutely as the property of Transport and Main Roads until the acceptance of a tender, and must under no circumstances be divulged.

Work Package B - PRINCIPAL'S COST

Item Number	Description	Unit of Measure	Quantity	Unit Rate ($)	Amount ($)
MRP03 Jul 17					
	DESIGN PLANNING (PRELIMINARY AND DETAILED)				
12120.01	Engineering survey	lumpsum	1.00		
12210.01	Develop Stage 1 Design	lumpsum	1.00		
12220.01	Develop Stage 2 Design	lumpsum	1.00		
	DESIGN INVESTIGATION REPORTS				
12610.01	Design development report	lumpsum	1.00		
MRP04 Jul 17					
	CONTRACT ADMINISTRATION				
13010.01	Project administration cost	lumpsum	1.00		
MRP06 Jul 17					
	PROJECT STAGE MANAGEMENT (ALL STAGES)				
15010.01	TMR internal project management	lumpsum	1.00		
15030.01	Project administration cost	lumpsum	1.00		
MRP08 Jul 17					
	ENVIRONMENTAL AND CULTURAL HERITAGE				
17030.01	Environmental Management Plan	lumpsum	1.00		
17070.01P	Environment and Cultural Heritage Management (Provisional Item if ordered)	lumpsum	1.00		
MRP09 Jul 17					
	PUBLIC UTILITY PLANT				
18040.01P	Site Investigation / Potholing including Surveying (Provisional Item if ordered)	lumpsum	1.00		
18060.01	Relocation of services - Electricity assets (Power/light pole)	lumpsum	1.00		
				NR	
				Workpackage Total:	NR

Project Number:
Contract Number: CN-
Project Boundary: REDLAND CITY COUNCIL
Asset Name: CLEVELAND - REDLAND BAY ROAD (109)
Location: Bloomfield Road and Russell Street Intersection

Queensland Government

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Work Package C - PRINCIPAL'S CONTINGENCY

Item Number	Description	Unit of Measure	Quantity	Unit Rate ($)	Amount ($)
MRP11 Jul 17					
	PRINCIPAL'S OBLIGATIONS				
19110.01	Other payments and costs - Project Wide Risks Contingency (40%)	lumpsum	1.00		NR
19110.02	Other payments and costs - Cost Escalation Allowance (3.5%)	lumpsum	1.00		
				Workpackage Total:	NR

Traffic Analysis and Reporting System

Volume Reports

Version 1.2

Traffic Data Systems
Operational Technologies
Statewide Network Operations Branch | Infrastructure Management and Delivery Division

About this dashboard

The Volume Report dashboard ("the dashboard") is designed to help you visualise and analyse data collected from various permanent and coverage sites located across Queensland. The dashboard allows you to interrogate one traffic site at a time through a number of different lenses including vehicle class code and direction of travel.

The report displays bi-directional volume data (gazettal, against gazettal and both) averaged across a date range. Volume data is displayed in either 15 minute intervals or aggregated to hour of day depending on the specific visualisation.

For additional information regarding volume data or for assistance with this dashboard please contact the Traffic Data Systems team: SNO_TDSAM@tmr.qld.gov.au

Disclaimer

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The department makes no statements, representations or warranties about the accuracy or completeness of, and you should not rely on, any information contained in this site.

The Department of Transport and Main Roads disclaims all responsibility and all liability (including without limitation, liability in negligence) for all expenses, losses, damages and costs which you might incur as a result of the information contained in this resource being inaccurate or incomplete in any way.

Definitions

Important Information for Speed Data: Headway is not measured in any of the TSDM speed reports.

District: For administration purposes the Department of Transport and Main Roads has divided Queensland into 12 Districts. District is displayed as District Number - Name. For more details, see the **"0.Help"** sheet.

Road Section: is the Gazetted road from which the traffic data is collected. Each Road Section is given a code, allocated sequentially in Gazettal Direction. Larger roads are broken down into sections and identified by an ID code with a suffix for easier data collection and reporting (eg. 10A, 10B, 10C). Road Sections are then broken into AADT Segments which are determined by traffic volume.

Gazettal Direction: The Gazettal Direction defines the direction of the traffic flow. It can be easily recognised by referring to the name of the road. E.g. Road Section 10A Brisbane - Gympie donates the gazettal direction is from Brisbane to Gympie.

Road Section Name: The name of a gazetted road section within a major road. Larger roads are broken down into sections for easier data collection and reporting.For example, the Bruce Highway is identified by the number 10, an alpha suffix is added to indicate the Road Section "10A" being Brisbane-Gympie.

Site: The physical location of a traffic counting device. Sites are located at a specified Through Distance along a road. Sites are broadly categorised into two types - **Permanent** and **Coverage**. Permanent sites refer to fixed traffic counting devices that operate 24/7. Coverage sites refer to deployable traffic counting devices that are only in place for a specified period of time.

Site Description: The description of the physical location of the traffic counting device.

Annual Average Daily Traffic (AADT): is the number of vehicles passing a point on a road in a 24 hour period, averaged over a calendar year.

Average Daily Traffic (ADT): is determined by summing to total traffic flow, at Stream level, for the days within a date range, divided by the number of days collected. Missing days or incomplete days are excluded from the calculation.

Through Distance (or TDist): The distance, in kilometres, from the beginning of the Road Section in the Gazettal Direction.

Traffic Class: Is the 12 Austroads vehicle categories or classes into which vehicles are placed or binned. Traffic classes are formed in a hierarchical format. For more details, see the **"0.Help"** sheet.

Speed Limit: Maximum speed or posted speed limit at this point on the Road Section.

Copyright

Traffic Analysis and Reporting System

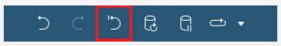
Volume Reports

Version 1.2

Traffic Data Systems
Operational Technologies
Statewide Network Operations Branch | Infrastructure Management and Delivery Division

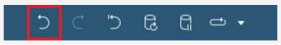
Clear all filters (reset dashboard to default)

To clear **ALL** filters on the dashboard and reset the dashboard to its default state, click on the **"Reset View"** icon on the top menu in the Tableau Server menu as shown below.



Undo my last action

To undo your last action, or actions, click on the **"Undo my last action"** icon on the top menu in the Tableau Server menu as shown below.



Print to PDF

To print **ALL** (or a selection of) sheets to PDF, follow the following steps:

1. Click on the **"Choose a format to download"** button on the top menu bar as shown above.
2. Select PDF
3. Under Include change option to **"Specific sheets from this workbook"**
4. Click **"Select All"** - or select specific sheets
5. Set page size and orientation - e.g. A4, Landscape
6. Click **"Download"**

Understanding the data

Data in this dashboard is sourced from TMR's production Oracle environment. Specifically from the following schema and tables in the form <Schema>.<TableName>

TDEADM.TRAFFIC_SITES
TDEADM.VOLUME_DAILY_INTERVALS

Tableau connects to these tables and creates relationships between them using specific fields to allow cross-table queries before finally extracting all of the data from Oracle into a single .hyper file extract which contains all of the data. Finally, this data and the associated dashboard are published to the TMR Internal Tableau Server as a packaged workbook.

Vehicle Class Codes

00 - All Vehicles	00 is comprised of the following 2-Bin classes: 0A + 0B
2-Bin	
0A - Light vehicles	0A is comprised of the following 4-Bin classes: 1A
0B - Heavy vehicles	0B is comprised of the following 4-Bin classes: 1B + 1C + 1D
4-Bin	
1A - Short vehicles	1A is comprised of the following 12-Bin classes: 2A + 2B
1B - Truck or bus	1B is comprised of the following 12-Bin classes: 2C + 2D + 2E
1C - Articulated vehicles	1C is comprised of the following 12-Bin classes: 2F + 2G + 2H + 2I
1D - Road train	1D is comprised of the following 12-Bin classes: 2J + 2K + 2L

12-Bin
2A - Short 2 axle vehicles
2B - Short vehicles towing
2C - 2-axle truck or bus
2D - 3-axle truck or bus
2E - 4-axle truck
2F -3-axle articulated vehicle
2G - 4-axle articulated vehicle
2H - 5-axle articulated vehicle
2I - 6-axle articulated vehicle
2J - B-double
2K - Double road train
2L - Triple road train

Region codes and names

306 - Metropolitan
307 - North Coast
310 - South Coast
314 - Central Queensland
315 - North Queensland
316 - Southern Queensland

District codes and names

401 - Central West District
402 - Darling Downs District
403 - Far North District
404 - Fitzroy District
405 - Mackay/Whitsunday District
406 - Metropolitan District
407 - North Coast District
409 - North West District
410 - South Coast District
411 - South West District
412 - Wide Bay/Burnett District

Time Periods

Four different time periods of traffic flow are defined.

12-hour Traffic flow time period - from 0700 to 1900
16-hour Traffic flow time period - from 0600 to 2200
18-hour Traffic flow time period - from 0600 to 2400
24-hour Traffic flow time period - from 0000 to 2400

Volume: Site selection

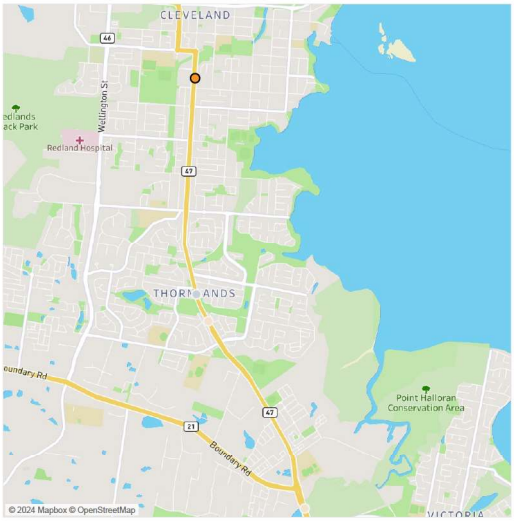
Select a single traffic site, and associated date range for further analysis.

Area
Region: Metropolitan
District: Metropolitan
Road: 109 - CLEVELAND - REDLAND BAY ROAD

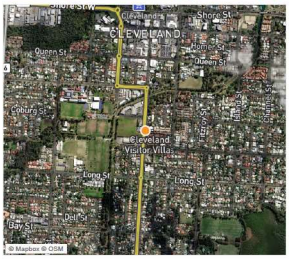
Site
ID: 135,651
Type: Coverage Site
Description: South of Ross Court

Spatial
TDist: 1.02 km
Latitude: -27.533050
Longitude: 153.266693

Site selection: **All**



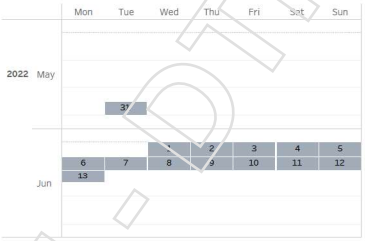
Zoomed in view: 135651
(once a single site is selected)



Data availability map: Null
(modified by available filters)

		All Vehicles			2 bin			4 bin			12 bin		
		Against Gazettal	Both Directions	With Gazettal	Against Gazettal	Both Directions	With Gazettal	Against Gazettal	Both Directions	With Gazettal	Against Gazettal	Both Directions	With Gazettal
2022	May	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	June	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

Data collection dates: Null
(within selected date range)



Location Filters

Region
All

District
All

LGA
All

Road
109 - CLEVELAND - REDLAND BAY ROAD

Site
All

Temporal Filters

Select Start Date
01/01/2022

Select End Date
31/12/2022

Total sites shown: 1

Permanent sites shown: None

Coverage sites shown: 1

Site Type
Permanent Site
Coverage Site

Calendar Day Category
Non-Public Holiday

Volume: Classification Report

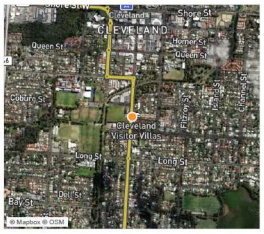
Displays averaged traffic volume by hour of day organised by Traffic Class Code and Class Hierarchy.

Area
Region: Metropolitan
District: Metropolitan
Road: 109 - CLEVELAND - REDLAND BAY ROAD

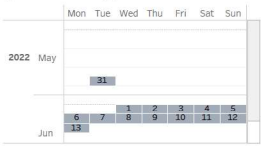
Site
ID: 135,651
Type: Coverage Site
Description: South of Ross Court

Spatial
TDist: 1.02 km
Latitude: -27.533050
Longitude: 153.266693

Site local area: 135651



Data collection dates: Null
(within selected date range)

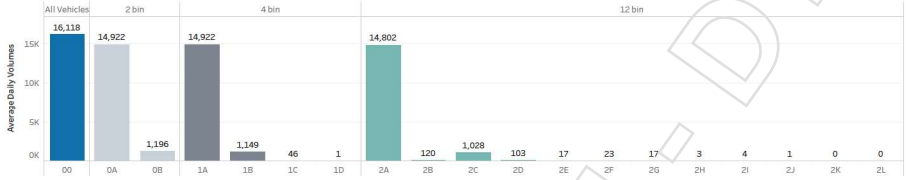


Days	Mon	Tue	Wed	Thu	Fri	Sat	Sun
In range	2	2	2	2	2	2	2
With data	2	2	2	2	2	2	2
Holidays	0	0	0	0	0	0	0

Average volume by hour of day and by traffic class code

Traffic Class Code Help

	All Vehic..	2 bin		4 bin				12 bin											
	00	0A	0B	1A	1B	1C	1D	2A	2B	2C	2D	2E	2F	2G	2H	2I	2J	2K	2L
00	35	32	3	32	3	0	0	32	0	2	0	0	0	0	0	0	0	0	0
01	22	20	2	20	2	0	0	20	0	2	0	0	0	0	0	0	0	0	0
02	16	14	2	14	2	0	0	14	0	2	0	0	0	0	0	0	0	0	0
03	22	16	5	16	5	0	0	16	0	5	0	0	0	0	0	0	0	0	0
04	63	56	7	56	7	0	0	55	1	6	1	0	0	0	0	0	0	0	0
05	189	167	22	167	20	2	0	165	3	18	1	1	0	0	0	1	0	0	0
06	456	398	58	398	53	5	0	391	7	49	3	2	2	2	0	0	0	0	0
07	966	868	98	868	93	5	0	859	9	78	12	3	2	2	1	1	0	0	0
08	1,497	1,392	105	1,392	101	4	0	1,382	10	82	16	3	2	1	0	1	0	0	0
09	1,116	1,037	79	1,037	76	3	0	1,027	10	67	8	1	2	1	0	0	0	0	0
10	1,123	1,040	83	1,040	79	3	0	1,029	11	71	7	1	2	1	0	0	0	0	0
11	1,185	1,102	82	1,102	80	2	0	1,093	9	73	6	1	1	1	0	0	0	0	0
12	1,127	1,048	78	1,048	75	3	0	1,040	9	68	6	1	2	1	0	0	0	0	0
13	1,028	952	76	952	73	3	0	942	10	68	5	1	2	1	0	0	0	0	0
14	1,197	1,114	83	1,114	80	3	0	1,104	10	74	5	1	2	1	0	0	0	0	0
15	1,374	1,284	90	1,284	85	4	0	1,274	10	79	6	0	2	2	0	0	0	0	0
16	1,392	1,302	90	1,302	86	3	0	1,293	10	79	6	1	1	2	0	0	0	0	0
17	1,307	1,219	88	1,219	85	3	0	1,211	8	77	8	1	2	1	1	0	0	0	0
18	812	754	58	754	57	1	0	752	2	50	7	1	0	0	0	0	0	0	0
19	474	439	35	439	35	0	0	438	1	31	3	0	0	0	0	0	0	0	0
20	301	281	20	281	19	0	0	280	1	18	1	0	0	0	0	0	0	0	0
21	228	211	17	211	17	0	0	211	0	16	1	0	0	0	0	0	0	0	0
22	126	116	9	116	9	0	0	116	0	8	1	0	0	0	0	0	0	0	0
23	65	59	6	59	6	0	0	59	0	5	1	0	0	0	0	0	0	0	0



Global Filters

Start Date
01/01/2022

End Date
31/12/2022

Direction of Travel
Both Directions

Page Filter s

Legends

Traffic Class Bins (Click to highlight selection)
- All Vehicles
- 2 bin
- 4 bin
- 12 bin

Calendar Day Category
- Non-Public Holiday

Volume: Daily Report

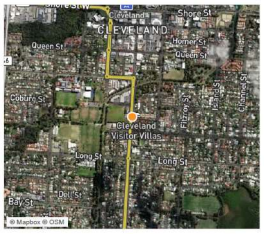
Displays averaged traffic volume and associated % contribution of total by 15-minute increment for the range of dates selected.

Area
Region: **Metropolitan**
District: **Metropolitan**
Road: **109 - CLEVELAND - REDLAND BAY ROAD**

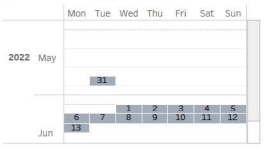
Site
ID: **135,651**
Type: **Coverage Site**
Description: **South of Ross Court**

Spatial
TDist: **1.02 km**
Latitude: **-27.533050**
Longitude: **153.266693**

Site local area: 135651



Data collection dates: Null
(within selected date range)

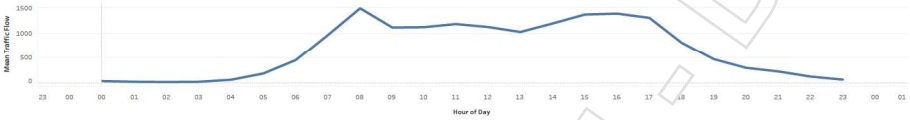


Days

	Mon	Tue	Wed	Thu	Fri	Sat	Sun
In range	2	2	2	2	2	2	2
With data	2	2	2	2	2	2	2
Holidays	0	0	0	0	0	0	0

	00 min - 15 min		15 min - 30 min		30 min - 45 min		45 min - 60 min		Grand Totals	
	Avg. Volume per day	% Volume per day	Avg. Volume per day	% Volume per day	Avg. Volume per day	% Volume per day	Avg. Volume per day	% Volume per day	Avg. Volume per day	% Volume per day
00	9	0.22%	10	0.24%	8	0.19%	9	0.22%	35	0.22%
01	8	0.19%	5	0.12%	6	0.14%	4	0.10%	22	0.14%
02	3	0.08%	4	0.11%	4	0.11%	4	0.10%	16	0.10%
03	5	0.13%	4	0.11%	4	0.11%	8	0.19%	22	0.13%
04	5	0.12%	14	0.34%	18	0.45%	26	0.66%	63	0.39%
05	40	0.97%	41	1.01%	50	1.24%	58	1.45%	189	1.17%
06	82	2.03%	90	2.25%	128	3.16%	156	3.88%	456	2.83%
07	193	4.77%	218	5.43%	251	6.22%	304	7.56%	966	5.99%
08	369	9.10%	383	9.56%	399	9.87%	347	8.63%	1,497	9.29%
09	300	7.41%	270	6.75%	271	6.71%	274	6.83%	1,116	6.92%
10	274	6.76%	274	6.85%	286	7.08%	289	7.18%	1,123	6.97%
11	295	7.27%	289	7.21%	300	7.43%	302	7.50%	1,185	7.35%
12	297	7.34%	288	7.19%	277	6.87%	264	6.56%	1,127	6.99%
13	259	6.39%	247	6.17%	259	6.40%	263	6.54%	1,028	6.38%
14	264	6.50%	283	7.07%	304	7.52%	346	8.61%	1,197	7.42%
15	361	8.92%	353	8.80%	333	8.24%	327	8.14%	1,374	8.52%
16	372	9.19%	337	8.41%	341	8.43%	342	8.51%	1,392	8.63%
17	344	8.48%	360	8.98%	325	8.06%	278	6.92%	1,307	8.11%
18	227	5.60%	231	5.77%	193	4.79%	161	4.00%	812	5.04%
19	148	3.66%	118	2.95%	107	2.66%	101	2.50%	474	2.94%
20	81	2.01%	77	1.92%	73	1.80%	70	1.74%	301	1.86%
21	57	1.41%	62	1.55%	57	1.42%	51	1.26%	227	1.42%
22	38	0.93%	34	0.84%	30	0.74%	25	0.61%	126	0.78%
23	21	0.53%	16	0.39%	16	0.39%	12	0.29%	65	0.40%
Grand Total	4,052	100.00%	4,006	100.00%	4,040	100.00%	4,020	100.00%	16,118	100.00%

Daily Volume Report Graph



Global Filters

Start Date
01/01/2022

End Date
31/12/2022

Direction of Travel
Both Directions

Page Filters

Traffic Class Code
00 - All Vehicles

Time Window
24 Hour

Legends (Click to highlight selection)

Calendar Day Category
Non-Public Holiday

Time Window	Daily Avg. Volume	% Total
12-hour flow	14,122	87.62%
16-hour flow	15,581	96.67%
18-hour flow	15,771	97.85%
24-hour flow	16,118	100.00%

Volume: Weekly Report

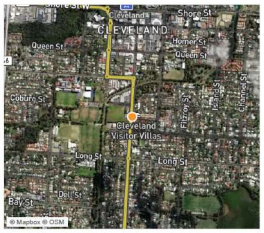
Displays averaged traffic volume and associated % contribution of total by hour of day and day of week for the range of dates selected.

Area
Region: Metropolitan
District: Metropolitan
Road: 109 - CLEVELAND - REDLAND BAY ROAD

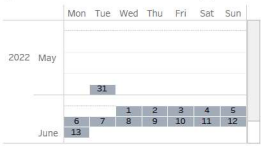
Site
ID: 135,651
Type: Coverage Site
Description: South of Ross Court

Spatial
TDist: 1.02 km
Latitude: -27.533050
Longitude: 153.266693

Site local area: 135651



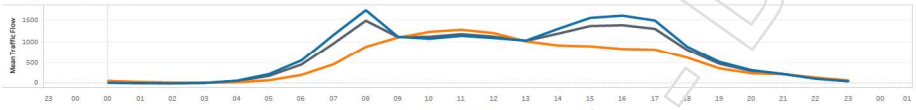
Data collection dates (Weekly): Null
(full week view of data based on selected date ranges)



Days	Mon	Tue	Wed	Thu	Fri	Sat	Sun
In range	2	2	2	2	2	2	2
With data	2	2	2	2	2	2	2
Holidays	0	0	0	0	0	0	0

	Monday		Tuesday		Wednesday		Thursday		Friday		Saturday		Sunday		Weekdays		Weekend		All	
	Avg. Volume per day	% Volume per day	Avg. Volume per day	% Volume per day	Avg. Volume per day	% Volume per day	Avg. Volume per day	% Volume per day	Avg. Volume per day	% Volume per day	Avg. Volume per day	% Volume per day	Avg. Volume per day	% Volume per day	Avg. Volume per day	% Volume per day	Avg. Volume per day	% Volume per day	Avg. Volume per day	% Volume per day
00	20	0.1%	23	0.1%	21	0.1%	23	0.1%	24	0.1%	66	0.5%	70	0.6%	22	0.1%	68	0.5%	35	0.2%
01	10	0.1%	14	0.1%	15	0.1%	15	0.1%	12	0.1%	41	0.3%	48	0.4%	13	0.1%	45	0.3%	22	0.1%
02	13	0.1%	10	0.1%	8	0.0%	13	0.1%	13	0.1%	37	0.3%	23	0.2%	11	0.1%	30	0.2%	16	0.1%
03	20	0.1%	26	0.2%	13	0.1%	24	0.1%	24	0.1%	24	0.2%	22	0.2%	21	0.1%	23	0.2%	22	0.1%
04	72	0.4%	92	0.5%	67	0.3%	69	0.4%	81	0.4%	34	0.2%	37	0.3%	74	0.4%	36	0.3%	63	0.4%
05	216	1.3%	297	1.8%	189	1.1%	223	1.3%	231	1.2%	101	0.7%	66	0.6%	231	1.3%	84	0.7%	189	1.2%
06	551	3.4%	669	4.0%	520	3.0%	461	2.6%	581	3.0%	270	1.9%	151	1.3%	554	3.2%	211	1.6%	456	2.8%
07	1,073	6.7%	1,308	7.8%	1,185	6.7%	1,096	6.2%	1,175	6.1%	555	3.8%	369	3.3%	1,167	6.7%	462	3.6%	956	6.0%
08	1,796	11.2%	1,385	8.3%	1,873	10.6%	1,885	10.7%	1,771	9.2%	1,015	7.0%	765	6.7%	1,742	10.0%	885	6.9%	1,497	9.3%
09	1,147	7.2%	818	4.9%	1,144	6.5%	1,277	7.2%	1,218	6.3%	1,219	8.4%	992	8.8%	1,121	6.4%	1,105	8.6%	1,116	6.9%
10	1,049	6.6%	985	5.9%	1,171	6.7%	995	5.6%	1,188	6.2%	1,308	9.0%	1,167	10.4%	1,077	6.2%	1,237	9.6%	1,123	7.0%
11	1,120	7.0%	1,061	6.4%	1,160	6.6%	1,126	6.4%	1,255	6.5%	1,342	9.3%	1,231	11.0%	1,144	6.6%	1,287	10.0%	1,185	7.4%
12	980	6.1%	1,003	6.0%	1,167	6.6%	1,063	6.0%	1,256	6.5%	1,299	9.0%	1,119	10.0%	1,094	6.3%	1,209	9.4%	1,127	7.0%
13	915	5.7%	922	5.5%	1,084	6.2%	1,037	5.9%	1,208	6.3%	1,056	7.3%	974	8.7%	1,033	5.9%	1,015	7.9%	1,02[illegible]	6.[illegible]%
14	1,121	7.0%	1,266	7.6%	1,301	7.4%	1,332	7.5%	1,522	7.9%	1,021	7.1%	816	7.3%	1,308	7.5%	918	7.1%	1,19[illegible]	7.4%
15	1,398	8.7%	1,610	9.6%	1,488	8.5%	1,607	9.1%	1,730	9.0%	1,089	7.6%	790	7.0%	1,565	9.0%	851	7.0%	1,374	8.6%
16	1,388	8.7%	1,763	10.6%	1,613	9.2%	1,689	9.6%	1,625	8.4%	908	6.3%	768	6.8%	1,615	9.3%	833	6.5%	1,392	8.6%
17	1,308	8.2%	1,461	8.8%	1,542	8.8%	1,656	9.4%	1,544	8.0%	962	6.6%	675	6.0%	1,502	8.6%	811	6.4%	1,307	8.1%
18	809	5.1%	875	5.2%	895	5.1%	828	4.7%	1,037	5.4%	785	5.4%	459	4.1%	889	5.1%	622	4.8%	8[illegible]	5.0%
19	416	2.6%	507	3.0%	561	3.2%	479	2.7%	629	3.3%	462	3.1%	278	2.8%	518	3.0%	3[illegible]	2.8%	4[illegible]	2.9%
20	281	1.8%	291	1.7%	273	1.6%	348	2.0%	417	2.2%	299	2.1%	196	1.7%	322	1.8%	247	1.9%	301	1.9%
21	173	1.1%	186	1.1%	177	1.0%	236	1.3%	372	1.9%	326	2.3%	128	1.1%	229	1.3%	22[illegible]	1.[illegible]%	228	1.4%
22	74	0.5%	78	0.5%	98	0.6%	114	0.6%	225	1.2%	224	1.5%	68	0.6%	118	0.7%	146	1.1%	126	0.8%
23	37	0.2%	46	0.3%	51	0.3%	54	0.3%	107	0.6%	130	0.9%	90	0.8%	5[illegible]	0.3%	80	0.6%	65	0.4%
Grand Total	15,973	100.0%	16,689	100.0%	17,601	100.0%	17,636	100.0%	19,240	100.0%	14,471	100.0%	11,218	100.0%	17,428	100.0%	12,144	100.0%	16,118	100.0%

Weekly Volume Report Graph



Global Filters

Start Date
01/01/2022

End Date
31/12/2022

Direction of Travel
Both Directions

Page Filter 5

Traffic Class Code
00 - All Vehicles

Legends (Click to highlight selection)

Public Holiday
Non-Public Holiday

Day Grouping
Weekdays
Weekend

All

Important Note:

For the purpose of Weekly Volume reporting only, Start and End dates specified are converted to include full calendar week's worth of data. That is, Date Start will always result in the data selection starting at the Monday before Date Start and End Date will allways result in the data selection ending at the Sunday after End Date.

Queensland Government

Road Crash 2
CRASH DETAIL REPORT

Crash Types

Crash Dates 09-FEB-2014 - 08-FEB-2024

Owner MR DEPARTMENT OF MAIN ROADS

DCA Code

Group

Fatalities =

Severity

Nature

Alignment: Vertical

Horizontal

Feature

Traffic Ctrl

Speed Limit

Contrib Circ.

Unit Type

Risk Factor

Area

LGA

SLA

Police Division

Road Sections

All Road Sections S Include Crashes on: Y Thru road Mid-block Y Thru roads at Intersections Y Intersecting roads at Intersections

Road Section	Cway	Start RPC	Start Dist	End RPC	End Dist	Tdist Start	Tdist End	Number of Crashes Fatal	Hosp.	Medical	Minor	PDO	Total
109 CLEVELAND - REDLAND BAY ROAD		1A	0.630	1A	0.730	0.630	0.730	0	3	2	0	0	5

Intersections

All Intersections N

Queensland Government

Road Crash 2
CRASH DETAIL REPORT

Crash No.	Date	Day	Hour	DCA	No. Units	Street/s
20162077561	06-NOV-2016	Sun	09	101 VEH'S ADJA	2	Bloomfield St

Nature: 02 Angle
Severity: NR

RSect: 109 Cleveland - Redland Bay Road
RPC: 1A
Cway: 2
Direction: E
Dist from RPC: 0.680
Tdist: 0.680
Inter.: 14187 Cleve-RedlandBayRd/RussellSt/SimParkI
Road Surface: Sealed - dry

Alignment: Vertical: 1 Level
Horizontal: 1 Straight
Feature: 15 Roundabout
Traffic Control: 09 Give Way

Units	Age	Gender	Unit Type	Dirn.	Intended Action	BAC
1	NR	per	01 Car, Station Wagon	E	01 Go Straight Ahead	NR
2			01 Car, Station Wagon	N	01 Go Straight Ahead	

Description

Police have attended the scene and taken details from the parties involved.

NR

Contributing Circumstances

NR

Crash No.	Date	Day	Hour	DCA	No. Units	Street/s
20191257508	30-JUN-2019	Sun	09	104 VEH'S ADJA	2	Bloomfield St Donald Simpson Park Accs

Nature: 02 Angle
Severity: NR
Alignment: Vertical: 1 Level
Horizontal: 3 Curved-View open
Feature: 15 Roundabout
Traffic Control: 09 Give Way

RSect: 109 Cleveland - Redland Bay Road
RPC: 1A
Cway: 2
Direction: N
Dist from RPC: 0.680
Inter.: 14187 Cleve-RedlandBayRd/RussellSt/SimParkI
Tdist: 0.680
Road Surface: Sealed - dry

Units	Age	Gender	Unit Type	Dirn.	Intended Action	BAC
1	NR	pers	01 Car, Station Wagon	E	03 Make Right Turn	NR
2			09 Bicycle	N	01 Go Straight Ahead	

Description

Involved parties Unit 1 XXX Unit 2 XXX Involved Vehicles Unit 1 Toyota Kluger 2006 XXX Unit 2 Road bicycle BMC Involved address Roundabout Bloomfield/Russell St Cleveland Injuries

NR

Contributing Circumstances

NR

Crash No.	Date	Day	Hour	DCA	No. Units	Street/s
20230808636	23-APR-2023	Sun	09	107 VEH'S ADJA	2	Bloomfield St Donald Simpson Park Accs

Nature: 02 Angle
Severity: NR

RSect: 109 Cleveland - Redland Bay Road
Cway: 2 Direction: N
Inter.: 14187 Cleve-RedlandBayRd/RussellSt/SimParkI
Road Surface: Sealed - dry

RPC: 1A
Dist from RPC: 0.680
Tdist: 0.680

Alignment: Vertical: 1 Level
Horizontal: 1 Straight
Feature: 15 Roundabout
Traffic Control: 09 Give Way

Units	Age	Gender	Unit Type	Dirn.	Intended Action	BAC
1	NR	pers	01 Car, Station Wagon	E	04 Make Left Turn	NR
2			06 Motor Cycle	N	01 Go Straight Ahead	

Description

Incident location : Bloomfield St Carindale travels north to south and intersects with Russell St which travels east. There is a roundabout at this intersection. Incident involvements : Unit 1 is a silver Honda Civis QR XXX, driven by XXX Unit 2 is a Triumph Sprint motorcycle QR XXX.

NR

Contributing Circumstances

NR

Crash No.	Date	Day	Hour	DCA	No. Units	Street/s
20151712261	21-NOV-2015	Sat	07	600 VEH'S ON P	1	Bloomfield St

Nature: 06 Hit fixed obstruction or tempora
Severity: NR

RSect: 109 Cleveland - Redland Bay Road
RPC: 1A
Cway: 2
Direction: N
Dist from RPC: 0.680
Tdist: 0.680
Inter.: 14187 Cleve-RedlandBayRd/RussellSt/SimParkI
Road Surface: Sealed - dry

Alignment: Vertical: 1 Level
Horizontal: 1 Straight
Feature: 15 Roundabout
Traffic Control: 09 Give Way

Units	Age	Gender	Unit Type	Dirn.	Intended Action	BAC
1	NR	pe	09 Bicycle	N	01 Go Straight Ahead	NR

Description

NR

The crash occurred along Bloomfield Street/ Russell Street Roundabout at Cleveland. The weather at the time was clear and dry and happened in the early hours of the morning. Unit 1 was riding his pushbike NR

NR

Contributing Circumstances

1 ROAD CONDITIONS - MISCELLANEOUS

Queensland Government

Road Crash 2
CRASH DETAIL REPORT

Crash No.	Date	Day	Hour	DCA	No. Units	Street/s
20192521811	19-DEC-2019	Thu	06	408 VEH'S MAN	2	Bloomfield St Donald Simpson Park Accs

Nature: 02 Angle
Severity: NR

RSect: 109 Cleveland - Redland Bay Road
RPC: 1A
Alignment: Vertical: 1 Level
Horizontal: 1 Straight
Cway: 3
Direction: N
Dist from RPC: 0.680
Feature: 15 Roundabout
Inter.: 14187 Cleve-RedlandBayRd/RussellSt/SimParkN
Tdist: 0.680
Traffic Control: 09 Give Way
Road Surface: Sealed - dry

Units	Age	Gender	Unit Type	Dirn.	Intended Action	BAC
1	NR	per	09 Bicycle	N	01 Go Straight Ahead	NR
2			02 Utility, Panel Van	N	04 Make Left Turn	

Description

The crash occurred on the 19 December 2019 at approximately 6:45am. The crash location is the intersection of Bloomfield st and Russel St, Cleveland. The northbound lanes before the intersection are controlled by painted arrows. UNIT 1 - CYCLIST- xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx UNIT 2 - QLD xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx At the time of the crash both vehicles were travelling northbound on Bloomfield St.

NR

NR

Contributing Circumstances

NR

PROJECT DETAILS			
TMR District	Metropolitan		
Project / Facility Name	Cleveland Redland Bay Road (109) {Russell St} and Bloomfield St Cleveland		
Project Address	Ch 0.6km (-27.5300007 153.266228) to Ch 0.8km (-27.530681 153.266895)		
Facility Number	109	Lot on Plan	
WBS	52-03027393.C.DE.2.1	Geographical Coordinates (WGS84)	
Project Number		Local Government Area	RCC
DMS References			

REPORT PREPERATION

I have prepared this report based on the best information available at the time. I have considered, to the fullest extent possible, all actual and potential environmental impacts of the project.

Name	Glyn Thomas	Signature	NR
Position	Senior Environmental Officer	Date	4/11/2024

REPORT REVIEW

Name	Rafaela Machado	Signature	NR
Position	Environmental Officer	Date	05/11/2024

Summary of Assessment

This table is a summary of the desktop assessment. The consequence for each category is the maximum

Factor	Consequence	Likelihood	Factor Risk	Factor Risk Value
Water	Minor	Possible	MEDIUM	2
Soil and Land	Minor	Possible	MEDIUM	2
Flora	Minor	Unlikely	LOW	1
Fauna	Minor	Unlikely	LOW	1
Ecosystems and Habitats	Minor	Unlikely	LOW	1
Biosecurity matters	Insignificant	Unlikely	LOW	1
Air	Moderate	Possible	MEDIUM	2
Noise and Vibration	Minor	Possible	MEDIUM	2
Amenity	Minor	Possible	MEDIUM	2
Resource Use and Waste	Insignificant	Possible	LOW	1
Special Areas and Land Tenures	Insignificant	Unlikely	LOW	1
				16

Impact of constraints on project delivery

Low

Assessment

Factor	Dataset Title	Consequence	Issue	Impact on project	Action Required
Water	Coastal Plan Coastal Zone	Minor	The project is roughly 4m above the Erosion prone area, and 3.25m above storm tide.	The project is within the coastal plan zone so design and construction must consider impacts to coastal processes and values.	Consideration of backwater on gullypit/drainage performance. Road safety in larger more frequent events throughout the asset expected life.
Water	Highest astronomical tide - Queensland	Minor	The project is well above HAT (road invert/gully pits are at circa 6.25m AHD, HAT is circa 2.73m). HAT more or less coincides with the mapped erosion prone area/storm surge line circa 100m downstream (east) of the project site on But likely prone to backwater flooding from increasing frequency and intencity of events such as east coast lows.	The project is within the coastal plan zone so design and construction must consider impacts to coastal processes and values.	Work under the Accepted Development Code
Water	TMR's State-wide Stormwater Quality Risk Mapping	Minor	Proposed works are immediately adjacent to gullypits and span a waterway.	the project is within a high zone (overall risk Medium, minor consequence and likely occurance)	- review recommened stormwater quality controls for the risk level
Water	Water Quality Network	Minor	Proposed works are immediately adjacent to gullypits and span a waterway.	the project is has high water quality risks (overall risk medium, minor consequence and likely occurance)	- water quality risk medium in MRST51.1 Clause 2.1
Soil and Land	Combined acid sulfate soils layer for Queensland	Minor	Excavation likely to encounter PASS below 5m AHD. Substrate near Ross Ck Eprapah - Gleyed podzolic soils with alluvial soils and humic gleys on low terraches of silty alluvium and flood plains of coastal streams		- ASS investigation around drainage structures that require excavation
Soil and Land	TMR Soil Group Classification	Minor	The soils in the project area are non dispersive/reactive. TC soils (non dispersive)	There is potential for unsuitable material that will need to be disposed of. There is a medium erosion risk associated with the project due to soils present. Note proximity to water course and possible PASS for excavation.	- identify erosion risk in contract as medium(MRTS51.1 Clause 2.1)
Flora	Wildlife Online (WildNET database)	Minor	Koala Habitat mapped adjacent to proposed works (HV regrowth RE12.5.3). Road corridor is in MV Rehab Koala planning area.		avoid koala habitat trees
Fauna	Fauna Structures in the Bridge Information System (BIS)	Minor	no records sighted, but culvert structure may provide roosting opportunity.	likely minor.	inspect culvert for microbats or other spp.
Fauna	Koala Diaries - Extra Koalas	Minor	Koala Habitat mapped adjacent to proposed works (HV regrowth RE12.5.3). Road corridor is in MV Rehab Koala planning area.		

Fauna	Low Risk Species Management Plans	Minor	Procedural non compliance	Procedural non compliance	check mapping. Ensure spotter / catcher returens for all TMR projects are being lodged with DESI.
Fauna	RCEA ROADKILL	Minor			ensure fauna strike reports are submitted to PM / contract adminitrator.
Fauna	Wildlife Online (WildNET database) /	Minor	Koala Habitat mapped adjacent to proposed works (HV regrowth RE12.5.3). Road corridor is in MV Rehab Koala planning area.		-standard koala habitat management provisions
Ecosystems and Habitats	Assessable Development Areas and Koala Habitat Values	Minor	The projectis adjacent to Koala habitat	Need to avoid impacts to Koala habitat and manage/offset impacts that can't be avoided.	-standard koala habitat management provisions
Ecosystems and Habitats	Koala Habitat Suitability Model	Minor	Suitable habitat mapped adjacent to project site.		-standard koala habitat management provisions
Ecosystems and Habitats	Koala Priority Areas	Minor	Project site is in Koala priority area		Consider revegetation with preferred koala habita spp where safe to do so.
Ecosystems and Habitats	Queensland waterways for waterway barrier works	Minor	The project intersects the following fish passage waterways: Ross Ck.	The project intersects the following fish passage waterways: Ross Ck	- Use 'SD1271 - Fish Passage - R C Box Culverts in ADR Amber Mapped Waterways'
Ecosystems and Habitats	Queensland waterways for waterway barrier works - Tidal	Minor	The project intersects the following fish passage waterways: Ross Ck.	If the scope involves the construction of new or replacement of existing culverts crossings on tidal (grey) waterways is assessible development	IF scope involves new or replaced culverts- Development Application -offsets
Ecosystems and Habitats	Vegetation management - essential habitat map	Minor	The project may impact essential habitat for Koala. NB scope adjoins mapped essentiial habitat RE12.5.3.	Approvals may be required to disturb this habitat and offsets may also be required	Only if Koala Hbitat disturbance is in scope - primarily control by establishing extent of works/no go zone. - detailed assessment - SMP/Damage mitigation permit - significant impact assessment
Ecosystems and Habitats	Vegetation management - essential habitat map Points	Minor	The project may impact essential habitat for Koala.		Only if Koala Hbitat disturbance is in scope - primarily control by establishing extent of works/no go zone. - detailed assessment - SMP/Damage mitigation permit - significant impact assessment

Ecosystems and Habitats	Vegetation management regional ecosystem map	Minor	Potential for breeding places, potential for threatened species	Approvals may be required to disturb this vegetation and offsets may also be required	establish extent of works / no go zone to exclude or minimise impact. - detailed assessment - SMP/damage mitigation permit
Air	Queensland land use mapping	Moderate	There are sensitive receptors adjacent/in area/ not in area of project.		MRTS51.1 Clause 6.1- NO MRTS51.1 Clause 6.2 - burning conditions
Air	TMR Roadside Bushfire Risk Assessment Modelling data, Risk	Minor	risk medium score 2		
Noise and Vibration	Noise Barriers Road				
Noise and Vibration	Queensland land use mapping	Minor	There are sensitive receptors adjacent/in area/ not in area of project.		MRTS51.1 Clause 4.1 Noise Risk: Low MRTS51.1 Clause 4.2 TMR Noise Assesment: No MRTS51.1 Clause 4.3 Contractor Noise Assessment: No MRTS51.1 Clause 5.1 Vibrattion Risk: Low MRTS51.1 Clause 5.2 TMR Vibration Assesment: No MRTS51.1 Clause 5.3 Contractor Vibration Assessment: No
Amenity	Queensland land use mapping	Minor	There are sensitive receptors adjacent/in area/ not in area of project.		- develop landscape master plan for project