# Toowoomba Regional Council
# Queensland

# Black Spot Submission
# Wallace Street and Clairmont Street Intersection
# 2017/18



June 2016

## Contents





| Quality Assurance | |
|---|---|
| Report compiled by: | Gerry Franzmann<br>Design Engineer<br>Signed: not relevant 14/6/16 |
| Reviewed by: | Larry Griffiths<br>Principal Engineer - Road Operations<br>Signed: not relevant 15/6/2016 |
| Manager: | Lidia Czosnowska<br>Acting Manager, Transport and Drainage Planning<br>Signed: not relevant 15/06/2016 |

# 1 Wallace Street and Clairmont Street Intersection

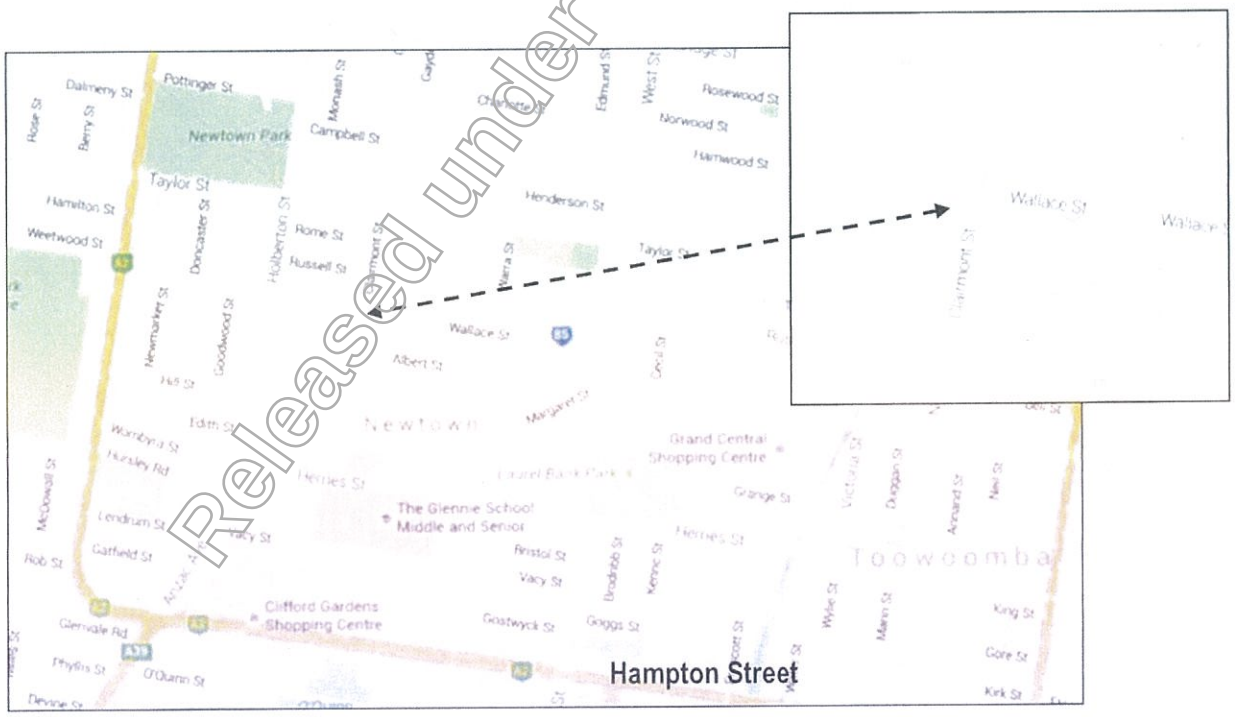
## 1.1 Description

As a Local Road, Clairmont Street forms a strategic link in providing access from Taylor Street to the Newtown State School. Wallace Street provides a link between Anzac Avenue and Holberton Street, and both streets cater for the western residential areas within Toowoomba City.

Wallace Street is Give-Way controlled at the intersection with Clairmont Street, and both roads are undivided, bi-directional single lane roads.

## 1.2 Road Details

| | |
|---|---|
| Total AADT Clairmont St: | 1087 vehicles per day, 4.81% HCV (Local Street, Count: Apr 2016) |
| Total AADT Wallace St: | 302 vehicles per day, 8.46% HCV (Local Street, Count: Apr 2016) |
| Seal Width Clairmont St: | 10.0 m |
| Seal Width Wallace St: | 8.0 m |
| Speed Limit: | 50km/h |
| Surfacing: | Asphalt |

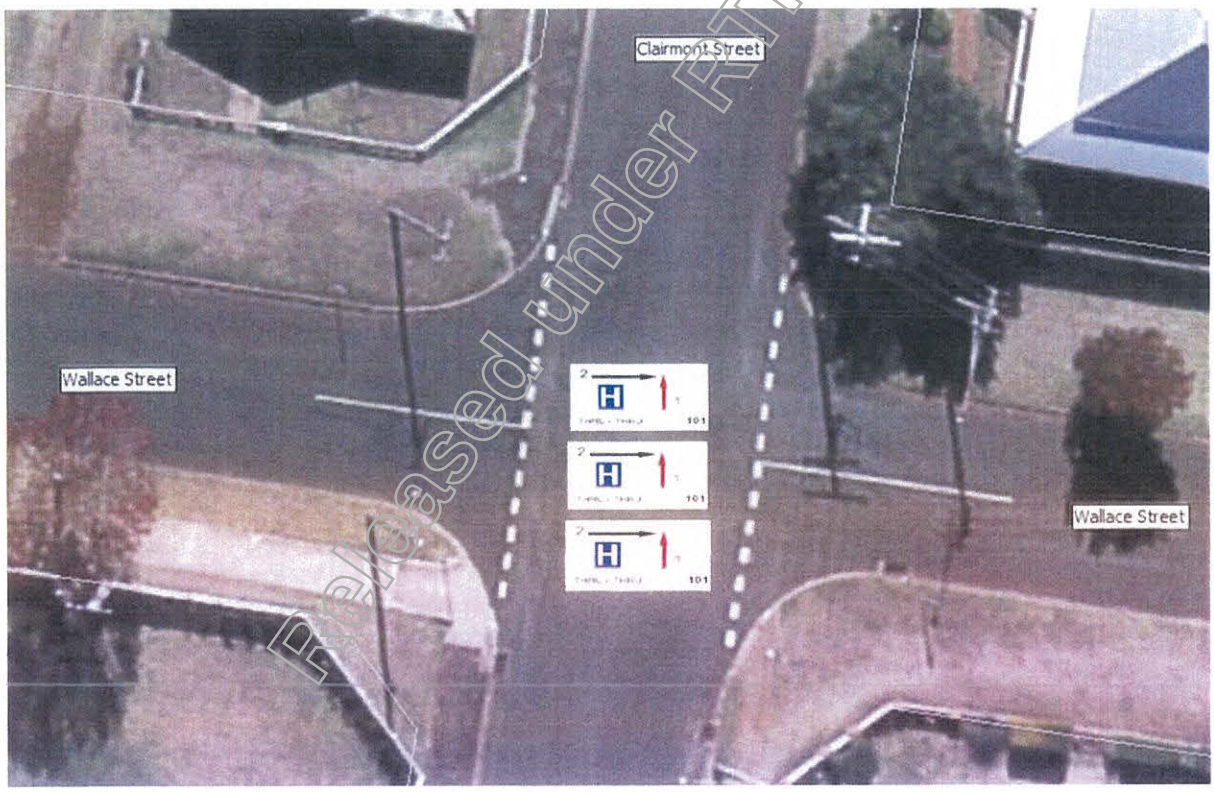


## 1.3 Crash History

Consultation with Queensland Police Services examination of the Q-Prime Crash Data System and the Queensland Main Roads **WebCrash** database has identified the following crash incidence at this location over the period Jan 2010 through Dec 2014:

| Location | Crash Number | Month | Year | Crash Nature/Incident description | DCA Code | DCA | Crash Severity | Crash Type |
|---|---|---|---|---|---|---|---|---|
| Wallace and Clairmont intersection | not relevant | | 2014 | Angle | 101 | | Injury - admitted to hosp | Traffic Crash - Hit & Run (with injury) |
| Wallace and Clairmont intersection | | | 2013 | Angle | 101 | | Injury - admitted to hosp | Traffic Crash - with injury |
| Wallace and Clairmont intersection | | | 2012 | Angle | 101 | | Injury - admitted to hosp | Traffic Crash - with injury |

**TRC Crash Map by Crash Severity**






## 1.4 Potential Contributory Factors

This intersection has experienced 3 VEH'S ADJACENT APPROACH: THRU-THRU (101) crashes during the crash analysis period (2010-2014), which have all resulted in Hospitalisation Injury incidents.

Clairmont Street carries school traffic and peak hours are usually congested at the intersection.

This is a typical cross intersection and the angle of crash impact is usually close to 90 degrees, which increases the severity of incidents and often results in injuries.

Due to the trees on both streets and the provision of on-street parking within the residential zone, sight distances are reduced on the approaches and at the intersection.

These constraints combine to create a less-than-desirable situation, and it is considered that a roundabout will provide simplified and consistent priority on all approaches, serve to calm through traffic along Clairmont Street, and reduce the likelihood and severity of crashes.

Other key benefits include fewer conflict points, angles of conflict and lower speeds which allow more time to react to potential dangers.

### 1.5 Recommendation

With due consideration to the crash incidence and severity at this location, it is considered that a roundabout will serve to reduce the likelihood and severity of crash incidents as the intersection is better controlled, and the approach angles and speeds are reduced by the roundabout intersection design.

**Treatment Estimate:** **$400,000**

### 1.6 Benefits

- Roundabouts have fewer conflict points and angles of conflict in comparison with conventional intersections
- Lower speeds associated with roundabouts allow drivers more time to react to potential dangers
- Since most road users travel at similar speeds through roundabouts, crash severity can be reduced compared to some traditionally controlled intersections
- The visibility of the intersection is increased.
- Enhanced street appearance when landscaped in a manner not hazardous to errant vehicles.

### 1.7 Benefit / Cost Ratio

Based upon the aforementioned Crash Reduction treatment, the Benefit / Cost Ratio has been determined as follows:

| RESULTS | Black Spot Program (using DCA based costs) |
|---|---|
| Eligibility | Eligible |
| BCR | 7.7 |
| Total Benefits (NPV) | $3,064,316 |
| Total Costs (NPV) | $400,000 |

# Appendix A – Crash Details

QPS **Q-Prime** Crash Data System:

| Location | Crash Number | Month | Year | Crash Nature/Incident description | DCA Code | DCA | Crash Severity | Crash Type |
|---|---|---|---|---|---|---|---|---|
| Wallace and Clairmont intersection | not relevant | | 2014 | Angle | 101 | 1 | Injury - admitted to hosp | Traffic Crash - Hit & Run (with injury) |
| Wallace and Clairmont intersection | | | 2013 | Angle | 101 | 1 | Injury - admitted to hosp | Traffic Crash - with injury |
| Wallace and Clairmont intersection | | | 2012 | Angle | 101 | 1 | Injury - admitted to hosp | Traffic Crash - with injury |

# Appendix B – Cost Estimates

## Project: Roundabout- Wallace Street / Clairmont Street Intersection

| Project: | Wallace Street & Clairmont Street | | | Date: | 14 4 16 |
|---|---|---|---|---|---|
| | Black Spot Program | | | | |
| | Intersection Upgrade | | | | |
| Activity CODE | Activity Description | UNIT | QTY | RATE | AMOUNT |
| | | | | | |
| | **MRS28 - Contrctor's Site Facilities and Camp** | | | | |
| RF1101 | Contractor's site facilities | | | | |
| | | | | | |
| | **MRS02 - Provision for Traffic** | | | | |
| RF1201 | Provision for traffic | | | | |
| | | | | | |
| | **MRS52 - Erosion and Sediment Control** | | | | |
| | **Sediment Controls** | | | | |
| RF1254 | Erosion and Sediment Control Devices (Non-Itemised) | | | | |
| | | | | | |
| | **MRS - 03 Drainage, Retaining Structures and Protective Treatments** | | | | |
| | **Drainage removal/Demolition** | | | | |
| RF2108 | Removal or demolish of gullies grates. Slab over. | | | | |
| | **Supply and Installation of Culverts** | | | | |
| RF2241 | Supply & Install of concrete pipe culvert components, Class 4, 375 mm diameter | | | | |
| | **Pavement Drainage** | | | | |
| RF2401 | Concrete kerb, Type M6 Centre Island | | | | |
| RF2404 | Concrete kerb & channel, Type B1 | | | | |
| RF2405 | Concrete kerb & channel crossings, Type B1 | | | | |
| RF2416 | Precast concrete side inlet gullies with precast shaft, small lintel and single steel grate | | | | |
| | **Protective Treatments** | | | | |
| RF2631 | Hand placed concrete paving, centre island 200 mm thick - stencil concrete | | | | |
| | **MRS04 - General Earthworks** | | | | |
| | **Earthworks, Preparation** | | | | |
| RF3108P | Excavation and disposal of Unsuitable Material with individual | | | | |

not relevant

| | | | | | |
|---|---|---|---|---|---|
| | excavation <= 10 m3 (Prov) | | | | |
| | | | | | |
| | **MRS16 - Landscape and Revegetation Works** | | | | |
| | **Ground Preparation Works - Topsoil** | | | | |
| RF3829P | Supply of imported topsoil (Provisional Quantity, if ordered) | not relevant | | | |
| | **Vegetation Works - Turfing** | | | | |
| RF3847 | Turf [description] | | | | |
| | | | | | |
| | **MRS05 - Unbound Pavements** | | | | |
| RF4106 | Subbase, unbound pavement, Type 3.2 working platform | | | | |
| | | | | | |
| | **MRS30 - Asphalt Pavements** | | | | |
| | **Preparation of the Existing Surface** | | | | |
| RF5401 | Preparation of the existing surface (cold milling 40mm deep) | | | | |
| RF5404P | Tack coat, residual bitumen (application rate 0.3 l/m2) | | | | |
| | **Medium Duty Dense Graded Asphalt** | | | | |
| RF4157 | Medium duty dense graded asphalt in base course, AC DG20 M mix | | | | |
| RF4159 | Medium duty dense graded asphalt in surfacing course, AC DG14 M mix | | | | |
| | **Guidance and Information Systems** | | | | |
| RF6122 | Supply of regulatory, warning & hazard sign faces | | | | |
| RF6132 | Install of regulatory, warning & hazard signs, [number of posts] | | | | |
| RF6136 | Supply, erection & Removal of project signs | | | | |
| | | | | | |
| | **MRS45 - Road Surface Delineation** | | | | |
| RF6319 | Edge line, 150 mm wide, colour yellow, material thermoplastic. | | | | |
| RF6323 | Outline, 150 mm wide, colour white, material thermoplastic. | | | | |
| RF6331 | Transverse lines (stop lines, holding lines, markings at Stop and Give Way signs, pedestrian crosswalk lines, arrows, shapes, symbols and numerals), colour white, material thermoplastic. | | | | |
| RF6332 | Transverse lines (diagonal and chevron markings, parking areas and kerb markings), colour white, material thermoplastic. | | | | |
| | **Raised Pavement Markers** | | | | |
| RF6351 | Retro reflective raised pavement | | | | |

| | | | | | |
|---|---|---|---|---|---|
| | markers | | | | |
| | **Footpaths** | | | | |
| RF2101F8 | Remove/demolish footpath (concrete or asphalt) | | | | |
| RF2271G3 | Supply and installation of concrete | | | | |
| | | | | | |
| | **Non-Standard Items** | | | | |
| RF9001 | Pre Cast Concrete Islands Supply and Install | | | | |
| | | | | | |
| | **Planning/Design** | | | | |
| RFDS10 | Survey | | | | |
| RFDS20 | Concept | | | | |
| RFDS30 | Design | | | | |
| RFDS40 | Utility Services - Locations | | | | |
| RFEO01 | Project Management | | | | |
| RFEO04 | Contingencies | | | | |
| RFEO05 | As Constructed Data | | | | |
| RFEO16 | Control/Quality Testing | | | | |
| | **Miscellaneous** | | | | |
| RF2101D3 | Utilities - Telstra | | | | |
| RF2101D4 | Utilities - Electrical Services | | | | |
| | | | | **Total Cost of Project** | **$400,000** |

not relevant

## Appendix C – Photos

Southbound approach along Clairmont Street, towards the intersection of Wallace Street, which is Give-Way controlled.

## RPEQ Endorsement

Endorsement of concept proposals by a Registered Professional Engineer Queensland (RPEQ) for Black Spot nominations.

| | |
|---|---|
| Project Cost Estimate | **$400,000.00** |
| Reference Number | ..... *(e.g. 206-00011 – to be provided by TMR)* |
| Project Location | Wallace Street and Clairmont Street Intersection Toowoomba City, Queensland, Australia |

**Road Safety Risks** Identified:
This intersection has experienced 3 VEH'S ADJACENT APPROACH: THRU-THRU (101) crashes during the crash analysis period (2010-2014), which have all resulted in Hospitalisation Injury incidents. This is a typical cross intersection and the angle of crash impact is usually close to 90 degrees, which increases the severity of incidents and often results in injuries.

**Project Scope:**
Construction of a single lane roundabout.

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I, **Laurence Griffiths**,– Principal Engineer – Road Operations, Toowoomba Regional Council

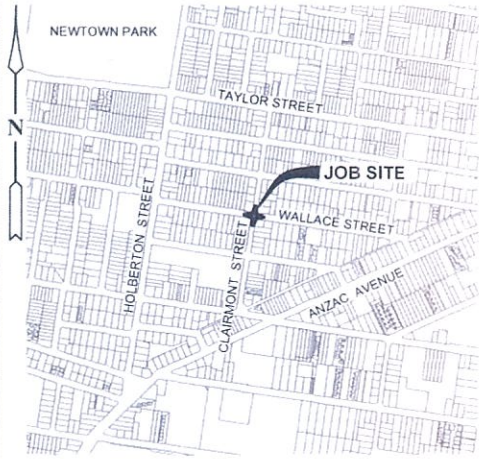
Being a Registered Professional Engineer of Queensland,

Registration number: **07928**

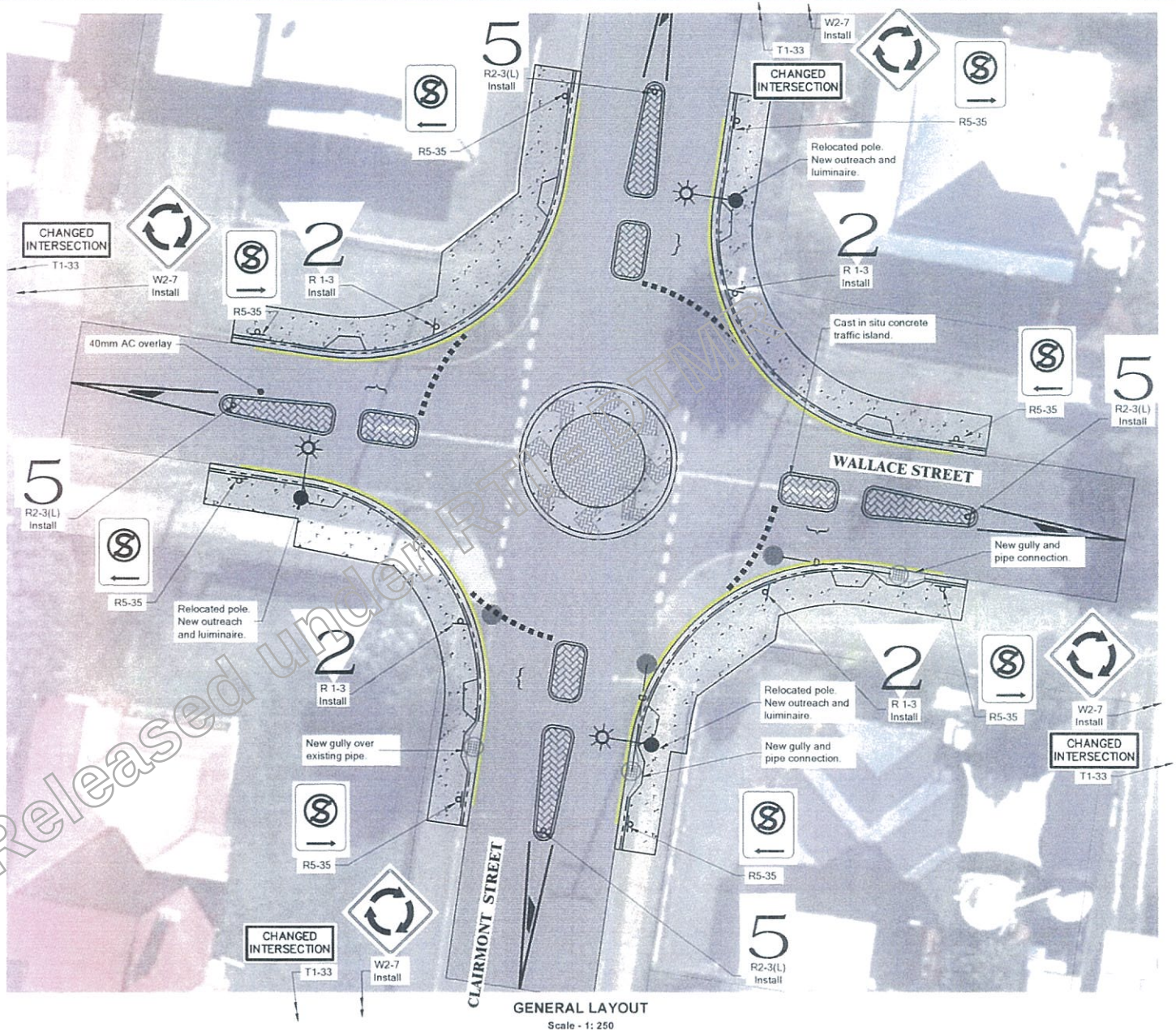
Confirm that I consider the proposed treatment to be appropriate to address the road safety risks and, for reactive (crash history based) proposals, that the supporting benefit cost evaluation is sound.

Signed: not relevant

Date: 15/06/2016




**LOCALITY PLAN**
Scale - 1:15 000




**GENERAL LAYOUT**
Scale - 1: 250

NOTES

1. R2-3 (L) Signs shall be provided with a flexible base pole.



CONCEPT - NOT FOR CONSTRUCTION

| Revisions | Drawn | Appd | Date |
|---|---|---|---|
| #### #### | | | |
| A Client Issue for Appraisal | | | |

UTILITY SERVICES
The location of the following utility services are shown approximately on the drawings:

| SERVICE AUTHORITY | DATE |
|---|---|
| Dial Before You Dig | ######## |
| Telstra | ######## |
| Ergon Energy | ######## |
| Energex Gas | ######## |

The Constructing Authority is responsible for verifying the location of all utility services, prior to the commencement of works.

| | | | |
|---|---|---|---|
| Surveyor | ########## | Designed | |
| Field Book No. | ###### | Design Check | |
| Datum - Horizontal | ######## | Drafting | |
| Datum - Vertical | ##### | Drafting Check | |
| Upload File | ########## | Project Leader | pA |
| | | Quality Check | |

TQCSI Quality Certified AU1352-QC-EC ISO 9001:2008
TQCSI Environmentally Certified AU1352-QC-EC ISO 14001:2004

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TOOWOOMBA REGIONAL COUNCIL

# CLAIRMONT STREET, NEWTOWN
## AT WALLACE STREE
## BLACK SPOT PROGRAM
## CONCEPT OPTION 2

| Recommended | Approved | RPEQ | Drawing No. | Revision |
|---|---|---|---|---|
| | | | Wallace-ClairmontOption2 | pA |

Scale 0 2.5 5 1:250 (m)
No. 1 of 1 Dwgs | Size A3
Job No. ######