

Hamilton City Council Regional Special Conditions 2021

Supplement to the NZ Transport Agency P43 Specification for Traffic Signals (2020)

HCC P43 Specification- Regional Special Conditions

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Document History and Status

Revision	Date	Author	Reviewed by	Approved by	Status
1	13/09/19	B. Feary	P. Addy	J. Kinghorn	For Issue
2	10/12/21	B. Feary	P. Addy	J. Kinghorn	For Issue

Revision Details

Revision	Details
1	Initial Issue
2	Re-Issue to incorporate changes to the National Specification P43 2020

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1 General

1.1.1 Introduction

This document, the Hamilton City Council (HCC) Regional Special Conditions, has been written as a regional supplement to the current NZ Transport Agency P43 Specification for Traffic Signals 2020.

The purpose of this document is to define the regional special requirements required by Hamilton City Council's City Transportation Unit (CTU).

These special conditions apply to any Traffic Management Infrastructure or Traffic Signals work being done at any intersection where the traffic signals are to be operated or maintained by HCC.

The special conditions are recognised in 'Section 1.2 Objectives' of the NZTA P43 Specification. The requirements set out in this document supplement and override the NZTA document, however both documents need to be read in conjunction.

These special conditions are a live document. It is the responsibility of the signals contractor or consultant to ensure they are using the latest version of both this document and the NZTA specification. Any variation or departure from these documents will require prior approval by HCC. HCC's decision will be final. Where work is done to an older version of this document and the NZTA specification, any corrective actions required to meet current requirements will be at the cost of the signals contractor, project or consultancy.

1.1.2 Contacts

Contact Hamilton City Council City Transportation Unit on 07 838 6999 to verify whether you have the latest version of this document.

Where required by the specifications, the HCC City Transportation Unit Operations Team can be contacted on 07 838 6999 or emailed on roads@hcc.govt.nz.

1.1.3 Nominated Subcontractors

Opito – for supply and configuration of routers, info@opito.co.nz.

Lightwire – for communication connections, 0800 12 13 14.

Hamilton Infrastructure Alliance – for handover of sites, Customer.Info@infrastructurealliance.co.nz, 07 850 6640.

1.1.4 Intent and Outcome

The intent of this document is to provide guidance on regional requirements for the construction and connection of traffic signals where the traffic signals are to be operated or maintained by HCC, as a supplement to the requirements specified in NZTA P43.

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If there is any doubt or conflict, please contact HCC.

The expected outcome is to provide a high quality and functional product at a reasonable cost for the public.

1.5 Review Process

This document has been produced by Hamilton City Council and continues to be maintained and updated by HCC.

HCC welcomes constructive input from all parties to continually improve this document.

1.7 Definitions and Abbreviations

In addition to the definitions and abbreviations in NZTA P43, for the purpose of this specification, unless inconsistent with the context, the following definitions and abbreviations have the following meaning in this document:

HCC CTU - Hamilton City Council City Transportation Unit

IA – Infrastructure Alliance (Collaborative Working Agreement)

ICP Number - Installation Control Point number (power)

RITS – Waikato Local Authority Shared Services, Regional Infrastructure Technical Specifications

RSC - Regional Special Conditions

SAT – Site Acceptance Test Chart (refer Appendix G of NZTA P43 2020)

VC6 Controller – SCATS VC6 Controller capable of running the VC6 TRAFF software

2 Minimum Requirements of Signal Equipment

2.2.2 Warrantees, Guarantees and Maintenance (Amended Clause)

All materials and equipment supplied and/or installed (including the installation) shall have guarantees and warrantees in accordance with P43.

Practical Completion will not be issued until Hamilton City Council and the current signals maintenance contractor have approved the works and site operation. Hamilton City Council's Signal Maintenance Contractor will carry out regular maintenance on the intersection immediately following Practical Completion and if any faulty equipment or installation work is identified, then the Contractor responsible for installing the equipment will be required to fix and/or supply parts to fix the fault at no cost to the Road Controlling Authority.

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During the construction and maintenance periods, the Contractor shall also be required to pay all costs incurred by Hamilton City Council's Signal Maintenance Contractor (who has been contracted to maintain the overall intersection) for isolating and making safe any reported faults which can be directly attributed to the signal installation or modification work. This includes any faults in materials, equipment or workmanship. The Contractor will be invoiced separately for this work or more commonly, the amount will be deducted from the contract price or from any maintenance retentions owing.

2.3.2 New Zealand Special conditions to AS2578:2009 (Amended Clause)

2.3.16 Housing top extension (amended clause)

All new controller cabinets shall have a 'Top Hat' accessory unit incorporated with a fixed rack shelf.

2.3.5 New Controller Types (Amended Clause)

Unless otherwise specified by Council all new controllers installed at sites managed by Hamilton City Council shall be the latest version available, which is VC6.2 at the time of writing. The controller shall be compatible with the latest version of the SCATS software protocol.

2.5.1.3 Pole Installation (Amended Clause)

All poles installed in median islands, except Joint Use poles, are to be installed in retention sockets unless otherwise specified by Council.

Median poles that are Joint Use poles shall be flanged based columns.

Every pole will require a PS3 certificate.

2.6.3 Cycle Push Button Assemblies (Amended Clause)

(c) The embossed arrow disc shall not be replaced with a red lens similar to a vehicle signal lens.

(e) The cycle call box must use the cycle indication disc specified in 2.6.3(d) as the visual call accept signal.

2.7.1.1 Induction Loops (Amended Clause)

An alternative Cycle Loop Cable Detail which incorporates a double cycle loop detector cable winding has been provided as Figure A02a Cycle Loop Details (Double Winding for Protected Cycle Lanes) in Appendix A. Figure A02a is only required to be used in protected cycle lanes, i.e. lanes which will not be driven over by vehicles and typically have a dedicated cycle phase or cycle signal control. In all other cases where induction loops are the approved method of cycle detection the Cycle Loop Cable Detail in Figure A02 – Cycle Loop Details is appropriate.

2.7.2 Radar Detection (New Clause)

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Radar detectors such as the ‘Smartmicro’ radar or equivalent approved by HCC shall be considered for new traffic signal installations as an alternative to inductance loops. Detector hardware, whether inductance or Radar, shall require approval by Council.

3 Installation and Commissioning of Traffic Signal Equipment

3.3 Supply of Electric Power (Amended Clause)

For metered sites within Hamilton a WEL Networks connection form (<https://www.wel.co.nz/get-connected/new-commercial/>) must be filled in online at least sixteen weeks prior to commissioning. A copy must also be sent to the Energy Manager at Hamilton City Council, Energy@hcc.govt.nz for creation of new accounts. WEL Networks will provide an ICP number and physical connection and return to Contact Energy for the completion of the new connection.

The Bill payer is Hamilton City Council, and the Retailer is Contact Energy, customer No. 1002045954.

3.5.4 Extra Low Voltage (new Clause)

Unless otherwise specified by Council controllers are to be ELV and shall be capable of supporting dimming by control wire as specified in RMS specification TSI-SP-045.

3.6 Controller Cabinet (Amended Clause)

Unless otherwise specified by Council, the coating colour shall match existing controllers in Hamilton. A sticker shall be placed on each controller box in accordance with the following figure. HCC will provide the Site ID Number.

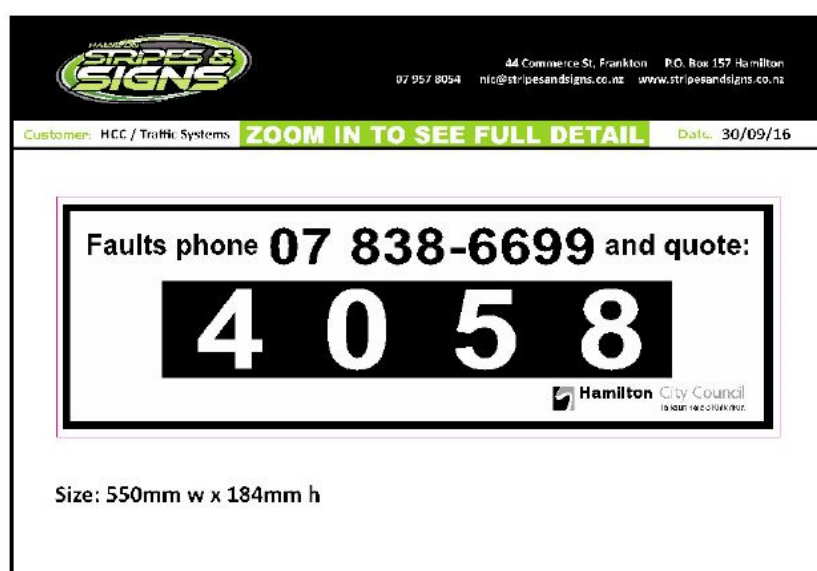


Figure 1: Example Traffic Signal Box Sticker

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3.11 Inductive Loops - Detector Loop Encapsulation (Amended Clause)

The Contractor is responsible for effectively sealing the inductive loops once the wires have been inserted. The sealant to be inserted shall be a rubberised bitumen adhesive sealant and inserted within 2 hours of the saw cut being made. The sealant shall be finished flush to the road surface.

Only approved Sealant types may be used in loop installations. Suitable sealant types are as follows:

Suitable sealant

"Sabre-Fix Bitumen Sealant" or equivalent or superior products approved by Council.

3.15.3 Software (personality) controller bench test (Amended Clause)

HCC have specific requirements for the preparation and production of personality files and the CIS. These shall be produced by HCC and the required files supplied to the Contractor installing the software. It should be noted that HCC require six weeks to produce these files.

3.15.5 Commissioning (Amended Clause)

Handover of new/upgraded signals to City Transportation to operate and manage requires a signed SAT (Site Acceptance Test Chart) and approval to switch on the traffic signals by the RCA traffic signals representative (City Transportation Unit).

The signals contractor must also advise the HCC CTU about the project at least three months before connection is required to SCATS.

The signals contractor must also advise the CTU Operations Room one week before SCATS communications will be available from the controller.

3.16 As Built Documentation to be provided (Amended Clause)

Each pole will require a PS 1 certificate and a PS3 certificate. The PS1 Design Producer Statement and the PS3 Certificate are to be issued by a suitably qualified Chartered Professional Engineer. The PS3 certificate should be issued by the Contractor or Supplier certifying the work has been done in accordance with the plans and specifications and in accordance with this specification, P43 and RITS. Refer to Appendix R for a template. This certificate shall be accompanied by photographic evidence of each pole.

3.17 Procedure for turning off signals (Amended Clause)

Where operational repairs will take longer than one hour or the work needs to occur within a live traffic lane the HCC procedure for turning off signals is as follows:

- 1 For State Highway sites the incident flow-chart for emergency works will need to be followed. Refer to Figure R01 in Appendix S.
- 2 For roads with a posted speed limit of 70km/h or above, or where pedestrians are unable to safely cross without the signals, a full Traffic Management Plan (TMP) is likely to be required.

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- 3 For all other sites not already under Temporary Traffic Management (TTM), use the Infrastructure Alliance (IA) standard approved TMP for “signals not working” and target off-peak times for repairs.

3.18 Communications (new Clause)

Unless otherwise specified by Council, all new traffic signals and cameras shall be connected to the HCC City Transportation Unit’s (CTU) traffic signal network. This network uses a combination of 4G wireless, fibre and point-to-point links. Prior to purchase or installation of any communication devices the appropriate communication method for the site must be confirmed with HCC. The Contractor is required to contact HCC’s nominated communications contractor to arrange configuration and installation of the approved hardware, such as a router and radio, at the Contractor’s cost.

A radio must be mounted appropriately (typically attached to a signal pole) to achieve the signal strength requirements. The router shall be housed in the traffic signal controller cabinet.

Each installation must include initial site coverage testing and scoping, power supply to the radio, and all associated ducting and cables including a shielded outdoor grade cat6 cable from the controller to the radio running inside the pole to the radio mounting location.

The traffic signal controller must achieve continuous SCATS communications for a minimum of 48 hours prior to commissioning.

3.19 Provision of Cameras (new Clause)

Unless otherwise specified by Council a traffic monitoring camera must be installed and connected at all new traffic signal installations, or sites subject to major upgrade – with the exception of midblock pedestrian crossings. All camera hardware must have a minimum warranty period of 12 months from the date of installation. Cameras must not be installed over a traffic lane.

3.19.1 Camera Specifications

Traffic monitoring cameras must be approved by HCC prior to installation. In general, the Contractor shall supply a CCTV camera, camera mounting and appropriate housing as required by this specification. Each new camera field installation shall typically consist of the following:

- (a) Camera including Lens and accessories
- (b) Pan and Tilt Unit
- (c) Housing
- (d) Controller/Encoder
- (e) Communications Interface Equipment
- (f) CCTV Pole (unless otherwise specified), Guy Cables and Pole Foundation

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All surveillance cameras shall interface with HCC's CCTV management system at City Safe and be compatible with the Milestone and DVTel management systems and meet the following performance-based requirements:

1 Key Performance Requirements

- (a) Camera Image Quality – the camera shall meet image width, stability and quality requirements to ensure the camera can be used as intended and perform as specified to support monitoring and detection of incidents and events.
- (b) The camera mounting and cabinet location shall be considerate of the site, health and safety and maintenance requirements and be set out and installed to minimise the likelihood of harm to the public and maintenance staff during operations and maintenance activities.
- (c) All connections and equipment shall be electrically safe, accessible and require minimal attention from the maintenance contractor to operate safely as intended.

Refer to the NZ Transport Agency ITS Standard – Closed Circuit Television Supply and Installation (ITS-07-01) version 3 or greater for the full performance specification.

3.19.2 Camera Location and Mounting

The camera should be located such that:

- 1 Every traffic lane is visible at the intersection limit line.
- 2 Required viewing distance is achieved down each leg.
- 3 Viewing is optimised for legs with adjacent signalised intersections.

The Contractor shall supply and install a shielded outdoor grade cat6 cable from the controller to the camera location, running inside the pole to the camera mounting location.

Council must approve the final location prior to installation of pole or camera. A site assessment plan showing the location and visibility of the proposed camera must be provided to Council for approval.

4 Cabling and Civil Works

4.4.1 Ducting (Amended Clause)

For details of traffic signal ducting under kerbs, refer to the Waikato Local Authority Shared Services Regional Infrastructure Technical Specifications (RITS) Drawing 3-69, D3.12.1 – Traffic Signal Ducting Under Kerb Access Details.

4.4.1.1 Pole Access Ducting (Amended Clause)

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Alternative ducting connection details will be considered by HCC and must be approved by HCC prior to installation, subject to all materials and equipment supplied and/or installed (including the installation) having the appropriate guarantees and warranties in accordance with P43.

4.7 Kerbside Junction Boxes (Amended Clause)

Access for loop feeder between detector loop and toby box may be obtained in two ways:

- 1 Under kerb access – to be used in all cases where new kerb and channel is to be constructed. Under kerb access shall consist of 25mm alkathene water pipe laid from the toby box and to within 50mm of the top of the seal and within 100mm of the edge of seal. The access hole in the pavement shall be backfilled, compacted with basecourse material and sealed.
- 2 Saw cut through kerb and channel – may be used where existing kerb is to be retained.

A 5mm wide sawcut may be made through the kerb and channel and sealed with Sikadur 43 epoxy resin mortar or equivalent.

4.10 Shop Verandas, Poles and other Obstructions (New Clause)

Any obstructions which will interfere with the installation, visibility or operation of the signals will be removed or altered by the Contractor.

Where such obstacles originate in private property, clearance to proceed with this work shall first be obtained from Council. Some delay may occur while the property owner is contacted.

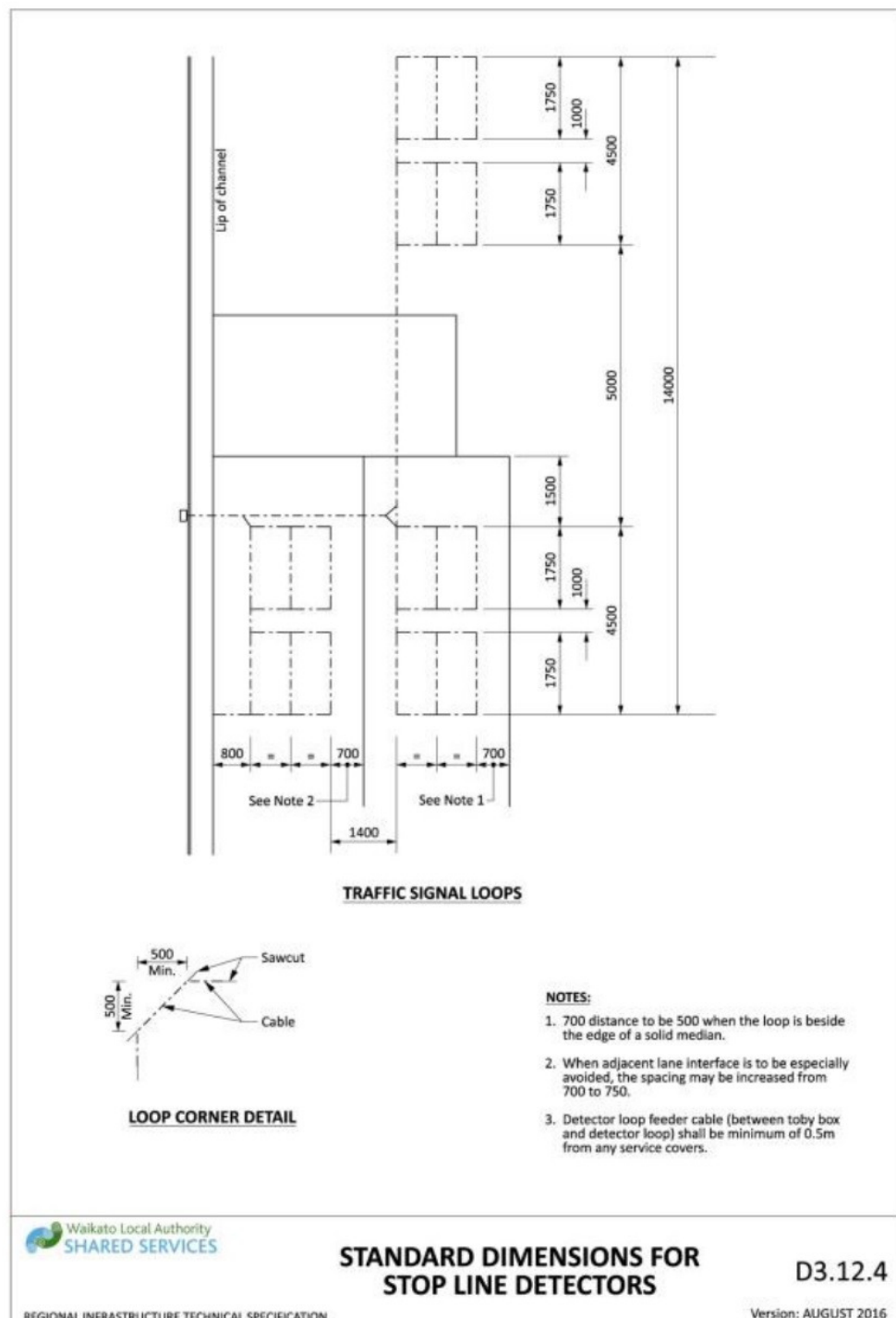
Note: All alterations to services will be undertaken by the appropriate service authority.

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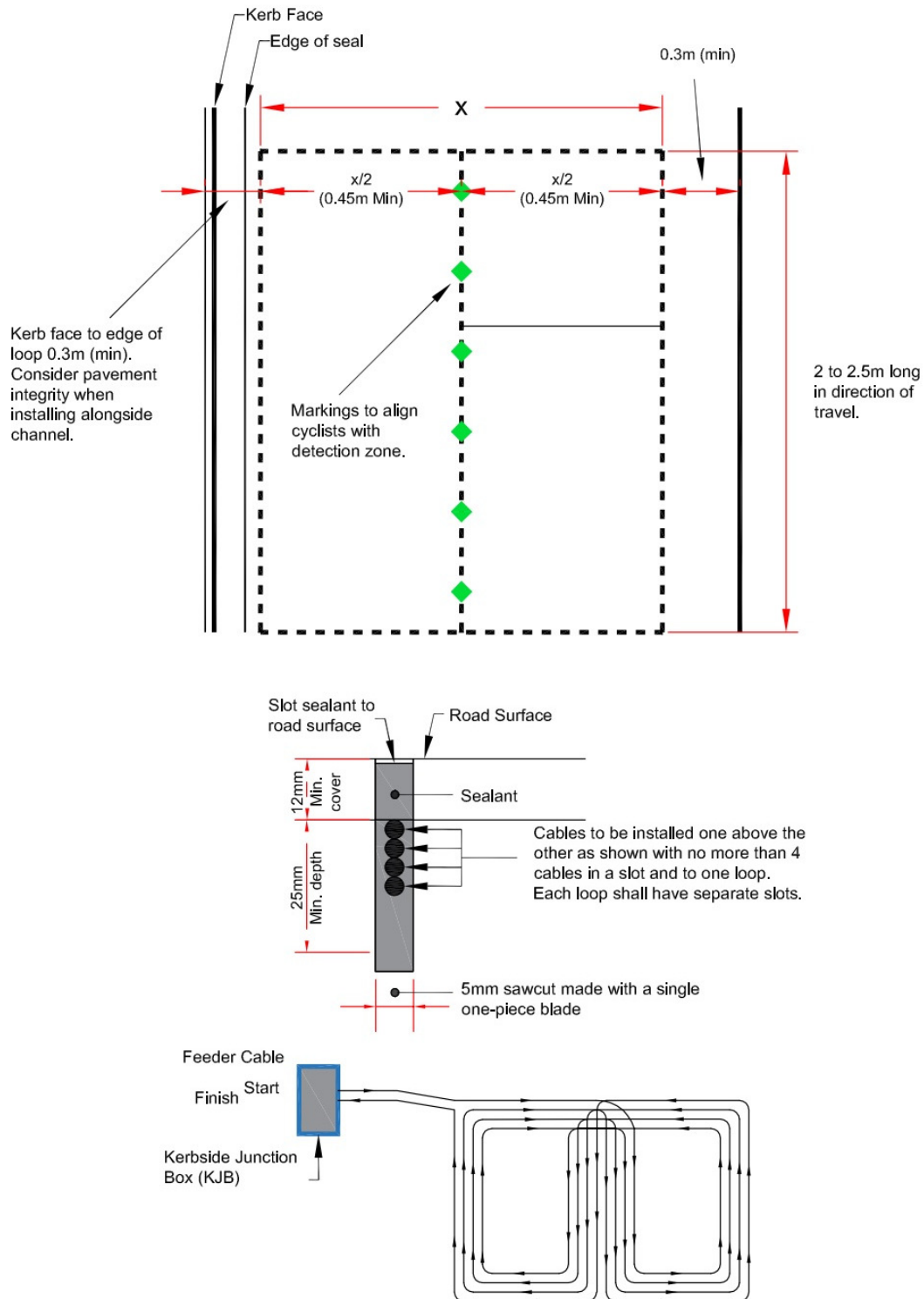
Appendix A – Inductive Loop Layout Details (Amended)

The following figure from the [Waikato Local Authority Shared Services Regional Infrastructure Technical Specifications \(RITS\)](#) supersedes the equivalent NZTA P43 details.

D3.12.4 – Standard Dimensions for Stop Line Detectors (Drawing 3-72)



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CYCLE LOOP CABLE DETAIL

Figure A02a – Cycle Loop Details (Double Winding for Protected Cycle Lanes)

Appendix R - Producer Statement Construction (PS3)

Producer Statement Construction (PS3) / Memorandum of Completion and Compliance

Issued by: (Construction Reviewer)		Building Consent number:	N/A
Company Name:			
To:	☐ Hamilton City Council ☐ Hauraki District Council ☐ Matamata-Piako District Council ☐ Otorohanga District Council ☐ Thames-Coromandel District Council ☐ Waikato District Council ☐ Waipa District Council ☐ Waitomo District Council		
Waikato Building Consent Group Reg. No.:	N/A	Expiry Date:	
Other No. (specify):			
Owner:	Hamilton City Council		
Project Address:			
Lot:		DP:	
Description of Building Work:	Installation of traffic signal poles		
Scope of work covered by statement:			
System / Product used (if applicable):			
I (Construction Reviewer's name):			
have been engaged by (owner/developer/contractor):			
In respect of (tick applicable):			
☐ The requirements of the Building Regulations 1992, Clause(s): (Please be specific e.g. E2.3.5)			
☐ Alternative Solution(s):	NZTA P43 specification for Traffic Signals, HCC P43 Special conditions and RITS		
for the building work described by the drawings and specifications prepared by the design firm titled:			
numbered:		☐ Copies attached	
authorised amendments(s): (if applicable)		☐ Copies attached	
☐ I have sighted the Building Consent and read the Advisory Notes. I can confirm that the building works have been carried out in accordance with the requirements of the New Zealand Building Code, the Building Consent, the design drawings and specifications, and in accordance with the listed amendments (if any).			
☐ I confirm that all work I have undertaken has been within the scope of my skills, knowledge, and experience. I have remained within the scope of works set for me by the *Waikato Building Consent Group Producer Statement Author register (if applicable).			
☐ I understand that this Statement, if accepted, may be relied upon for the purpose of establishing compliance with the Building Code and the Building Consent.			
☐ I am satisfied the building work complies with the requirements of the Building Consent and the New Zealand Building Code.			
Signed by (Construction Reviewer):		Name of Constructor (Print clearly):	
Date:		Address:	
Ph:		Mb:	
Fx:		Email:	
Qualifications / Experience:			

*The Waikato Building Consent Group Producer Statement Author register is held by the Building Unit Hamilton City Council, Private Bag 3010, Hamilton 3240. Ph (07) 838 6699. For information on the Waikato Building Consent Group visit [Build Waikato](#) website.

Appendix S - State Highway Traffic Signal Fault Procedure

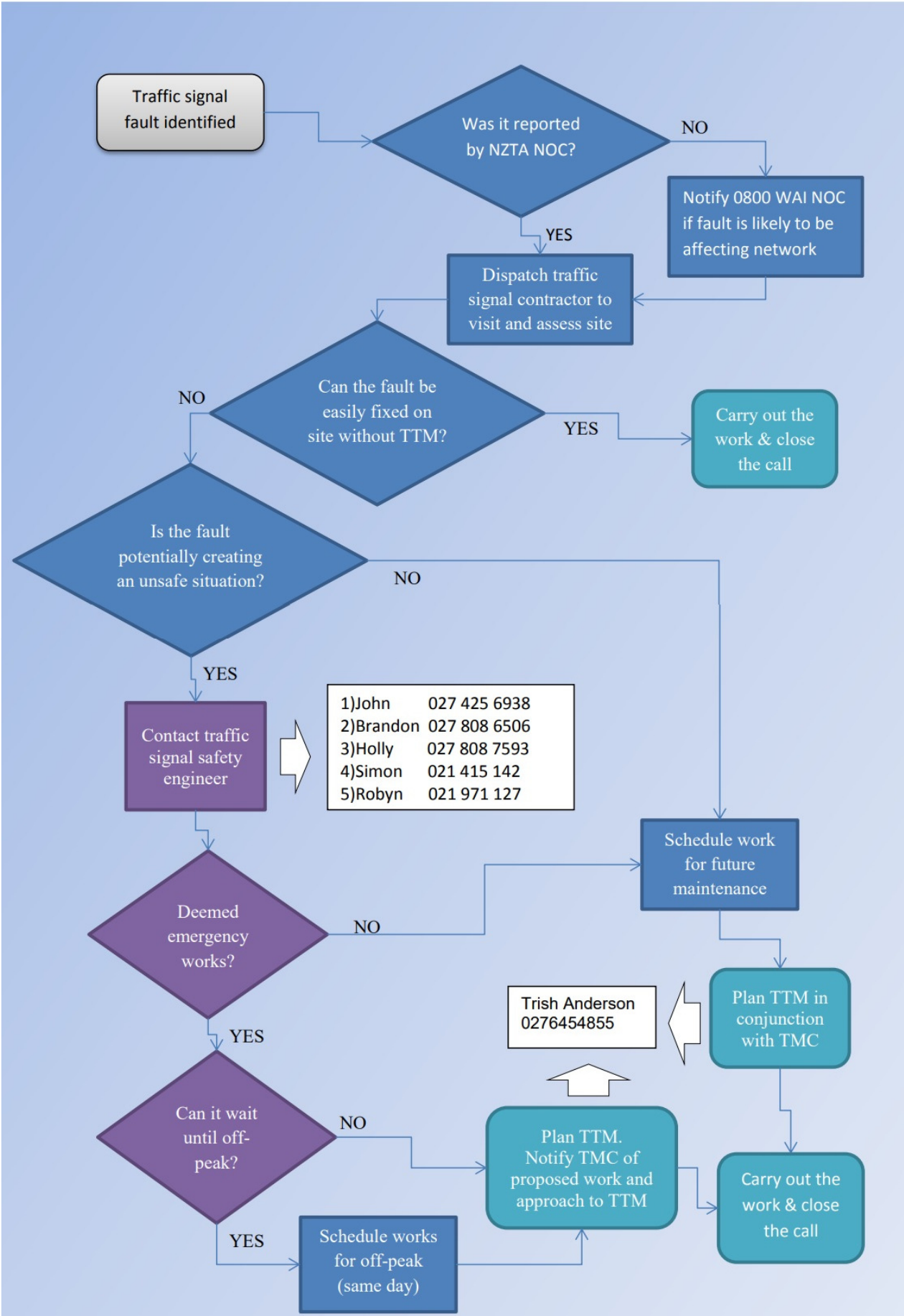


Figure R01 - State Highway Traffic Signal Fault Procedure