Technical Direction

For traffic, safety & transport practitioners

OPERATIONAL POLICY – GUIDELINES – ADVICE

Transport Roads & Maritime Services

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Supersedes/Amends TDT 2010/02 and Traffic Signal Design – Section 11

TDT 2012/09

PAVEMENT DEPTH FOR VEHICLE AND BICYCLE LOOP DETECTORS

General

A range of traffic control signal and intelligent transport systems have used inductive loop detectors successfully for a number of years. The loop consists of two or three turns of wire in saw slots in the road pavement connected to the sensor units in the controller. Where detector loops are required, they shall be installed in accordance with Specification SI/TCS/8 – *Installation and reconstruction of Traffic Light Signals*.

Guidelines

Pavement condition: Pavement surfaces shall be serviceable, and suitable for saw cutting, as cutting into a dilapidated pavement is likely to lead to premature loop failure / degradation. If the pavement surface is unsuitable, then the pavement must be re-sheeted/reconstructed.

Pavement depth: Pavement shall be at a minimum depth of 100mm to accommodate the sawcuts required for the installation of pavement loops. If the pavement is too shallow in depth, this may result in premature loop failure.

Loop installation: The loops may be sawcut into the pavement or be installed as prefabricated or pre-formed loops after pavement milling but before pavement resheeting.

Vehicle loop depth clearance: Generally the depth of sawcut slot for vehicle detection is specified to be 80mm in depth. This should result in a clearance from the top of road surface to the top of the detector wires of a maximum of 50mm (20mm minimum). RMS specification SI/TCS/8 details the requirements of a vehicle loop as attached in **Appendix A**.

Bicycle loop depth clearance: These loops have different design requirements in terms of depth and number of turns of wire in the saw slots due to the low content of ferrous material within bicycle frames and drive systems. This should results in a clearance from the top of road surface to the top of the detector wires of a maximum of 30mm (15mm minimum). RMS specification SI/TCS/8 details the requirements of a double bicycle loop as attached in **Appendix B**.

Distribution List:

Director, Infrastructure Development; Director, Commercial; Traffic & Safety Management staff; Project and Asset Managers.

For further enquiries

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Action

Pavement type: Detector loops should only be installed in either asphalt (not open grade) or concrete pavements but not within flush seals.

Confirm the pavement depth: There is a requirement to confirm that the depth of pavement is not too shallow for the sawcut slot and for the installation for the detector loops. To determine the actual pavement depth and to assist in the deciding on the required pavement treatment (e.g. resheeting) at the location of the proposed loop, either by undertaking a:

- Destructive testing, using a cored sample (max 50mm diameter); or
- Non-destructive testing, using 'Ground penetrating radar' (GPR).

This policy takes effect immediately.

Updates

To ensure that this *Technical Direction* remains current and relevant, minor updates may be made from time to time. This may be done through the Roads & Maritime Services' website using the Traffic & Transport Policies & Guidelines Register which can be found at:

www.rta.nsw.gov.au/trafficinformation/guidelines/documentregister.

The Register should always be checked prior to using this *Technical Direction.*

Approved by:

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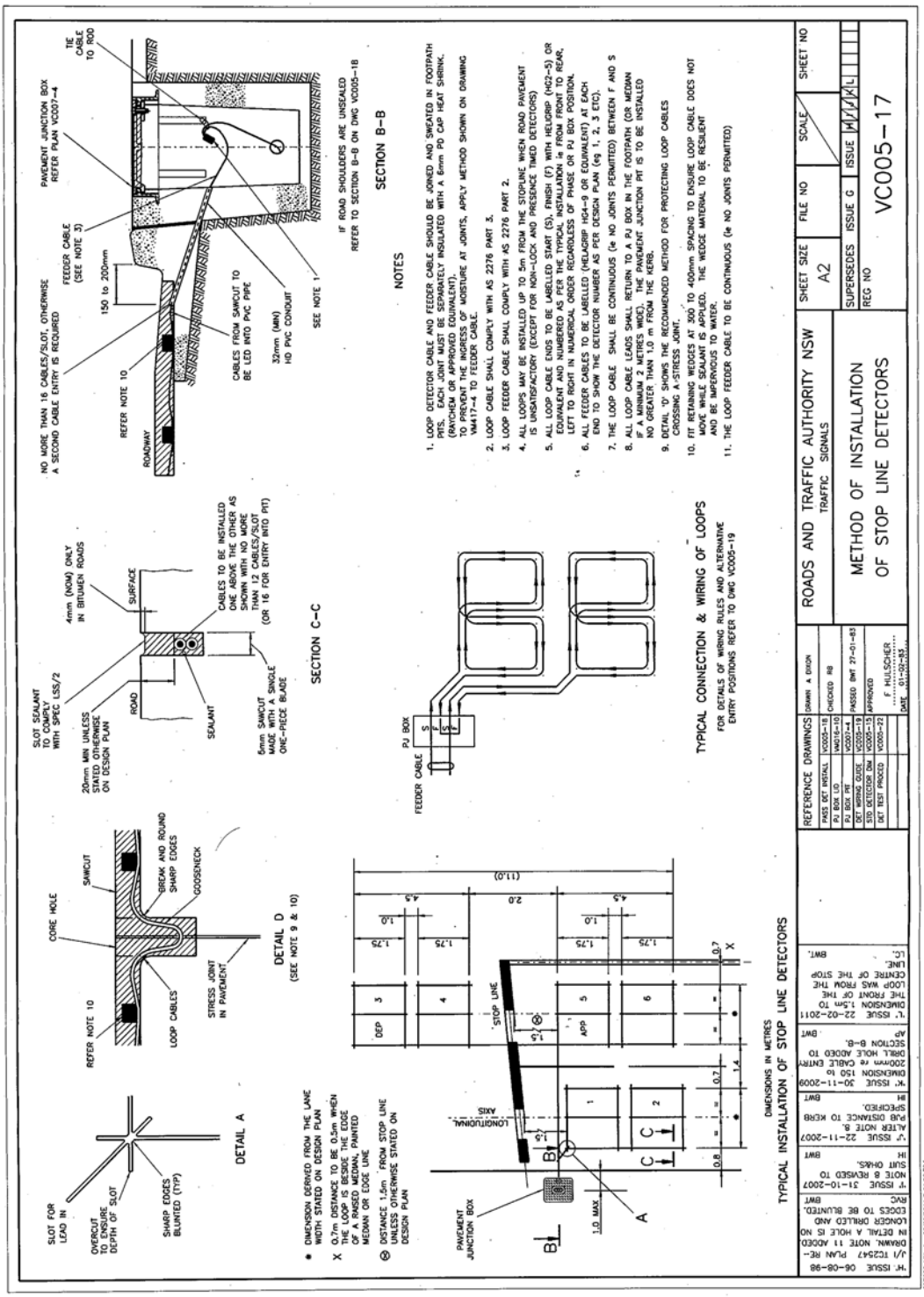
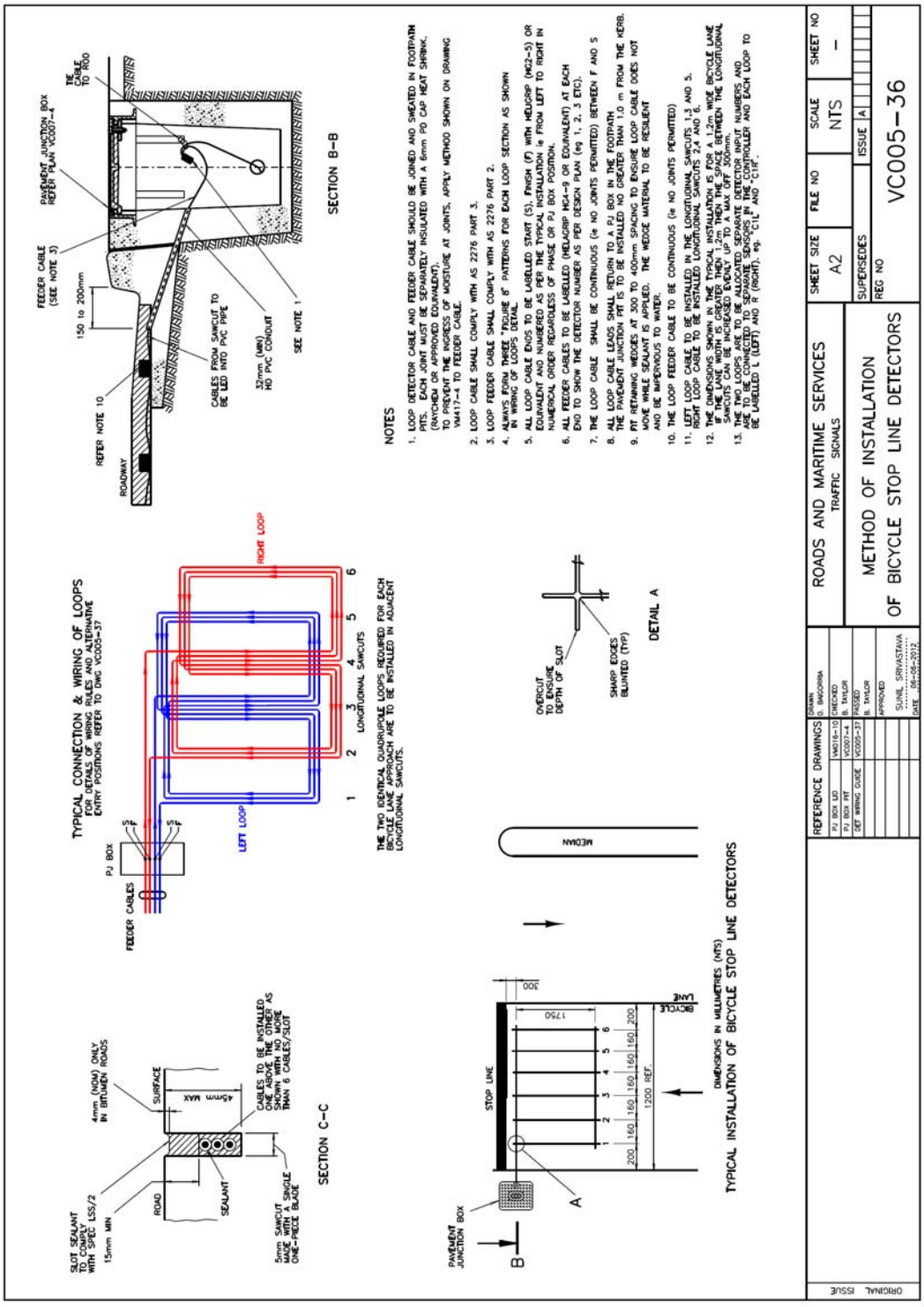
APPENDIX A – VEHICLE LOOP



Note:

1. The loop details must be shown on the TCS Design Layout and Cable Plan (see Traffic Signal Design – http://www.rta.nsw.gov.au/doingbusinesswithus/downloads/technicalmanuals/trafficsignaldesign_dl1.html).

APPENDIX B: DOUBLE BICYCLE LOOP



Notes:

1. The loop details must be shown on the TCS Design Layout and Cable Plan (see Traffic Signal Design – http://www.rta.nsw.gov.au/doingbusinesswithus/downloads/technicalmanuals/trafficsignaldesign_dl1.html).
2. A Note is required on the Cable Plan to alert the Contractor that a double bicycle loop needs to be installed.