

Statement of Functional Design Evidence to
Planning Panels Victoria by Benjamin Michael
Mentha for Amendment C269 to the Casey
Planning Scheme (Minta Farm Infrastructure
Contributions Plan)

V181544

Instructed by Hall and Wilcox Lawyers
Prepared for Victorian Planning Authority
Date 7 April 2020



Contact Information

Cardno Victoria Pty Ltd

ABN 47 106 610 913

Level 4

501 Swanston Street

Melbourne VIC 3000

Australia

www.cardno.com

Phone +61 3 8415 7777

Fax +61 3 8415 7788

Document Information

Prepared for Hall and Wilcox Lawyers on
behalf of Victorian Planning
Authority

Project Name Amendment C269 to the
Casey Planning Scheme
(Minta Farm ICP)

File Reference V181544_REP002_F01.docx

Job Reference V181544

Date 7 April 2020

Author(s):



Name: Benjamin Mentha

Effective Date 7/04/2020

Job title: Associate – Transport

Table of Contents

| | | |
|---|---|----|
| 1 | Expert Witness Details | 1 |
| 2 | Background | 3 |
| | 2.1 Locality | 3 |
| | 2.2 Planning History | 4 |
| | 2.3 North-South Arterial Road Context | 6 |
| | 2.4 O'Shea Road Extension | 8 |
| 3 | Minta Farm PSP | 10 |
| | 3.1 Land Use | 10 |
| | 3.2 Future Street Network | 10 |
| | 3.3 Future Public Transport and Path Networks | 12 |
| | 3.4 Precinct Infrastructure Plan – Transport Projects | 12 |
| 4 | Amendment C269 to the Casey Planning Scheme | 18 |
| | 4.1 Exhibited ICP | 18 |
| | 4.2 Circulated Plans (March 2020) | 19 |
| 5 | Review of Submissions | 21 |
| | 5.1 Stockland | 21 |
| 6 | Conclusions | 23 |

Appendices

Appendix A Amended Plans (March 2020) Prepared by Cardno

Appendix B Ultimate Layout Plans Prepared By Traffix Group

1 Expert Witness Details

Name

Benjamin Michael Mentha

Address

Cardno

Level 4, 501 Swanston Street

Melbourne Vic 3000

Qualifications

Bachelor of Engineering (Civil & Infrastructure) (Honours), RMIT University

VicRoads Senior Road Safety Auditor

Experience

Associate, Cardno: 2016 – present

Traffic Engineer, Traffix Group: 2010 – 2016

Structural Engineer, Felicetti: 2007 - 2009

Areas of Expertise

Traffic and transport engineering, including:

- > Intersection design;
- > Traffic generation assessments;
- > Strategic transport planning;
- > Road safety engineering;
- > Car parking assessments; and
- > Design of car parks, ramps, bicycle facilities, loading bays, etc.

Expertise to Prepare this Statement

My training and experience as a traffic engineer in the capacity assessment and functional design of intersections located in Melbourne and regional Victorian growth areas qualifies me to comment on the functional design aspects of the exhibited Minta Farm ICP.

Disclosers

I have no ongoing personal or business relationships with the Victorian Planning Authority or any other party to this hearing.

I previously assisted Chris Butler of Cardno with the preparation of expert evidence on behalf of VPA for Amendment C228 to the Casey Planning Scheme that considered the Minta Farm PSP.

Instructions

I have been instructed by Hall and Wilcox Lawyers on behalf of the Victorian Planning Authority to provide my expert opinion on the functional layout plans that have been prepared to inform the intersection costings.

Facts, Matters and Assumptions Relied Upon

- > Review of background documents relating to Amendment C269 to the Casey Planning Scheme for the Minta Farm Infrastructure Contributions Plan, including:

- Exhibited Minta Farm Infrastructure Contributions Plan dated July 2019;
 - Benchmark Infrastructure Report prepared by Cardno dated 11 April 2019;
 - Benchmark Infrastructure Costing – Selected Minta Farm ICP Items – Result Application – Minta Farm prepared by Cardno dated 14 March 2019 (inclusive of February 2019 Functional Layout Plans);
 - Gazetted ‘Interim’ Minta Farm Infrastructure Contributions Plan dated May 2019 and gazetted July 2019; and
 - Stakeholder submissions.
- > Interim Functional Layout Plans prepared by Traffix Group dated 31 August 2018.
 - > Ultimate Functional Layout Plans prepared by Traffix Group dated 21 September 2018.
 - > First Principles Traffic Modelling – IN-02 & IN-03 – Minta Farm PSP 11 – North-South Arterial Road memorandum prepared by Traffix Group dated 22 March 2018.
 - > Refinements of IN-02 & IN-03 Intersection Layouts – Minta Farm PSP 11 – North-South Arterial Road memorandum prepared by Traffix Group dated 22 March 2018.
 - > Finalised Intersection Layouts – Minta Farm PSP 11 – North-South Arterial Road memorandum prepared by Traffix Group dated 21 September 2018.
 - > Review of background documents relating to Amendment C228 for the Minta Farm PSP, including:
 - Gazetted Minta Farm Precinct Structure Plan dated October 2018 and gazetted January 2019, including Interim Functional Layout Plans prepared by Traffix Group dated 31 August 2018;
 - Panel Report – Casey Planning Schemes Amendment C228 – Minta Farm Precinct Structure Plan dated 11 July 2018;
 - Strategic Transport Modelling Assessment (Ultimate Scenario) – McPherson, Croskell and Minta Farm Precincts prepared by Cardno dated 31 August 2015;
 - Traffic Engineering Assessment – Additional Traffic Modelling at Minta Farm PSP 11 prepared by Traffix Group dated 5 September 2017; and
 - Concept Road Design Report – Minta Farm Precinct Structure Plan prepared by Traffic Works dated 5 October 2017.
 - > VicRoads Guidance for Planning Road Networks in Growth Areas (working document).
 - > Austroads Guide to Road Design.
 - > Ministerial Direction on the Preparation and Content of Infrastructure Contributions Plans and Ministerial Reporting Requirements for Infrastructure Contributions Plans.

Identity of Persons who Assisted with this Statement

I oversaw the preparation of the amended functional design plans that were circulated in March 2020, with design drafting by Egan Cooke and Luke Simpson of Cardno.

The previous functional layout plans were overseen by Stephen Howe of Cardno, with assistance of Viraj Abeykoon and Samuel Beckham. I had no involvement in the preparation of the previous functional layout plans.

Declaration

I have made all the inquiries that I believe are desirable and appropriate and no matters of significance which I regard as relevant have to my knowledge been withheld from the Panel.



Benjamin Mentha
Associate, Cardno

2 Background

2.1 Locality

The Minta Farm Precinct occupies approximately 285 ha and is located on the south side of the Princes Freeway (Pakenham Bypass) in Berwick.

The Precinct is bound by Soldiers Road to the west, Grices Road to the south, Cardinia Creek to the east and the future extension of O’Shea Road and the Princes Freeway to the north.

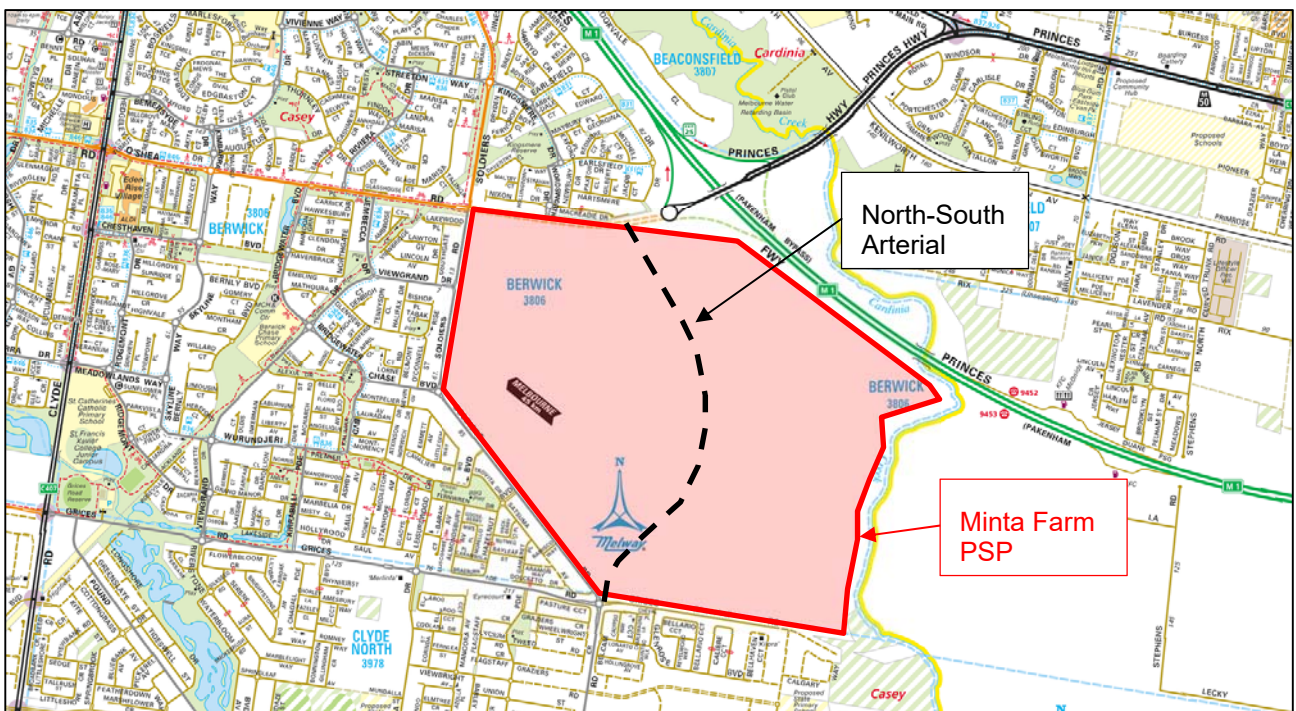
A number of approved PSPs are located to the south, including Clyde North, Pound Road, Thompsons Road, Cardinia Creek South (McPherson) and Clyde Creek.

Strategic planning for the Clyde South PSP located further south and the Officer South Employment PSP located to the east have either not commenced or during the early stages.

Within the Minta Farm PSP, Stockland have commenced development of a residential subdivision in the southern part of the Precinct, with interim access provided to Soldiers Road.

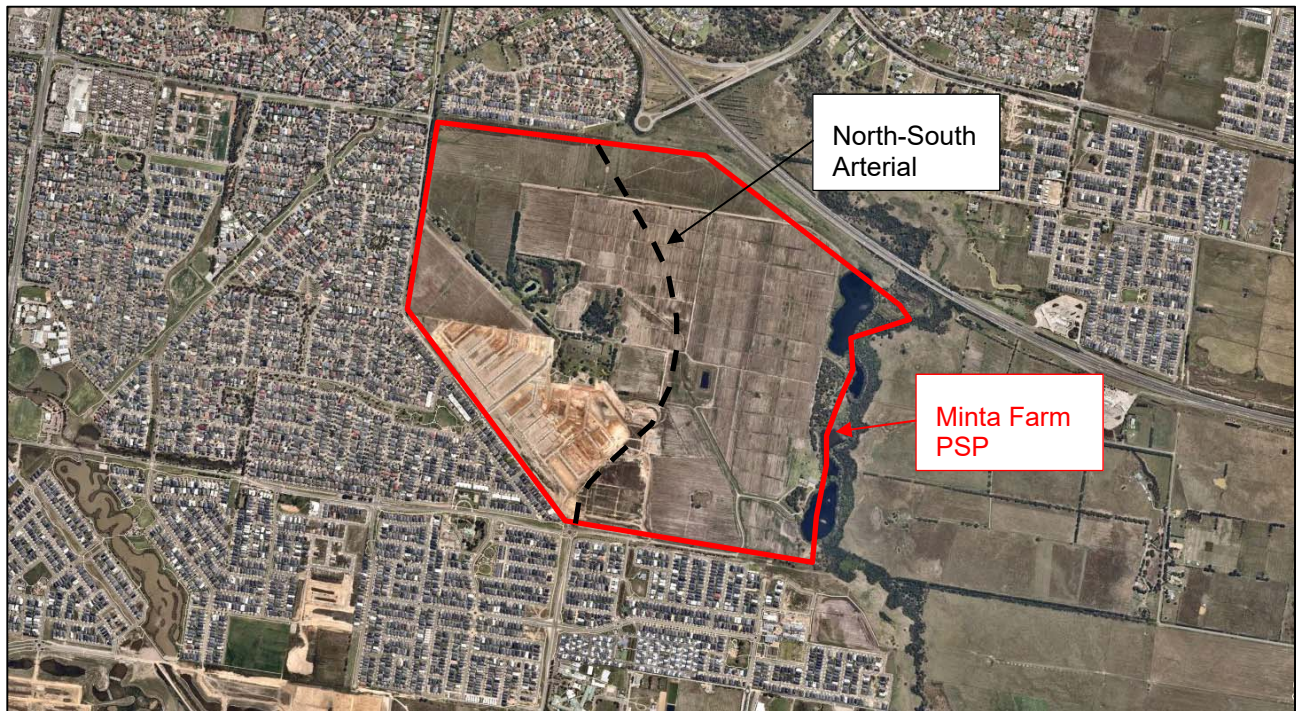
A locality plan and aerial image showing the Minta Farm Precinct and surrounds is presented below.

Figure 2-1 Locality Plan



Source: Melway Online

Figure 2-2 Aerial Image



Source: Nearmap (image dated 29 January 2020)

2.2 Planning History

2.2.1 Amendment C228 – Minta Farm PSP

2.2.1.1 Background Studies

As part of the background documentation prepared for the Minta Farm PSP, the following studies were prepared:

- > Strategic transport modelling for the ultimate scenario prepared by Cardno;
- > Interim traffic analysis prepared by Traffix Group; and
- > Ultimate concept layout plans for intersections and roads prepared by Traffic Works.

No strategic transport modelling was undertaken for the interim scenario (typically full build-out of the PSP, with 10 years growth to background traffic volumes), with the interim traffic analysis provided by Traffix Group focused on determining the level of development that could occur prior to the construction of the North-South Arterial.

2.2.1.2 Planning Panel

The transport related matters considered by the Planning Panel were predominately focused on the impact that development traffic from the Minta Farm PSP will have on existing congestion issues in the surrounding area prior to the delivery of the North-South Arterial, and the timing of the North-South Arterial within this context.

The Panel Report concluded the following with regard to the North-South Arterial:

- > *The north-south arterial road will play a critical role in the regional road network as well as providing access to the Precinct that will enable its development.*
- > *Early delivery of the north-south arterial road over its full length is essential. The objective should be to construct the road to at least an interim standard at the same time as the 2022 extension of O’Shea Road.*
- > *Some form of additional funding may be necessary to fund the interim construction of the road and its intersections to ultimate standard. A supplementary ICP levy may be the appropriate mechanism to provide sufficient funds.*

- > *Construction of the north-south arterial road to its ultimate standard as part of initial works would be beneficial, although this would require external funding as the PSP will only deliver it to an interim standard.*
- > *Construction of the north-south arterial should not be delayed (sic) an expectation that additional external funding might be found to construct the road to its ultimate standard.*
- > *The commitment by Stockland to vest upfront the land for the north-south arterial road is a positive approach.*
- > *Given the uncertainty about whether there will be sufficient funds in the ICP by 2022, a works in kind agreement with Stockland and the Minta Group should be pursued by Casey to provide greater certainty on the early delivery of this road.*
- > *A voluntary works in kind agreement could provide a basis for Casey to exercise its discretion in applying the lots cap.*
- > *The Amendment provides an adequate framework for the parties to resolve these issues.*

2.2.1.3 *Gazetted PSP*

The Minta Farm Precinct Structure Plan (PSP) prepared by the Victorian Planning Authority (VPA) was gazetted in January 2019 under Amendment C228 to the Casey Planning Scheme.

Requirement R94 of the gazetted PSP assigned a lot cap to the Precinct to incentivise the early delivery of the North-South Arterial, as follows:

- > *The north–south arterial road as funded by the Minta Farm ICP must be delivered prior to the subdivision of the 1,001st aggregate residential lot unless otherwise agreed in writing by the relevant road management authority.*

It is noted that the above requirement is intended to provide some flexibility in the application of the lot cap.

2.2.2 **Amendment C266 – Interim Minta Farm ICP**

An interim Minta Farm Infrastructure Contributions Plan (interim ICP) was gazetted in July 2019.

The interim ICP includes an ‘Early Delivery of Works’ (EDW) package for the North-South Arterial as follows:

- > *Financing first two lanes of North-South Arterial Road from IN-01 to IN-05 including:*
 - *IN-01*
 - *RD-01-04*
 - *IN-05*

In addition to the items covered by the EDW package, the interim ICP included intersection projects for IN-02, IN-03 and IN-04, as well as road projects to construct one additional southbound lane.

2.3 North-South Arterial Road Context

2.3.1 South-East Growth Corridor Plan

The South-East Growth Corridor Plan was published by the Growth Areas Authority (now VPA) in August 2012.

It shows the North-South Arterial extending south from O’Shea Road to Pound Road, where it branches into two arterial roads that maintain a standard arterial spacing south of Hardys Road. This ‘Y-junction’ is identified as an investigation area.

Within the Minta Farm PSP, the southern part of the North-South Arterial is identified as part of Principal Public Transport Network (PPTN), before travelling east-west at the approximate location of IN-03 and then heading north along Soldiers Road (PPTN is shown in yellow).

An excerpt from the South-East Growth Corridor Plan is presented below.

Figure 2-3 South-East Growth Corridor Plan Excerpt



2.3.2 Approved PSPs

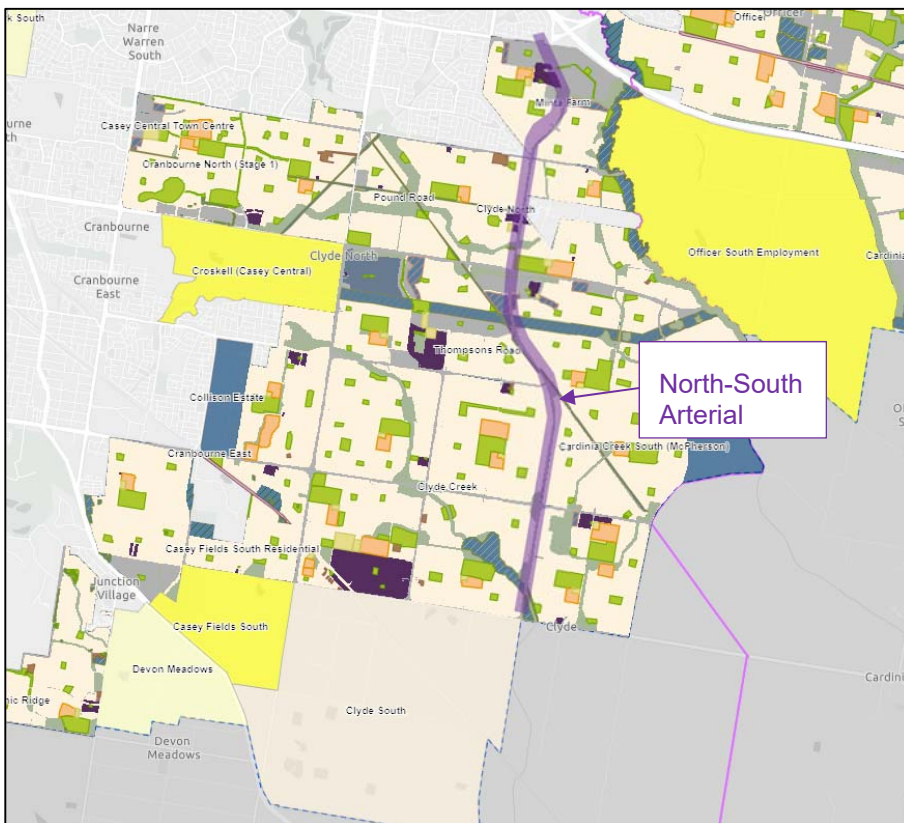
The alignment of the North-South Arterial has been refined via the approval of the various PSPs to the south of Minta Farm.

The current alignment extends south through the Minta Farm PSP, then follows a north-south alignment from Grices Road to Thompsons Road (partly along the existing Soldiers Road alignment), then curving to the south-east to follow the existing diagonal alignment of Pound Road, before finally following a north-south alignment (partly along the existing Bells Road alignment).

It is noted that the ‘Y-junction’ shown on the South-East Growth Corridor plan has been removed as part of the Thompsons Road PSP, with Tuckers Road meeting an east-west arterial connecting to the North-South Arterial.

The future alignment of the North-South Arterial Road within the approved PSPs is presented below.

Figure 2-4 Alignment of North-South Arterial



Source: VPA Interactive Status Map

2.4 O’Shea Road Extension

The upgrade of O’Shea Road from Clyde Road to Soldiers Road, and its extension from Soldiers Road to the Beaconsfield Interchange forms part of Stage 2 of the Monash Freeway Upgrade managed by Major Road Projects Victoria (MRPV).

The proposed works include:

- > The provision of three lanes in each direction along O’Shea Road;
- > Upgrade of the O’Shea Road / Soldiers Road intersection to traffic signals;
- > Upgrade of the Beaconsfield Interchange to a full diamond interchange by the addition of an inbound freeway off-ramp and an outbound freeway on-ramp; and
- > Shared user paths along O’Shea Road.

CPB Contractors have been awarded the construction contract for Stage 2 Monash Freeway Upgrade, which will begin in early 2020 and is scheduled to be completed in 2022.

The publicly available concept plans for the project are reproduced below.

Figure 2-5 O’Shea Road Upgrade and Extension – Moonadarra Drive to Kimbarra Drive

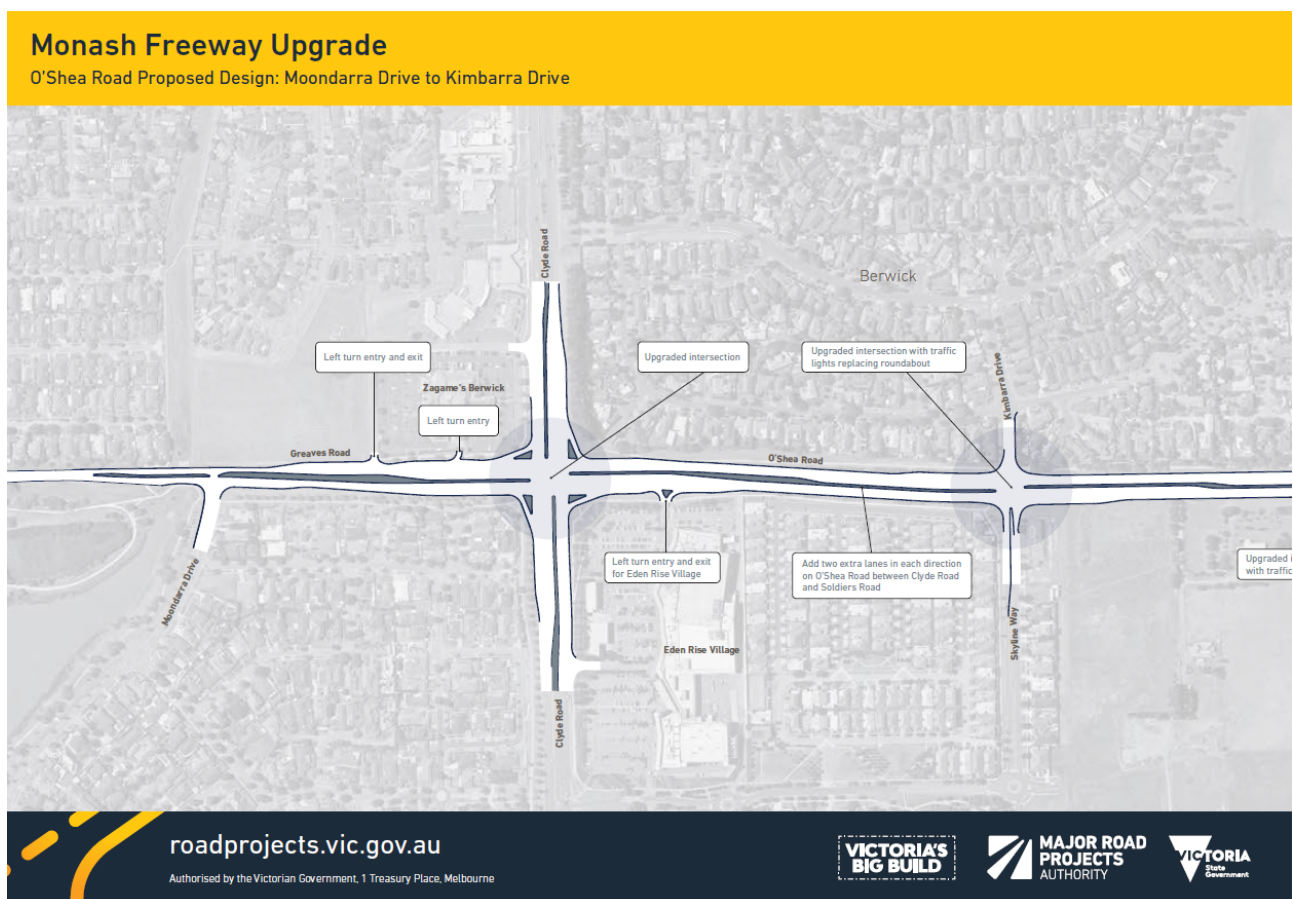


Figure 2-6 O'Shea Road Upgrade and Extension – Bridgewater Boulevard to Soldiers Road

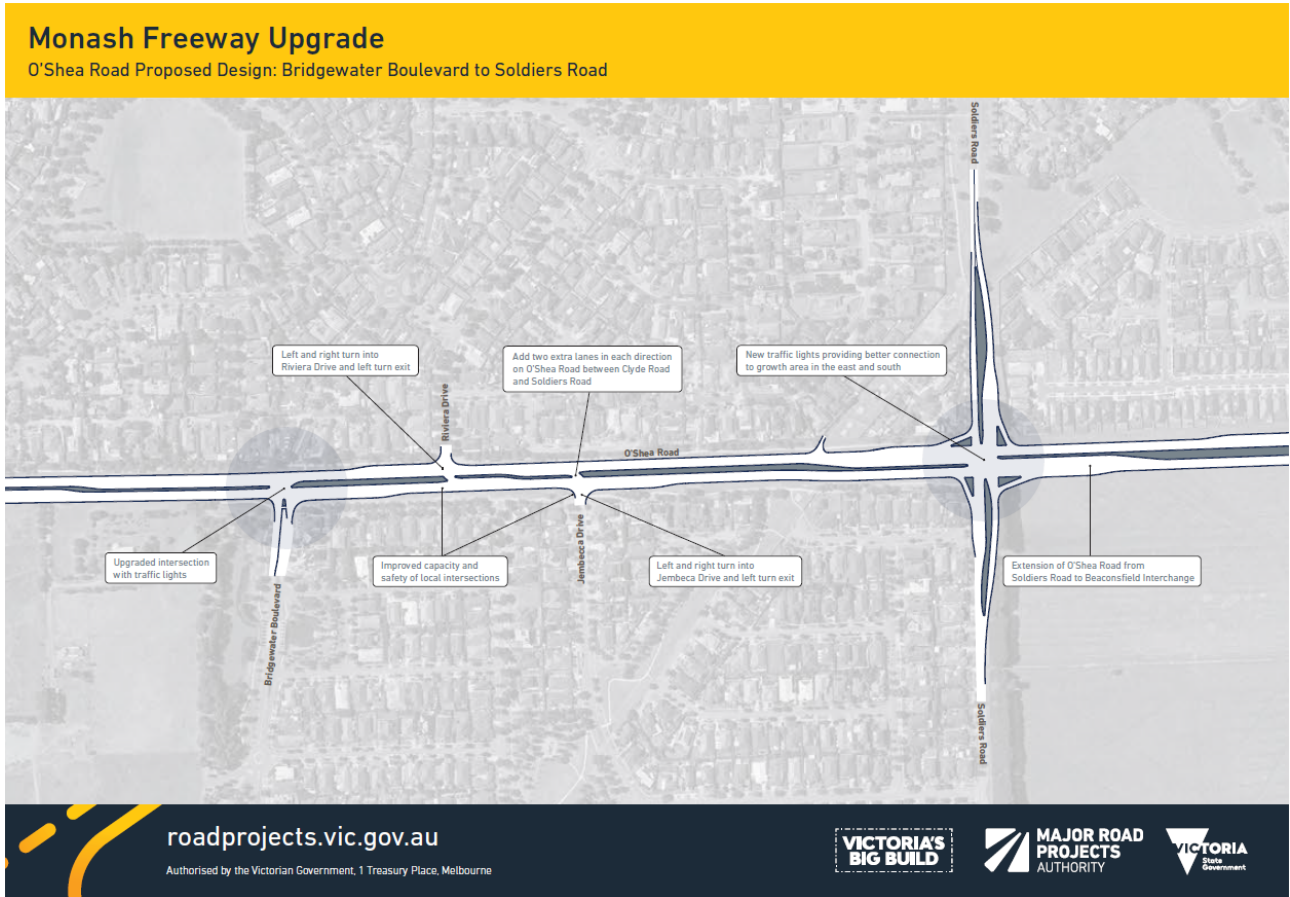
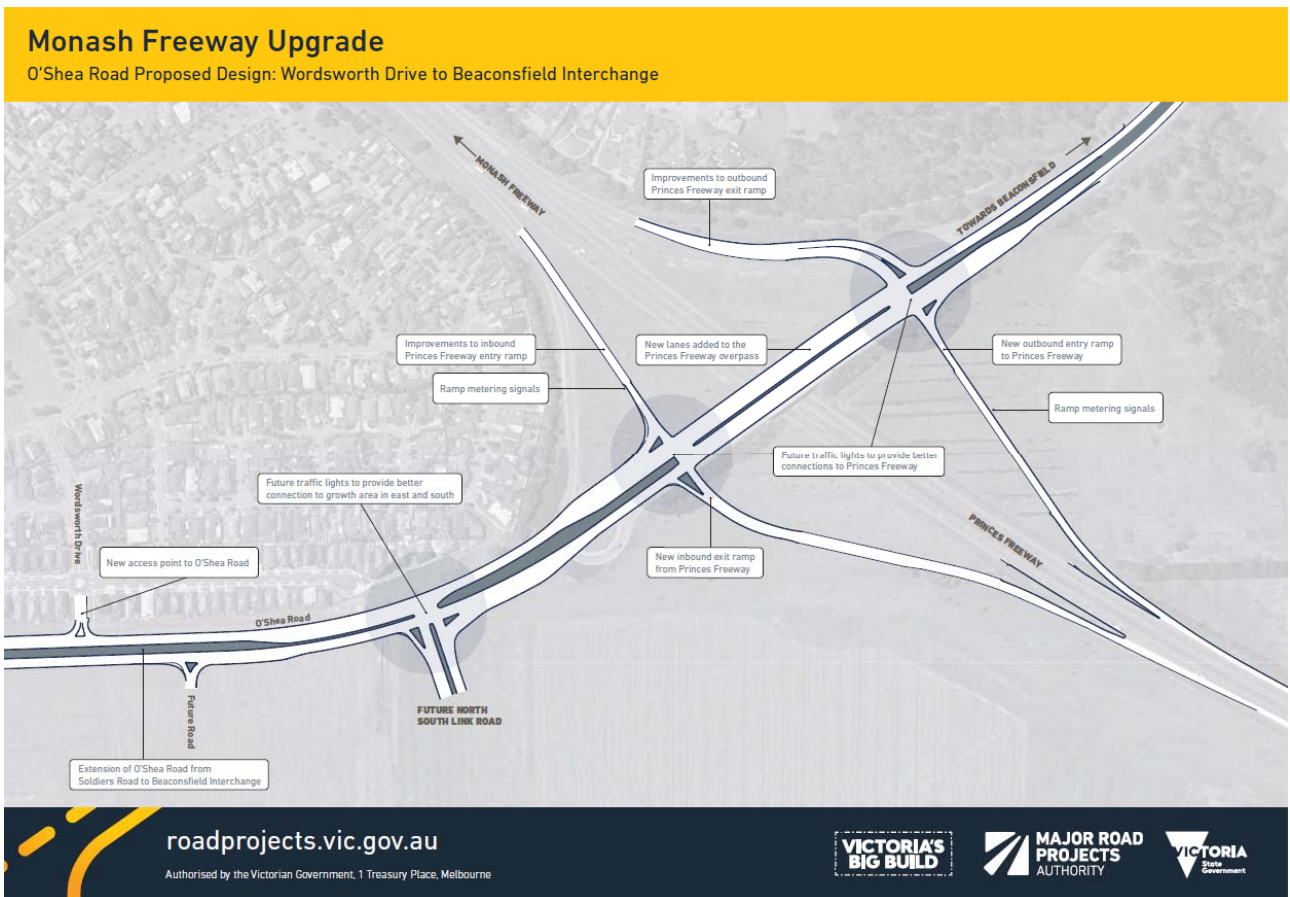


Figure 2-7 O'Shea Road Upgrade and Extension – Wordsworth Drive to Beaconsfield Interchange



3 Minta Farm PSP

3.1 Land Use

The precinct has a Net Developable Area (NDA) of 210.14 ha, inclusive of 144.7 ha for residential development (inclusive of town centre and mixed-use areas) and 65.44 ha for employment uses.

An estimated yield of 3,043 dwellings is predicted based on an average of 21 dwellings per net developable hectare.

Non-residential uses include:

- > A Local Town Centre located on the west side of the North-South Arterial (near IN-02), with an anticipated yield of 13,000 sq m retail floor area and 2,600 sq m commercial floor area.
- > A mixed-use sub-precinct located on the north side of the connector street connecting to IN-03 (east of the North-South Arterial) and on the south side of O’Shea Road (west of the North-South Arterial).
- > A commercial and office sub-precinct located on both sides of the North-South Arterial (from IN-01 to IN-03) and extending along O’Shea Road, bisected on the west side of the North-South Arterial by the Local Town Centre.
- > An innovation and technology business sub-precinct located to the east of North-South Arterial (separated by the commercial and office sub-precinct).

The Future Urban Structure plan is reproduced in Figure 3-6.

3.2 Future Street Network

The proposed North-South Arterial extends south from the future extension of O’Shea Road to Grices Road, where it will continue south to Bells Road through the Clyde North PSP, Thompsons Road PSP and Clyde Creek PSP areas.

The future extension of O’Shea Road is identified as a primary arterial along the northern boundary and Grices Road is identified as a secondary arterial along the southern boundary of the Precinct.

The arterial road network is supported by a network of connector streets and level 2 local access streets, including three east-west connector streets that intersect the North-South Arterial that facilitate access to the residential, retail and employment land uses within the Precinct.

Soldiers Road is identified as an existing connector street in the PSP. The PSP sets out that the southern end of Soldiers Road will be truncated as part of the construction of the North-South Arterial / Grices Road intersection (IN-05).

The Street Network Plan is reproduced in Figure 3-7, with the cross-sections are presented below.

Figure 3-1 Primary Arterial Cross-Section (North-South Arterial and O’Shea Road)

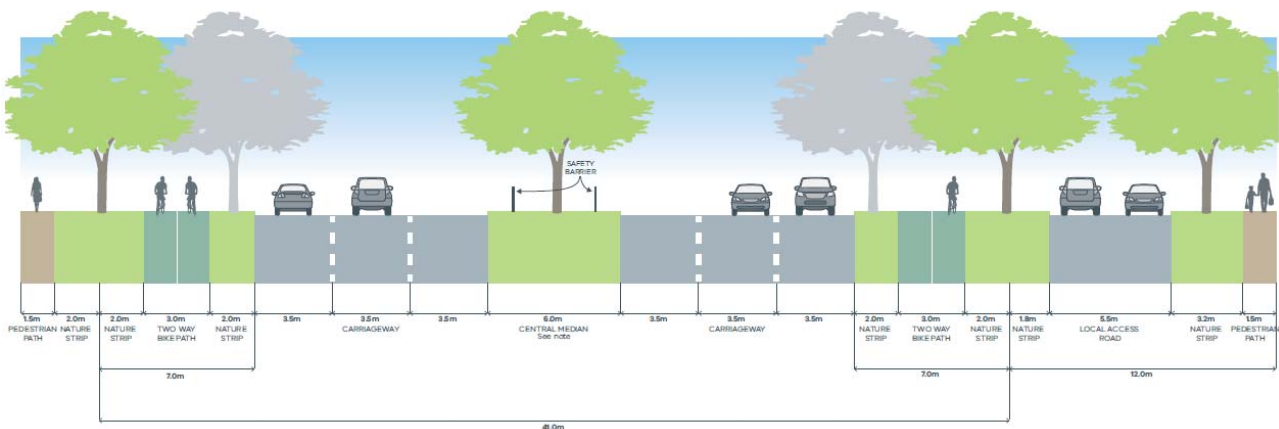


Figure 3-2 Secondary Arterial Cross-Section (Grices Road)

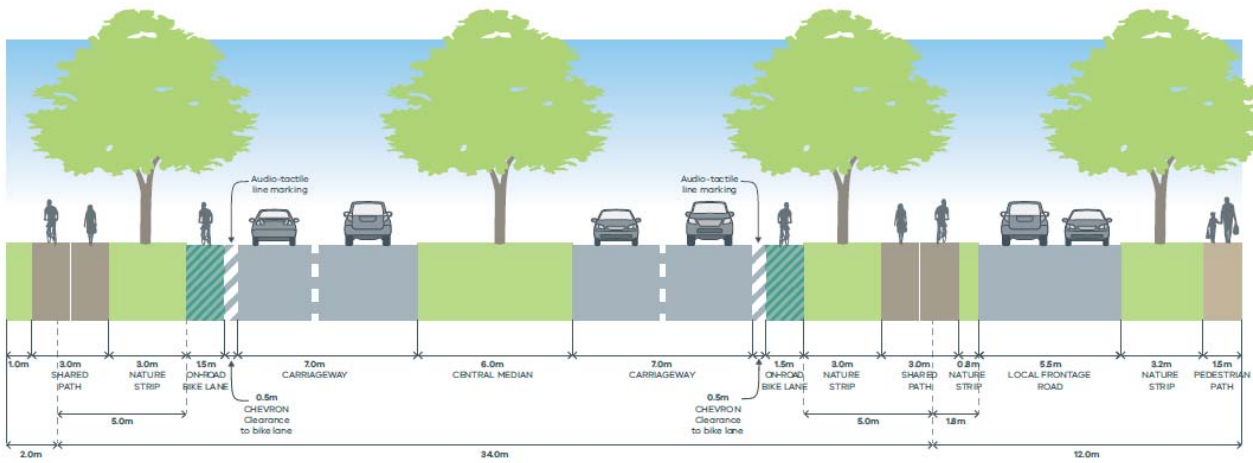


Figure 3-3 Boulevard Connector Street Cross-Section (west side of IN-02 and both sides of IN-03)

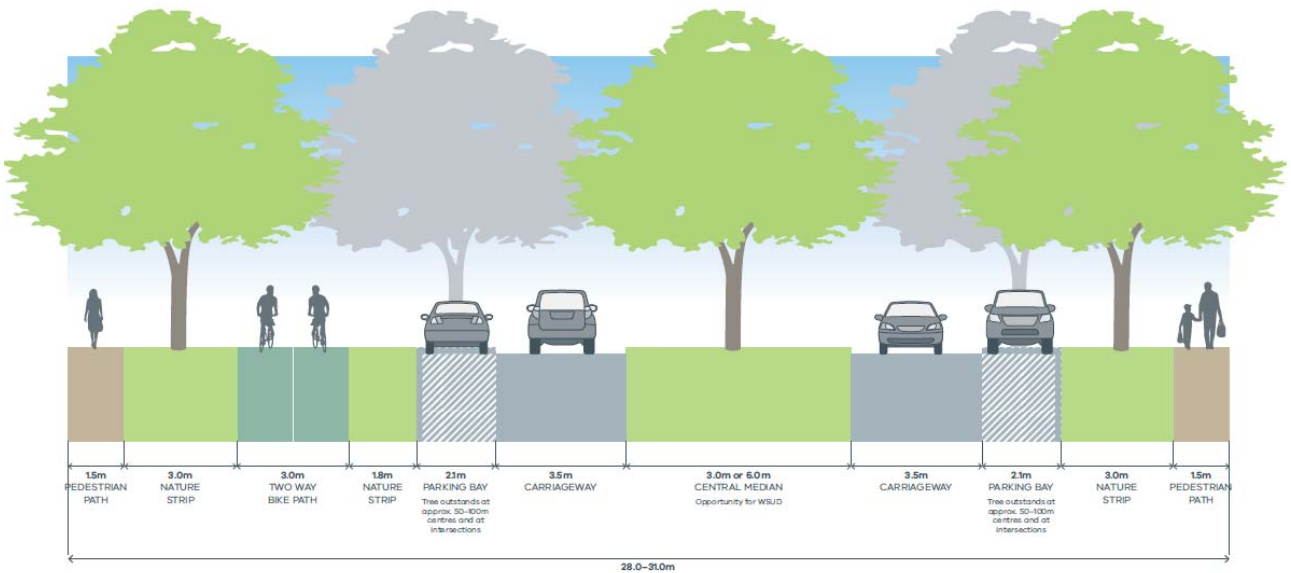


Figure 3-4 Industrial Boulevard Connector Street Cross-Section (east side of IN-02)

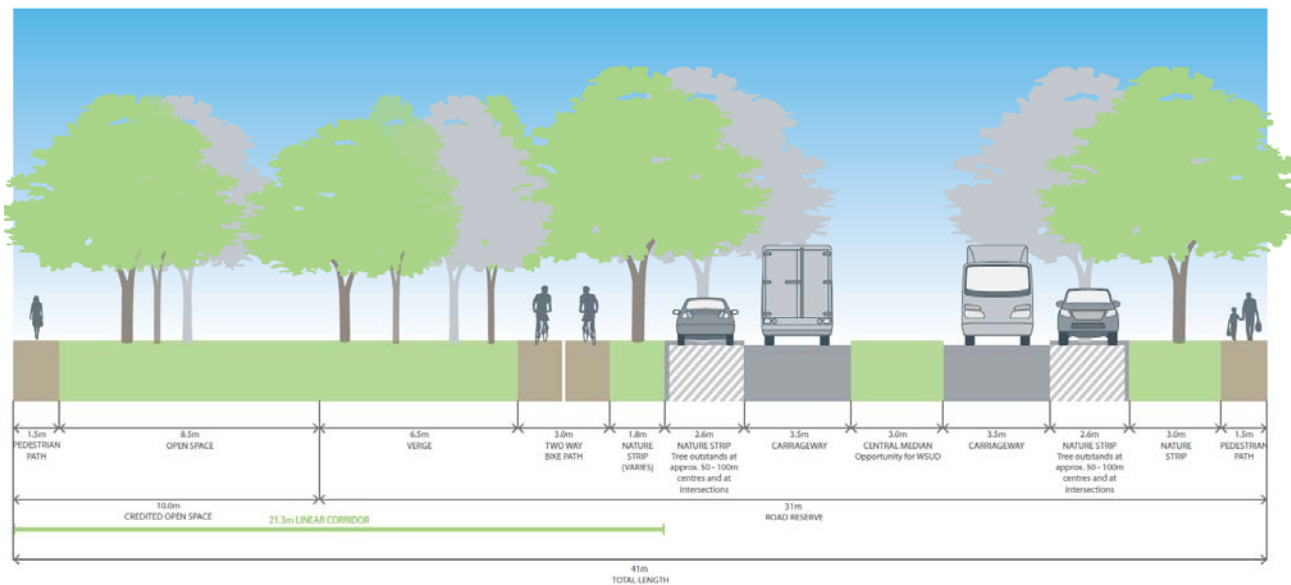
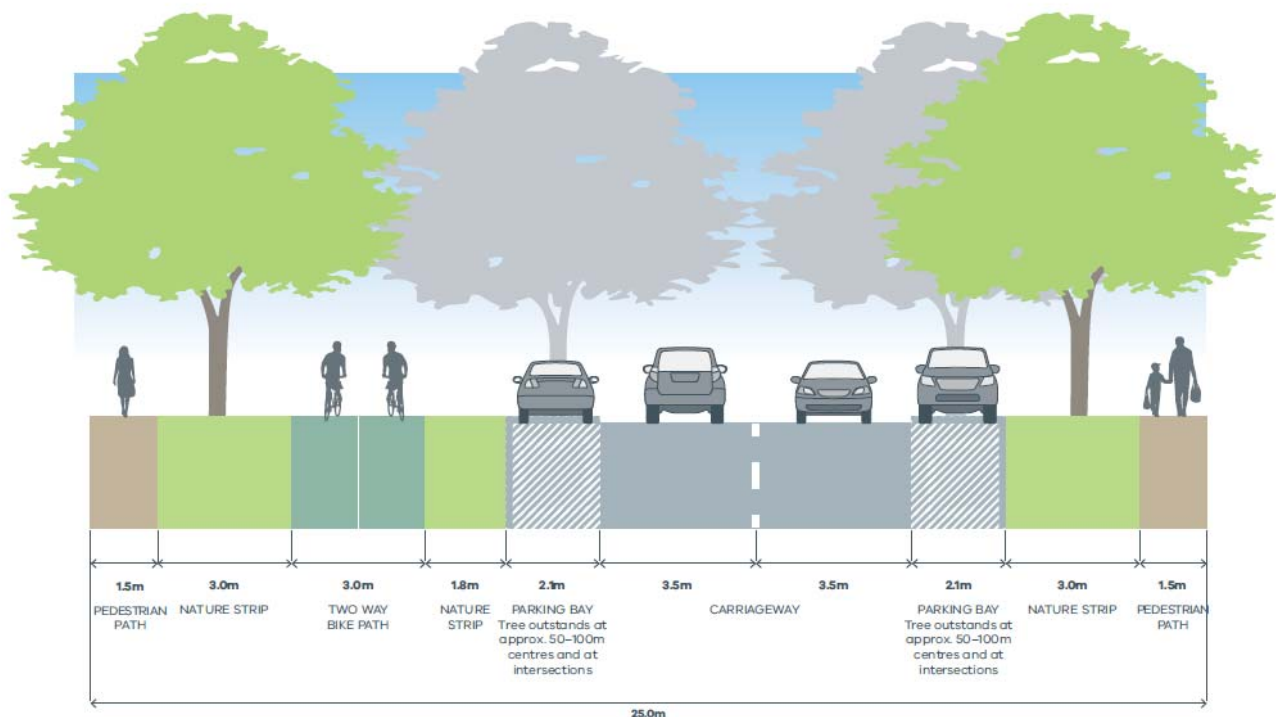


Figure 3-5 Residential Connector Street Cross-Section (both sides of IN-04)



3.3 Future Public Transport and Path Networks

3.3.1 Public Transport Network

The PSP identifies the arterial and connector streets as bus capable roads.

Soldiers Road is also identified as a bus capable road between O'Shea Road and Chase Boulevard.

3.3.2 Path Network

The exhibited PSP identifies the following bicycle and shared path infrastructure:

- > North-South Arterial – Off-road bicycle paths are shown on both sides of the North-South Arterial as per the exhibited primary arterial cross-section.
- > O'Shea Road – An off-road bicycle path is shown on the north side and an off-road shared path is shown on the south side.
- > Grices Road – On-road bicycle lanes and an off-road shared path along the northern side (PSP frontage) are shown along Grices Road.
- > Connector Streets – Off-road bicycle paths are identified along the connector streets (one side only);
- > Waterways – Off-road shared paths are identified along the constructed waterways adjacent to Cardinia Creek, with an equestrian trail also identified. A shared path bridge crossing of Cardinia Creek into the future Officer South Employment PSP is also identified mid-way along the eastern boundary of the precinct.

The Public Transport and Path Network Plan is reproduced in Figure 3-8.

3.4 Precinct Infrastructure Plan – Transport Projects

The PSP includes the following transport projects in the PIP to be funded by the Minta Farm ICP.

3.4.1 North-South Arterial (RD-01, RD-02, RD-03 & RD-04)

- > *Provision of land for a 6-lane arterial road reserve (ultimate treatment); and*
- > *Construction of 2-lane carriageway (interim treatment).*

3.4.2 North-South Arterial / O’Shea Road (IN-01)

- > *Provision of land (ultimate treatment); and*
- > *Construction of a primary-to-primary signalised T-intersection (interim treatment).*

3.4.3 North-South Arterial / East-West Connector (North) (IN-02)

- > *Provision of land (ultimate treatment); and*
- > *Construction of an arterial to connector signalised 4-way intersection (interim treatment).*

3.4.4 North-South Arterial / East-West Connector (Central) (IN-03)

- > *Provision of land (ultimate treatment); and*
- > *Construction of an arterial to connector signalised 4-way intersection (interim treatment).*

3.4.5 North-South Arterial / East-West Connector (South) (IN-04)

- > *Provision of land (ultimate treatment); and*
- > *Construction of an arterial to connector signalised 4-way intersection (interim treatment).*

3.4.6 North-South Arterial / Grices Road (IN-05)

- > *Provision of land (ultimate treatment); and*
- > *Construction of a Signalised intersection (interim), including truncation of Soldiers Road and addition of new northern leg (interim treatment), to connect to the north–south arterial Road.*

3.4.7 Early Delivery Works

- > *The financing costs associated with the early delivery of the north–south arterial road (interim).*

3.4.8 Cardinia Creek Shared Pedestrian and Cyclist Bridge (BR-01)

- > *Construction of a shared pedestrian and cyclist bridge over Cardinia Creek.*

The PIP notes that BR-01 will be apportioned 50% to Minta Farm PSP and 50% to the (future) Officer South Employment PSP.

3.4.9 O’Shea Road Pedestrian Signals (PS-01)

- > *Construction of pedestrian operated signals along O’Shea Road at Wordsworth Drive.*

The PIP notes that PS-01 will be apportioned 50% to Minta Farm PSP and 50% to Casey City Council.

The Precinct Infrastructure Plan outlined is reproduced in Figure 3-9.

Figure 3-6 Gazetted PSP – Future Urban Structure Plan

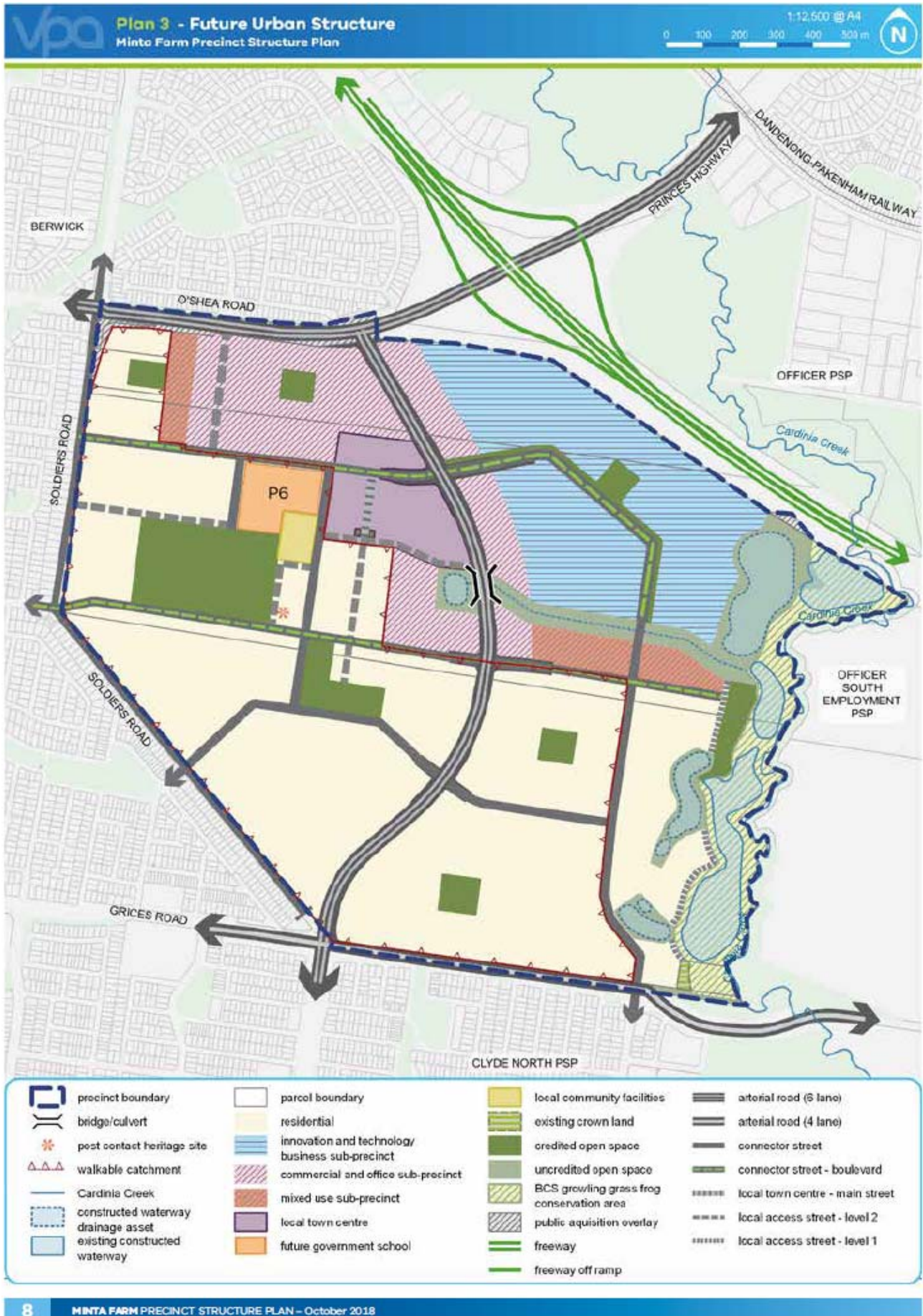


Figure 3-7 Gazetted PSP – Street Network Plan

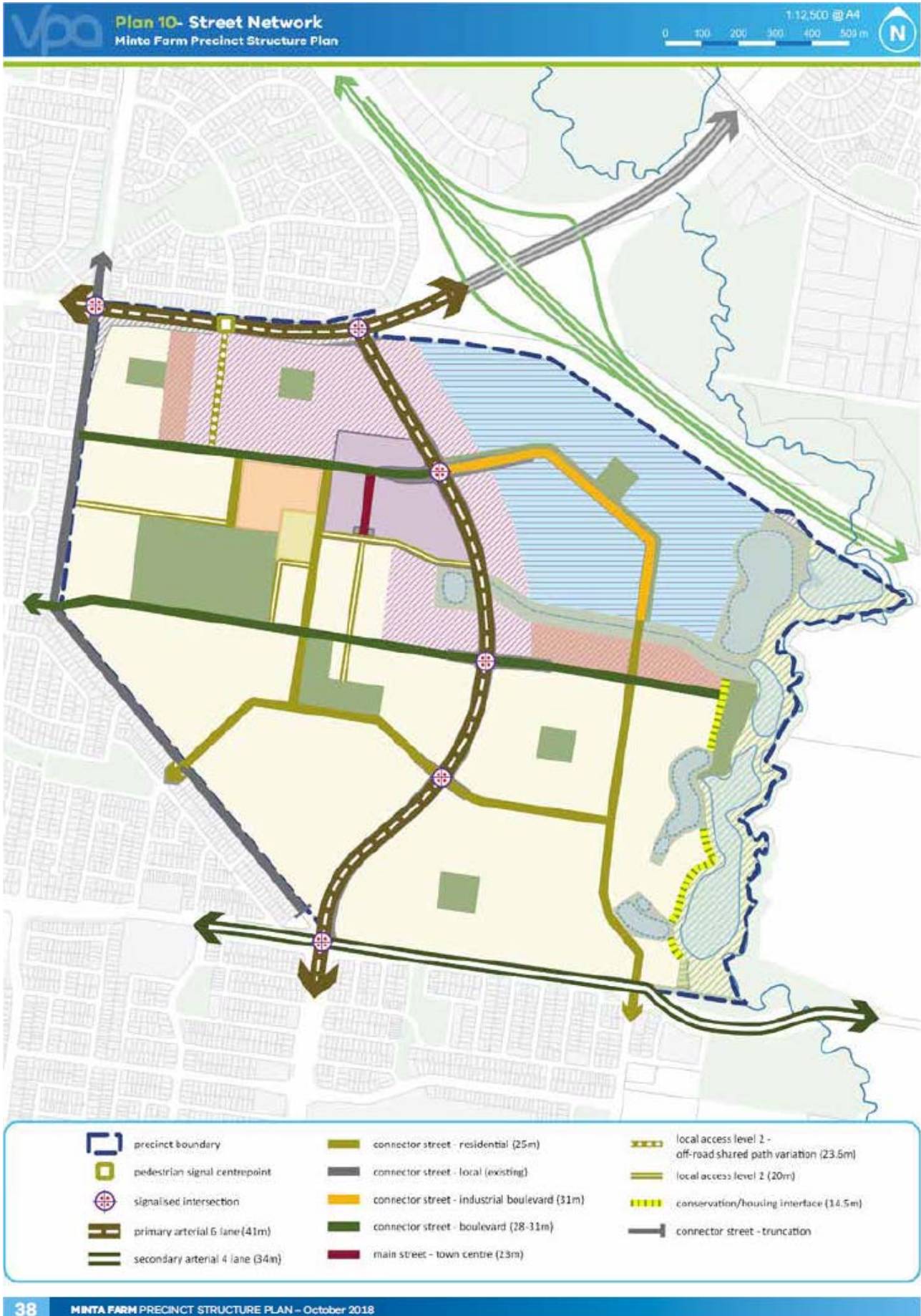


Figure 3-8 Gazetted PSP – Public Transport and Path Network Plan

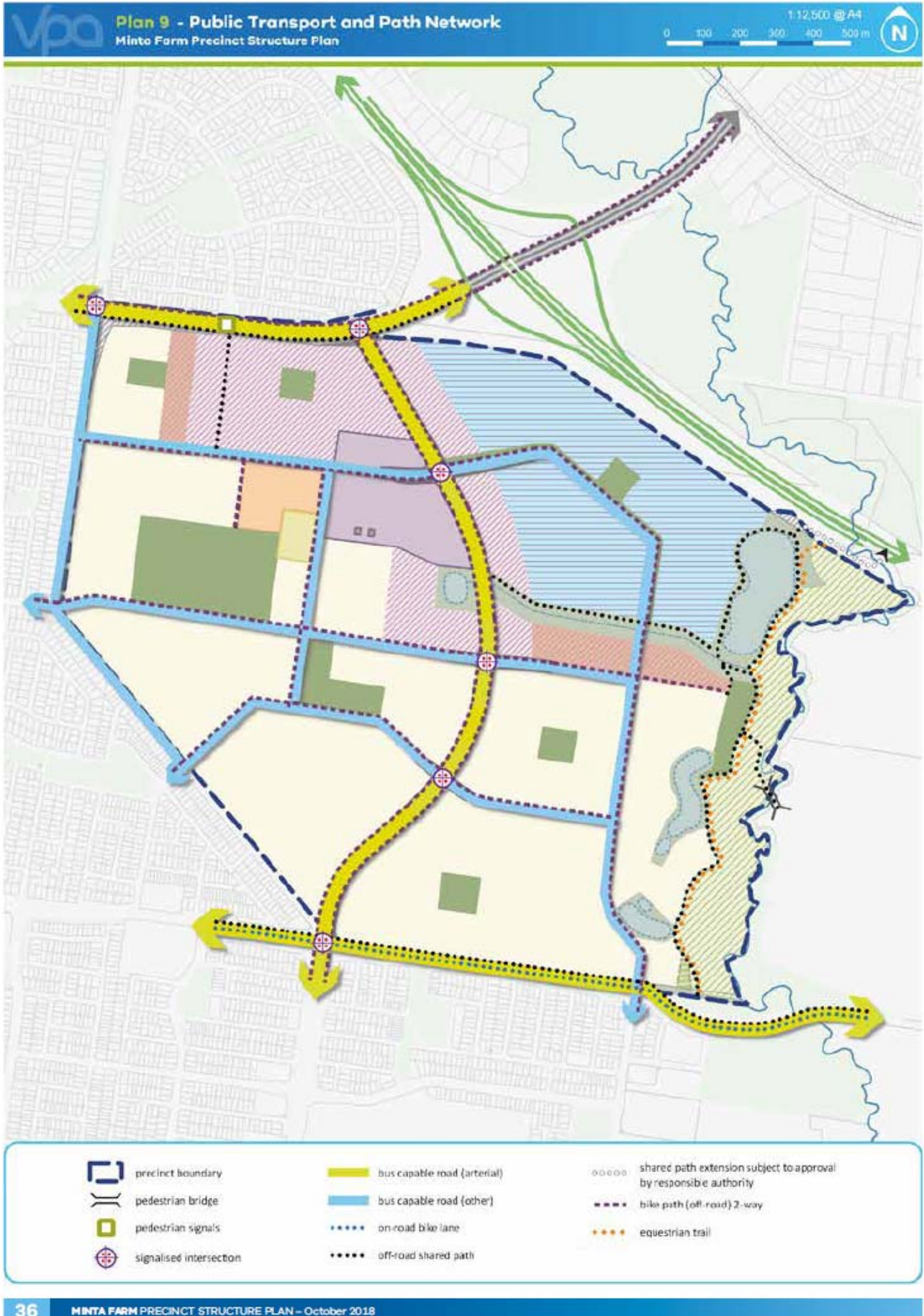
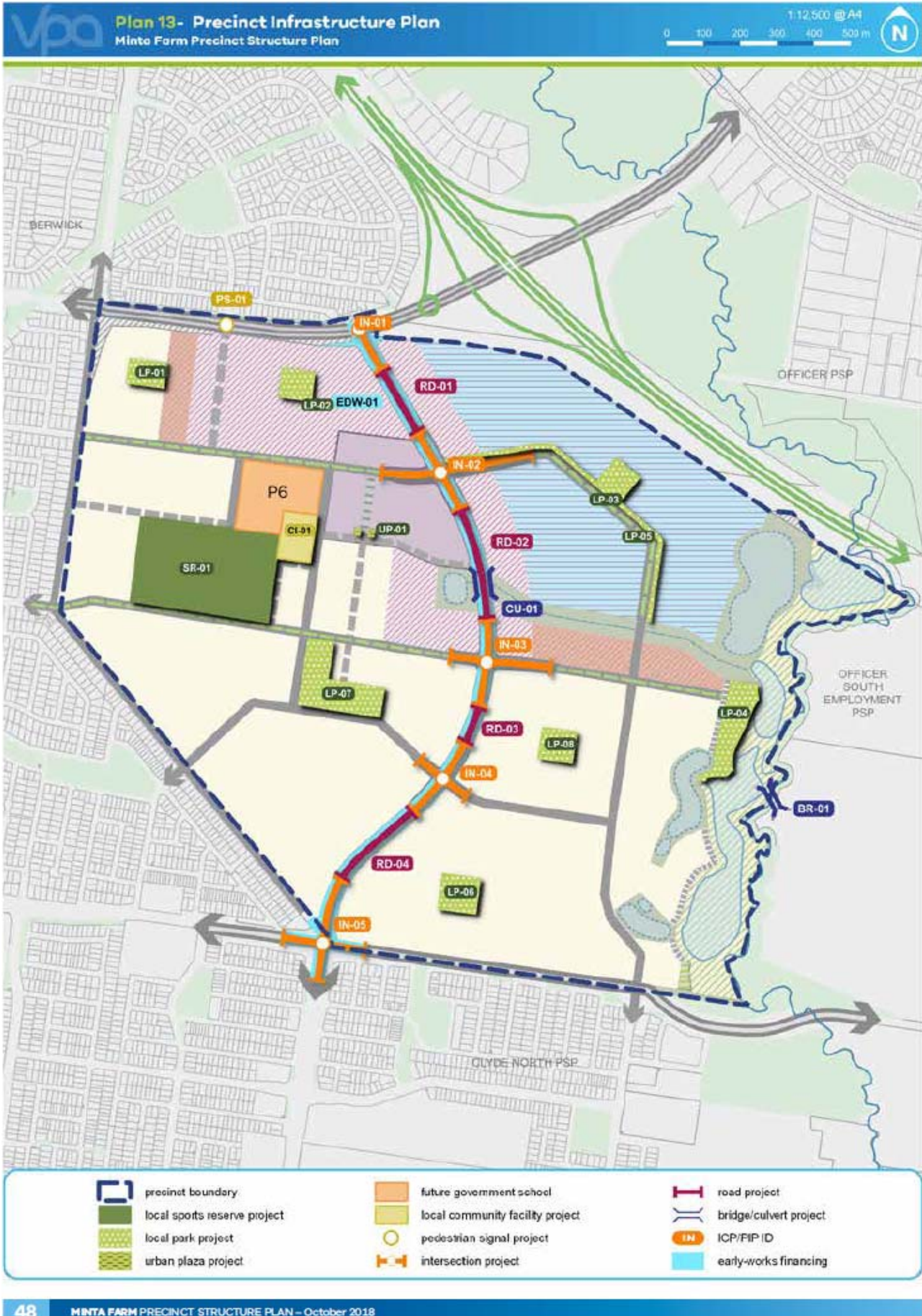


Figure 3-9 Gazetted PSP – Precinct Infrastructure Plan



4 Amendment C269 to the Casey Planning Scheme

4.1 Exhibited ICP

Amendment C269 to the Casey Planning Scheme proposes to introduce an Infrastructure Contributions Plan (ICP) that applies to land affected by the Minta Farm PSP.

If approved, this ICP will replace the 'interim' ICP incorporated in the Casey Planning Scheme.

The Amendment also seeks to apply a Public Acquisition Overlay in favour of Casey City Council for the alignment of the North-South Arterial to allow for its early acquisition to facilitate the Early Delivery of Works package.

The exhibited Minta Farm ICP includes the following transport projects:

- > EDW-01 – Early Delivery of Works (EDW). Financing first two lanes of North-South Arterial Road from IN-01 to IN-05 including:
 - IN-01 (EDW) – Intersection: O'Shea Road/North-South Arterial Road. Construction of a primary arterial to primary arterial T-signalised intersection (interim treatment).
 - RD-01-04 (EDW) – North-South Arterial Road. Construction of 1 through lanes in each direction (Interim treatment).
 - IN-05 (EDW) - Intersection: North-South Arterial Road/Grices Road. Construction of a modification to an existing intersection, including truncation of Soldiers Road and addition of new northern leg (interim treatment), to connect to the north south arterial road.
- > IN-02 – Intersection: North-South Arterial Road/East-West Connector (North). Construction of a primary arterial to connector signalised 4-way intersection (interim treatment).
- > IN-03 – Intersection: North-South Arterial Road/East-West Connector (Central). Construction of a primary arterial to connector signalised 4-way intersection (interim treatment).
- > IN-04 – Intersection: North-South Arterial Road/East-West Connector (South). Construction of a primary arterial to connector signalised 4-way intersection (interim treatment).
- > RD-01 – North-South Arterial Road. Construction of 1 additional southbound through lane to support IN-01 and IN-02 (Interim treatment).
- > RD-02 – North-South Arterial Road. Construction of 1 additional southbound through lane to support IN-02 and IN-03 (Interim treatment).
- > RD-04 – North-South Arterial Road. Construction of 1 additional southbound through lane to support IN-04 and IN-05 (Interim treatment).
- > PS-01 – Pedestrian Signals. Construction of pedestrian operated signals along O'Shea Road at Wordsworth Drive.
- > CU-01 – Culvert. Construction of culvert crossing over the constructed waterway.
- > BR-01 – Bridge. Construction of a shared pedestrian and cyclist bridge over Cardinia Creek

Plans and costings prepared by Cardno are attached to the exhibited PSP.

The functional layout plans for the intersections are based on the interim plans prepared by Traffix Group dated 31 August 2018 that are attached to the gazetted PSP.

The Cardno plans expanded upon the Traffix Group plans by considering the sequencing of works for the north-south arterial as follows:

- > Early Delivery Works comprised of IN-01 and IN-05 with a single two-lane carriageway connecting the intersections (V181544-CI-DG-0101-1 and V181544-CI-DG-0102-1);
- > Stage 2 Works that consider the delivery of IN-04 after the Early Delivery Works (V181544-CI-DG-0201-1 and V181544-CI-DG-0202-1);

- > Stage 3 Works that consider the delivery of IN-03 after the Early Delivery Works and IN-04 (V181544-CI-DG-0301-1 and V181544-CI-DG-0302-1); and
- > Stage 4 Works that consider the delivery of IN-02 after the Early Delivery Works, IN-04 and IN-03 (V181544-CI-DG-0401-1 and V181544-CI-DG-0402-1).

The plans were based on an 80km/h design speed, which resulted in the tapers for the intersections overlapping. Consequently, the typical mid-block interim single (two-lane) carriageway that is normally provided when designing interim ‘outside-in’ intersections was not able to be achieved resulting in the need to provide an additional southbound lane in a boulevard configuration between each intersection.

I note that the timing and sequencing of intersections IN-02, IN-03 and IN-04 is not confirmed and ultimately subject to development progress by the respective developers within the Precinct.

It is probable that IN-04 will be constructed prior to IN-02 and IN-03 as Stockland have commenced development in the vicinity of the intersection, however, I am of the view that plans prepared for an ICP should be ‘agnostic’ regarding the timing and sequencing of intersections, unless a specific package is included within the ICP (e.g. the Early Delivery of Works package).

Accordingly, I generally favour an approach that considers each intersection individually as a stand-alone ‘outside-in’ intersection (unless extenuating circumstances exist), with any resulting overlap between intersections a development implementation issue.

4.2 Circulated Plans (March 2020)

4.2.1 Background

Following consultation with VPA, DoT and Casey City Council in early 2020, it was agreed that the interim design speed for the North-South Arterial should be 60km/h (as opposed to the 80km/h design speed previously adopted), which resulted in the need to revise turn lane and taper lengths for the interim intersection layouts.

Consequently, amended plans were prepared and circulated by Cardno in March 2020. A copy of the plans are attached at Appendix A.

Our amended plans adopted the ultimate layout for the North-South Arterial and associated intersections that had been prepared by Traffix Group dated 21 September 2018 as the underlying base plan. A copy of the Traffix Group plans is attached at Appendix B.

I understand that the ultimate layout was developed in consultation and agreement with VPA and DoT and were based on first principles SIDRA assessments prepared by Traffix Group.

4.2.2 Design Methodology

The amended interim concept layout plans were based on the following assumptions:

- > The delivery of IN-01 and IN-05 with a single two-lane carriageway along the west side of the North-South Arterial reserve as part of the early delivery works;
- > Subsequent delivery of IN-02, IN-03 and IN-04 independently as ‘outside-in’ designs; and
- > Adoption of a 60km/h design speed for the North-South Arterial.

The specific design methodology adopted for the connector street legs, the north-south arterial, O’Shea Road, Grices Road and Soldiers Road are detailed below.

4.2.3 Connector Street Legs

It is noted that the lane configuration of the connector street legs of IN-02, IN-03 and IN-04 shown on the Traffix Group ultimate layout differ from a ‘template’ approach that is sometimes adopted for ultimate layout plans.

Based on my review of the strategic transport modelling for the ultimate scenario previously undertaken by Cardno, it is clear that the North-South Arterial will ultimately carry sizable traffic volumes (approx. 47,500 vpd between IN-01 and IN-02) justifying its status as a future 6-lane primary arterial.

The connector street volumes are also predicted to be generally high, with volumes up 11,000vpd predicted on east leg of IN-02 in the VITM model.

Whilst strategic transport modelling for the interim scenario was not undertaken, I would expect that there would be minimal change to the connector street volumes given the lack of connectivity to the north (Princes Freeway) and the east (Cardinia Creek). I would also expect a corresponding reduction in volumes on the North-South Arterial due to the reduction in the number of lanes (2-lanes compared to 6-lanes).

Accordingly, I would expect the connector legs would receive a similar amount of green time per cycle under interim conditions, meaning that the required lane configuration for the connector legs in the interim scenario would be broadly similar to the ultimate scenario.

In addition, works for an interim to ultimate upgrade (i.e. duplication) would generally only occur on the arterial road and it would be unusual to undertake extensive upgrades of connector legs as part the ultimate upgrade,

Consequently, I am of the opinion that the ultimate lane configuration shown on the Traffix Group ultimate plans should be adopted for the ICP interim layouts, which has been incorporated into the amended plans.

4.2.4 North-South Arterial

The lane configurations for the North-South Arterial for each intersection were based on VicRoads' Guidance for Planning Road Networks in Growth Areas and the VPA Benchmark Infrastructure Costing plans for a primary arterial / connector street intersection.

The following lane configurations have been adopted:

- > At IN-02, IN-03, IN-04 and IN-05, single left and right turns are provided with two through lanes tapering back to a single through lane. The length of the left turn lane has been extended to match the ultimate given that it is the outside kerb.
- > For the southern leg of IN-05, the two through lanes (both approach and departure) carry through to the existing signalised intersection to the south (Viewbright Road) due to the close proximity of the intersections and the need to match existing conditions.
- > For the western leg of IN-05, the alignment matches back to existing conditions as opposed to a 'template' ultimate alignment of this leg.
- > For the northern leg of IN-02, a boulevard cross-section has been provided to match into IN-01 that will be delivered first as part of the Early Delivery of Works package (effectively forming a known existing condition for this intersection) due to there being insufficient space to taper both intersections back to mid-block.
- > At IN-01, double right turn lanes and a left turn lane has been provided on the North-South Arterial. On O'Shea Road, a six-lane cross-section has been adopted as per MRPV's reference design (on the basis that MRPV would have delivered a 6-lane cross-section regardless of the Minta Farm PSP), with single left and right turn lanes have been provided for the interim plan.
- > At IN-02, slip lanes have been provided on the north-west and north-east corners. The slip lane on the north-west corner is shown on the ultimate layout plan and is required for intersection capacity at ultimate conditions. The slip lane on the north-east corner is a new addition to the plans and is based on east leg being an industrial connector, which would normally be required to provide slip lanes as per Table 4-2 of VicRoads' Guidance for Planning Road Networks in Growth Areas. A slip lane is not as necessary on the south-east corner as the majority of the traffic to the employment area is expected to be to/from the north (i.e. the Beaconsfield Interchange).

It is noted that the intersection tapers of the southern leg of IN-03 and the northern leg of IN-04 overlap, meaning the delivery of the second of these intersections will be required construct a carriageway on the eastern side of the North-South Arterial as a boulevard treatment to match into the first of these intersections to be delivered.

Figure 4-1 Extent of IN-03 Southern Leg

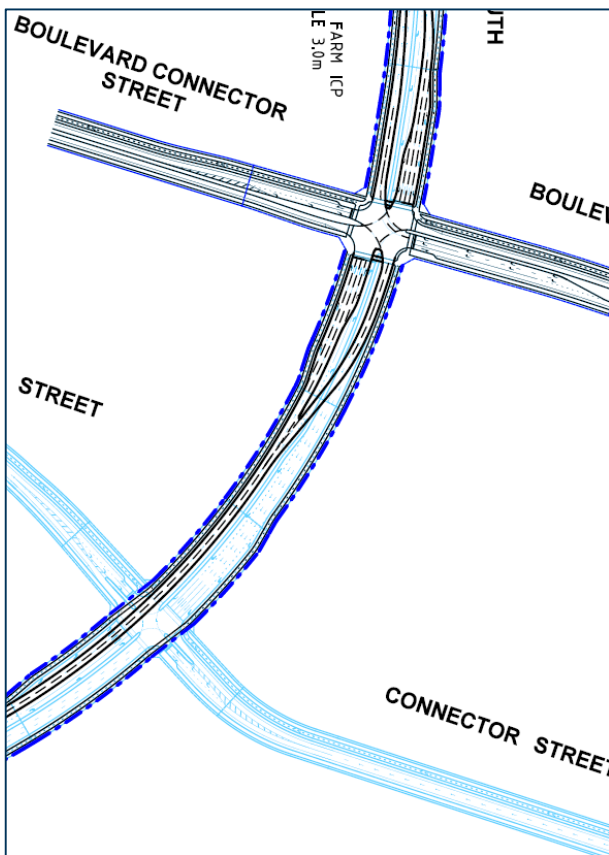
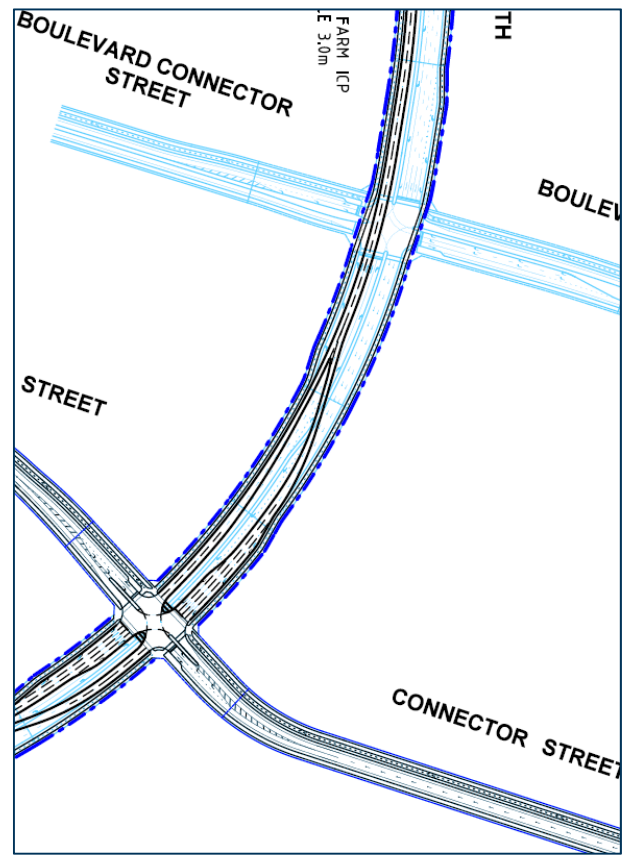


Figure 4-2 Extent of IN-04 Northern Leg



A comparison of the taper extents for these intersections against the stand-up lanes on the approach and departure sides on IN-04 and IN-03 respectively, indicates that the additional scope of works to provide this treatment for the delivery of the second intersection is not excessive (effectively the taper gets replaced with a straight carriageway of slightly longer length).

Overall, I am satisfied that this issue is able to be addressed satisfactorily at delivery of the second intersection and that the concept plans for the ICP do not need to consider alternative staging options for this pair of intersections.

4.2.5 Soldiers Road

The amended plans propose to terminate Soldiers Road just north of Grices Road via a court bowl treatment in a similar manner to previous plans.

I consider this to be a sensible treatment and will reduce volumes on Soldiers Road (south of O’Shea Road) back to levels more consistent with a connector street.

5 Review of Submissions

5.1 Stockland

Stockland’s submission includes alternative concept layout plans for the North-South Arterial prepared by Ratio Consultants.

The Ratio plans propose ‘compact’ intersections at IN-02, IN-03 and IN-04 and retention of the existing roundabout at IN-05.

It has been standard practice for some time to generally adopt ‘outside-in’ intersection in Melbourne’s growth areas, with ‘compact’ intersections only considered in extenuating circumstances, particularly where land constraints for the ultimate road reserve exist.

In this case, the full reserve width of the North-South Arterial is expected to be acquired for the Early Delivery of Works package via the PAO. Accordingly, there is unlikely to be any constraints in delivering typical 'outside-in' intersections as proposed on the amended Cardno plans.

With regard to the retention of the existing roundabout at IN-05, this intersection is clearly identified as a signalised intersection in the gazetted PSP and interim ICP. In any case, a future primary arterial / secondary intersection within Melbourne's growth areas would commonly be signalised and I don't see any particular extenuating circumstances why the existing roundabout should be retained instead of upgraded to a signalised intersection.

Overall, I am of the opinion that the Ratio plans are inconsistent with current practice and there are insufficient constraints evident or appropriate design rationale for the variations sought.

6 Conclusions

Having undertaken a traffic engineering assessment of the proposed functional layout plans for the Minta Farm ICP, I am of the opinion that:

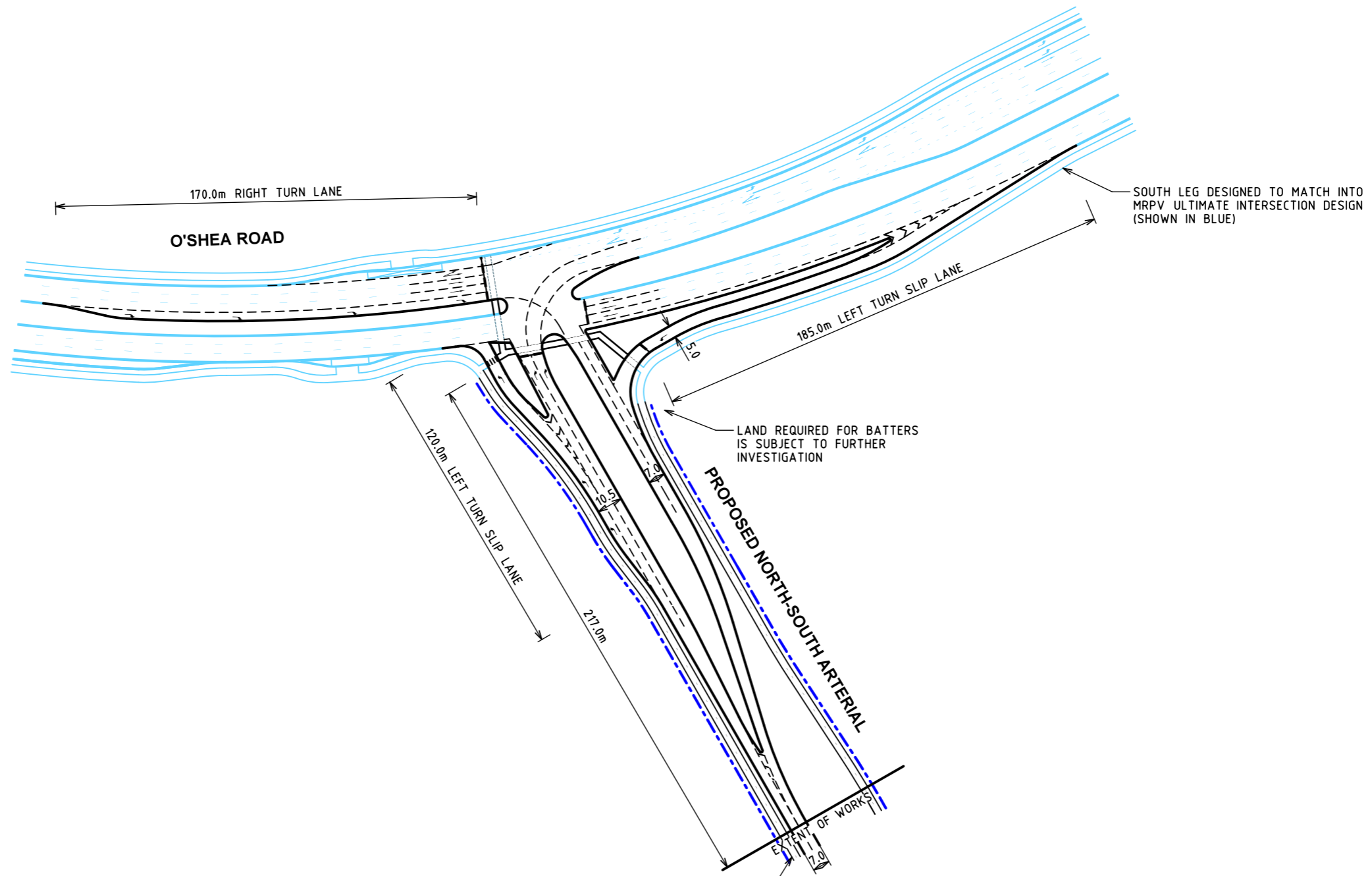
- > The functional layout plans prepared by Cardno in March 2020, are appropriate to adopt for the costing of intersections for the ICP and to provide guidance for their future construction;
- > A 60km/h interim design speed (as adopted in the amended plans circulated in March 2020) is appropriate and consistent with current practice for interim arterials within Melbourne's growth areas;
- > The lane configuration along the North-South Arterial is generally consistent with VicRoads' Guidance for Planning Road Networks in Growth Areas and the VPA Benchmark Infrastructure Costing plans;
- > The adoption of the ultimate lane configuration of the connector street legs for the interim plans is appropriate given:
 - Traffic volumes on the connector legs will be generally consistent between interim and ultimate scenarios; and
 - It would be unusual to undertake extensive upgrade works to a connector leg as part of the future upgrade (i.e. duplication of the North-South Arterial).
- > It would be appropriate to treat IN-02, IN-03 and IN-04 as independent projects with the ICP being 'agnostic' regarding the timing and sequencing of these intersections;
- > The overlap of the tapers for IN-03 and IN-04 can be addressed as an implementation issue during detailed design for the second intersection to be delivered;
- > The inclusion of a left turn slip lane on the north-east corner of IN-02 is appropriate for an industrial connector street and consistent with VicRoads guidelines;
- > The termination of Soldiers Road at IN-05 is appropriate to reduce traffic volumes on Soldiers Road (south of O'Shea Road) to levels more consistent with a local connector street;
- > The Ratio plans that are included in the Stockland submission are inconsistent with current practice and there is insufficient constraints or design rationale for the variations sought.

Amendment C269 to the Casey Planning
Scheme (Minta Farm ICP)

APPENDIX

A

AMENDED PLANS (MARCH 2020) PREPARED BY CARDNO



COSTINGS FOR MINTA FARM
ICP PROVIDE FOR SINGLE
3.0m BIKE PATH



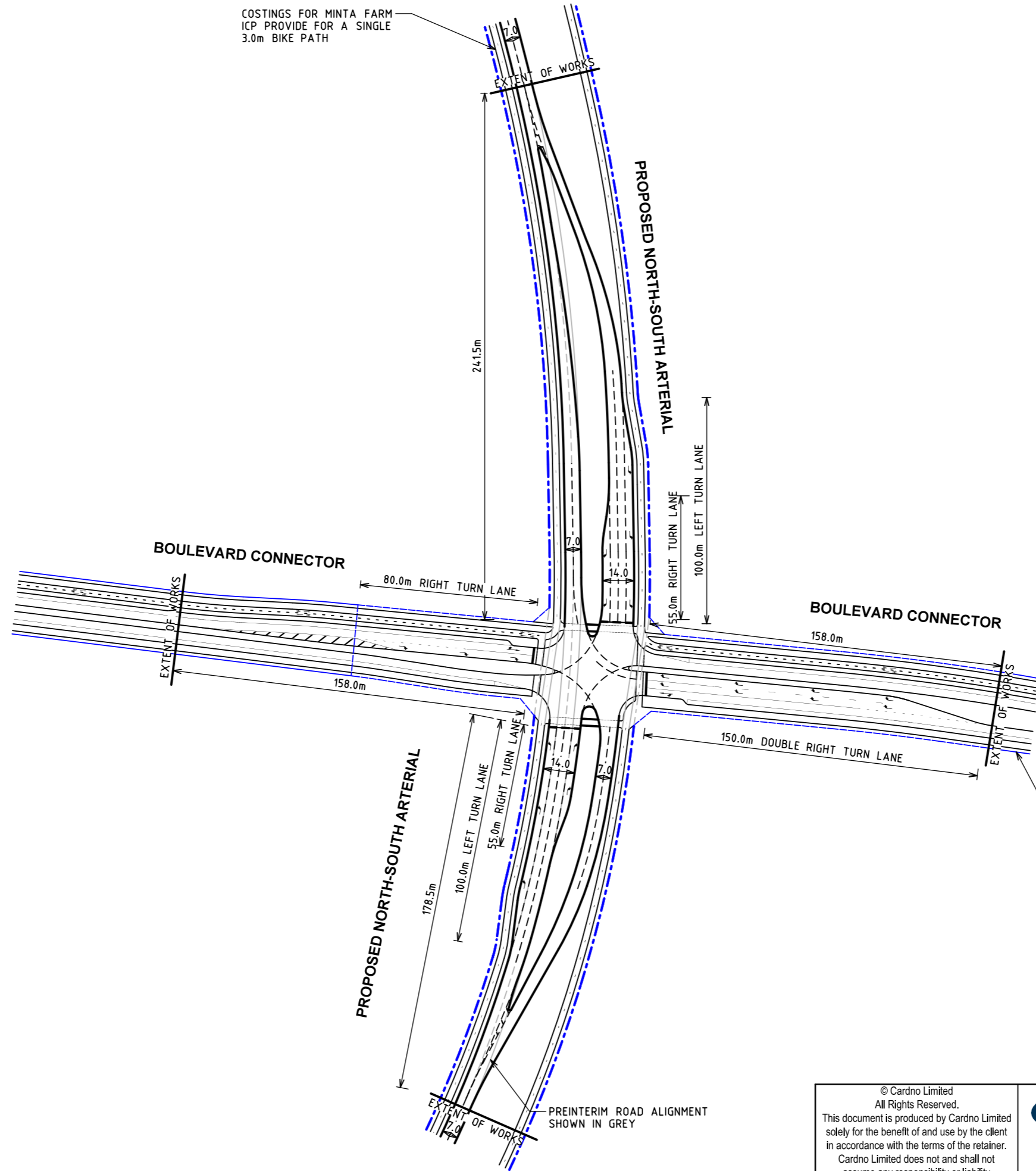
MELWAY MAP REF 131 H4

© Cardno Limited
All Rights Reserved.
This document is produced by Cardno Limited solely for the benefit of and use by the client in accordance with the terms of the retainer. Cardno Limited does not and shall not assume any responsibility or liability whatsoever to any third party arising out of any use or reliance by third party on the content of this document.



ABN: 47 106 610 913
501 Swanston Street, Melbourne, VIC Australia 3000
Phone (+61 3) 8415 7777 Fax (+61 3) 8415 7788
Email: victoria@cardno.com.au Web: www.cardno.com.au/victoria

| | | | |
|-------------------------------------|------------|--------|----------|
| VICTORIAN PLANNING AUTHORITY | | | |
| MINTA FARM PSP | | | |
| O'SHEA ROAD, BERWICK | | | |
| INTERIM INTERSECTION CONCEPT LAYOUT | | | |
| IN-01 | | | |
| Drawn/Check | Date | Scale | Size |
| EC / CS | 11.03.2020 | 1:2000 | A3 |
| Drawing Number | | | Revision |
| V181544-TR-DG-0301 | | | 3 |



NORTH AND SOUTH INTERSECTION LEGS
DESIGNED TO MATCH INTO TRAFFIX
GROUP EAST - WEST ULTIMATE DESIGN.
SWEEP PATHS AND CROSSINGS FOR
ULTIMATE LAYOUT TO BE CHECKED AS
PART OF FUNCTIONAL DESIGN.

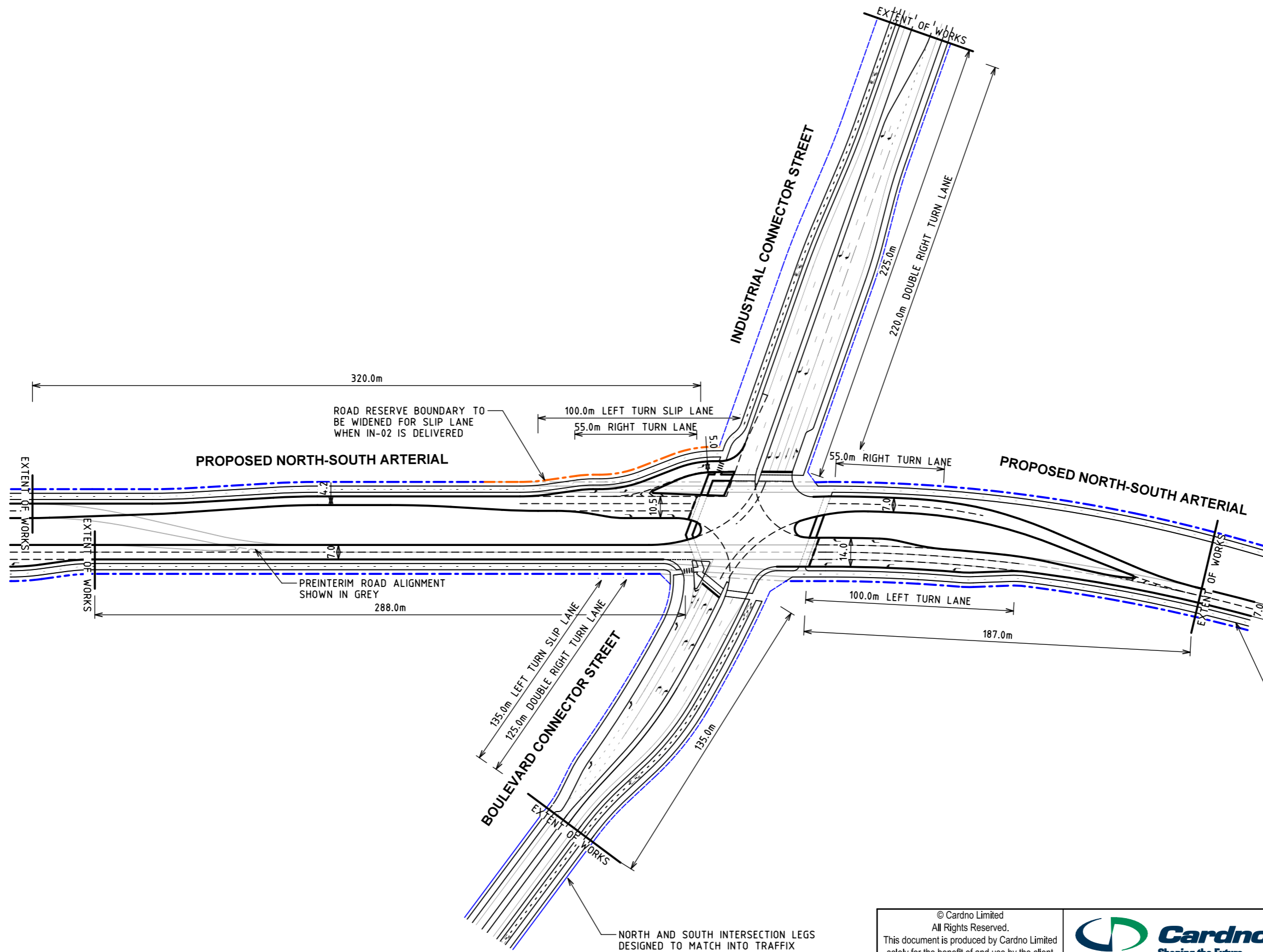


MELWAY MAP REF 131 H4

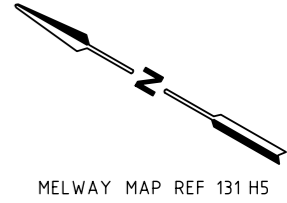
© Cardno Limited
All Rights Reserved.
This document is produced by Cardno Limited
solely for the benefit of and use by the client
in accordance with the terms of the retainer.
Cardno Limited does not and shall not
assume any responsibility or liability
whatsoever to any third party arising out of
any use or reliance by third party on the
content of this document.

ABN: 47 106 610 913
501 Swanston Street, Melbourne, VIC Australia 3000
Phone (+61 3) 8415 7777 Fax (+61 3) 8415 7788
Email: victoria@cardno.com.au Web: www.cardno.com.au/victoria

| | | | |
|--|------------|--------|----------|
| VICTORIAN PLANNING AUTHORITY | | | |
| MINTA FARM PSP | | | |
| PROPOSED NORTH-SOUTH ARTERIAL, BERWICK | | | |
| INTERIM INTERSECTION CONCEPT LAYOUT | | | |
| IN-03 | | | |
| Drawn/Check | Date | Scale | Size |
| EC / CS | 11.03.2020 | 1:2000 | A3 |
| Drawing Number | | | Revision |
| V181544-TR-DG-0303 | | | 2 |



COSTINGS FOR MINTA FARM ICP PROVIDE FOR A SINGLE 3.0m BIKE PATH



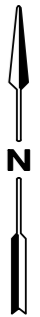
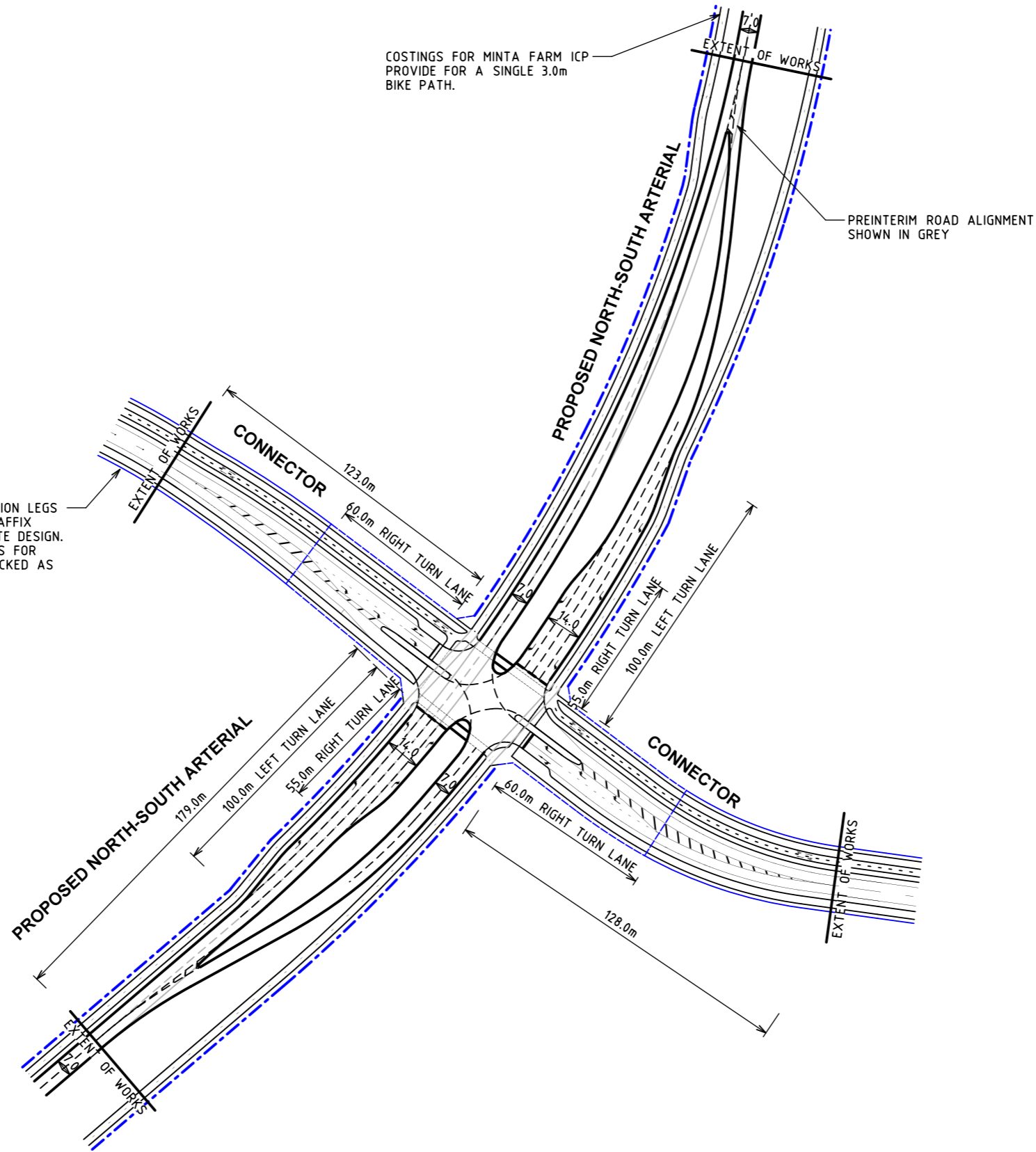
NORTH AND SOUTH INTERSECTION LEGS DESIGNED TO MATCH INTO TRAFFIX GROUP EAST - WEST ULTIMATE DESIGN. SWEEP PATHS AND CROSSINGS FOR ULTIMATE LAYOUT TO BE CHECKED AS PART OF FUNCTIONAL DESIGN.

© Cardno Limited
All Rights Reserved.
This document is produced by Cardno Limited solely for the benefit of and use by the client in accordance with the terms of the retainer. Cardno Limited does not and shall not assume any responsibility or liability whatsoever to any third party arising out of any use or reliance by third party on the content of this document.

ABN: 47 106 610 913
501 Swanston Street, Melbourne, VIC Australia 3000
Phone (+61 3) 8415 7777 Fax (+61 3) 8415 7788
Email: victoria@cardno.com.au Web: www.cardno.com.au/victoria

| | | | |
|--|--------|------|----------|
| VICTORIAN PLANNING AUTHORITY | | | |
| MINTA FARM PSP | | | |
| PROPOSED NORTH-SOUTH ARTERIAL, BERWICK | | | |
| INTERIM INTERSECTION CONCEPT LAYOUT | | | |
| IN-02 | | | |
| Drawn/Check/Date | Scale | Size | |
| EC / CS 11.03.2020 | 1:2000 | A3 | |
| Drawing Number | | | Revision |
| V181544-TR-DG-0302 | | | 2 |

NORTH AND SOUTH INTERSECTION LEGS DESIGNED TO MATCH INTO TRAFFIX GROUP EAST - WEST ULTIMATE DESIGN. SWEEP PATHS AND CROSSINGS FOR ULTIMATE LAYOUT TO BE CHECKED AS PART OF FUNCTIONAL DESIGN.



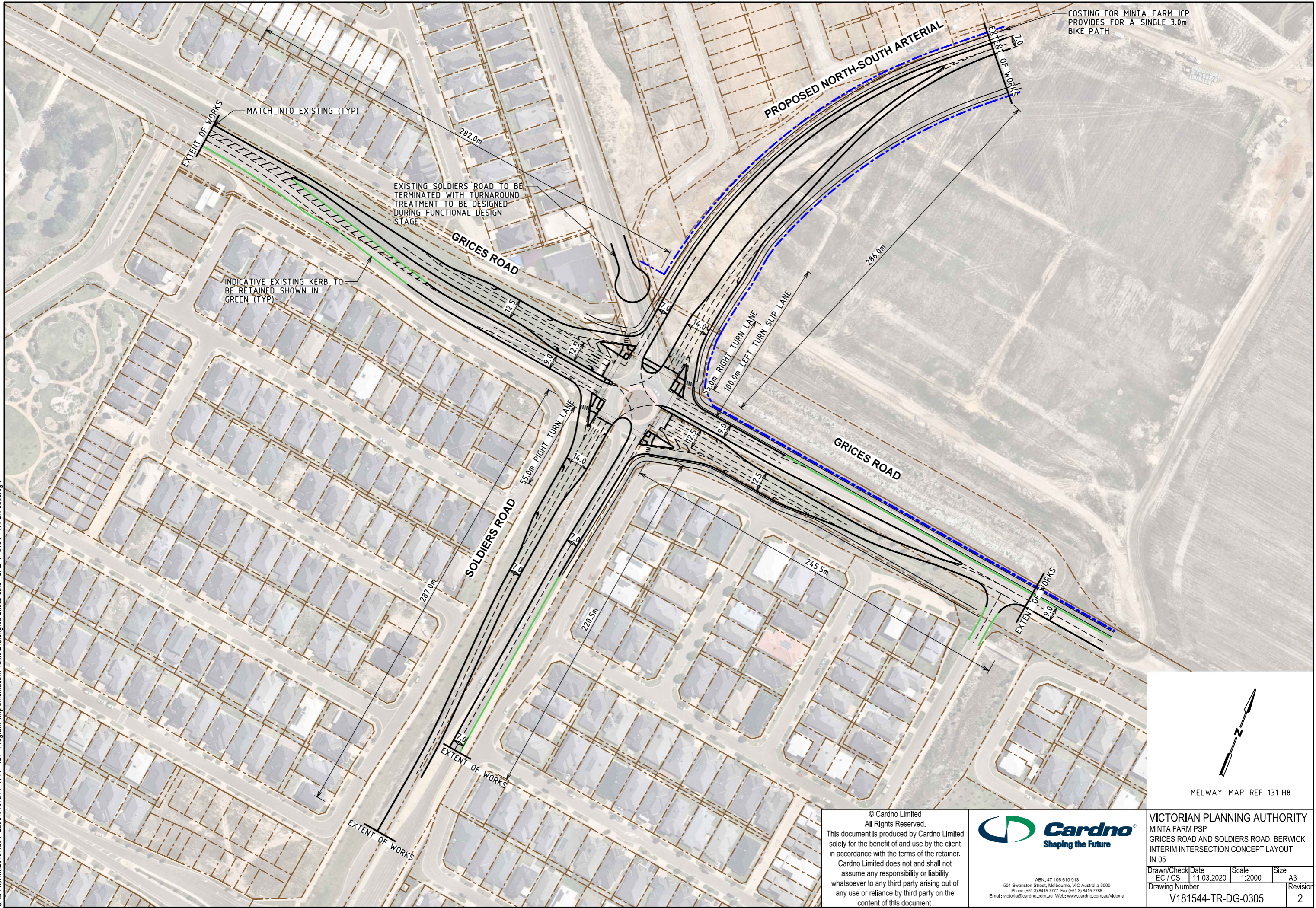
MELWAY MAP REF 131 H7

© Cardno Limited
 All Rights Reserved.
 This document is produced by Cardno Limited solely for the benefit of and use by the client in accordance with the terms of the retainer. Cardno Limited does not and shall not assume any responsibility or liability whatsoever to any third party arising out of any use or reliance by third party on the content of this document.



ABN: 47 106 610 913
 501 Swanston Street, Melbourne, VIC Australia 3000
 Phone (+61 3) 8415 7777 Fax (+61 3) 8415 7788
 Email: victoria@cardno.com.au Web: www.cardno.com.au/victoria

| | | | |
|--|----------|------|--|
| VICTORIAN PLANNING AUTHORITY | | | |
| MINTA FARM PSP | | | |
| PROPOSED NORTH-SOUTH ARTERIAL, BERWICK | | | |
| INTERIM INTERSECTION CONCEPT LAYOUT | | | |
| IN-04 | | | |
| Drawn/Check/Date | Scale | Size | |
| EC / CS 11.03.2020 | 1:2000 | A3 | |
| Drawing Number | Revision | | |
| V181544-TR-DG-0304 | 2 | | |



COSTING FOR MINTA FARM ICP PROVIDES FOR A SINGLE 3.0m BIKE PATH

MATCH INTO EXISTING (TYP)

INDICATIVE EXISTING KERB TO BE RETAINED SHOWN IN GREEN (TYP)

EXISTING SOLDIERS ROAD TO BE TERMINATED WITH TURNAROUND TREATMENT TO BE DESIGNED DURING FUNCTIONAL DESIGN STAGE

PROPOSED NORTH-SOUTH ARTERIAL

GRICES ROAD

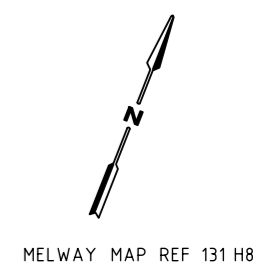
SOLDIERS ROAD

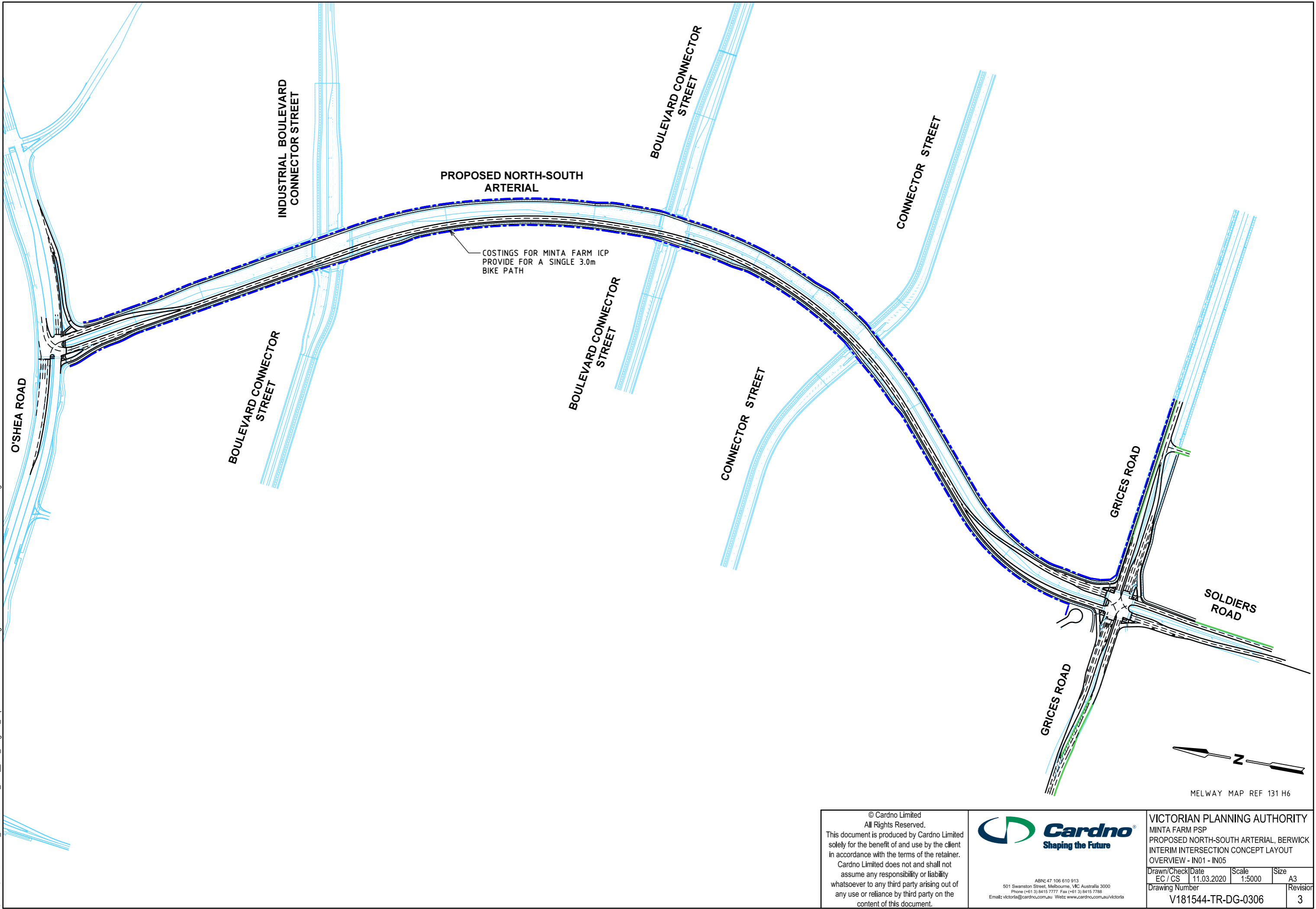
GRICES ROAD

© Cardno Limited
All Rights Reserved.
This document is produced by Cardno Limited solely for the benefit of and use by the client in accordance with the terms of the retainer. Cardno Limited does not and shall not assume any responsibility or liability whatsoever to any third party arising out of any use or reliance by third party on the content of this document.

ABN: 47 106 610 913
501 Swanston Street, Melbourne, VIC Australia 3000
Phone (+61 3) 8415 7777 Fax (+61 3) 8415 7788
Email: victoria@cardno.com.au Web: www.cardno.com.au/victoria

| | | | |
|--|------------|--------|----------|
| VICTORIAN PLANNING AUTHORITY | | | |
| MINTA FARM PSP | | | |
| GRICES ROAD AND SOLDIERS ROAD, BERWICK | | | |
| INTERIM INTERSECTION CONCEPT LAYOUT | | | |
| IN-05 | | | |
| Drawn/Check | Date | Scale | Size |
| EC / CS | 11.03.2020 | 1:2000 | A3 |
| Drawing Number | | | Revision |
| V181544-TR-DG-0305 | | | 2 |





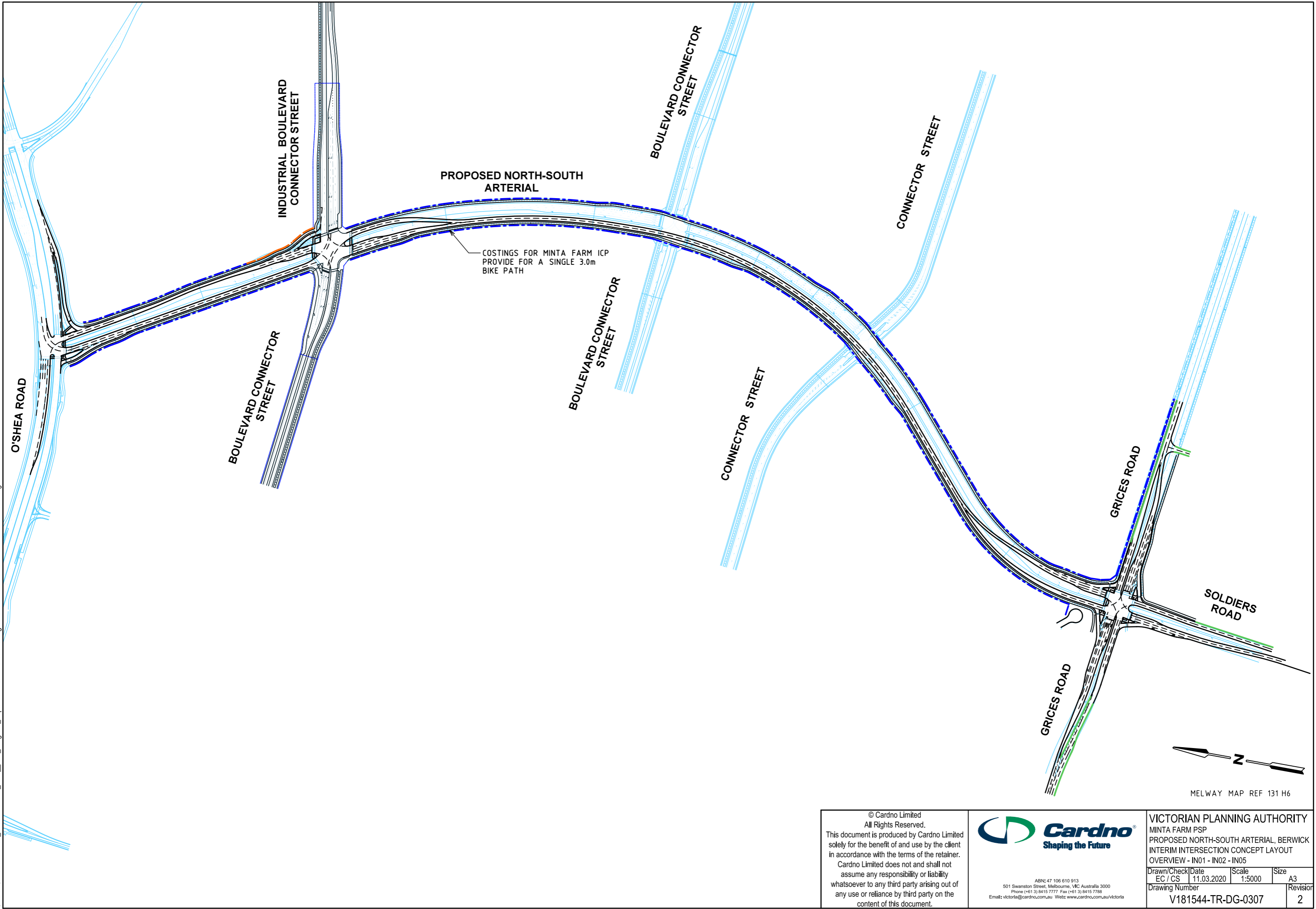
MELWAY MAP REF 131 H6

© Cardno Limited
 All Rights Reserved.
 This document is produced by Cardno Limited solely for the benefit of and use by the client in accordance with the terms of the retainer. Cardno Limited does not and shall not assume any responsibility or liability whatsoever to any third party arising out of any use or reliance by third party on the content of this document.



ABN: 47 106 610 913
 501 Swanston Street, Melbourne, VIC Australia 3000
 Phone (+61 3) 8415 7777 Fax (+61 3) 8415 7788
 Email: victoria@cardno.com.au Web: www.cardno.com.au/victoria

| | | | |
|--|------------|--------|----------|
| VICTORIAN PLANNING AUTHORITY | | | |
| MINTA FARM PSP | | | |
| PROPOSED NORTH-SOUTH ARTERIAL, BERWICK | | | |
| INTERIM INTERSECTION CONCEPT LAYOUT | | | |
| OVERVIEW - IN01 - IN05 | | | |
| Drawn/Check | Date | Scale | Size |
| EC / CS | 11.03.2020 | 1:5000 | A3 |
| Drawing Number | | | Revision |
| V181544-TR-DG-0306 | | | 3 |



PROPOSED NORTH-SOUTH ARTERIAL

COSTINGS FOR MINTA FARM ICP PROVIDE FOR A SINGLE 3.0m BIKE PATH

O'SHEA ROAD

BOULEVARD CONNECTOR STREET

INDUSTRIAL BOULEVARD CONNECTOR STREET

BOULEVARD CONNECTOR STREET

BOULEVARD CONNECTOR STREET

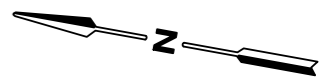
CONNECTOR STREET

CONNECTOR STREET

GRICES ROAD

GRICES ROAD

SOLDIERS ROAD



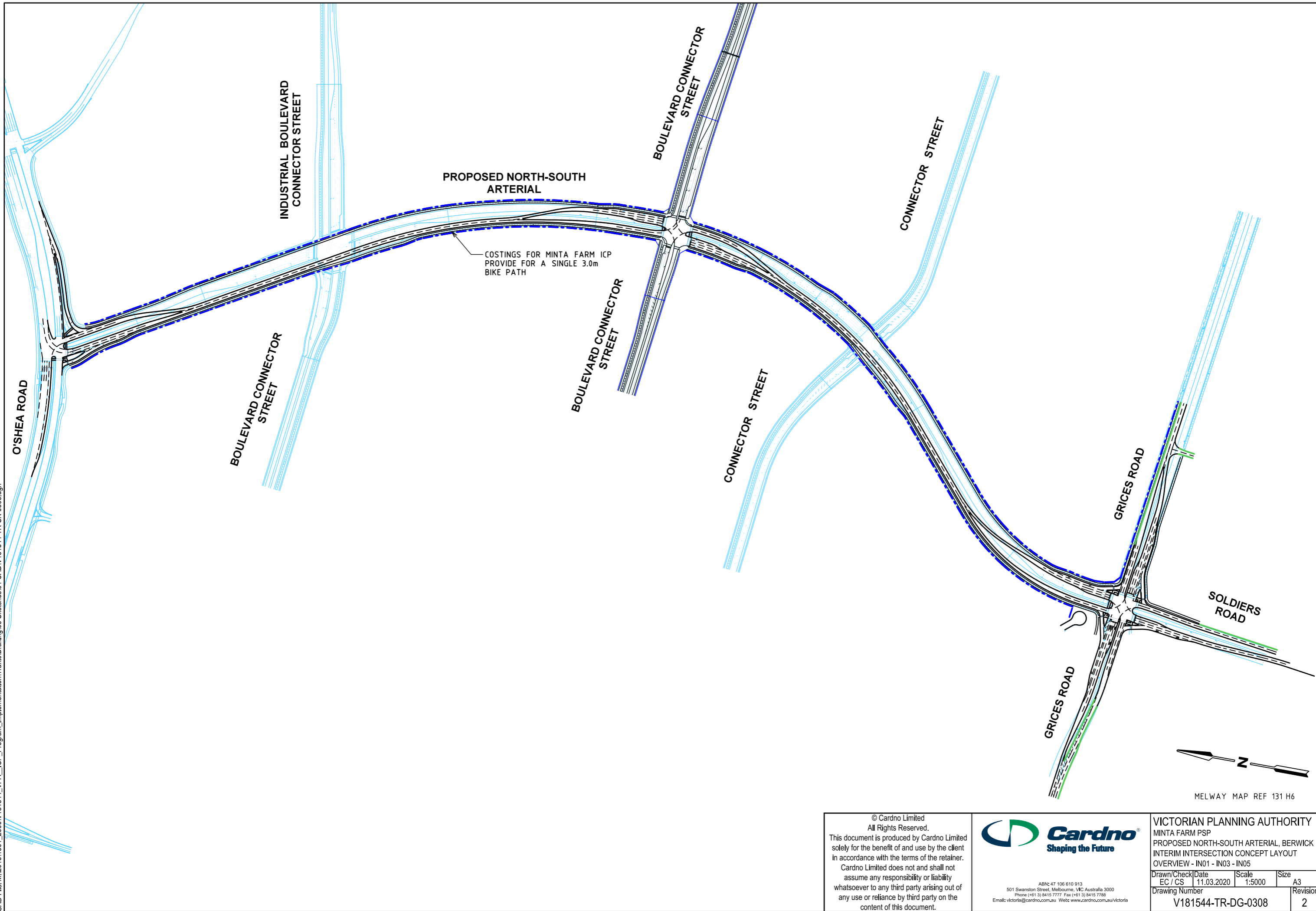
MELWAY MAP REF 131 H6

© Cardno Limited
 All Rights Reserved.
 This document is produced by Cardno Limited solely for the benefit of and use by the client in accordance with the terms of the retainer. Cardno Limited does not and shall not assume any responsibility or liability whatsoever to any third party arising out of any use or reliance by third party on the content of this document.



ABN: 47 106 610 913
 501 Swanston Street, Melbourne, VIC Australia 3000
 Phone (+61 3) 8415 7777 Fax (+61 3) 8415 7788
 Email: victoria@cardno.com.au Web: www.cardno.com.au/victoria

| | | | |
|--|------------|--------|----------|
| VICTORIAN PLANNING AUTHORITY | | | |
| MINTA FARM PSP | | | |
| PROPOSED NORTH-SOUTH ARTERIAL, BERWICK | | | |
| INTERIM INTERSECTION CONCEPT LAYOUT | | | |
| OVERVIEW - IN01 - IN02 - IN05 | | | |
| Drawn/Check | Date | Scale | Size |
| EC / CS | 11.03.2020 | 1:5000 | A3 |
| Drawing Number | | | Revision |
| V181544-TR-DG-0307 | | | 2 |



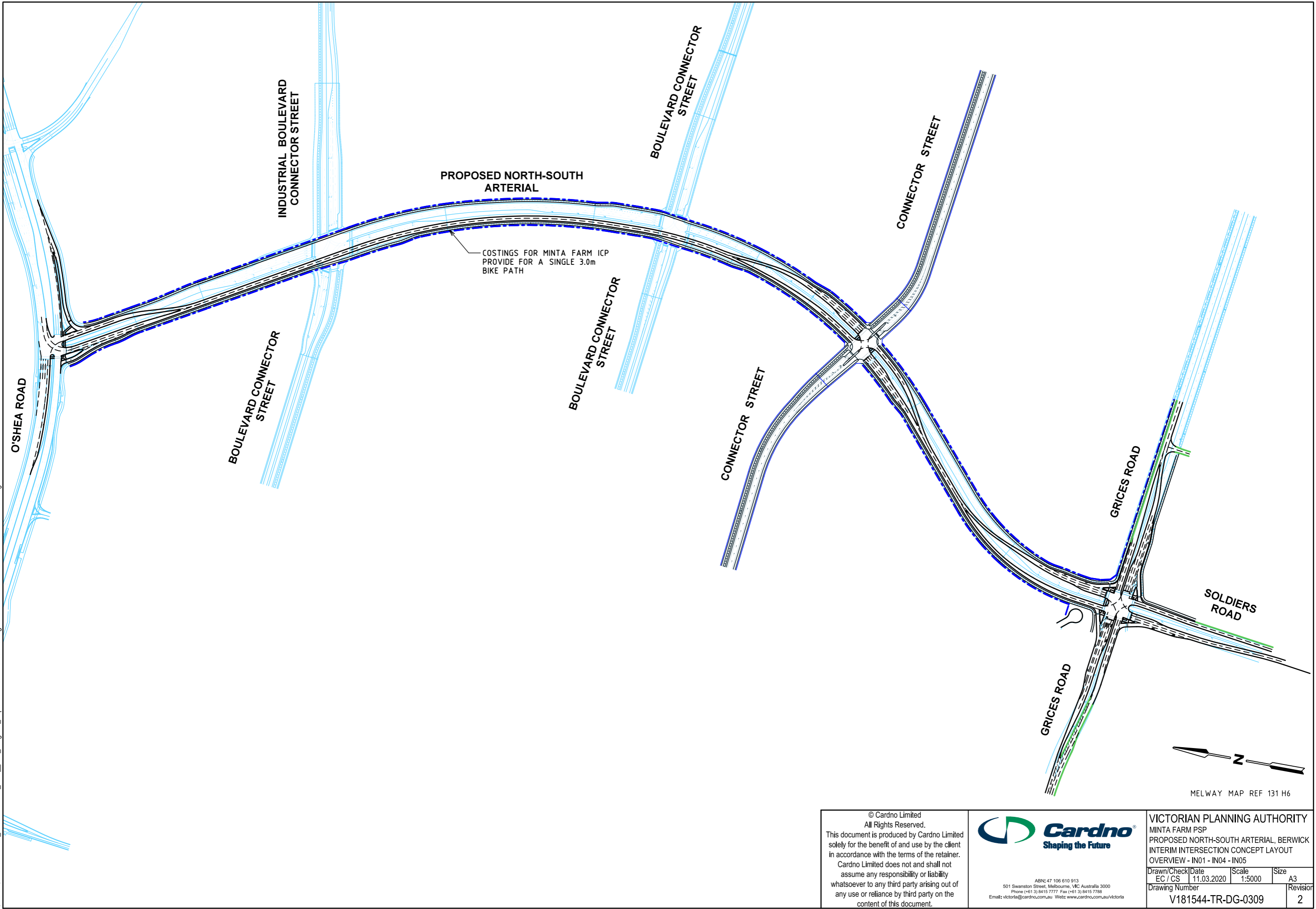
MELWAY MAP REF 131 H6

© Cardno Limited
 All Rights Reserved.
 This document is produced by Cardno Limited solely for the benefit of and use by the client in accordance with the terms of the retainer. Cardno Limited does not and shall not assume any responsibility or liability whatsoever to any third party arising out of any use or reliance by third party on the content of this document.



ABN: 47 106 610 913
 501 Swanston Street, Melbourne, VIC Australia 3000
 Phone (+61 3) 8415 7777 Fax (+61 3) 8415 7788
 Email: victoria@cardno.com.au Web: www.cardno.com.au/victoria

| | | | |
|--|----------|------|--|
| VICTORIAN PLANNING AUTHORITY | | | |
| MINTA FARM PSP | | | |
| PROPOSED NORTH-SOUTH ARTERIAL, BERWICK | | | |
| INTERIM INTERSECTION CONCEPT LAYOUT | | | |
| OVERVIEW - IN01 - IN03 - IN05 | | | |
| Drawn/Check/Date | Scale | Size | |
| EC / CS 11.03.2020 | 1:5000 | A3 | |
| Drawing Number | Revision | | |
| V181544-TR-DG-0308 | 2 | | |



MELWAY MAP REF 131 H6

© Cardno Limited
 All Rights Reserved.
 This document is produced by Cardno Limited solely for the benefit of and use by the client in accordance with the terms of the retainer. Cardno Limited does not and shall not assume any responsibility or liability whatsoever to any third party arising out of any use or reliance by third party on the content of this document.



ABN: 47 106 610 913
 501 Swanston Street, Melbourne, VIC Australia 3000
 Phone (+61 3) 8415 7777 Fax (+61 3) 8415 7788
 Email: victoria@cardno.com.au Web: www.cardno.com.au/victoria

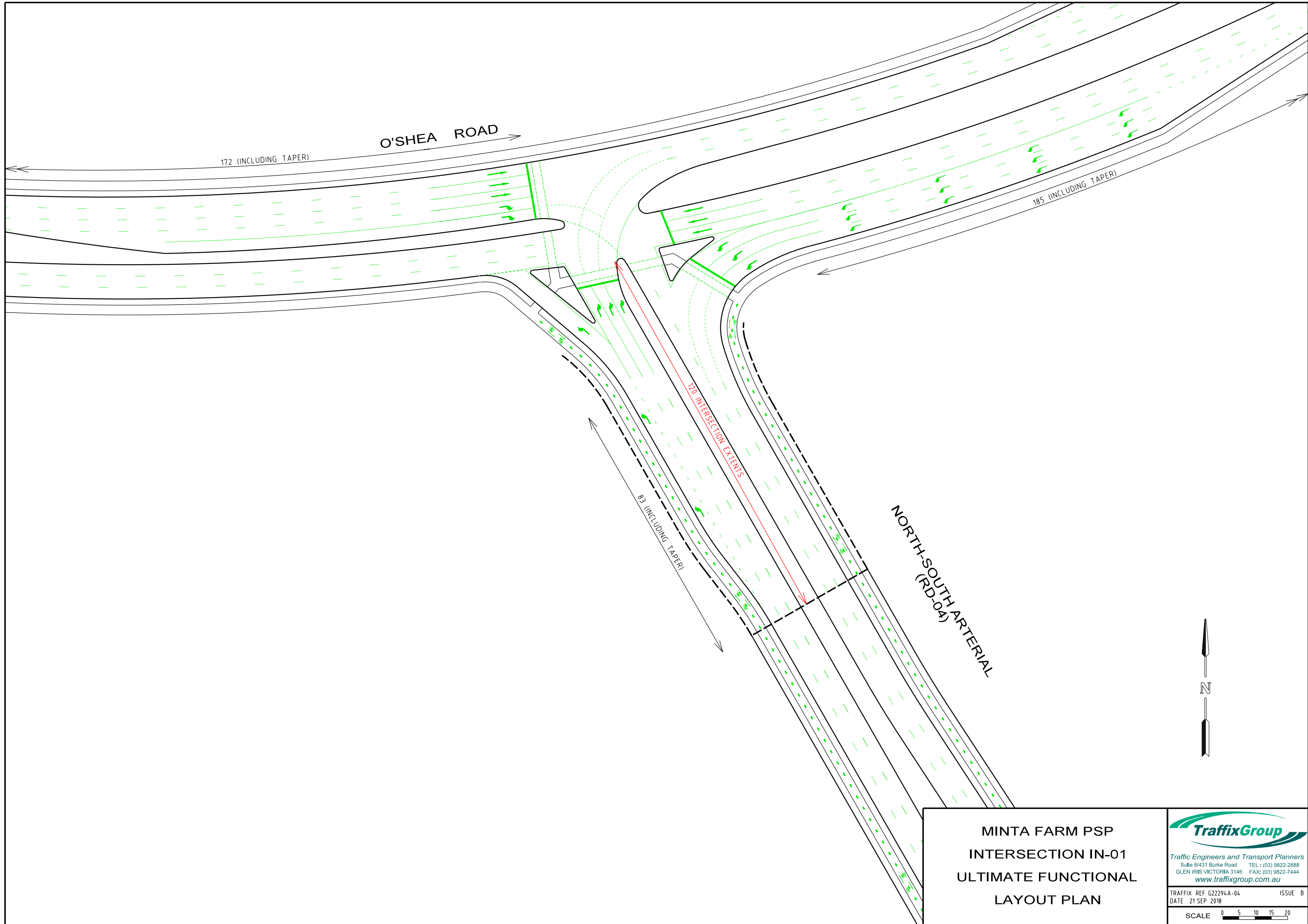
| | | | |
|--|------------|--------|----------|
| VICTORIAN PLANNING AUTHORITY | | | |
| MINTA FARM PSP | | | |
| PROPOSED NORTH-SOUTH ARTERIAL, BERWICK | | | |
| INTERIM INTERSECTION CONCEPT LAYOUT | | | |
| OVERVIEW - IN01 - IN04 - IN05 | | | |
| Drawn/Check | Date | Scale | Size |
| EC / CS | 11.03.2020 | 1:5000 | A3 |
| Drawing Number | | | Revision |
| V181544-TR-DG-0309 | | | 2 |

Amendment C269 to the Casey Planning
Scheme (Minta Farm ICP)

APPENDIX

B

ULTIMATE LAYOUT PLANS PREPARED BY TRAFFIX GROUP



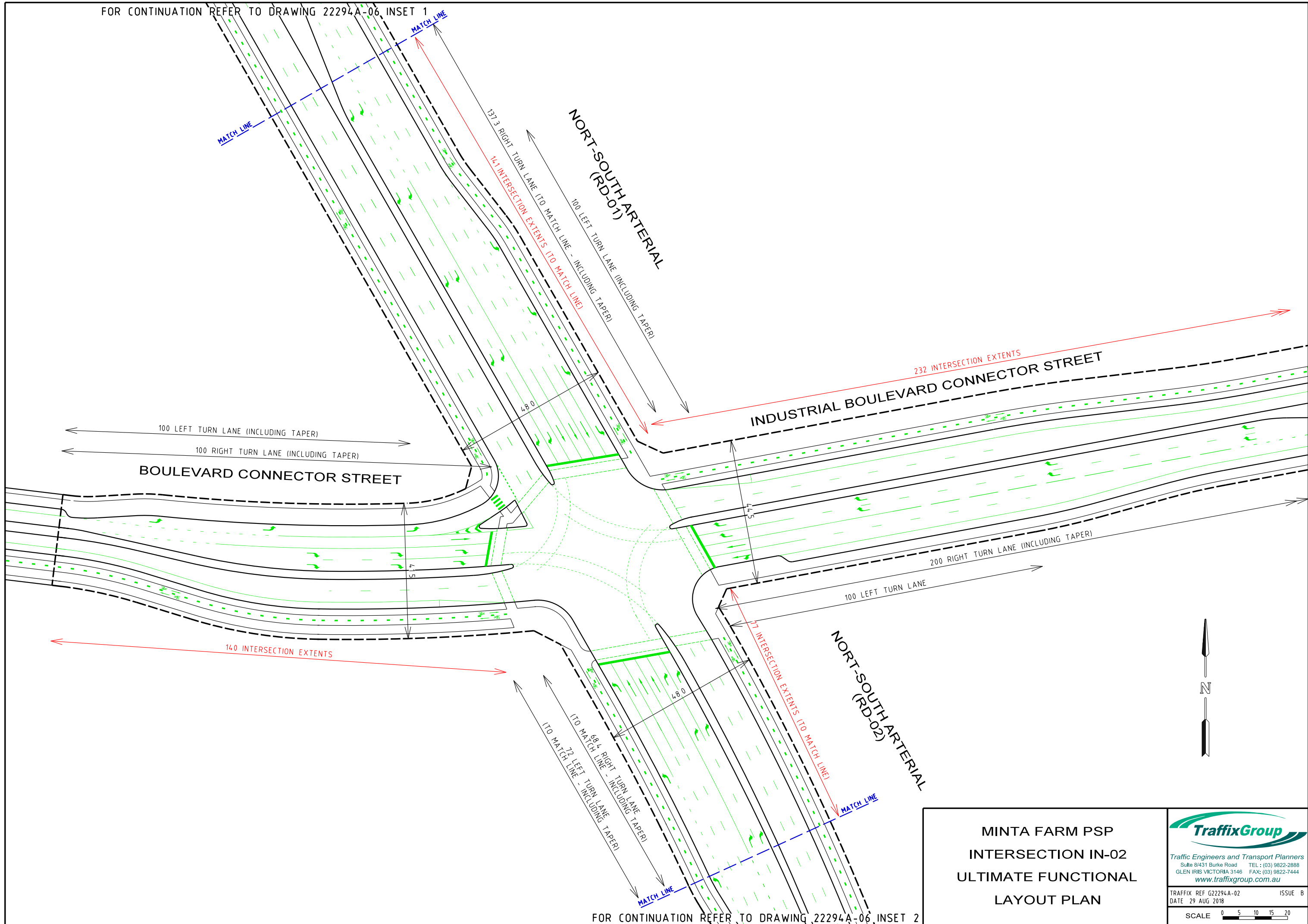
MINTA FARM PSP
 INTERSECTION IN-01
 ULTIMATE FUNCTIONAL
 LAYOUT PLAN

TraffixGroup
 Traffic Engineers and Transport Planners
 Suite 8/431 Burke Road TEL: (03) 9822-2888
 GLEN IRIS VICTORIA 3146 FAX: (03) 9822-7444
 www.traffixgroup.com.au

TRAFFIX REF G22294A-04 ISSUE B
 DATE 21 SEP 2018

SCALE 0 5 10 15 20

FOR CONTINUATION REFER TO DRAWING 22294A-06, INSET 1

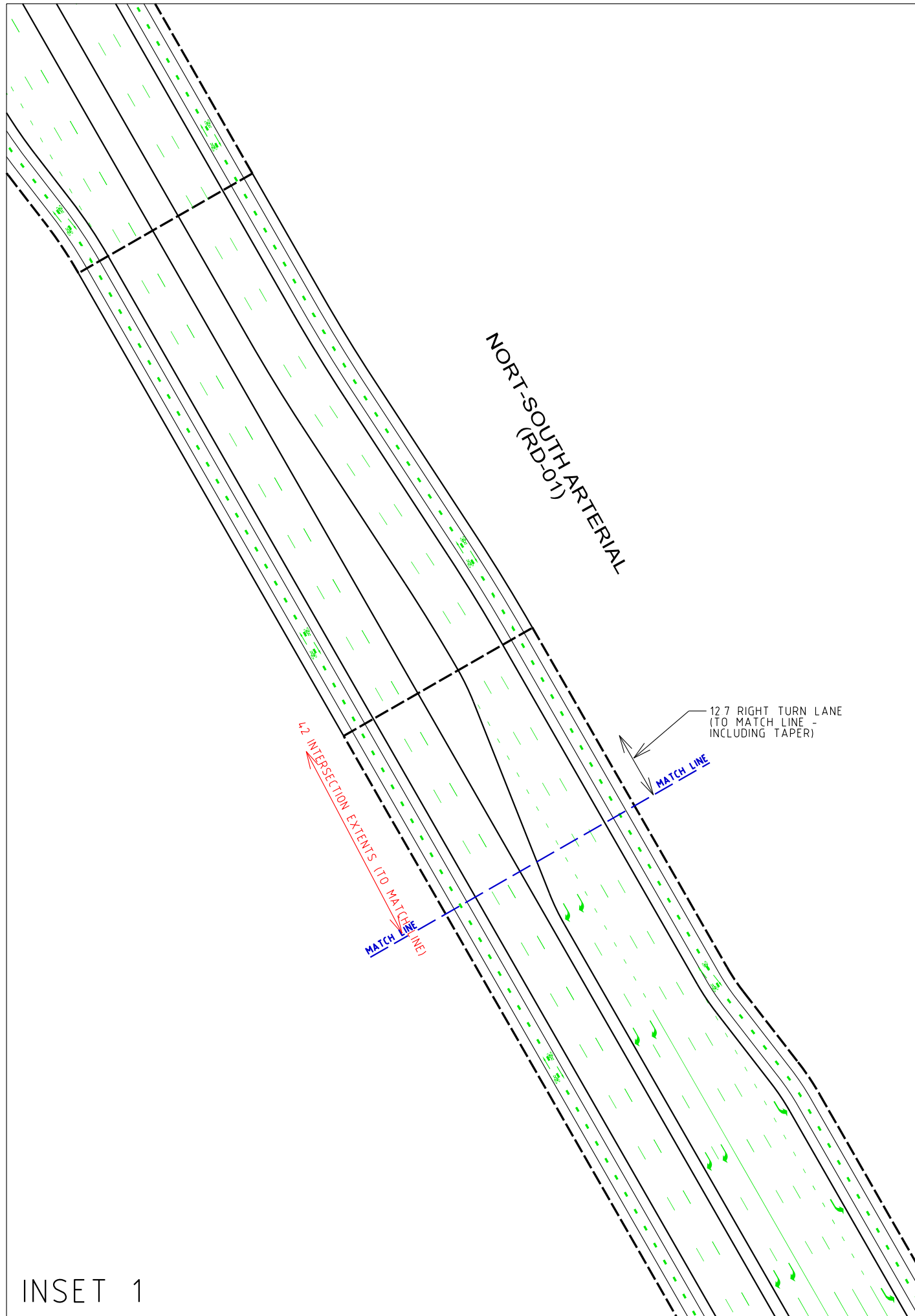


**MINTA FARM PSP
INTERSECTION IN-02
ULTIMATE FUNCTIONAL
LAYOUT PLAN**

TraffixGroup
Traffic Engineers and Transport Planners
Suite 8/431 Burke Road TEL: (03) 9822-2888
GLEN IRIS VICTORIA 3146 FAX: (03) 9822-7444
www.traffixgroup.com.au

TRAFFIX REF G22294A-02 ISSUE B
DATE 29 AUG 2018

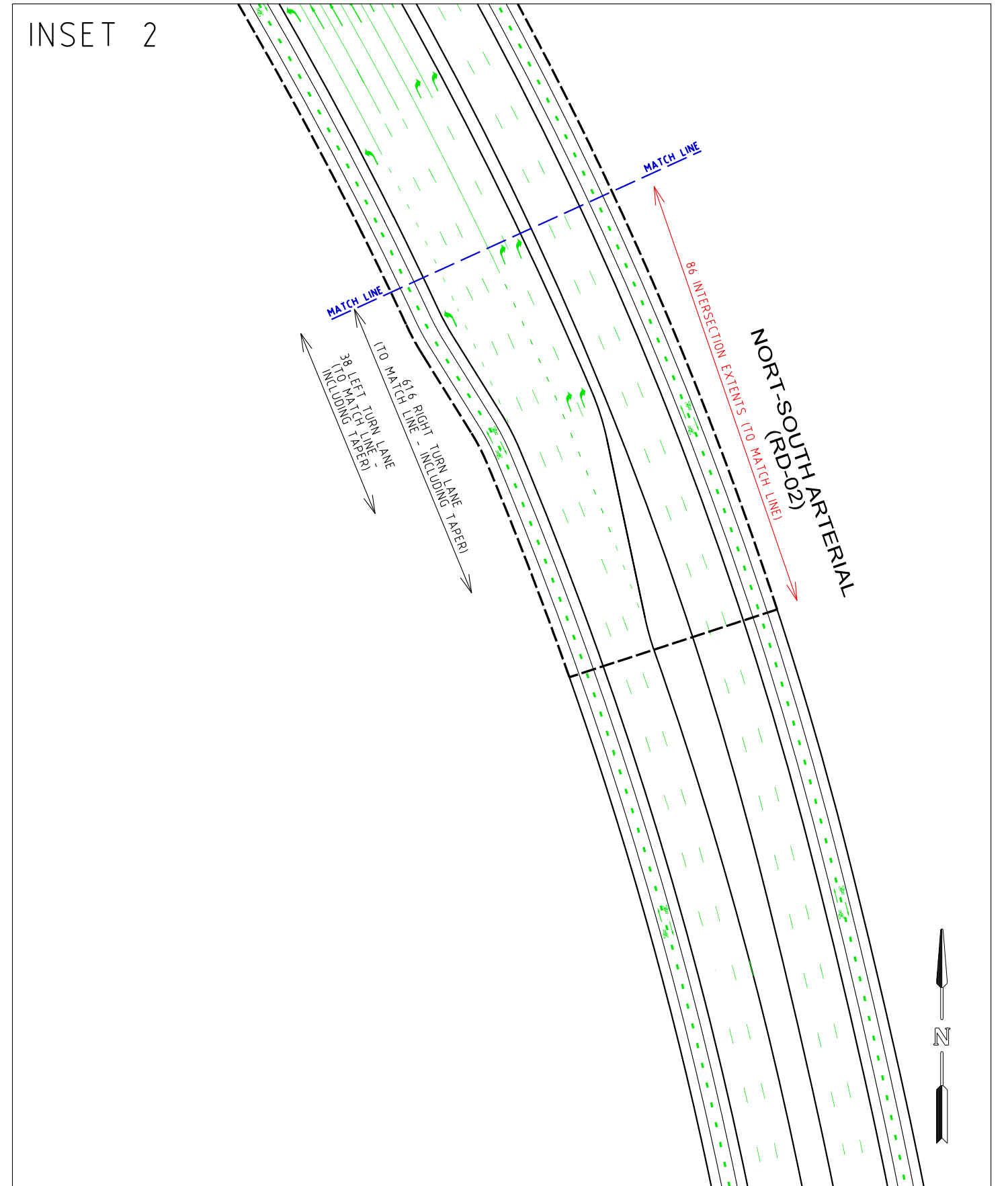
SCALE 0 5 10 15 20




INSET 1

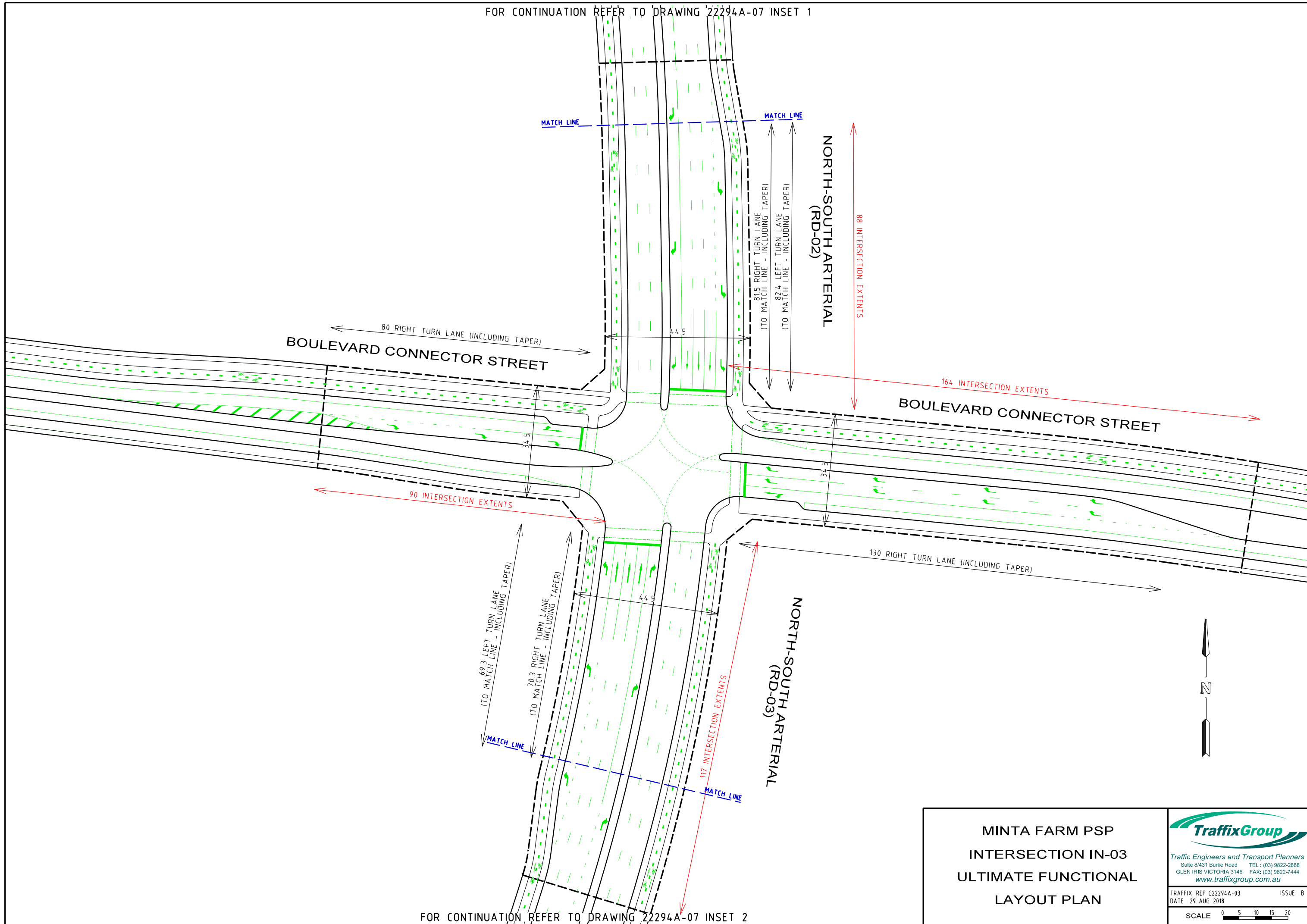
FOR CONTINUATION REFER TO DRAWING G22294A-02

INSET 2



| | | |
|---|--|--|
| <p>MINTA FARM PSP INTERSECTION IN-02 ULTIMATE FUNCTIONAL LAYOUT PLAN - INSET BOXES</p> | |  <p><i>Traffic Engineers and Transport Planners</i> Suite 8/431 Burke Road TEL: (03) 9822-2888 GLEN IRIS VICTORIA 3146 FAX: (03) 9822-7444 www.traffixgroup.com.au</p> |
| <p>TRAFFIX REF G22294A-06 ISSUE B DATE 29 AUG 2018</p> | | |
| <p>SCALE 0 5 10 15 20</p> | | |

FOR CONTINUATION REFER TO DRAWING 22294A-07 INSET 1



FOR CONTINUATION REFER TO DRAWING 22294A-07 INSET 2

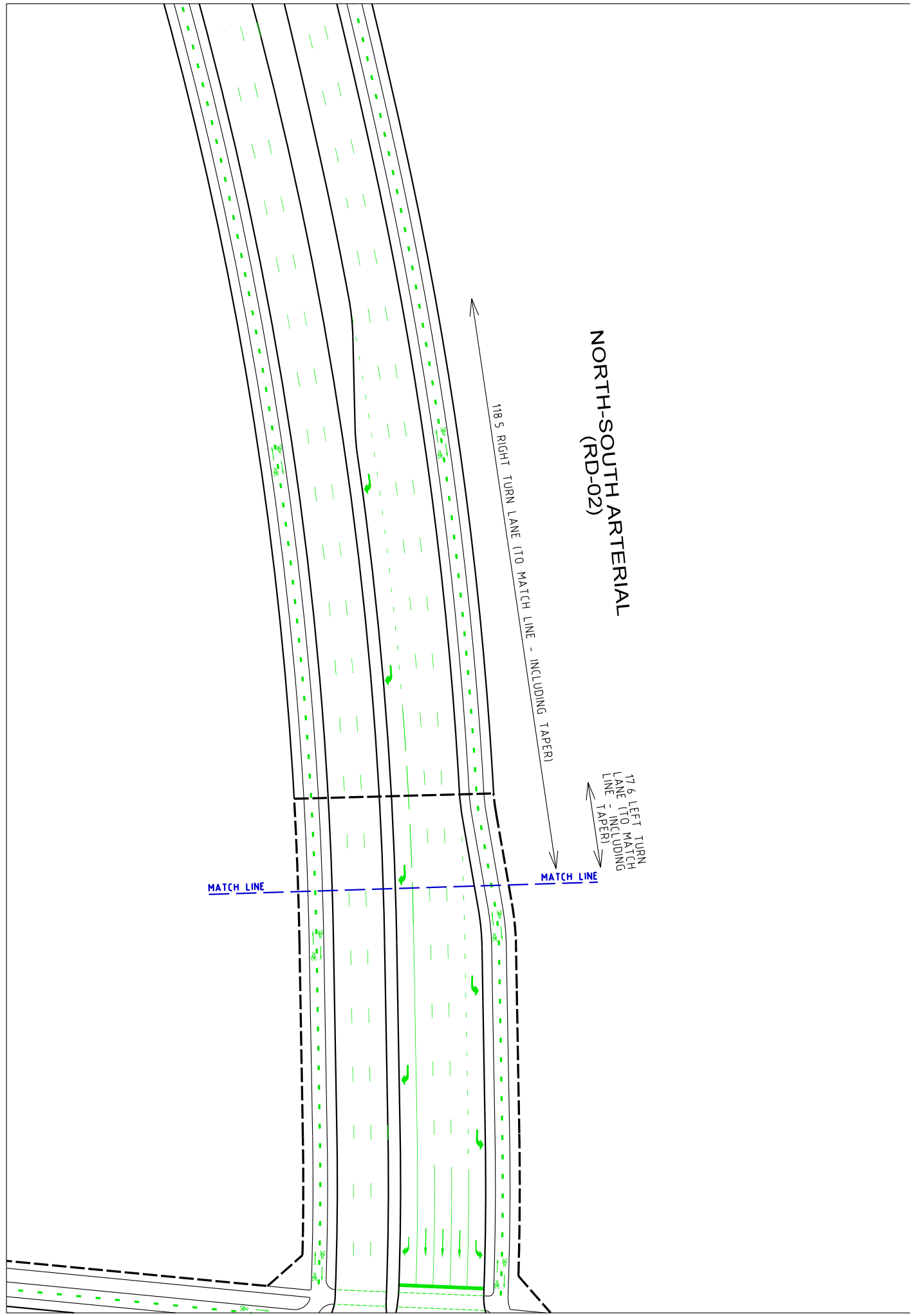
MINTA FARM PSP
 INTERSECTION IN-03
 ULTIMATE FUNCTIONAL
 LAYOUT PLAN

TraffixGroup
 Traffic Engineers and Transport Planners
 Suite 8/431 Burke Road TEL: (03) 9822-2888
 GLEN IRIS VICTORIA 3146 FAX: (03) 9822-7444
 www.traffixgroup.com.au

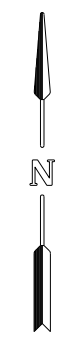
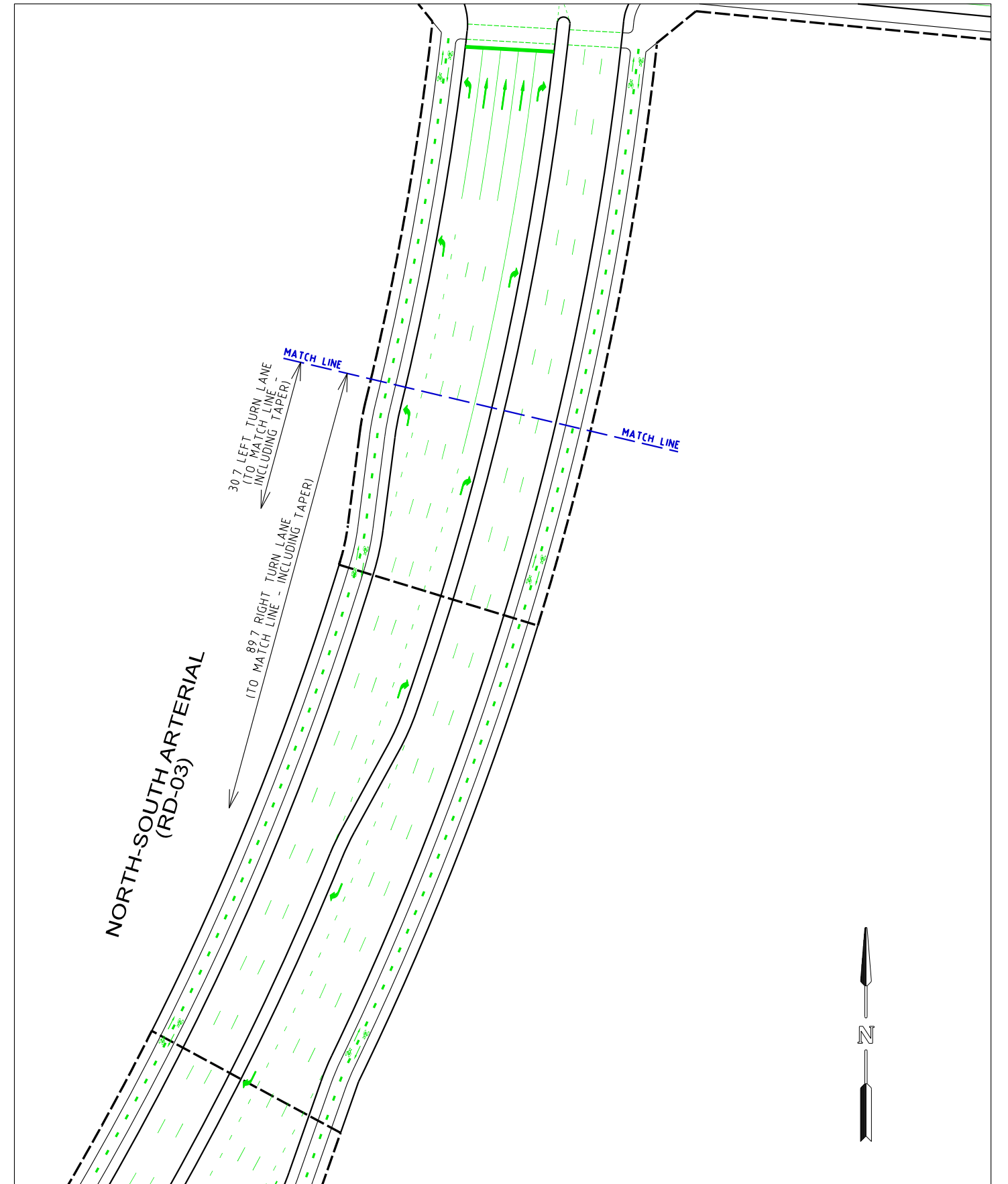
TRAFFIX REF G22294A-03 ISSUE B
 DATE 29 AUG 2018

SCALE 0 5 10 15 20

FOR CONTINUATION REFER TO DRAWING G22294A-03



FOR CONTINUATION REFER TO DRAWING G22294A-03



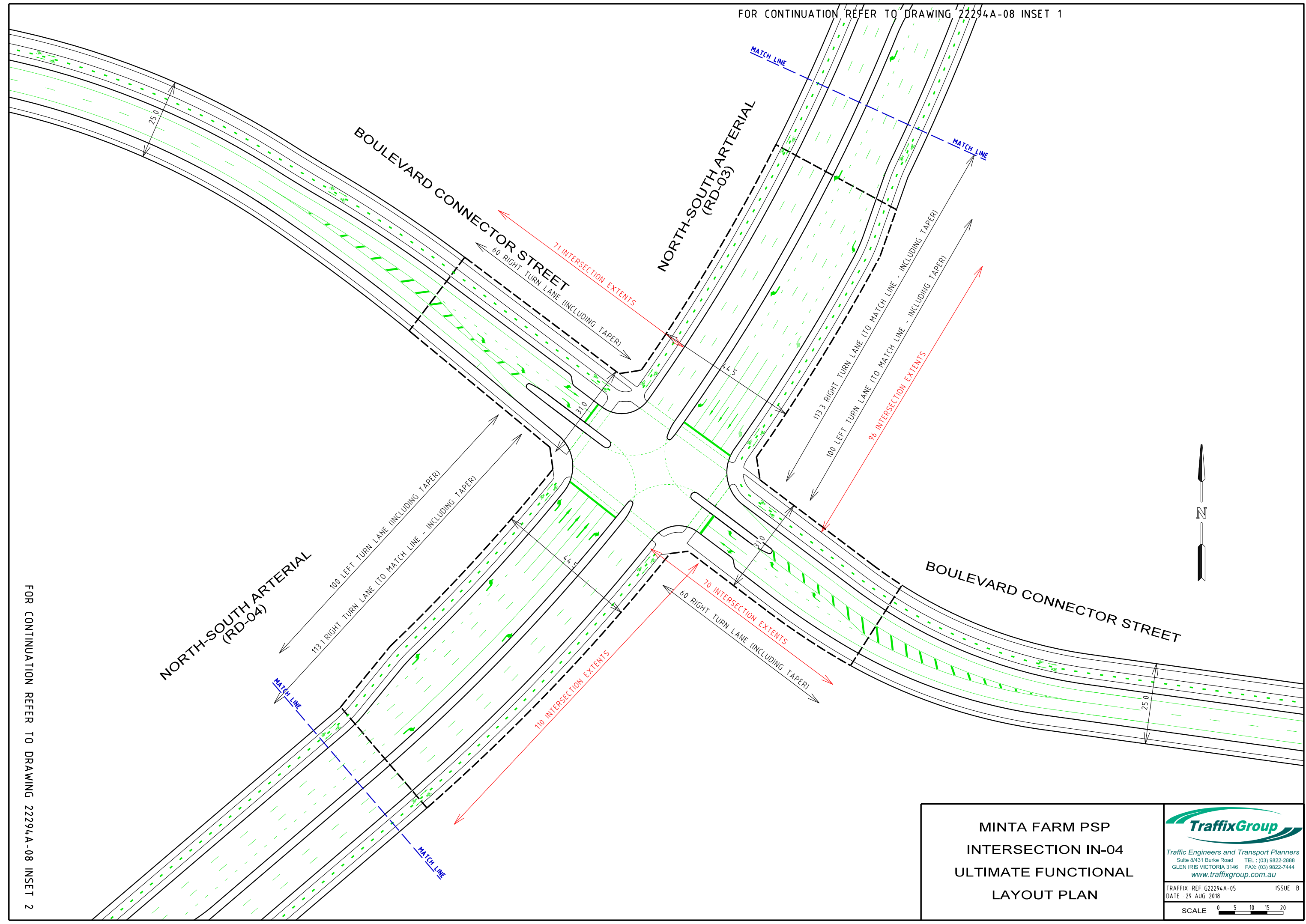
MINTA FARM PSP
INTERSECTION IN-03
ULTIMATE FUNCTIONAL
LAYOUT PLAN - INSET BOXES

TraffixGroup
Traffic Engineers and Transport Planners
Suite 8/431 Burke Road TEL: (03) 9822-2888
GLEN IRIS VICTORIA 3146 FAX: (03) 9822-7444
www.traffixgroup.com.au

TRAFFIX REF G22294A-07 ISSUE B
DATE 29 AUG 2018

SCALE 0 5 10 15 20

FOR CONTINUATION REFER TO DRAWING 22294A-08 INSET 1



FOR CONTINUATION REFER TO DRAWING 22294A-08 INSET 2

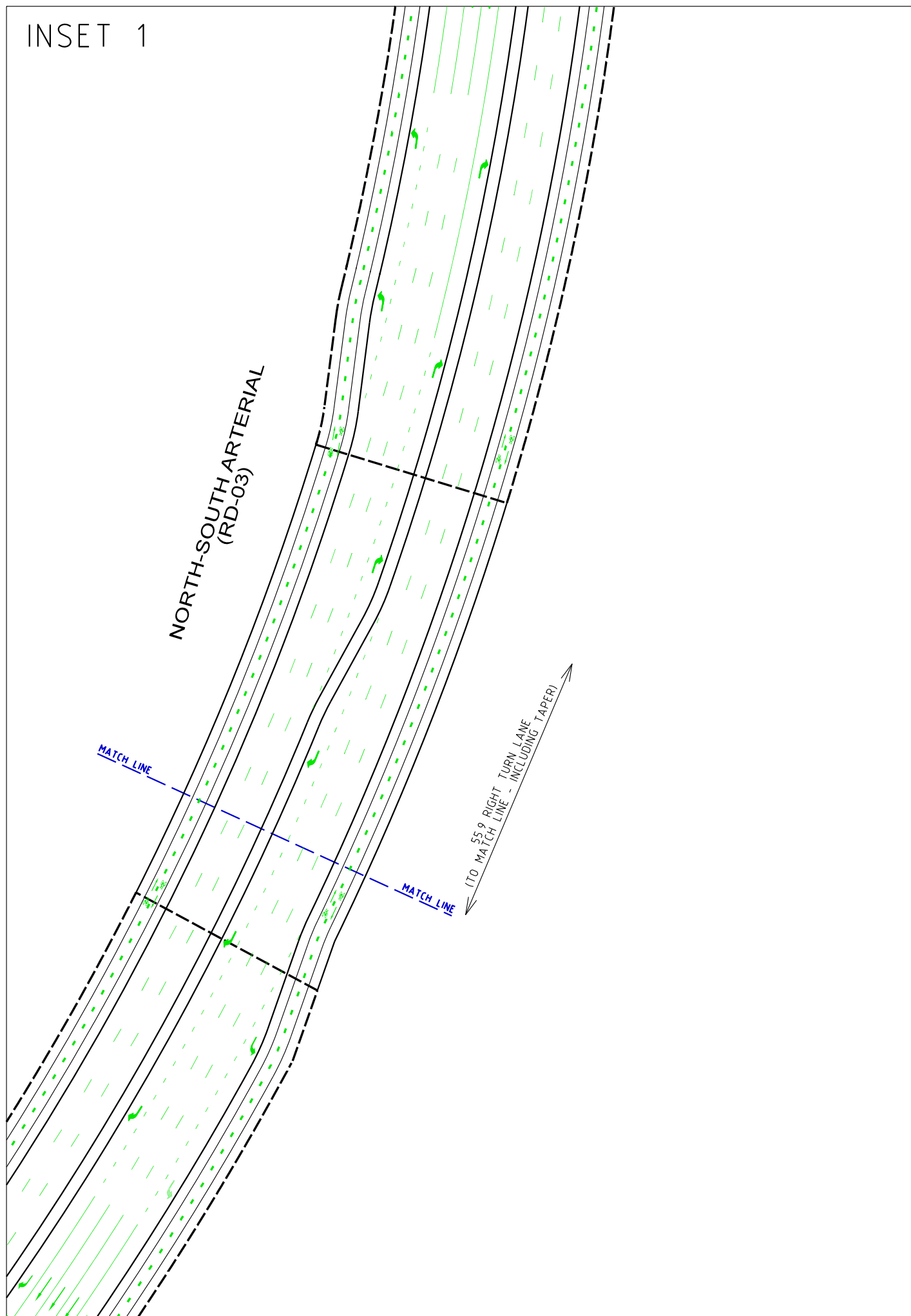
MINTA FARM PSP
 INTERSECTION IN-04
 ULTIMATE FUNCTIONAL
 LAYOUT PLAN

TraffixGroup
 Traffic Engineers and Transport Planners
 Suite 8/431 Burke Road TEL: (03) 9822-2888
 GLEN IRIS VICTORIA 3146 FAX: (03) 9822-7444
 www.traffixgroup.com.au

TRAFFIX REF G22294A-05 ISSUE B
 DATE 29 AUG 2018

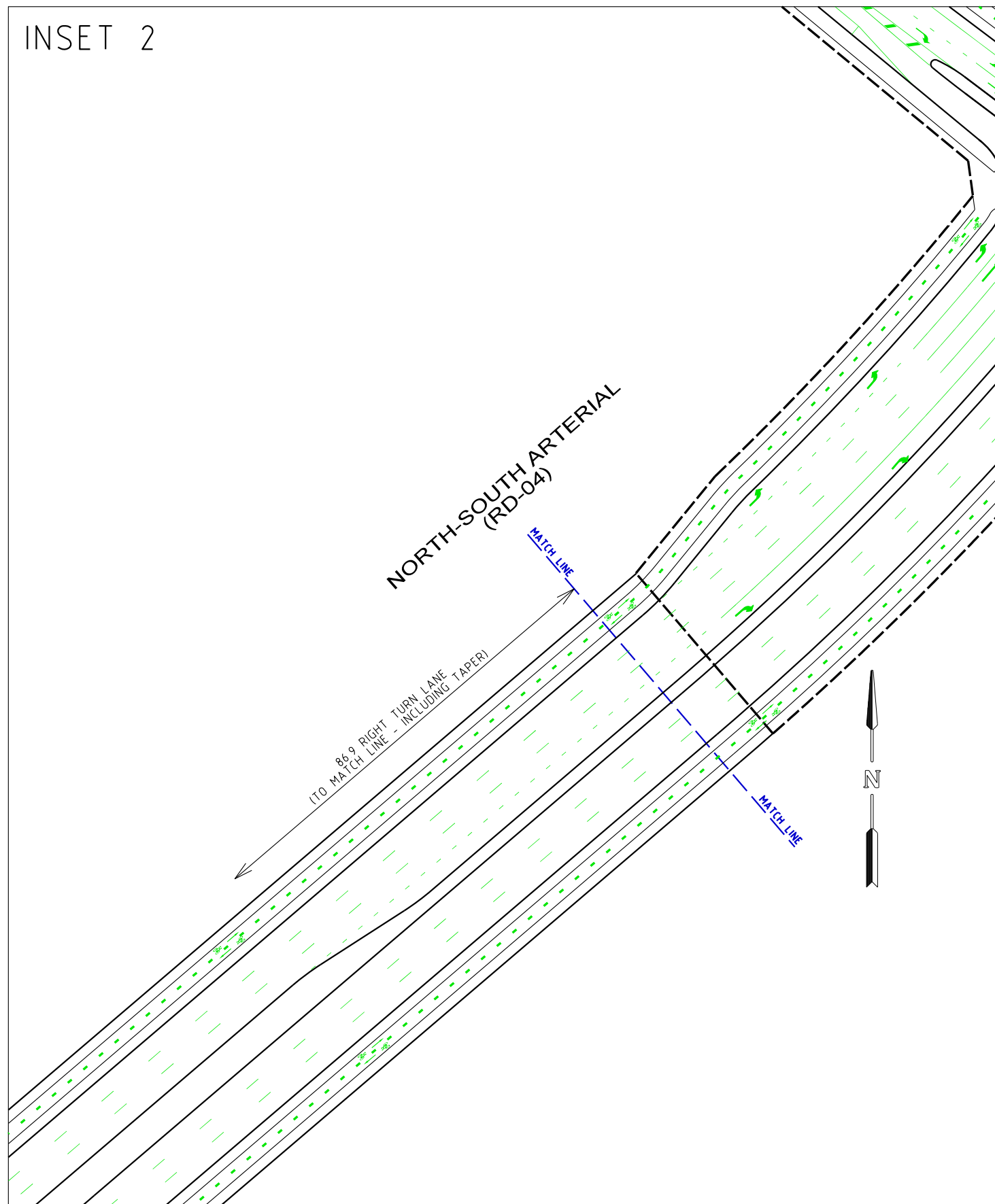
SCALE 0 5 10 15 20

INSET 1



FOR CONTINUATION REFER TO DRAWING G22294A-02

INSET 2



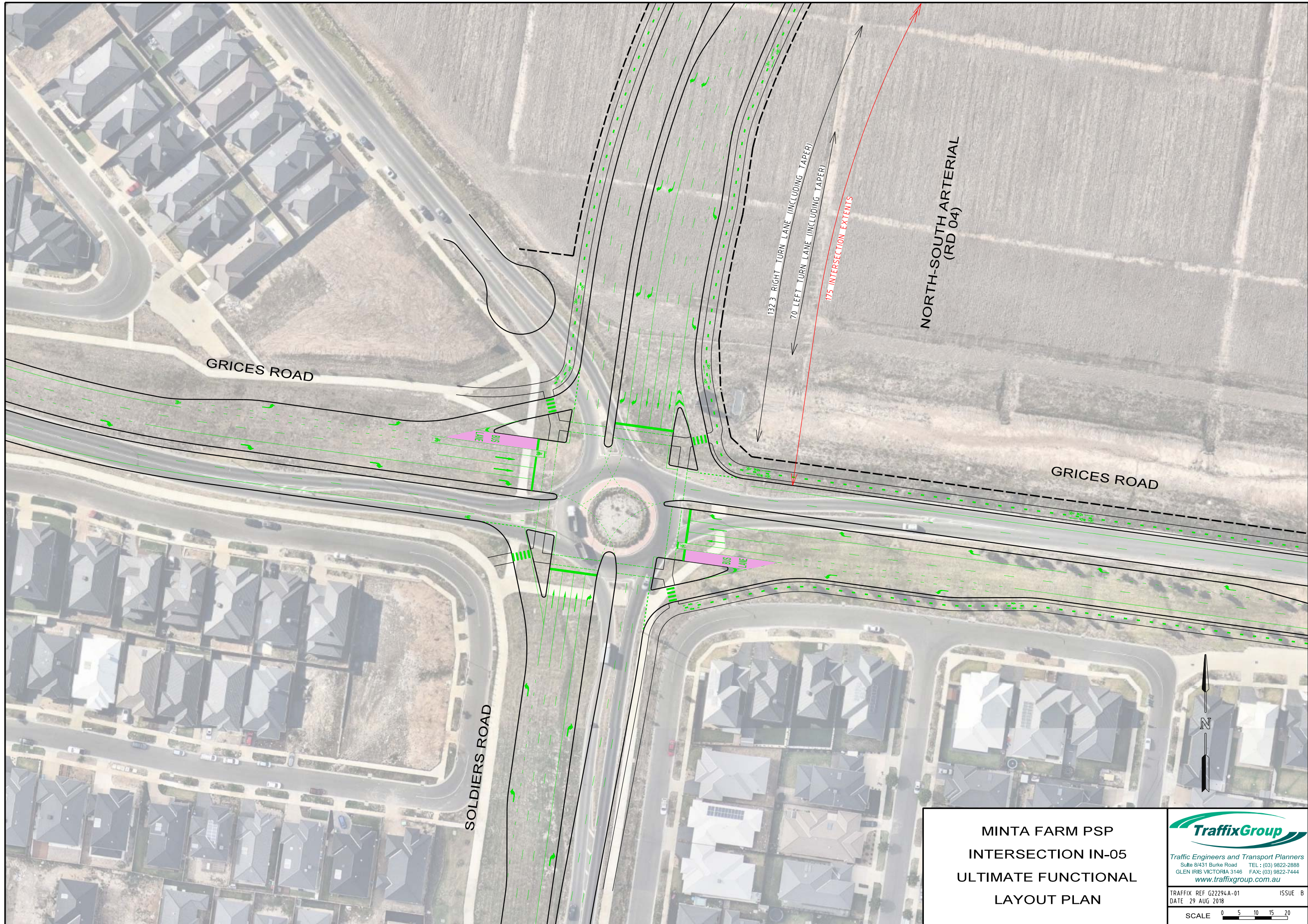
FOR CONTINUATION REFER TO DRAWING G22294A-05

MINTA FARM PSP
 INTERSECTION IN-04
 ULTIMATE FUNCTIONAL
 LAYOUT PLAN

TraffixGroup
 Traffic Engineers and Transport Planners
 Suite 8/431 Burke Road TEL: (03) 9822-2888
 GLEN IRIS VICTORIA 3146 FAX: (03) 9822-7444
 www.traffixgroup.com.au

TRAFFIX REF G22294A-08 ISSUE B
 DATE 29 AUG 2018

SCALE 0 5 10 15 20



GRICES ROAD

NORTH-SOUTH ARTERIAL
(RD 04)

GRICES ROAD

SOLDIERS ROAD

132.3 RIGHT TURN LANE (INCLUDING TAPER)

70 LEFT TURN LANE (INCLUDING TAPER)

175 INTERSECTION EXTENTS

BUS LANE

BUS LANE

MINTA FARM PSP
INTERSECTION IN-05
ULTIMATE FUNCTIONAL
LAYOUT PLAN

TraffixGroup
Traffic Engineers and Transport Planners
Suite 8/431 Burke Road TEL: (03) 9822-2888
GLEN IRIS VICTORIA 3146 FAX: (03) 9822-7444
www.traffixgroup.com.au

TRAFFIX REF G22294A-01 ISSUE 8
DATE 29 AUG 2018

SCALE 0 5 10 15 20